Solicitation Amendment #2

DEPARTMENT OF GENERAL SERVICES
OFFICE OF PROCUREMENT
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VOICE: 240-777-9942 TTY: 240-777-9956 FAX: 240-777-9952

January 18, 2013

PAGE 1 of 145 FOR THE PROCUREMENT: **RFP #1026052 Customer Relationship Management**
****
ALL SOLICITATION AMENDMENTS MUST BE ACKNOWLEDGED BY THE OFFEROR PRIOR TO THE HOUR AND DATE SPECIFIED IN THE SOLICITATION (AS AMENDED) FOR RECEIPT OF OFFERS. **FAILURE TO ACKNOWLEDGE AN AMENDMENT MAY BE CAUSE TO REJECT OFFER**.
****
DESCRIPTION OF AMENDMENT –
Changes:

1) The RFP closing Date and Time is extended to February 6, 2013 NO LATER THAN 3:00 p.m.

2) Replace pages 3, 18, and 19, 20, Attachments I and J with Revised Pages. Changes are in bold and *italicized*.

3) Prior solicitation amendment should have been labeled Solicitation Amendment #1.

There are no other changes.

The enclosed information is provided in response to vendor inquiries.

****
THE SOLICITATION PROVISION ENTITLED "SOLICITATION AMENDMENT" IS APPLICABLE TO THIS AMENDMENT. THE CHANGE SET FORTH BELOW ARE HEREBY INCORPORATED INTO THE ABOVE-CITED SOLICITATION. THE DATE SPECIFIED FOR RECEIPT OF OFFERS **IS EXTENDED.**

ISSUED BY: _____ 1/18/13
David E. Dise, CPPO
Director, Department of General Services

NAME OF OFFEROR: _____
(Type or print)

NAME AND TITLE OF PERSON
AUTHORIZED TO SIGN: _____
(Type or print)

OFFEROR'S SIGNATURE: _____ DATE :_____

RFP #1026052

Questions and Answers

1. Referencing page 16, Section C – Scope of Services, please confirm if the County will require legacy data conversion services.
   Answer: Council does not require data conversion services. Council staff will enter only new data into the system.

2. Referencing page 17, Section C – Scope of Services, III. Specifications it is stated, "The contractor must provide an on-premise CRM turn-key solution available to Council staff for management of communications." Is it the expectation of the County for the Contractor to provide hardware, operating system, backup solutions, virus software, Windows maintenance, everything but "power and pipe" or is the County defining turnkey as COTS (commercial off-the-shelf)?
   Answer: Council will purchase from other contract sources hardware, operating system, backup software, anti-virus software and Windows maintenance. The Offeror should disclose all hardware and software requirements within their offer. Council defines COTS as commercial off-the-shelf.

3. Referencing page 19, Section III. Specifications, C. Technical Support and Training, it is stated, "5. Provide sufficient onsite training for key technical and non-technical staff." Please confirm the maximum number of students that can access an individual workstation during a training class in the County-supplied classroom facility.
   Answer: The maximum number of students permitted in the County's computer lab is ten, one student per desktop computer. There is not enough room in the lab to allocate more than one staff member to one desktop computer. Two other options exist: 1) conduct a non hands-on training in one of three rooms with a maximum capacity of 200 or; 2) Provide computer based training enabling staff to receive training at their respective desktop computers.

4. Referencing page 20, Section C – Scope of Services, V. Contractor Responsibility, please confirm if the Contractor is expected to provide equipment.
   Answer: The Contractor is not expected to provide equipment. The Offeror should disclose all equipment requirements within their offer.

5. Referencing page 20, Section C – Scope of Services, VI. County Responsibility, please confirm whether the County expects the Contractor to bid a separate physical Development/Testing environment.
   Answer: Council does not expect the Contractor to bid a separate physical environment for development and testing. However, if a development and testing environment is recommended, it should be identified as an option and all relative information including additional costs, hardware and software requirements.

6. Are HP or Dell servers more prevalent in your Montgomery County Networks Operation Center and what is the address of the NOC so that shipping to your dock can be included?
   Answer: The County has standardized on Dell x86/x64 midrange rack mount servers, which are configured at the high end of memory and disk capacity. Since Council will purchase hardware internally, there is no need to deliver hardware to the Council Office Building.

7. Will there be a Network or DB Administrator from the County who will look after the proposed hardware and software setup and will contact our support department on an as needed basis; or will the Offerors be responsible for maintaining and supporting every aspect of the proposed system?

Answer: Once the CRM solution is production ready, the Council's Information Technology staff will provide CRM System Administration and first-line CRM support to all CRM users. For those questions they are not able to resolve, Council's IT staff will contact the vendor for support on behalf of the CRM user.

Q*u*estions and Answers

8. In reference to Page 4, Acknowledgement Page, Name and Signature Requirements for Proposals and Contracts it states, "The correct legal business name of the offeror must be used in all contracts. A trade name (i.e., a shortened or different name under which the firm does business) must not be used when the legal name is different." Question: Please clarify if the vendor is allowed to use the acronym of the trade name within the body of the proposal?
   Answer: The vendor is allowed to use the acronym of the trade name within the body.

9. In reference to Page 5, Section A – Instructions, Conditions and Notices, Acceptance Time it states, "By submitting a proposal under this solicitation, the offeror agrees that Montgomery County has within 120 days after the due date in order to accept the proposal." *Question:* Please clarify whether the 120 days reference are calendar or business days.
   Answer: 120 Calendar days

10. Referencing Page G1, Attachment G - Wage Requirements for Services Contract Addendum to the General Conditions of Contract Between County and Contractor.
    Question: Please confirm that Attachment G referenced above is only applicable for Vendor employees who will be supporting the contract.
    Answer: Attachment G is only applicable for vendor employees who will be supporting contract no. 1026052.

TABLE OF CONTENTS

	Non-Conviction of Bribery	
	Non-Discrimination in Employment	
	Payments	
	Personal Property	
	Termination for Default	
	Termination for Convenience	
	Time	
	Work Under the Contract	
Section C	Scope of Services	16
	Background	
	Intent	
	Specifications	
	Contractor Qualifications	
	Contractor Responsibility	
	County Responsibility	
Section D	Performance Period	21
	Term	
	Price Adjustments	
Section E	Method of Award/Evaluation Criteria	21
	Procedures	
	Evaluation Criteria	
Section F	Submissions	22
	Proposal Submissions	
	Award Submissions	
Section G	Compensation	23
Section H	Contract Administrator	24
	Authority	
	Using Department	
Section I	Special Terms and Conditions	24
Section J	Ethics	25

ATTACHMENTS

A. References	A1
B. Metropolitan Washington Council of Governments Rider Clause	B1
C. Minority Business Program & Offeror's Representation	C1
D. Minority-Owned Business Addendum to the General Conditions of Contract Between County and Contractor, and its companion document entitled Minority, Female, Disabled Person Subcontractor Performance Plan	D1
E. Offeror's Certification of Cost and Price	E1
F. Mandatory Insurance Requirements	F1
G. Wage Requirements for Services Contract Addendum to the General Conditions of Contract Between County and Contractor, and its companion documents entitled "Wage Requirements Certification" and "501(c) (3) Nonprofit Organization's Employee's Wage and Health Insurance Form"	G1
H. Prevailing Wage Requirements for Construction Contract Addendum to the General Conditions of Contract between County and Contractor	H1
I. Price Sheet	I1
J. ***Montgomery County Government Enterprise Architecture Technical Architecture***	***J1***

g) Display real time trend information, such as top issues captured today, number of cases or calls captured today.

3. Standard integration with:
   a) Microsoft Outlook so that incoming electronic mail may easily port to the CRM solution where a case may then be created and managed to completion. This critical requirement eliminates the need to rekey data received in Microsoft Outlook into the CRM solution.
   b) Electronically stamp correspondence with index/reference/control number. Begin after the last control number entered into the legacy system.
   c) Provide backup and disaster recovery of content.
   d) The Offeror solution must be compatible with the County's Enterprise Architecture, as contained in the ***"Montgomery County Government Enterprise Architecture Technical Architecture"(Attachment J)***
   e) Optional integration of open database with other County owned content databases such databases associated with Siebel/MC311, ZyLab and ESRI.

4. Provide a mapping solution for staff to quickly locate and support address related issues.

5. Provide document management, workflow and version control. For example, draft a response to an email received from a resident using Microsoft Word, store that document within the system, and share that document with other. Version control would provide the ability to roll back to the previous version of the document, perhaps to a version drafted by an office member during the workflow phase.

6. Provide robust search capability for tracking content within the CRM solution. For example, track an issue through the life cycle including casework, investigation, citizen requests and or comments and legislative monitoring.

7. Provide a robust database for the storage of all casework material.
   a) Provide a sound database design and structure to secure communications records within each of the nine Council offices and LIS.
   b) Provide administration, access, and control over the database schema, technical and customer based product user guides.
   c) Upload scanned content to the CRM database from Microsoft Outlook, the file server, the website, Granicus and/or ZyLab's ZyImage.

8. Provide contact management. Enable the import of contact information from Microsoft Outlook to populate the CRM solution with current content.

9. Provide social outreach and eMarketing campaign management allowing for the:
   a) Creation of target groups within the system – for example, find all cases relative to a specific category or keyword.
   b) Pull information such as email addresses and home addresses from within the CRM target group and create a mail merge of data into a standard response.
   c) Submit an email broadcast message.
   d) Integration with other social media tools such as Facebook, YouTube, and Twitter.
   e) Integration with other newsletter design tools such as Adobe CS and Microsoft Word to move content from the CRM to the web and print.

10. Provide a variety of standard and customizable letters, reports and newsletters. Examples include:

a) Case status, report showing open cases and cases closed.
b) Case owner workload.

c)

c) Council newsletters.
d) Report on repeating citizens issues.
e) Report on common issues in the County.
f) Track casework by Councilmanic district*.
g) Identify top number of cases by Councilmanic district.

* The Councilmanic district identifies which Councilmember represents each particular district within the County according the Board of Elections.

11. Provide a CRM knowledge base for staff population and reference for product support.

b. INSTALLATION AND OPERATIONALSUPPORT

1. Provide installation for fifty seats/workstations and configuration of hardware, software and engineering.

2. Design and build a secure database(s) to store records for ten separate and distinct offices.

c. TECHNICAL SUPPORT AND TRAINING

1. Live technical support via telephone, including software and network engineering support, is necessary 24/7/365.

(a.) Ability to troubleshoot installation, configuration, and operation of hardware and software.
(b.) Access to knowledge bases or technical documentation via web is preferred.

2. Maintenance of hardware / software.

3. Licensing, patches, and upgrades will be included in the support/maintenance. Such licensing, patches, and upgrades must be provided as they become available.

4. Seamless management and customer support for technical and office staff.

5. Provide sufficient onsite or ***computer based*** training for key technical and non-technical staff.

6. Host an on-line tutorial or similar means for remotely training for new staff.

d. OTHER REQUIREMENTS

1. One year warranty on all parts, labor, installation of proper operation of system.
2. Redundant power capacity.
3. Resilient connection and power.
4. Reflect best practices and used in similarly organized counties or non-profit agencies.
5. Enterprise Architecture Compliance and Architectural Impact Statement

(a) Enterprise Architecture Compliance:

The Montgomery County Department of Technology Services, in concert with the various departments, has developed an Enterprise Architecture as defined in the ***"Montgomery County Government Enterprise Architecture Technical Architecture," Attachment J ("Technical Architecture").*** All contractors that design, build, or modify information systems for Montgomery County are expected to complete an Architecture Impact Statement and specify either that they comply or document where they deviate from the ***Technical Architecture***. Montgomery County will assess the contractor's Architecture Impact Statement prior to contract

award. The assessment will consider the cost to the County of any proposed changes and whether the changes are consistent with the County's long term strategy.

(b) Architecture Impact Statement:

Develop an Architecture Impact Statement that assesses how the proposed system will meet the ***Technical Architecture, Attachment J***. The impact statement should list which Architecture Domains, as defined in the Technology Architecture, will be used by the proposed solution, which domains will be changed by the proposed solution and details of the changes, and which domains if any should be added to the proposed solution. The assessment should also address the following items:

- List of Architecture Domains that will be used by the proposed solution.
- Domains that will be changed by the proposed solution and details.
- Description of differences between current state and proposed state.
- Description of why changes are required to be made.

The successful Contractor must have the ability to meet deadlines as established by the County and respond to questions or requests in a timely manner and/or in the timeframe set forth by the County. Any software product/solution designed and/or purchased as a result of this solicitation, and any work related to installation, testing and troubleshooting necessary to permit operation of the software product/solution, must be completed within 60 days from the date of Contract execution**.**

IV. CONTRACTOR QUALIFICATIONS

The Contractor must have a proven record of accomplishment providing a similar scope of services stated in this RFP for local governments or non-profit organizations similar to Montgomery County.

V. CONTRACTOR RESPONSIBILITY

The successful Contractor will be responsible for:

- Providing project management and implementation services with regard to the CRM system.
- Gathering the necessary information needed from representatives of the Montgomery County Government, including but not limited to the Council and the Department of Technology Services.
- A detailed services plan that describes how the CRM solution will meet the needs of the Council as outlined in the Scope of Services.
- Onsite training session for both technical and non-technical personnel sufficient to ensure staff fully understands the system and how to operate it.
- A training plan and train the trainer training methods and support materials.
- Suggested additional training and prices.
- All software installation and configuration necessary to complete this project will be the responsibility of the Contractor.
- A complete set of operation manuals must be included with any on-site installation.
- Describe whether any discounts will be offered if other Joint Procurement entities in Montgomery County purchase directly from this contract.
- Annual warranty price.
- Describe means to provide information and competitive pricing for future product enhancements.
- Provide information about any applicable discounts available to current clients on future purchases

VI. COUNTY RESPONSIBILITY

Council staff or representatives will respond to the Contractor concerning the Scope of Services and Specifications in a timely manner as would be reasonable given the nature of response requested. It is in the County's best interest to respond within a timely manner so as to facilitate completion of work envisioned with the Scope of Services and Specifications.

ATTACHMENT I

PRICE SHEET

I. COTS *or comparable* On-Site Solution

Software License(s)	$_____
Installation	$_____
Warranty maintenance (Year 1)	$_____
Mandatory Onsite training ***or computer based*** (Technical & Non-Technical Personnel)	$_____
Hardware	$_____
Other (Cost of Configurations & customizations)	$_____
Total Cost of ownership for year one	$_____

II. Hardware

This includes server architecture required by the solution.
The County is responsible for procurement of hardware. $ _(_____)__

III. Warranty and Maintenance

Contract Year 2	$ _____
Contract Year 3	$ _____

IV. AGGREGATE TOTAL **$_____**

OPTIONAL SERVICES

I. Training

On-going Traditional Training Sessions (per day) $ _____

(Please include any and all itemized listing.
The offeror may attach any additional pricing information or detail

II. Add-ons/plug-ins $ _____

Software that is packaged separate from the license that may enhance the product. For example, a plug-in for Microsoft Outlook that integrates Outlook with the solution, or a mapping system that identifies the location of a County address using the Internet, etc.

RFP #1026052

Montgomery County Government

Enterprise Architecture

Technical Architecture

Department of Technology Services

Montgomery County Government, MD

© 2013 ***137 pages***

Montgomery County Government
Enterprise Architecture
Technical Architecture

Department of Technology Services
Montgomery County Government, MD

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VERSION	DATE	DESCRIPTION	AUTHOR
1.0	16 March, 2011	Initial version	Mike Tarquinio, Montgomery County Government
1.1	2 January 2013	Fix links	Mike Tarquinio Montgomery County Government

Table of Contents

1.0 Introduction 4
1.1 Purpose 4
1.2 Document Format 4
1.3 Technical Architecture Document Change Management 6
1.4 References 6
2.0 Technical Architecture Overview 8
2.1 Enterprise Shared Service Catalog 10
3.0 Architecture Domains 12
3.1 Active Directory (AD) and Single Sign On (SSO) Services 12
3.2 Cabling Requirements & Standards 16
3.3 Data Security Domain 17
3.4 Deployment Domain 21
3.5 Desktop Domain 26
3.6 Email System Services 29
3.7 Enterprise Hosting Infrastructure Platform 34
3.8 Geographic Information Systems Domain 45
3.9 Help Desk Services 50
3.10 Interactive Voice Response Domain 52
3.11 Mainframe Application Services (deprecated) 55
3.12 Network Domain 58
3.13 PBX Network Domain 70
3.14 Record and Document Management Domain 73
3.15 Reporting Domain 79
3.16 Service Enabled Domain 82
3.17 System Operations Domain 87
3.18 Team Collaboration 92
3.19 Configuration Management (CM) Tools 94
3.20 Enterprise Server Management 96
3.21 Software as a Service (SaaS) ..... 99~~99~~
3.22 Database Hosting Infrastructure Platform ..... 103~~103~~
3.23 Technical Disaster Recovery ..... 110~~110~~
3.24 Enterprise File Services Domain ..... 115~~115~~
3.25 Enterprise Print Services Domain ..... 117~~117~~
3.26 Web Portal Domain ..... 119~~119~~
3.27 Mobile Computing Domain ..... 135~~135~~

1.0 Introduction

Montgomery County takes advantage of mature technologies in areas of data, voice and radio networking, datacenter operations and monitoring, hardware and software systems deployment, and application development. This document, prepared by the Department of Technology Services (DTS), is part of Montgomery County's Enterprise Architecture. Specifically, this document covers the Technical Architecture.

The Technical Architecture Document reflects key information around the County's Enterprise Technical Domains. It is prepared in concert with the rest of the Enterprise Architecture and the DTS Strategic Plan and is designed to support the initiatives outlined in the plan.

The County has three essential organizational resources, people, process and technology. People are the County's greatest resource, Process binds them together into a coherent workforce, and Technology is the tool.

1.1 Purpose

The purpose of this document is to document key information about the County's Enterprise Technical Domains. Specifically, it identifies the Technical building blocks that are supported in the Enterprise.

1.2 Document Format

The Montgomery County Enterprise Architecture consists of five separate sub-architectures: Business, Technical, Data, Application, and Performance. Each one of the sub-architectures is a standalone document but all five are subcomponents of the entire Enterprise Architecture.

This document addresses the Technical Architecture. It covers the supported Technical Building Blocks or domains at the Enterprise level. Each domain introduces the following topics:

Principles – explaining the purpose of the component, along with some implementation details.

Owners – identifies both the technical and business owners for the component.

Components – expanding on the operational aspects of the component by identifying preferred implementation products and staff skill-sets.

Standards and Guidelines – identifying standards and guidelines which the County follows so that it can provide quality services.

Disaster Recovery – for critical domains this section documents the domain's disaster recovery strategy.

The County has assembled information detailing its technologies and its direction. To avoid releasing potentially sensitive information the county follows a strict release process that involves review at multiple levels (See Section 10-617(g) of the Maryland Public Information Act).

The owner of all five sub-architecture documents and the rollup document is Mike Tarquinio (michael.tarquinio@montgomerycountymd.gov) the Department of Technology Service Enterprise

Architect. The Department is located at the Department of Technology Services, 101 Monroe Street, 13th Floor, Rockville, Maryland 20850.

1.3 Technical Architecture Document Change Management

The Montgomery County Government Enterprise Architecture Technical Architecture document is part of the County's documented Enterprise Architecture and is published by the DTS Enterprise Architect. The Enterprise Architect is responsible for working with DTS Content Experts and department representatives (through TOMG) to document the Technical Architecture. The document adheres to stringent change management controls and follows a defined change management process.

Change requests can be initiated via DTS content experts, TOMG members, or the DTS Enterprise Architect. Contact the DTS Enterprise Architect Mike Tarquinio (michael.tarquinio@montgomerycountymd.gov) for further details.

1.4 References

1. Montgomery County Office of Management and Budget – Administrative Procedure 6-1, June 14, 2004; *Use of the County-Provided Internet, Intranet, and Electronic Mail Services*;

2. Montgomery County Office of Management and Budget – Administrative Procedure 6-6, May 4, 2005; *Information Technology Policies and Procedures*;

3. Montgomery County Office of Management and Budget – Administrative Procedure 6-7, May 4, 2005; *Information Resources Security*;

4. Montgomery County Department of Technology Services, September 2004; *Computer Security Guideline*;

5. Montgomery County Department of Technology Services, 2009; *Enterprise Technology Strategic Plan 2009 – 2012;*

6. Montgomery County Government, May 31, 2007; *Montgomery County Code*;

7. Montgomery County Department of Technology Services, July 19, 2007; *Enterprise Architecture Configuration Management Plan*

8. Montgomery County Department of Technology Services, April 14, 2008; *Montgomery County Government Public Safety Information Technology Architecture*

9. Montgomery County Government; *About County Government*; http://www.montgomerycountymd.gov/resident/about.html ; page accessed 1/2/2013

10. Montgomery County Government; *The Charter and County Code*; http://www.montgomerycountymd.gov/mcgtmpl.asp?url=/Content/countyatty/charter.asp ; page accessed 3/14/2011

11. Montgomery County Government; *Montgomery County Organization Chart*; http://www.montgomerycountymd.gov/government/orgchart.html ; page accessed 1/2/2013

12. Peter Mell and Tim Grance; *The NIST Definition of Cloud Computing*; Version 15, 10-07-09; retrieved from http://csrc.nist.gov/groups/SNS/cloud-computing/ ;

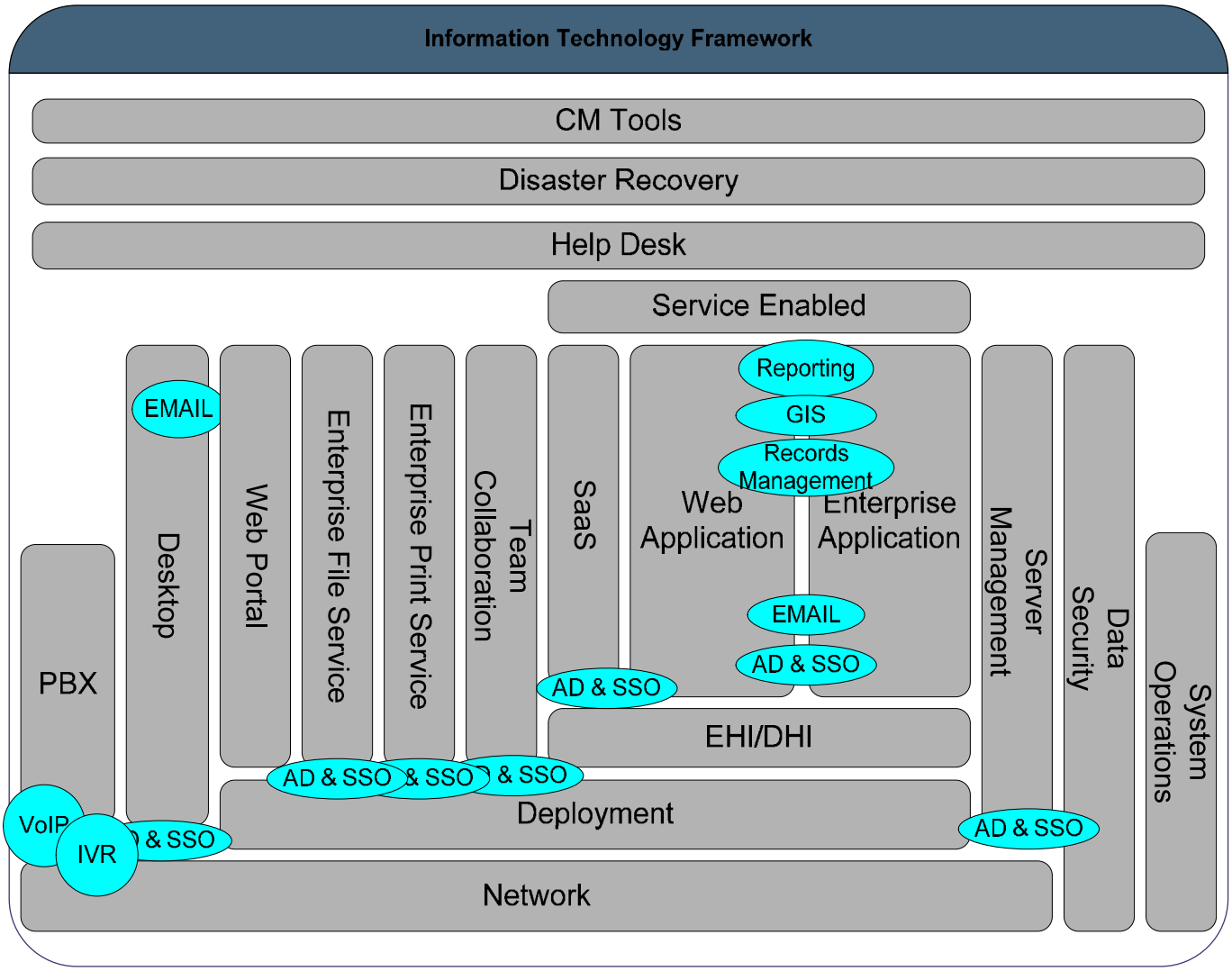
13. Montgomery County Department of Technology Services, March 16, 2011; *Montgomery County Government Enterprise Architecture Business Architecture*;

14. Montgomery County Department of Technology Services, March 16, 2011; *Montgomery County Government Enterprise Architecture*;

15. Montgomery County Department of Technology Services, March 16, 2011; *Montgomery County Government Enterprise Architecture Performance Architecture*;

2.0 Technical Architecture Overview

The Enterprise Architecture presents well-defined, strategic standards adopted for the development and delivery of the County's information systems. It provides a cohesive blueprint to optimally design, purchase, develop, deploy and manage information systems for the County. The components of the overall infrastructure are shown in the next figure:



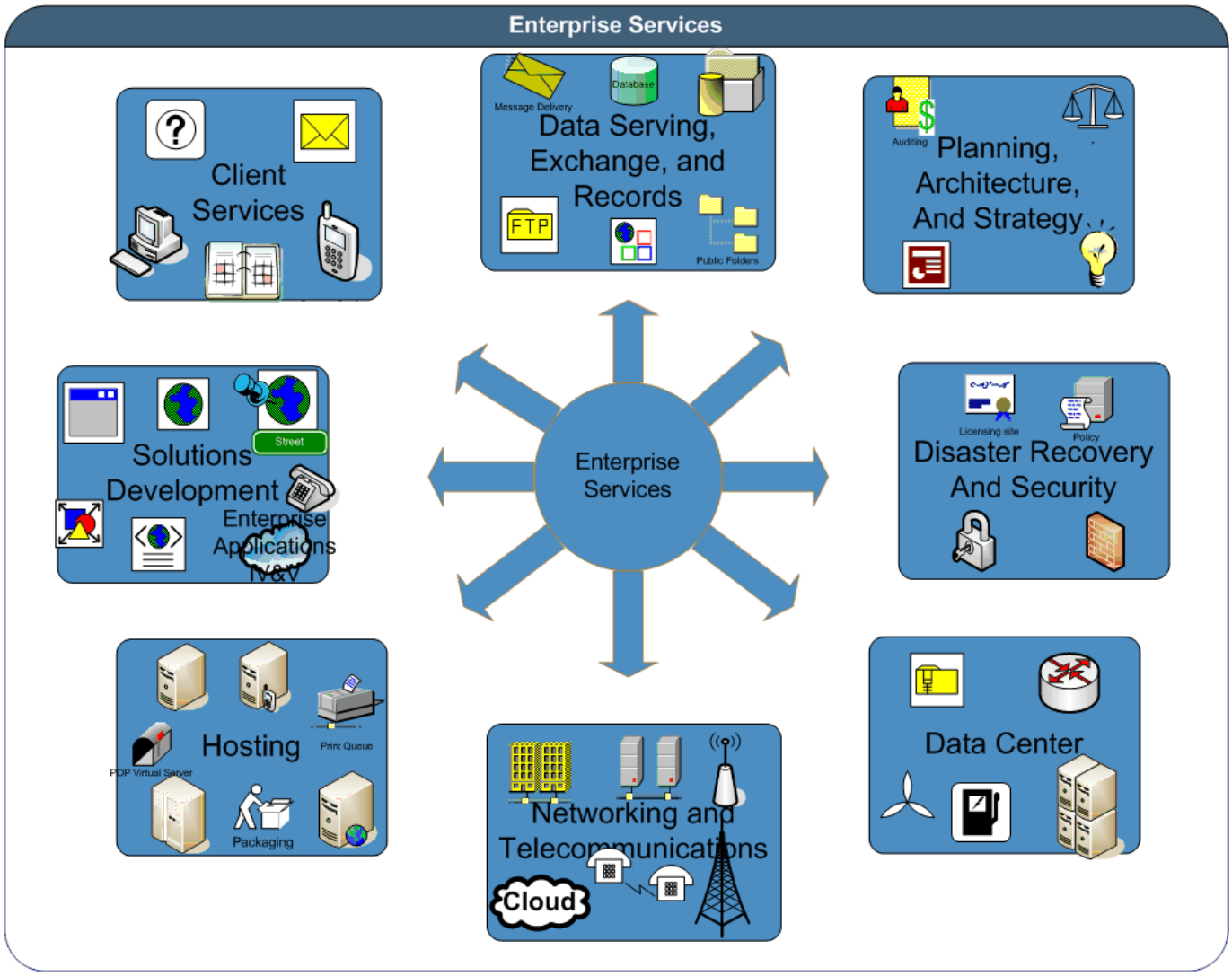
The Framework may be defined as a collection of interrelated component architectures or domains. The public oriented domains are offered as shared Enterprise Services to Departments, Groups, and Agencies and form a Service Catalog. The domains are:

- Active Directory and Single Sign On Services - single enterprise technology directory service that enhances security and efficiency
- Data Security Domain - implementing secure access control management

- Desktop Domain - defining desktop computing standards
- Email Domain - increasing operational efficiencies through a single enterprise email service
- Help Desk - providing assistance to the County
- Geographic Information System – delivering cartographic data and location services
- Record and Document Management Domain - advancing automation
- Reporting Domain – optimizing software licenses and increasing efficiency through a central reporting service
- Enterprise Applications Domain - automating business processes
- Web Applications Domain – developing and deploying applications rapidly
- Service Enabled Domain – avoiding stovepipe applications by supporting standard data exchanges through Web Services and a Enterprise Service Bus.
- Deployment Domain - utilizing resources and sharing costs through standardized servers running as VM Guests on Virtual Hosting Machines.
- Mainframe Application Services Domain - integrating core business processes **(planned retirement - 1/2013)**
- Network Domain - empowering common infrastructure
- Cabling Requirements and Standards Domain- Cabling and wiring standards
- PBX Domain - supplying quality landline services efficiently through an Enterprise PBX
- Interactive Voice Response Domain - integrating IT and Telephony
- Enterprise Hosting Infrastructure Domain - hosting enterprise applications in a secure hosting environment
- Enterprise File Service Domain - centralized shared Enterprise File Service
- Enterprise Print Service Domain - centralized shared Enterprise Print Server
- Database Hosting Infrastructure Domain - database hosting
- System Operations Domain – Enterprise Backup/Data Center Server and Appliance Hosting
- Team Collaboration Domain – providing group collaboration
- Configuration Management (CM) Tools Domain – providing CM Tools Support
- Enterprise Server Management Domain – providing Enterprise Server Management
- Software as a Service (SaaS) – providing support for SaaS applications
- Web Portal Domain – providing Internet and Intranet web portals
- Disaster Recovery - providing IT Disaster Recovery

- Mobile Computing Domain – providing mobile device support

2.1 Enterprise Shared Service Catalog



The public oriented domains are offered as shared Enterprise Services to Departments, Groups, and Agencies and are grouped as follows:

Client Services

- Desktop
- Email
- Help Desk
- Team Collaboration (SharePoint)
- Mobile Device

Disaster Recovery and Security

- Active Directory (AD)
- Disaster Recovery

Hosting

- Deployment
- Enterprise Hosted Infrastructure (EHI)
- Enterprise Print Service
- Software as a Service (SaaS)
- Configuration Management Tools (CM)

Data Serving, Exchange and Records

- Enterprise File Service
- Database Hosting Infrastructure (DHI)
- Enterprise Service Bus (ESB)
- Record and Image Management

Networking and Telecommunications

- Network
- PBX
- Cabling Requirements and Standards

Data Center

- System Operations (Enterprise Backup/Data Center Server and Appliance Hosting)
- Mainframe Operations

Solutions Development

- Geographic Information System (GIS)

3.0 Architecture Domains

3.1 Active Directory (AD) and Single Sign On (SSO) Services

Principles

Microsoft's Active Directory (AD) is used to authenticate users, and to allow them into the County network. Single Sign On (SSO) services is an enterprise strategy designed to minimize administration and user authentication stress, eliminate multiple userids and multiple passwords. The Single Sign On service is implemented through Tivoli Access Manager (TAM) and Active Directory. With AD and TAM, users are able to log on to the network, and log into specific SSO configured applications as the need arises. For example, once the user is logged into the network, the user is not required to log into Exchange to access the County's email system.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

Active Directory is built around a number of Active Directory servers strategically located throughout the County government (see figure 3-1). If a failure should occur, having multiple servers increases the potential for employees to authenticate into the network. The system design allows for all servers to replicate on change, with the exception of one. The one non-synchronized server is an emergency backup copy used for recovery, and it replicates once every 24 hours.

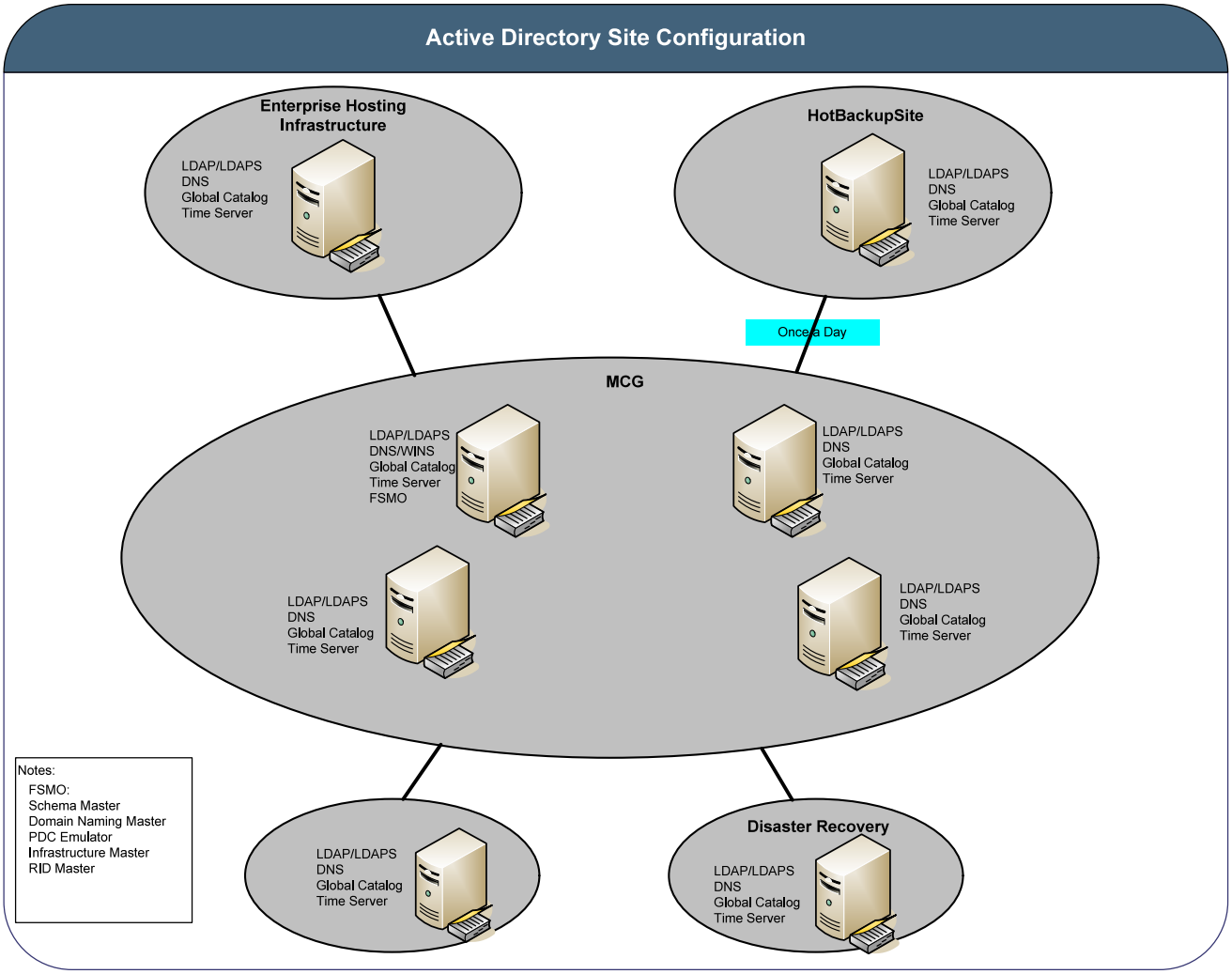


Figure 3-1 AD Site Configuration

The Department of Technology Services (DTS) manages the Enterprise Directory structure and group policies. DTS is the sole Administrator at the Enterprise level and delegates the management of select OU admin functions to department administrators. Each department's resources is defined and contained inside their own OU. Department OU Administrators have the responsibility to add, delete, and modify accounts within their OU, and to set permissions for their departmental applications.

Departmental Applications that are hosted within the DTS Enterprise Hosting Infrastructure (see section 3.7 - Enterprise Hosting Infrastructure) have permissions setup for each by DTS Administrators. DTS creates one or more Application OUs for each application and gives owning department administrators the ability to assign users to the Application OUs. When authenticating into one of these applications, TAM acts as a clearinghouse front end to AD, checking AD permissions as the user logs on. Each County employee has an account in TAM which allows for SSO application use.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Active Directory Domain Administration
Windows Server Administration
TAM User Account creation
Understanding of Security Principles
Ability to use Magic Help Desk System
DNS, WINS and DHCP Administration

Standards and Guidelines

Special Root or Organizational Units (OU) Folders have been created to provide for additional functions in our environment, and for application SSO management. These are as follows.

Department OU Folders – Each County department is designated a specific OU folder to administer their department Users, Computers, Resources and Groups. The names assigned are based on the standard acronyms used for each department. If the department does not have an OU Administrator, DTS assumes the responsibility.

Department Servers Folders – Each County department is designated a specific OU folder to administer their departmental servers.

Applications - OU is used for SSO. Each County SSO application is assigned a sub-folder under this OU. Groups are created and assigned rights for these applications.

Associates – OU is used for SSO and Associates. These are Non Mail Enable Accounts (NME). The OU is made up of two sub-OUs; former County employees, and non-County or former employees who need access to SSO applications. This is for groups like the Howard county police who need access to the Auto Theft Application, employees in sister agencies, boards and committees requiring access to Financial Discloser, or former employees needing access to benefits or deferred comp.

Computers – This is a default OU created by AD. Computers that are not pre-staged are added to the domain here. Domain admin authority is required to move these computers into their appropriate department OU.

External Contacts – This OU houses external contact information (name and external email address) in a centralized location. This allows the departments to create standard email distribution lists that include external email contacts. This process is primarily in place to overcome the limitations of Outlook for distribution lists. It is managed by the Core System's group in DTS.

Inactive – This folder has three sub-OUs; Retired, Terminated and Survivor. This folder contains

former employee accounts that have been deactivated and their mailbox removed. These former employee accounts are being saved because in the near future they will need to have access to various SSO applications such as retirement and insurance benefits.

Training – OU for Admin, Power User, Svr Training. Server Admin holds user accounts which are disabled. These are accounts that probably will not be used again, but we don't want to have to recreate them. Two other OU folders contain accounts used for OU admin, Outlook, and other types of training.

Test – This folder is kept at the root, for easier access to other departments. Usually used only by Domain Admins, it is used to test policies, or to replicate issues the users may have with external contacts, etc.

Training

All Department OU Administrators must attend the DTS OU Administrators training class prior to performance of Administration functions.

Standards

PC Policies for Improved Security & Manageability

- This policy uses AD to lockdown PCs and maintain standard configurations

The Enterprise Directory is a non-federated service

3.2 Cabling Requirements & Standards

Principles

The County's goal is to standardize its cabling infrastructure to promote faster speed, better communication, easier troubleshooting, and less need for repair. DTS Telecommunications offers connectivity for telecommunications equipment throughout the County. Cable installation services are offered by the County and by outside Contractors.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS PBX Telephone Service Team.

Components

The County's telecommunications systems are interconnected by various cables. The County's cabling infrastructure contains a wide variety of cables including the County standard Category 5e and 6 (Cat-5e and Cat-6) cabling. Cat-6 cabling is the latest addition to the County's structured cabling standards, and it has twice the bandwidth of Cat-5e cabling for improved service.

Standards and Guidelines

The County Cabling standards and guidelines are for vendors and County departments which install and support the County's cabling infrastructure. As universal standards evolve, the current standards and guidelines will be updated in this document. The County maintains a standards document located at the following location on the County Internet portal -

http://www.montgomerycountymd.gov/dts/architecture/cablingDomain.html

3.3 Data Security Domain

Principles

Security is an essential part of every component in the County's IT Architecture framework with multiple domains and groups having responsibilities. The Security Domain includes not only technology but process and procedures and is present through all aspects of system acquisition and development.

The following domains have Security responsibilities:

- Active Directory and Single Sign On – Centralized Directory Service supporting Single Sign On Services
- Deployment Domain – Common Enterprise Server configurations and patch management services
- Desktop Domain – Centralized desktop management with common configurations, patch management services, lockdown policy, centralized anti-virus and anti-spyware services
- Email System Services – Centralized mail service including anti-virus, anti-spyware and spam removal services
- Enterprise Hosting Infrastructure – Secure hosting infrastructure
- Help Desk Services – Centralized help desk that supports Incident Response
- Network Domain – Enterprise network that includes protected single point of access, internal and external firewalls, wireless security, and network segmentation services
- Service Enabled Domain – Use of an Enterprise Service Bus for centralized secure information transfers
- System Operations Domain – Centralized Data Center that includes redundant systems for high availability and physical security measures
- Configuration Management – Centralized Configuration Management systems for protection of project assets.
- Enterprise Server Management – 24x7 server monitoring
- Security Domain – Includes policies and procedures, risk management practices, Virtual Private Network access, and operational security monitoring including security scanning, policy enforcement, and log correlation.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owners for this Domain are:

- DTS Security Team
- DTS Core Systems Team
- DTS Server Team
- DTS Client Computers (DCM) Team
- DTS Network Services Team
- DTS Data Center Operations Team

- DTS Help Desk Services

Components

In addition to the Security components in use within each of the various domains mentioned in the Principles Section the following additional Security components are in use:

- Log Correlation
- Intrusion Detection
- Web Filtering
- Port and Vulnerability Scanning
- VPN
- Anti-Virus and Anti-Spyware protection
- Laptop Encryption
- Computer Security Investigations

Log Correlation

The DTS Security Team maintains a centralized log correlation system that monitors critical IT Components within the county.

Intrusion Detection

The DTS Security Team maintains an intrusion detection system that monitors critical parts of the County Network.

Web Filtering

The DTS Security Team manages a Web Filtering system that manages employees' use of the Internet. It has the ability to block, permit, limit by time-based quota, or postpone access to individual categories by user, group, workstation, or network.

Port and Vulnerability Scanning

The DTS Security Team uses various port and vulnerability scanning tools to scan the network internally and externally.

VPN

The County's VPN solution authenticates users, encrypts data, and provides flexible access controls for client-to-application security. With the current solution, the County can securely share critical information and applications with employees and business partners via the Internet. The VPN provides centralized access into the County network for employees and validated contractors. No other method is allowed.

Anti-Virus and Anti-Spyware Protection

The County uses centralized Anti-Virus and Anti-Spyware Protection software to provide scalable, cross-platform virus protection for workstations and network servers. County workstations and servers are currently checking for updated virus signatures every 60 minutes. This "normal conditions" deployment was architected to minimize the response time and increase the effectiveness of signature updates to all County hosts. In emergency situations signatures will be pushed out immediately to limit the County's

exposure to virus, worm, and Trojan activity.

Laptop Encryption

Because of various regulatory compliance initiatives and the due diligence obligation to the citizens of Montgomery County, the DTS Client Computers (DCM) team supports a hard disk encryption solution for mobile users. The purpose of the solution is to make all data on the hard drive unreadable should a laptop become lost or stolen. All primary county laptops must be encrypted.

Computer Security Investigations

The DTS Security Team provides Computer Security Investigation services.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Network Administration – Routers, Firewall, VPN, Protocols
Network, Server and Desktop Administration. Installation and Troubleshooting.
WAN Hardware Management
IDS Administration, Penetration Testing, Vulnerability Assessment and Remediation. Forensic analysis Exploitive techniques: exploit coding, virus reverse engineering and analysis, packet crafting, various injection techniques

Standards and Guidelines

Governance

- Office of Management and Budget – Administrative Procedure 6-1 *Use of County-Provided Internet, Intranet, and Electronic Mail Services*
- Office of Management and Budget – Administrative Procedure 6-6 *Information Technology Policies and Procedures*
- Office of Management and Budget – Administrative Procedure 6-7 *Information Resources Security*
- Office of Management and Budget – Administrative Procedure 8-2 *HIPAA Compliance and Responsibilities*

Policies

- Help Desk (see section 3.9 - Help Desk Services) provides central point of contact for incident response

- PC Policies for Improved Security & Manageability (see section 3.1 - Active Directory and Single Sign On (SSO) Services and section 3.5 – Desktop Domain)

- Montgomery County Government Department of Technology Services – EID Incident Response Plan; DTS Security Team

- DTS Security Team Risk Assessment Policy

Education

- County Security Awareness training

Incident Response

- Perceived or actual security incidents must be reported immediately to one of the following:
    - CIRT Lead/Security Official
    - DTS Security Team
    - IT Help Desk at 240-777-2828
    - Department Head
    - Department IT Staff

3.4 Deployment Domain

Principles

The Deployment Domain is an Enterprise VM Guest Hosting Service that meets 4 of the 5 essential characteristics of the NIST definition of Cloud Computing [12]. The 4 supported tenants are: Broad Network Access, Resource Pooling, Rapid Elasticity, and Measured Service. The one characteristic that is not supported is On-demand Self-Service which the DTS Server Team intentionally reserves internally. The Deployment Domain is providing private cloud services to County departments and agencies.

The Domain consists of standardized server hardware, operating systems, middleware and personnel. The DTS Server Team provides standardized VM Guest instances to requesting departments or groups. The requesting departments or groups can use the VM Guests to run their own applications. The DTS Server Team manages the VM Guests and runs them on a farm of VM Hosting machines that they solely control and administer. The use of the standardized building blocks allows a standard set of services to be provided by the DTS Server Team. Such services include standardized backup, monitoring, problem avoidance, dynamic configuration, and patch management.

The Deployment Domain makes use of the following Enterprise Architecture services:

- Enterprise Server Management (providing 24x7 monitoring)
- System Operations Domain (providing data center hosting services - power, air conditioning, 24x7 facilities monitoring, etc)
- System Operations Domain (weekly tape backup services)

The goals of the Deployment Domain are to:

- Provide robust and stable IT environments.
- Maintain a continual pool of spare server capacity, which can be used for new deployments, horizontal scaling and sparing.
- Provision new server and middleware environments in near real time.
- Research and adopt new tools and building blocks to lower Total Cost of Ownership (TCO).

Successful operational procedures include:

- In-house web mastering of technical documentation and dashboards.
- Routine auditing and upgrading of system patch levels, anti-virus engines and backups.
- Automation of routine operations and monitoring.
- Detailed peer reviews prior to new deployments.

Deployment Zones

When a VM Guest is configured it can be inserted into one of 3 standardized deployment zones. Each zone is tailored for a specific set of users and security rating. For example, the Enterprise Hosting

Infrastructure (EHI) is for internal users. More specifically, the EHI only supports users who are in the County's Active Directory system.

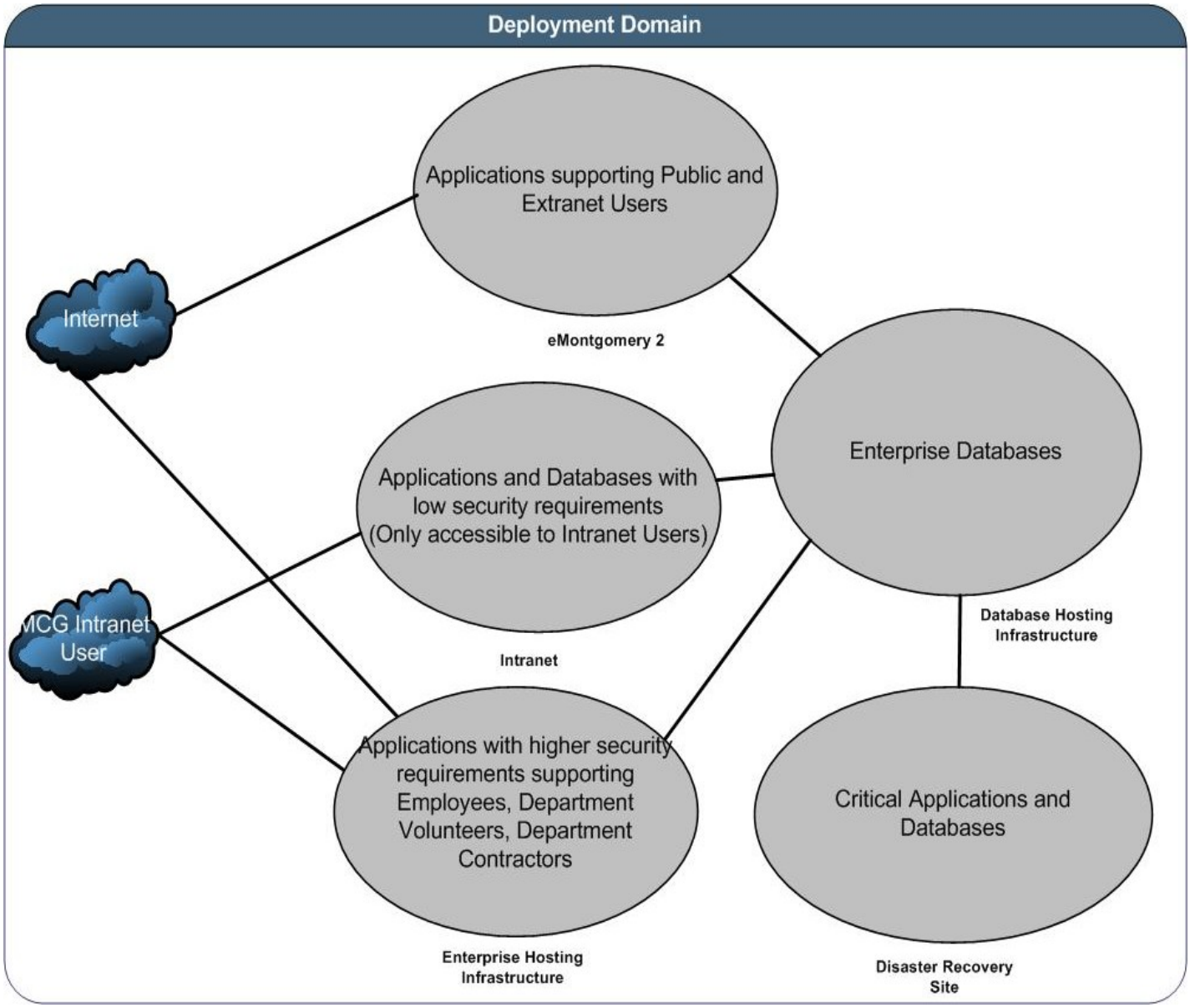


Figure 3-2 Deployment Zones

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Server Team

Components

Hardware

The County has standardized on Dell x86/x64 midrange rack mount servers, which are configured at the high end of memory and disk capacity.

Hardware Capacity Planning

A sliding window of funding and replacement cycles is used for server capacity planning. New GENERATION N and N-1 servers are typically deployed as VM-HOST or DB servers. GENERATION N-2 servers released by the renewal process can become standalone servers. This process is followed a high percentage of the time for enterprise servers.

The following benefits are realized:

- Elimination of hardware selection, sizing and procurement delays
- Identical servers are purchased within a GENERATION.
- Horizontal scaling and/or VMs are used to meet processing requirements.

For example, instead of procuring 3 small servers for 3 projects, in-place capacity is used via VMs. New VM-GUESTS (for the projects) are provisioned in real-time. Project funding, from the 3 projects is lumped together to purchase a new GENERATION N server which adds back additional capacity.

Speed and ease of new server deployments

Most new servers take on the role of a VM-HOST. In just a few hours time, these servers can be activated because only the OS, the VM engine and the utility software need to be installed. VM-GUESTS (new or existing) are then activated. Typically, this is a copy/paste operation.

Hardware maintenance savings

GENERATION N servers typically come with a 3 year warranty. There is no maintenance cost during this period. Once out of warranty, there are sufficient “spares” to cover production failures. “Time and Materials” is used to cover repair expenses once out of warranty.

Operating System, Database and Middleware

The county stays current with Operating System and Middleware versions. The following table outlines typical versioning. Most components have service pack upgrades throughout the year with version upgrades every couple of years.

1.

FUNCTION	COMPONENT VERSION	OS VERSION
WEB/APP SERVER J2EE	JBOSS	CENTOS

Web/App Server Microsoft	ASP .NET	Windows Server

Table 5-2

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Area	Skill Set
OS	Linux (CENTOS) , Windows Server
DB	MS SQL Server, Oracle Server
Middleware	.NET AD ASP IBM MQ Series ESB (MULE) IBM Tivoli Access Manager (TAM) J2EE /JBOSS
Operational Support	Shell Scripting/ Perl Webmastering JUnit/HTTPUnit JMX
CM	SVN and TRAC
Other	Technical Project Management

Standards and Guidelines

- Current availability guideline is to keep system components available 99.5% of the time.
- DTS solely has access and manages the VM Hosting Servers.
- Outage reports through HelpIT updates
- Maintenance window announcements through HelpIT updates
- County has standardized on Dell x86/x64 midrange rack mount servers, which are configured at the high end of memory and disk capacity.
- County stays current with Operating System and Middleware versions. Most components have service pack upgrades throughout the year with version upgrades every couple of years.

Disaster Recovery

The Deployment Domain involves the use of VM Guests running on VM Hosting Servers housed in the Data Centers in the System Operations Domain. A number of disaster recovery strategies in the Deployment and System Operations Domains are employed that essentially cover the following disaster scenarios:

- server loss
- rack loss
- data center loss

The server loss and rack loss strategy has a number of mitigation strategies within the System Operations Domain. Within the Deployment Domain the mitigation strategies include:

- use of VM Guests as well as pooled VM hosting machines located in both data centers.
- in the event of individual server or rack failure critical VM Guests will be moved to working VM hosting machines
- in the event of a data center failure critical VM Guests will be moved to working VM hosting machines in the other data center.

The design problem for the loss of one of the Data Centers is the prioritization of services that will be brought up in the working data center. See section 3.23 Technical Disaster Recovery for information around prioritization of services and policies.

3.5 Desktop Domain

Principles

Desktop Computer Modernization is a centralized program for the planning, acquisition, asset management, and support services associated with desktop computers. Desktop Computer Modernization (DCM) is part of the Department of Technology Services (DTS). Under this program, the County uses its own in-house personnel for integrated desktop planning, and a single external service provider for desktop acquisition assistance, asset management, and support services. Through the implementation of DCM, the County achieves several key goals:

- Brings current technology to the desktop
- Reduces the cost of and need for support services through planning
- Provides a single source of support through a centralized single point of contact IT Help Desk
- Provides quality services to end users in an accurate, consistent, timely and professional manner
- Controls total cost of ownership.

The DCM program covers the primary seat machine for the individual worker. DCM supports based on user requirements and support considerations non-traditional as well as traditional desktops. Supported desktops include various configurations of the traditional desktop as well as laptops, netbooks, and tablets.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Client Computers (DCM) Team.

Components

Desktop Environment

The County currently has approximately 9600 primary PCs and laptops which are located throughout the County. Existing computer equipment consists of DELL and Lenovo business class systems. The County has a 4-year replacement cycle for primary systems, subject to funding restrictions. Generally one fourth of the County's current base of PCs is replaced each year.

External Service Provider

DCM has a single external service provider for all help desk and desktop support, asset management and computer acquisitions. DCM's current external service provider maintains a location approximately one mile from the Rockville Core which has a warehouse facility. This is also the location of the centralized IT Help Desk (see section 3.9 – Help Desk Services).

Asset Management

Computer hardware inventory is maintained by the external service provider in a SQL based application. The external service provider is responsible for maintaining accurate inventory reporting and continual data validation. The DCM program office staff has direct access to this database. The external service provider also makes Department inventory reports available through the intranet.

Desktop Management

DCM maintains the County's Systems Management Server (SMS) Enterprise system and database. SMS allows for a central point of desktop management, software deployment, and remote control of desktops and laptops throughout the County. The County also uses Shavlik as a patch management tool to deploy Microsoft OS security updates. This tool is managed by the external service provider.

Disposal of Equipment

DCM provides the County a mechanism to dispose of old computer hardware through its external service provider. Before a system can be disposed, the external service provider wipes all data from the hard drive(s) using software and procedures that meet DOD certified sanitization standards. Computer systems are then disposed or remarked in a manner that meets environmental standards. This process ensures the removal of all data from system hard drives and provides the County with the ability to maximize residual value on assets.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Sets
Project Management and Contract Administration
SMS Administration and Application Development
Wise Studio Scripting Language
SQL Administration and Maintenance
Windows Server
Microsoft Desktop OS/Platform
Dell & Lenovo Business Class Hardware
County Core Applications including MS Office, Outlook, Internet Explorer, PComm, Adobe Reader, Sophos
Networking and Basic Active Directory

Standards and Guidelines

The current DCM Program Team is responsible for PC lifecycle planning and managing desktop services provided by the external service provider. The external service provider is responsible for acquisitions of new desktop equipment; imaging systems using configurations provided by DCM staff that meet current County and Security standards; help desk and deskside services; computer maintenance and repair; and asset management.

Planning
The DCM program develops and maintains a comprehensive plan covering the life cycle of the County's PCs; integrating all aspects of desktop acquisition; help desk support; and asset disposal. The DCM program focuses on reducing the need for maintenance and other support services, while also planning for changes in technology and the IT industry. This includes developing a desktop deployment strategy and enterprise wide desktop software roll-outs (operating system upgrades, software installations, patches and new applications). The DCM Program also maintains detailed schedules identifying the PCs to be replaced, moved, installed, upgraded, disposed of, or redeployed. Planning for replacements simplifies the acquisition process by ordering in advance, minimizing disruptions to County users, providing a steady workflow, and reducing costs.

Standards

Establishes enterprise-wide standards for hardware, software, and supporting processes. DCM also standardizes on several desktop, laptop, netbook, and tablet configurations used throughout the County. A list of optional add-ons to the standard configurations is available to end-users as required.

Budgeting

Forecasts and manages desktop budget. Collects and analyzes the total cost of desktop equipment and services, reducing the total cost of ownership.

Acquisition

Functions as a single point of contact with vendors for scheduling, and obtains all desktop equipment (places orders; tracks status; approves and processes invoices).

Asset Management

Centrally manages the County's desktop and laptop assets to maximize the return on investment. Directs the external service provider to update and maintain inventory information in the asset management database. Defines the web based reports the external service provider maintains on the intranet for Department inventory.

Contract Administration and Coordination

Oversees all DCM activities, and coordinates the resolution of escalated incidents. Monitors contract service levels in accordance with the current DCM contract. Defines and reviews monthly management reports and real-time dashboards prepared by external service provider Contract Administration functions as a single point of contact.

Security Standards

PC Policies for Improved Security & Manageability

- This policy uses AD and SMS to lockdown PCs and maintain standard configurations

3.6 Email System Services

Principles

The County uses Microsoft Exchange for its enterprise email system. This system supports Enterprise wide email functions to employees within the County and locations anywhere around the world. Access is allowed via the Outlook desktop client, Outlook Web Access (OWA) web browser, Blackberry and other ActiveSync supported devices. Mailbox stores are managed centrally, and backed up at the server level (not at the brick level). Administration is both centralized and decentralized depending on the specific department and need. Anti-Spam processing and filtering for both inbound & outbound mail is supplied by two Spam Protection Appliances.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

The email system consists of a number of back-end Exchange servers and one hot spare server. The hot spare server also serves as a production test server. Each server supports an average of 2600 mailbox accounts. Two front-end, OWA servers provide web access for more than 85,000 sessions each week. The servers support all of the versions of the Outlook client, but the County standard is currently Outlook 2002 and 2003.

Spam protection is provided by two Spam Protection Appliances. They process nearly 2,000,000 inbound and outbound messages, while blocking or deleting an average of 1,100,000 spam messages each week. These two servers provide a “first line of defense” against spam. They perform white listing (allowing specific messages thru), black listing (blocking messages from domains and specific addresses), and use sophisticated algorithms to filter and remove 80-90% of all inbound spam. An anti-virus scanning engine scans all of the messages and message stores for viruses. Other features include attachment blocking, and file quarantine of known executable and dangerous attachments.

Two mailbox servers are configured as default SMTP Virtual Servers, routing mail in and out of the Spam Protection infrastructure for Montgomery County employees. Another Exchange mailbox server is configured with a virtual IP address and is used to route mail from non Exchange server messages and perform as a relay agent for internal messages generated outside of the Exchange servers.

Users authenticate to Exchange via Microsoft Active Directory (AD). Accounts and other Active Directory components within the Departmental organizational unit are administered by local Organizational Unit (OU) Administrators for most departments. Enterprise Administrators support the remaining departments and support all OU Administrators. User accounts are published in the Global Access List (GAL) which allows employees to easily lookup addresses, locations, departments, and phone numbers from within Outlook. Email accounts can be classified as employees, interns, contractors, volunteers, or temporary.

Enterprise level administrators can create Contacts so that non-County partners, and contacts with non-County email addresses, can be published in the GAL allowing for membership in groups and easy emailing. The system also handles resources and conference rooms, providing scheduling services at the department and enterprise level.

Blackberry devices are supported at the enterprise level. User departments purchase the units, and contact DTS to purchase server client access licenses (CALs). The user departments then call the Help Desk to configure the device software on the desktop. Either the Help Desk or the employee opens a Magic ticket for Core Systems to configure the device for wireless activation. The current software also allows for wireless activation (so at account creation, the account can be activated for the user versus having the Help Desk or OU admin perform the synchronization and activation from the desktop. Devices running version 4.x and above no longer require the Blackberry to be docked to receive additional software products. However the client device software must be installed on a desktop in order to support device software upgrades.

DTS has tested other devices such as the Android, iPhone, Windows mobile phones, etc. Although they have the ability to connect and synchronize (at various levels of effectiveness), they are not at an enterprise level of stability and manageability, that the Blackberry devices are. Therefore, we will continue the policy of providing enterprise support for Blackberries only. The County will allow, where security is not compromised, connectivity of non-Blackberry devices to the Exchange system. Requests for issuing/connecting a non-Blackberry device will be referred to the employee's Department OU administrator for action. The Departments will determine whether to issue/connect non-Blackberry devices and will be responsible for setup and providing support for the non-Blackberry devices.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Microsoft Active Directory Administration
Microsoft Exchange Administration
Magic Help Desk System
Server, Network and Messaging Security
Windows Server Administration
Good Communication Skills
Systems Management Server (SMS)
Knowledge of email processing and types of email
Knowledge of Spamming methods, and remediation
Anti-Virus Administration
Wireless Email Administration
Knowledge of Virus propagation and methods of prevention and removal
Knowledge of eMessaging Standards and enforcement methodologies
Anti-Spam Server Administration Skills
Knowledge of the Outlook Client and features

Standards and Guidelines

Availability/Uptime: The system is designed to be available 24/7 with the exception of a 4 hour maintenance window on the Friday following the 2nd or 3rd Tuesday of each month. This time is for routine or critical maintenance and software installations. This creates an uptime goal of approximately 99.5%.

A single enterprise email address standard:

FirstName.LastName@montgomerycountymd.gov

There is an eight character minimum. Those accounts with less than eight characters will receive x(s) to meet this requirement. To eliminate duplication, FirstName and the addition of middle initial can be used.

Specific naming conventions have been defined for Distribution Groups, Resources, Rooms, Non-Fixed resources

Shared mailboxes are defined at the enterprise level, and managed at the OU level

USERID/Mailbox policies

Deletion

Enterprise Core Systems team will monitor the use of mailboxes, and departments will be notified of mailboxes not accessed in last 60-90 days. After 90 days not being accessed, mailboxes will be deleted.

Each Dept/OU Administrator must establish an internal procedure to remove mail boxes. When an employee is terminated, the AD accounts must be deactivated **ON THE SAME DAY.**

If a department needs a mailbox, it must be copied to a PST file and saved separately.

If a department needs to temporarily access a de-activated account, the password must be reset to limit potentially damaging access by the former employee.

Once the department is finished with the employee account and it has been de-activated, the account must be deleted (as in the case of a temp, intern or contractor account) or moved to the AD Root folder INACTIVE folder (as in the case of a Retired or Terminated account).

Mail

Duplicate email addresses cannot exist.

Resources can be mailbox enabled.

Department distribution groups should use an Access Control List (ACL) to limit other department's access. Options should be set to "disallow with exception".

Global Distribution groups will be created by the Core Systems team at the enterprise level.

Users are limited to sending emails to a maximum of 2000 recipients unless special permissions are granted.

Address List

Global Addresses

All users, groups, contacts, conference resources & public folders

Department address list

All employees

Department employees

Mail Store

Each dept has a designated mail store, for example, the mail store for the Board of Investment Trustees is BIT1. The number indicates the number of mail stores for the group.

Enterprise Exchange Administrators will monitor capacity and notify departments when allocations are reaching maximum limits.

Sirana AppAnalyzer can be used to monitor the overall system and individual mailbox capacity, and email traffic.

Exchange is configured to check capacity every 4 hours.

Calendar

Currently the County's standard is for 2 months of Free/Busy schedule publishing, special use calendars, and conference room calendars. In the future we may wish to publish a recommended 6 months.

Personal Address Books (PAB)

Not supported at the enterprise level

Individual Mailboxes

The system is designed to handle 10,000 mailboxes at 1000 MB each.

Local storage policy (private folder) will be determined by each department.

Administratively deleted mailboxes will be retained for 10 days. For mailbox recovery, contact DTS through the help desk.

Individually deleted items (messages) can be recovered up to 24 hours after deletion. For recovery instructions contact the Help Desk.

Each mailbox limit set to 50MB. Requests for temporary or permanent limit increases must be sent to the Help Desk. Each request will be reviewed on its specific merits. In most cases, decisions will be made on the same day.

When they login, users will be warned when storage reaches 45MB

Users will be prevented from sending messages when storage exceeds 47MB in size.

Users will be prevented from receiving messages when storage reaches 50MB in size.

All messages (including attachments) are limited in size to 10 MB.

Outlook Client's Deleted Items folder will be emptied at logoff, but items will be recoverable for up to 4 days.

SMTP access for County Applications requiring outbound mail support via mcg-relay.mcgov.org

No POP or IMAP protocol support.

Email Administration is done in the Departments through Active Directory Departmental OU

Administrators (see section 3.1 Active Directory (AD) and Single Sign On (SSO) Services)

Backup/Restore

DTS backs up Email servers for disaster recovery purposes. DTS' current recovery process is to restore servers in the event of system crashes, facility loss, or some other disaster. To support the current model, the Email System Service Domain uses the backup services of the System Operations Domain (see section 3.17 System Operation Domain). Refer to that domain for backup retention times.

Email administrator requested restoration of individual items is limited by the architecture/nature of Email and resources required to perform the restoration. Therefore, DTS will:

- only restore individual mailboxes from specific Exchange backup tapes for legal matters upon request from the County Attorney's office.
- only restore individual mailboxes from specific Exchange backup tapes for public information act requests upon concurrence from the County Attorney's office and payment for costs incurred from party seeking information.
- only restore individual mailboxes from specific Exchange backup tapes for other purposes upon request approved by the user's Department head and CIO.
- undelete mailboxes within 10 days of deletion upon request. Mailboxes deleted for more than 10 days require Exchange backup tape restoration, see above.

3.7 Enterprise Hosting Infrastructure Platform

Principles

The Enterprise Hosting Infrastructure (EHI) is the framework the County uses to deploy its enterprise applications. The County's EHI goals are to integrate business processes across the County by integrating and extending existing web applications. The County benefits from EHI because it promotes enterprise-wide data standardization, reuse, interoperability, and information management across applications and agencies. Reducing cost and development time, EHI facilitates common solutions for business processes, lower operational costs, increased business productivity, and better utilization of resources.

EHI encompasses most components of the County's IT Framework: Enterprise and Web Application Domains (see Montgomery County Government Enterprise Architecture Application Architecture), Software as a Service (see section 3.21), Deployment Domain (see section 3.4), Network Domain (see section 3.12), Security Domain (see section 3.3), Reporting Domain (see section 3.15), Geographic Information Systems Domain (see section 3.8), Help Desk (see section 3.9), Active Directory & Single Sign On (see section 3.1), Email System Services (see section 3.6), Service Enabled Domain (see section 3.16), Enterprise Server Management (see section 3.20), Database Hosting Infrastructure (see section 3.22) and System Operations Domain (see section 3.17). Figure 3-3 demonstrates the components that make up the County's EHI.

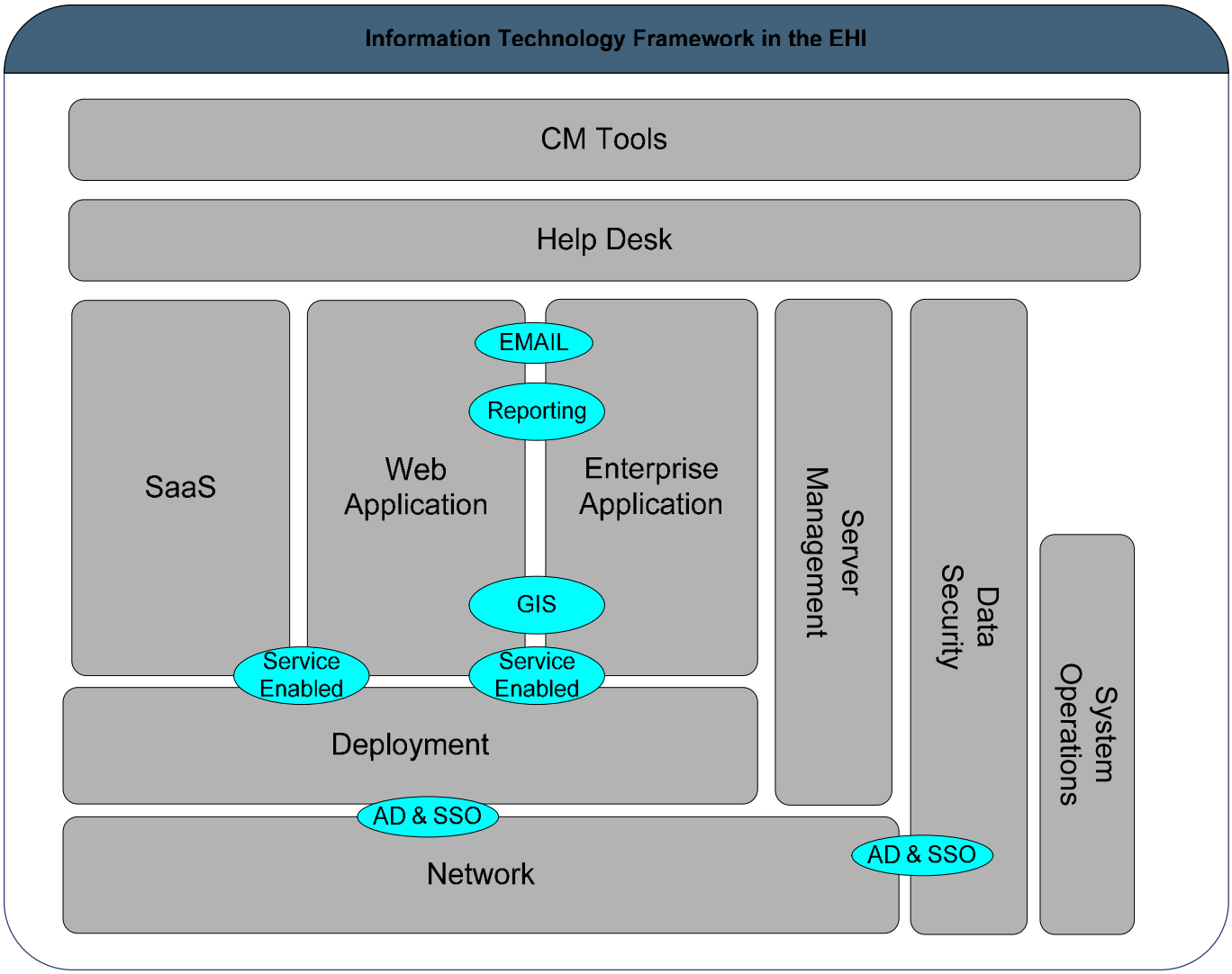


Figure 3-3 Enterprise Hosting Infrastructure Components

When a new application is targeted to be hosted in the EHI an intake form is filled out for the application. The intake form contains information about the application with one aspect of the information being the NIST Confidentiality, Integrity and Availability requirements for the application.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owners for this Domain are:

- DTS Server Team
- DTS Enterprise Services Architect

Components

Architecture Overview

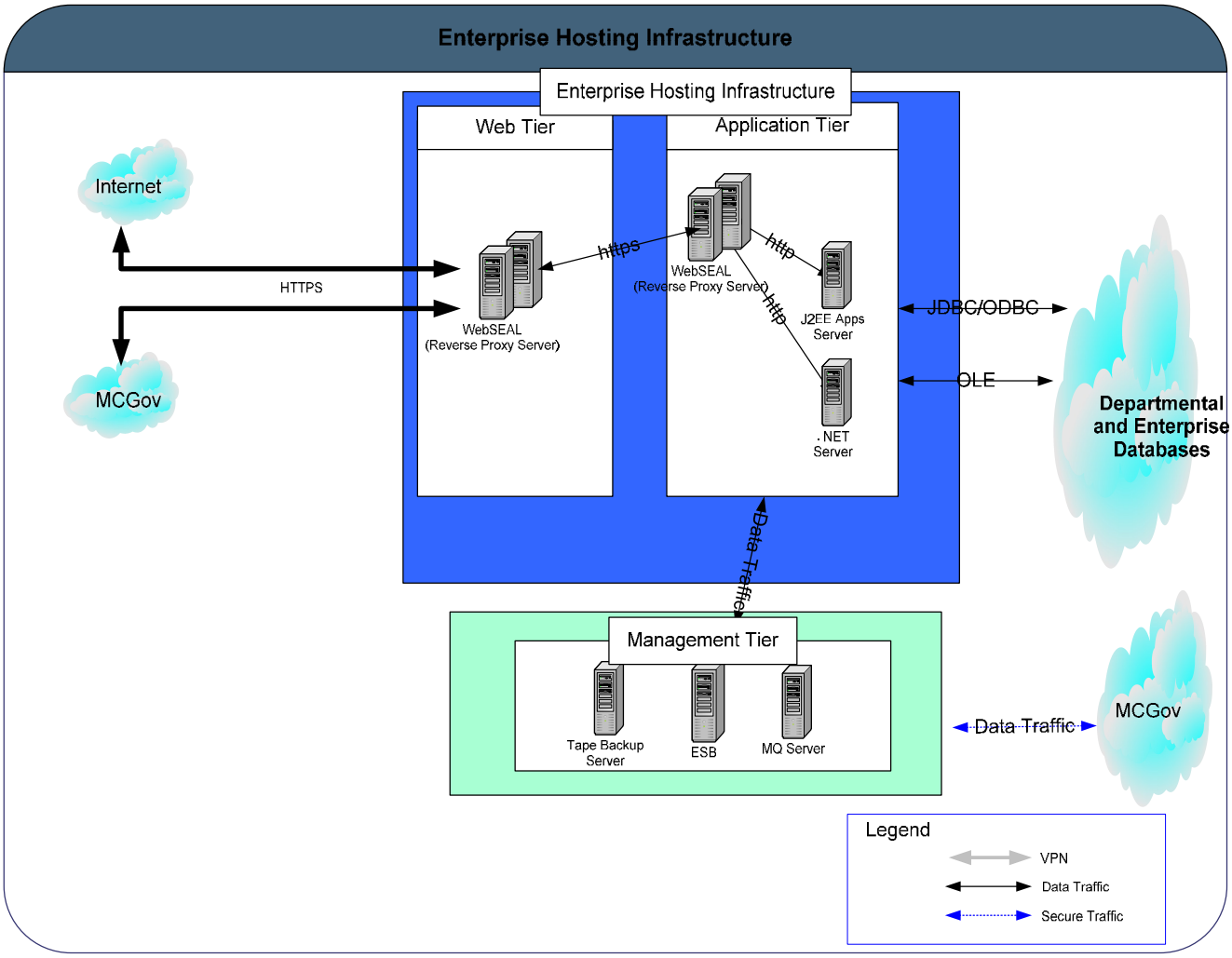
In general, the EHI architecture is based on three layers of application deployment:

- the first layer incorporates security and Single Sign On (SSO) components for the application
- the second layer incorporates the presentation and business logic of the application
- the third layer incorporates the data model of the application

Only the first layer is located in the Web Tier. The Web Tier serves as the gatekeeper for client access to Web Applications that serve Internal County Users as defined in Active Directory.

The second layer is located in the Application Tier. It is the location for the Application Servers.

The third tier is the database tier and is supported through individual departmental database servers as well as Enterprise Database Servers hosted in the Database Hosting Infrastructure (see section 3.22). All traffic between the Web tier to the Application Tier is encrypted with certificate Secure Socket Layer (SSL). All Web traffic (from the internet and the intranet) designated to the application server in the Application Tier will be routed thru the Web Tier. The following paragraphs describe the components that make up the platform architecture.



Active Directory

Microsoft Active Directory is the master user registry for all county employees and for all applications hosted in the EHI (see section 3.1 – Active Directory (AD) and Single Sign On (SSO) Services). All LDAP traffic from the Web and Application tiers is encrypted (LDAPS) and accesses one of the Active Directory controllers. Active Directory also provides the primary DNS service for the Application tier of servers.

Tivoli Access Manager (WebSEAL)

The County has set up Tivoli Access Manager (TAM) to maintain a directory of user roles that have permission to access specific applications. TAM uses Active Directory as the master for user and user group objects and extends the Active Directory schema to add more attributes to the user class. TAM is automatically synchronized with Active Directory and provides an extra layer of security. It intercepts all application access by a user and ensures that they are properly authenticated. In addition, it allows users to sign on one time and access multiple applications. TAM checks against Active Directory one time to confirm or "validate" an individual's roles or permissions to application(s). This function is known as Single Sign On (SSO) (see section 3.1 – Active Directory (AD) and Single Sign On (SSO) Services).

Application Server

JBOSS is used to serve the County's J2EE applications. All JBOSS servers are located inside the Application tier. Microsoft.Net servers are also hosted inside the application tier to support county .Net and ASP applications. The WebSEAL server in the Application tier directly accesses the HTTP services of the Application servers. Beside the standard J2EE and .Net applications, other commercial off-the-shelf COTS applications are hosted in the Application Tier, for which the WebSEAL provides the SSO integration.

Enterprise Service Bus (ESB)

The Enterprise Service Bus (see section 3.16 – Service Enabled Domain) provides secure methods of transferring data between different platforms across different Tiers. It uses the following methods of data transfer:

- IBM MQ
- SFTP
- FTP (PGP encrypted)
- Webservices
- Secure Mail (S/MIME)

Servers located in the EHI Application tier can use the ESB to securely interface with servers outside the EHI platform.

The ESB is also used for secure file transfers into and out of the county.

Database Server

The database servers are located outside the EHI as either Departmental Database Servers or as Enterprise Database Servers that are hosted in the Database Hosting Infrastructure (see section 3.22). The county supports both Oracle and Microsoft SQL servers under the DHI architecture. Application servers can access the database servers directly thru JDBC/ODBC/OLE.

Platform Choice

Hardware

All servers are Intel based and manufactured by Dell Computers. The hardware sizing is based on the County standard as outlined in the Deployment domain (see section 3.4 – Deployment Domain).

Operating System

Virtual Machine technology is used in the platform architecture. Server virtualization increases the efficiency and effectiveness of deploying and developing new technology. It aides server consolidation and capacity optimization by utilizing excess hardware capacity. The ease of cloning of the entire virtual system provides easy backup and restore capability. This is an important operational practice for the high performance and high availability of applications within the EHI.

The Operating Systems supported on the servers are:

- CentOS
- Microsoft Windows Server

CentOS is an Open Source OS which uses the Red Hat Linux kernel and hence is an “identical twin” of Red Hat Linux.

Services

Time Service

Time services are supplied through two time servers. Windows machines are synchronized through the Active Directory Domain controllers. UNIX machines are synchronized through the county UNIX time server.

Backup Service

The EHI uses the backup services of the System Operations Domain. Once a week each VM Guest has a snapshot taken of its image. That image is then backed up through System Operations Domain services.

Refer to the System Operations Domain (see section 3.17) Server Backup and Recovery Section for details on retention and backup times.

Antivirus Service

Antivirus service is provided on the Windows Machines. Virus signatures are automatically synchronized from the county central Antivirus server.

SMTP Service

Email services are provided through access to one of the County Exchange Servers (see section 3.6 - Email System Services).

Storage Service

Storage is provided through large local hard drives on each server

Directory and User Registry (LDAP Server) Services

Directory and User Registry services are supported through Active Directory. For LDAP, only the LDAPS protocol is supported.

Certificate Server

Certificate services are provided through a Microsoft Windows Certificate Server and issues certificates based on the MCGOV root certificate.

Network

The EHI uses the Network Domain's Firewalls and Switches (see section 3.12 - Network Domain).

The EHI is separated from both the Intranet and the Internet through one or more stateful firewalls. In addition, firewalls are also used to separate tiers internally within the EHI.

Security

Tivoli Access Manager (TAM)

A set of WebSEAL reverse proxy servers are located inside the web and application tiers to receive encrypted traffic (SSL) from the intranet and the internet. The WebSEAL server within the Web tier will authenticate the user with the LDAP server in an encrypted form (LDAPS). In turn, it will pass the traffic to a WebSEAL server (identified by the part of the web URL called junction) inside the Application tier thru an SSL channel. The WebSEAL server inside the Application tier passes the traffic in non-SSL fashion to the application server to process. The application server then returns the response data back to the Web tier WebSEAL server through the same SSL channel.

The WebSEAL to WebSEAL junction optimizes the traffic inside the Application tier while providing security to the Application tier. All Tivoli web servers, including the policy server, Web portal manager, and TAM application server are located inside the application tier.

Application Principles

The general principles that an application must follow are:

- Access to the Application's Application Server must pass through the Web Tier and the Tivoli WebSEAL Servers
- Client access is via HTTPS only
- Access can be from the Internet or MCGov Intranet
- The ESB is used for non-client inbound and outbound traffic between the EHI and the MCGov Intranet with all traffic being point to point
- inactive session timeout
- Firewall is a stateful firewall
- Application access must be through the stateful sessions maintained by Tivoli

Standards

EHI Hosting Agreement

A requesting team or department must read and agree to the EHI Hosting Agreement. The EHI Hosting agreement lists roles and responsibilities for the service.

Administration Policies

- No access to resources other than by DTS employees performing administration services
- Monthly patching of Operating System and middleware software
- Virus updates every 10 minutes
- Weekly VM Guest backups
- Active Directory Group Policies (DTS Server Team Administrators are the only persons allowed to administer the machine and processes)
- Quarterly review of the Firewall Rules
- Quarterly review by Stakeholders of their application intake information
- Outage reports through HelpIT updates
- Maintenance window announcements through HelpIT updates
- Each ESB integration has its requirements documented, implementation documented and data transfers audit logged.
- Each Application has a standard Help Desk Incident Script. Custom scripts can be created based on the Applications need.
- Each Application must use Active Directory Authentication
- Highly Recommended that each application use Active Directory Authorization

Application Hosting Service Intake Form

A requesting team or department must fill out an Application Hosting Service Request Form. The form contains:

- Application Name
- Application Description
- NIST Security Classification for Confidentiality, Integrity, Availability (High, medium, low)
- Owning Department(s)
- Department(s) Administrators contact name
- Department(s) Administrators contact email
- Department(s) Administrators contact phone
- Department(s) Administrator Active Directory account
- Type of Package (J2EE, .Net)
- Package Contents
- Database(s) accessed
- Incident Response Plan
- Configuration Plan
- Is the Application Internet Facing?
- Is the Application going to use Active Directory Authorization? (If so, please list the AD groups)
- Expected lifetime of the application

Application Policies

The following are standards and guidelines the County has set forth for its EHI Applications.

- Performance Guideline – The County expects a turnaround time for Enterprise Applications in 3 seconds or less
- Availability Guideline – The County expects an Enterprise Application be available no less than 99.5% of the time.
- ADA compliant – The County expects an Enterprise Application to be ADA compliant.

- HIPAA compliant – The County expects an Enterprise Application that handles HIPAA covered data to comply with the HIPAA Privacy Rule and the HIPAA Security Rule.
- Each Application will use Active Directory Authentication. Applications are strongly recommended to use Active Directory Authorization. Applications are provided with one or more Application Groups to manage Authentication. J2EE applications are provided with a library that validates authentication against the groups. .Net applications are provided with a similar design pattern.
- Application Security Standards – See Appendix C
- Coding Standards – See Appendix D
- Technical Design Template
- The County has standards for Java files to have the following package structure:

  gov.montgomerycountymd.<<dept>>.<<application>>.<<module>>

  where

  dept will be the short name of the department that owns the application
  application will be the short name of the application itself
  module will be the implementation section

- The County has standards for .NET namespace:

  gov.montgomerycountymd.<<dept>>.<<application>>.<<module>>

  where

  dept will be the short name of the department that owns the application
  application will be the short name of the application itself
  module will be the implementation section.

Quality of Service

- Multiple deployment environments have been set up for application deployment and testing:

  Development – WebSeal junctions are directed to a developer(s) machine

  Test/Staging – A separate physical environment for Test and Staging

  Production – A separate physical environment for Production

- Automatic Sync Up of TAM with Active Directory every day, so employees' records inside Active Directory are synchronized with TAM.

- Enhanced TAM passes user attributes in Active Directory to minimize the general LDAP access from application to Active Directory.

- There is an ACL (Access Control) rule defined for Production TAM in such a way that test Active Directory accounts can NOT access the Production applications.

- The Active Directory Application Authorization Model allows the delegation of application administration to different application administrators in the County.

- Heart Beat uses same SSO access paths to SSO application to provide continual monitoring.

- Using VM and Microsoft disk mirroring, servers in EHI can be easily restored and tested with updates or patches.

- WebSEAL provide standard SSL protection (FIPS 140-2 certified) for the County's existing applications.

Physical Security

The networking switches and firewalls as well as the hosts that support the Production EHI are all located within one of the Department of Technology Services Data Centers (see section 3.17 – Systems Operation Domain).

Help Desk Support

A key component of the EHI is the Help Desk (see section 3.9 – Help Desk Services). It provides a single point of contact for the users of applications hosted within the EHI. The Help Desk resolves problems or, as needed, routes problems to the EHI administrators.

As part of the intake process for a new EHI application a support plan is developed with the help desk. The support plan includes information such as:

- Identifying the business system owner
- Identifying the EHI Administrator contacts
- Identifying common problems and their resolution that a level 1 support person can handle
- Identifying the contact for level 2 problems

Server Administration

Administration of the EHI Servers is performed by the DTS Server Team (section 3.20 – Enterprise Server Management)

Deployment Model

A J2EE application must be packaged into an EAR (Enterprise Archive) file for deployment. Even if the application contains only the Web components (a collection of Web Archive WAR) files), it should be packaged into an EAR file.

Applications may not package the libraries' JARs for the County's standard components, such as Oracle, LDAP, and WebSphere. The County should have full flexibility to deploy upgrades for its standard libraries without altering the applications.

Every J2EE Web component should be self-contained. All the required libraries should reside within the WAR package. Similarly, every other component (such as EJBs) should be self-contained within EAR package.

Every application may accompany a folder with subfolders for configs, scripts, and properties files.

Every application package must accompany a Configuration document. This document should clearly

explain the prerequisites and steps for installing the application. The document must include:

- List of files in the package
- List of configuration options and description of each
- List and description of 3rd party dependencies
- List of log files, their location, and description

The County encourages programmers and analysts to include a troubleshooting section in their Installation and Configuration documents to help avoid known mistakes. The County also encourages programmers and analysts to include a health-check section to check the health of the application after installation or after a restart.

The County encourages applications to write log error condition messages in the standard format. The document may indicate the format and the expected error messages. All applications shall support multiple log levels which can be modified without re-starting.

3.8 Geographic Information Systems Domain

Principles

The County has designed and implemented a Geographic Information System (GIS) to deliver geospatial data to spatially enabled desktops, Web-based applications, and location services. The system generates both soft and hard copy and Web-based cartographic/mapping presentations enabling data analysis and decision support services. The County has dedicated resources to create, maintain, manage, and store geo-spatial data.

The County has two definitions of spatially enabled services. One is a service capable of integrating spatial data with other business data across multiple, heterogeneous data sources. The other is a service supporting abstract data types (images, text, and spatial data) spatial operators, functions, and spatial locator indexes. The County implements Environmental Systems Research Institute's (ESRI) GIS data models and ArcGIS suite of software.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS GIS Team.

Components

The GIS configuration is designed to be flexible, fast, scalable, reliable, manageable, and secure in order to satisfy the needs of a wide variety of users and customers. Casual users typically use GIS services delivered by Web and desktop applications to perform basic tasks such as generating maps and travel directions or finding a map feature such as a place of interest. Intermediate users perform basic mapping functions in addition to inputting data and performing basic geo-spatial analysis (queries, geo-coding, buffering, overlay, etc.). Casual and intermediate users use Web browsers to access customized *ArcIMS* or *ArcGIS* Server map and image services/viewers, as well as ArcView, ArcReader, or ArcExplorer (free viewer) software products. Advanced users use GIS and cartographic software products such as ArcGIS (one of the three tiers), ArcSDE/Oracle, ArcView , and Adobe Illustrator and Photoshop (used for mapping) to produce, maintain, manage, analyze, and map geo-spatial data sets. Advanced users also use GIS software products to create customized applications on both the desktop (Arc Macro Language, Avenue, Visual Basic, and Visual Basic for Applications) and the Web (Active Server Pages, XML, HTML, JavaScript, and Perl). Recent experiments with GoogleMaps has also shown great potential for presenting County's geo-spatial data in a vivid way.

System requirements (provided by ESRI), and customer requirements dictate the County's GIS design. Figure 3-5 and Table 3-6 provide an overview of the GIS system and Web architectural designs.

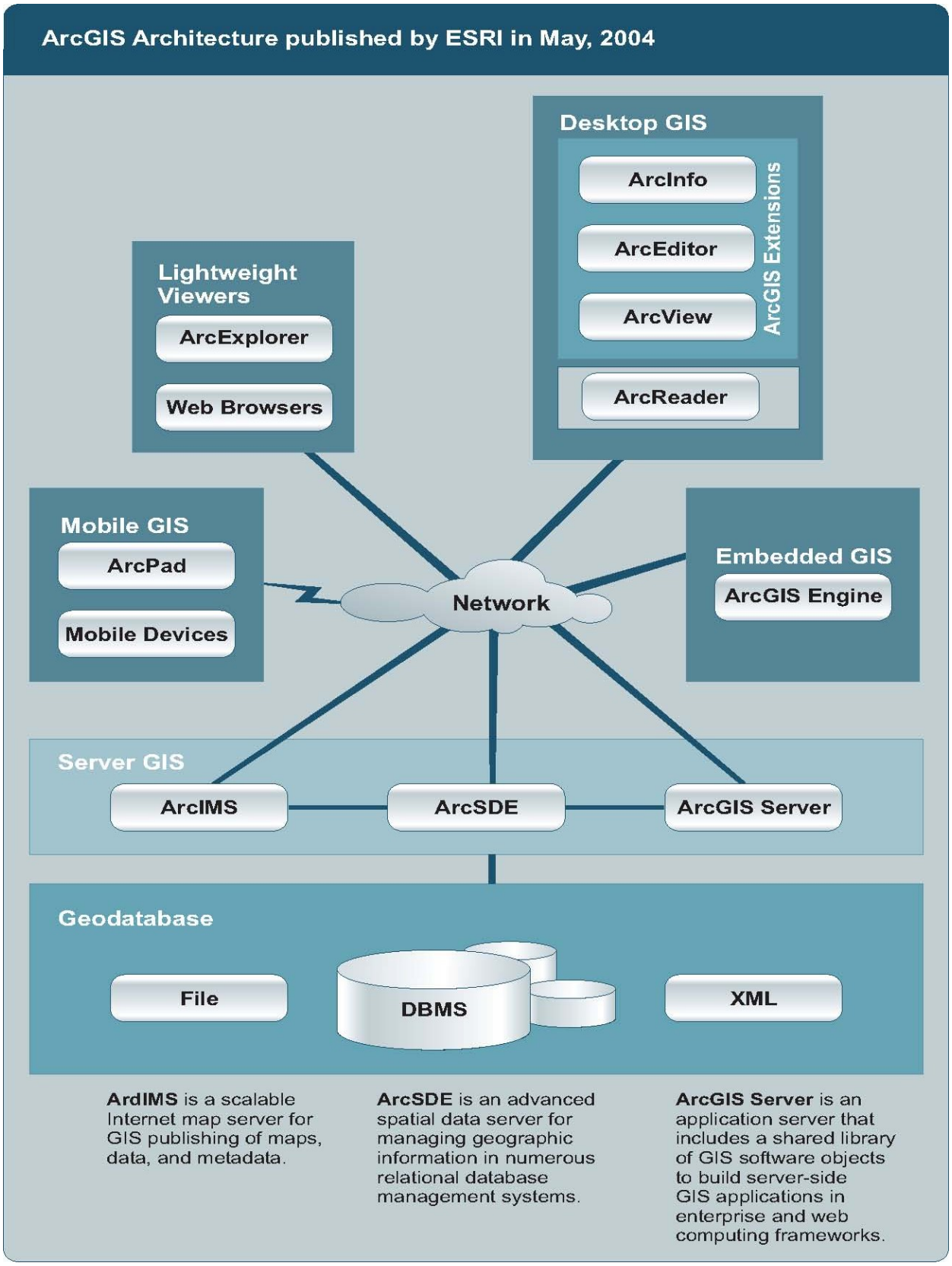


Figure 3-5 ArcGIS Architecture [1]

[1] ArcGIS Architecture, Published by ESRI, May 2004

Table 3-6 below identifies the GIS software that has been installed in the County. These versions of ArcGIS software, ArcSDE middleware, and Oracle 9i or 10g database have helped to centralize the GIS data layers to the new ArcGIS Geo-data model.

GIS Software Components		
New Version		**Platform**
Enterprise GIS	Server-side Geo-processing environment - ArcGIS Engine: with embeddable GIS components ("Maps for Apps")	Intel PC MS Windows
ArcGIS Tiers	ArcInfo ArcEditor ArcView ArcReader (free)	Intel PC MS Windows
ArcGIS Extensions	ArcGIS Business Analyst (at DED) ArcGIS Spatial Analyst ArcGIS 3D Analyst ArcGIS Geostatistical Analyst ArcGIS Survey Analyst ArcGIS Tracking Analyst ArcGIS Publisher ArcGIS StreetMap ArcGIS Schematics ArcScan for ArcGIS ArcPress for ArcGIS MrSID Encoder for ArcGIS	
Free ArcGIS Add-Ons	Tablet PC Support for ArcGIS ArcMap GPS Support Districting for ArcGIS	
Mobile GIS	ArcPAD ArcPAD Developer Tool Kit	Pocket PC Windows CE
Database	ArcSDE – middleware Oracle (licensed separately from Oracle Corp.)	Oracle
Web GIS	ArcIMS - RouteServer ArcGIS Server ArcExplorer (free)	Wintel Server

Table 3-6 GIS Software Components

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
ArcGIS software – core modules
ArcGIS Extensions
Geo-database data model, ArcSDE and Oracle
ArcIMS, ArcExplorer, and ArcGIS Server
Visual Basic for Applications
Develop Geo-processing Scripts Using Python
Utilizing ArcObjects for application development
XML, ASP
J2EE, JavaScript

Standards and Guidelines

GIS Servers

- Administrator privileges are limited to DTS employees performing administration services
- Monthly patching of GIS Servers Operating System and middleware software
- Virus signature updates every 10 minutes
- Read only access provided to other departments to use ArcGIS
- DTS backs up Enterprise GIS Servers for disaster recovery purposes. DTS' current recovery process is to restore servers in the event of system crashes, facility loss, or some other disaster. To support the current model, the GIS Domain uses the backup services of the System Operations Domain (see section 3.17 System Operation Domain). Refer to that domain for backup retention times.

GIS Data

- Some departments maintain their own department specific GIS maps and data layers but send their data to the DTS GIS team to keep in the County Central Repository
- Street Addressing standard
- Centerlines, districts, buildings, and places of interest maintenance procedures
- Secure Web application requests and approval forms
- GIS data requests form

- All County employees having access to the Enterprise computing resource can access all commonly available GIS data layers.
- County GIS data, hardware, and software are for business use only.
- DTS' GIS coordinates the distribution of the County's GIS data to outside entities. Consultants performing contracted County projects can be supplied needed GIS data free of charge. This data is sold to outside entities and transferred electronically or by CD/DVD media.

3.9 Help Desk Services

Principles

The IT Help Desk provides a single point-of-contact, centralized support to County employees and contractors using the County's IT Infrastructure. The IT Help Desk resolves problems or, as needed, routes problems to other support organizations to assure that they are resolved properly.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Client Computers (DCM) Team.

Components

The County uses Service Desk Express (SDE), a customizable, browser-based service management system from BMC Software, to manage problem identification, analysis and resolution. This software was designed specifically for the mid-sized business and provides enough functions for the County's centralized IT Help Desk. As it is currently implemented, Service Desk Express is used by the County for service management, asset management, self-service ticketing, and reporting.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Service Desk Express
Customer Service
Problem Analysis & Resolution
MS Office Products
MS Windows OS/Platform
Networking

Standards and Guidelines

Level 1 Support - The IT Help Desk will provide support for all IT requests it receives by attempting to resolve the problem immediately over the telephone. Level 1 includes support for standard desktop PC

hardware, software, and operating systems. The IT Help Desk shall support new, standard software whenever adopted by the County. The IT Help Desk shall also be available for support and service requests received via e-mail and self-service requests created in the Self-Help Information Portal (SHIP).

The responsibilities of Level 1 Analysts are to receive trouble calls, enter the calls into Magic Service Desk, document the problem, and perform remote troubleshooting. If the problem does not pertain to the desktop PC environment (e.g., mainframe issue) the call will be transferred to the appropriate support organization within the County's IT Help Desk. The Level 1 Analyst coordinates the problem resolution process with other IT support resources, and communicates the status of the problem to the end-user. To ensure user satisfaction, the Service Desk Express system will automatically notify the client via email when the problem has been resolved.

When it is unable to resolve a trouble report remotely, Level 1 will escalate the resolution process to Level 2. Level 2 personnel will inform Level 1 personnel of the status of the problem and the actions being taken to resolve it. The responsibility to coordinate problem resolution, and to document the status of problems, remains with Level 1. This is facilitated by the communication capabilities of the Magic Service Desk.

Level 2 Support - If the call cannot be resolved by Level 1 support, the request will escalate to Level 2 Support, which provides Senior IT Help Desk Analysts, Hardware Technicians and Maintenance Technicians. The IT Help Desk will dispatch technicians, as needed, to provide desk-side assistance. Upon escalation to a Level 2 request, the IT Help Desk shall immediately assign an appropriate technician. This technician will call the user to acknowledge receipt of the request, analyze the problem and attempt to initiate resolution over the telephone. Level 2 support personnel shall have advanced skills on the standard County's PC hardware and software. Should further support be required, the call will then be transferred to other support organizations in the County's IT Help Desk.

Problem Escalation - If the problem has not been solved by Level 1 or Level 2 support, it will escalate to the IT Help Desk Support Manager for resolution. Unresolved issues will escalate to the Desktop Computer Modernization (DCM) Program Office. The IT Help Desk generates monthly trend analysis reports. These trend analysis reports help to identify repeat problems, which might indicate systemic issues beyond the scope of the problem reported.

Service Levels - Service level indicators for the IT Help Desk are established in the DCM Contract and are used to show performance level. The service level indicators established are the Minimum Acceptable Level (required) and the Incentive Level (incentive goals).

Phone Number

Help desk phone number is 240-777-2828.

3.10 Interactive Voice Response Domain

Principles

The Department of Technology Services' goal is to develop IVR strategies that improve customer service and lower operational cost by integrating all County IVR functions into one enterprise platform. The current platform will expand to accommodate a variety of applications, reduce application redundancy, and service the County in a more efficient way.

Interactive Voice Response (IVR) is a technology that enables callers to obtain information stored in a corporate database. IVR technology uses the familiar telephone keypad as an information retrieval and data gathering conduit. Recorded voice messages prompt and respond to caller inquiries and commands.

IVR's functions range from the simple process of selecting options stored in a computer (such as the single digit menus deployed throughout the County), to more complex interactive exchanges that rely on database lookups, such as the Finance Department's tax line script, and Health and Human Services' payment status system.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS PBX Telephone Services Team.

Components

The Avaya IVR server provides call processing and media services, as well as standard operations, administration, and maintenance. Working with existing Web infrastructure, the system uses HTTP, XML, Java, and VoiceXML languages. At the heart of the IVR is a UNIX server, which provides high port density and uptime reliability. IVR uses a distributed client/server Natural Languages Speech Recognition architecture to meet the County's customer needs successfully, in a cost-effective manner.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
SQL programming and DBA
Java API, C++ Programming
Vonetix Software Programming
XML, VoiceXML

Standards and Guidelines

Functions

An Interactive Voice Response system must be able to provide the following functions:

- Call answering and routing: the IVR system will answer a call. Callers then select a menu item to direct their own call.
- Information retrieval from a database via telephone or internet via Web interface: the caller accesses database records using telephone keypad or a Web site.
- Touch-tone and voice data input: the caller uses DTMF keypad tones or "natural" voice speech for inputting data.
- Text-to-speech capabilities: the system artificially generates spoken words from textual information.
- Voice recognition: the system identifies a particular person's voice.
- Speech recognition: the IVR system must have the ability to understand human "natural" speech.
- Fax back confirmation and information fulfillment: callers can request and receive information and confirmation by fax requested documents, 24hours per day, for 7 days per week.
- Voice forms for short voice messages: callers can verbally respond to recorded questions. The answers are stored for later transcription.

Functional Specifications

Enterprise IVR System	
Scalable	• Upgradeable • Scalable by ports (analog, digital, ISDN) • Capacity to increase memory • Ability to add disks
Administration	• Managed by internal staff or outsourced. • Determined by "cost management" • Secured access • User friendly administration - GUI click and drag • Easily modifiable script changes • Procedures for change management, testing, and problem resolution
Interoperability	• Provide access and control to multiple host, databases, networks, and telephony interfaces • Integrates with telephony, data and information systems • Website integration
Maintenance	• 24x7 vendor maintenance availability • One contact and local service support • Written and approved service level agreement • Reliable 99.9% uptime (critical system) • American Disabilities Act (ADA) Compliance.
System hardware and software	• Application may or may not reside on the system • Multi-tier voice and data integration CTI, TCP/IP, call center. • Accepts multiple IP addresses • Voice module text to speech, speech to text, multiple languages, both 'natural" speech and key work speech, TDD-TTY compatible • Capable of more than one application on a "box" administered separately. Each application can be taken down for maintenance and upgrade without affecting other applications
Redundancy/Disaster Recovery	• Hot swappable parts • Disaster recovery features • Capability for on-line back-ups • Redundancy in case of hot site catastrophe • Business continuity considerations • Dual power supply • Minimal single point of failure

Table 3-7 Enterprise IVR System

3.11 Mainframe Application Services (deprecated)

Principles

Montgomery County Government owns and operates an IBM mainframe to support the County's legacy applications, which are General Ledger, Criminal Justice, Payroll, Purchasing, Fixed Assets, Budget and Tax Assessment.

The mainframe is an IBM Z9 BC Type-Model 2096-R07 B03 three processor 109 MIPS machine with one Crypto Express2 and one DB2 zIIP sub processor. It is running the z/OS v1.9 Operating System.

System software supported on the mainframe includes:

- CA-7 job scheduler
- CA-1 tape management system
- CA-Opera automated systems manager
- CA-Librarian source code management
- DB2
- CICS TS
- IMS DB/DC 8
- SAS statistical analysis system
- EOS report archive and distribution

The County is in the process of retiring the mainframe and all applications running on it. Initial retirement plans have been developed for each of the applications with the mainframe having a target retirement date of 1st quarter 2013.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owners for this Domain are:

- DTS Operations Management Support Team
- DTS Enterprise Systems Team

Components

Application services on the mainframe include:

Payroll and Personnel - Integral's Human Resources Management System (HRMS) v9.5 is a Payroll and Personnel application implemented using COBOL, CICS and DB2. **(Functionality migrated to the County ERP project – January 2011)**

Position Control System (PCS) - PCS is a SAS/AF application with a DB2 database. **(Functionality**

migrated to the County ERP project – January 2011)

FAMIS - FAMIS v 4.2 is the General Ledger accounting system. It is a KPMG product developed using COBOL and CICS, and adapted for DB2 by BearingPoint consultants. **(Functionality migrated to the County ERP project – July 2010)**

ADPICS - ADPICS v4.5 is the Purchasing system. It is a KPMG product developed using COBOL and CICS, and adapted for DB2 by BearingPoint consultants. **(Functionality migrated to the County ERP project – July 2010)**

FAACS - FAACS v4.2 is the Fixed Asset accounting system. It is a BearingPoint product using COBOL, CICS and DB2. **(Functionality migrated to the County ERP project – July 2010)**

BPREP - BPREP v4.2 is the Budgeting system. It is a KPMG product developed using COBOL, and CICS, adapted for DB2 by BearingPoint consultants. It is an online, real-time environment with a batch interface to FAMIS.

Tax Assessment - Tax Assessment is an in-house developed application using COBOL, IMS/DC, and IMS/DB. To produce Property Tax Bills, it conditions the property assessment data from the State of Maryland, for submission to the MUNIS system.

EOS - Enterprise Output Solution (EOS) is the Report Archive and Distribution system from Rogers Systems Development (RSD). It stores and distributes reports from all of the mainframe applications. Reports are available for viewing through VTAM. Security is at the page level. There are over 600 users defined to EOS and tens of thousands of stored reports available for viewing or redistribution.

Criminal Justice Information System (CJIS) – CJIS was the principle source of offender processing information, including criminal history information for over 20 years. The County's IJIS program has been replacing components of the functionality over the last several years with the final functionality anticipated to be replaced January, 2013.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
COBOL
CICS
DB2
IMS
SAS
JCL
Crystal Reports
FTP/SFTP
SQL

Standards and Guidelines

The mainframe is available 24 hours per day, for 7 days per week, except for the regularly scheduled Initial Program Load (IPL) on Sunday mornings between 8 AM and 12 PM. When needed, Mondays and Wednesdays from 6 PM to 8 PM are reserved for system maintenance/update outages.

Online data entry to the mainframe applications is available through CICS and IMS/DC from 7 AM to 6 PM each business day. DB2 databases are up for 23 hours a day. They are unavailable from 4 AM to 5 AM each business day because this time is reserved for SNAP backups. IMS databases are unavailable from 6:15 PM to 7:00 PM, and from 4 AM to 5 AM each business day because of backups.

3.12 Network Domain

Principles

The County is unique among its peers because it is its own telecommunications carrier. The County has undertaken several major initiatives to isolate itself from the uncertainty and expense of purchasing telecommunications services from the incumbent local exchange carrier (ILEC). Two major initiatives are the construction of a private facilities based electro-optical network (FiberNet I) and the installation of a large private branch exchange (PBX). These two initiatives have been complemented by two follow-on projects that leverage these investments. The first of these new initiatives was the installation of a metro-Ethernet network in 2007. This network is referred to as FiberNet II. The second initiative is the deployment of Voice over Internet Protocol (VoIP) as an alternative to digital wireline dial tone. These projects are well under way and very successful.

FiberNet is the name of the County's network. Based on economics and public safety concerns, the County can choose between FiberNet and the Local Exchange Carrier for telecommunications services and solutions. Telephony, public safety radio, data, secure Internet access, and video application services ride over FiberNet. From the County's perspective, FiberNet is a self-owned and operated electro-optical wide, campus, and local area network infrastructure, supplemented, when necessary, with ILEC frame-relay and TDM services.

The County built and manages its own network infrastructure. FiberNet is a robust and resilient service provider class network composed of over 500 miles of optical fiber plant, ATM and Ethernet switches, routers, one and ten Gigabit Ethernet (GbE) links and frame-relay circuits. These technologies are combined to deliver connectivity solutions that are efficient, bandwidth-rich, and economically justifiable. The first principles of engineering design are performance, security, reliability and availability, and these principles dominate FiberNet's daily operation. Cost recognition, reduction and containment are the economic principles that guide the operation of the network. FiberNet is monitored and evaluated against these principles and improved accordingly.

Montgomery County's network infrastructure supports a distributed user community, providing public safety and health services, traffic signal management, highly successful Internet-based eGovernment, back-office business applications, justice information systems and education.

FiberNet is a multi-agency telecommunications resource that is subject to inter-agency governance. FiberNet's strategic planning, budgeting and operational oversight is a matter of concern and involvement by the County Council which created the Information Technology Planning and Coordinating Committee (ITPCC) and its subgroups. This governance structure manages the direction of FiberNet, approves budgets and oversees the stewardship of DTS in operating the network.

FiberNet is a multi-service network infrastructure supporting voice, video and data to hundreds of sites within Montgomery County. The network has been operational for over eight years. New sites are added regularly.

FiberNet is currently undergoing an upgrade to a next-generation metropolitan area network technology based network called FiberNet II.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the Network Services Team.

Components

FiberNet is a standard-based infrastructure implementing IETF, IEEE and ITU-T protocols on hardware and software products from Cisco, GDC Communications, 3Com Networks, VBRICK and other major equipment manufacturers. Standards implemented within the County's network infrastructure are shown in Table 3.12. Element managers and network management system tools (NMS) help maintain control of the network by tracking utilization, reporting faults, and maintaining configurations. NMS products currently in use or planned to be used are Cisco Works, GDC ProSphere V4, IBM Netcool, Statseeker, and HP/Open View Network Node Manager.

FiberNet I

FiberNet I is a multi-service network infrastructure supporting voice, video and data.

Major components include a County owned and operated fiber optic plant, ATM and Ethernet switches, ATM integrated access devices, multi-protocol routers, firewalls, video codecs, wireless access points, and bridges, as well as element managers and network management systems. Table 3.12 lists protocols and standards supported by the County network.

The County employs three major technologies in its wide area network (WAN). These are electro-optics over the County's fiber optic plant, 802.11 wireless bridges, and Verizon's frame-relay. FiberNet I employs an electro-optical core network using ATM, Fast Ethernet, and one and ten Gigabit Ethernet (GbE) technologies to deliver connectivity to many County locations. FiberNet is a partially-meshed network topology, connecting eleven major hub sites spread throughout the County. County offices, fire houses, police stations, and schools having hub locations receive OC-3 ATM or Ethernet hand-offs to the appropriate edge device. Additionally, County locations within the Rockville core area may be directly attached to FiberNet using GbE optical links. Over 110 County locations are connected using Verizon's Frame-Relay services. Where "fibering" costs are high, or the facility is leased, wireless 802.11 bridging is used to connect sites to FiberNet I.

Local Area and Campus Area Networking uses three physical media and three link layer protocols. Physical media include copper (cat 5e & 6), multi-mode fiber and air-interface (wireless). Increasingly, wireless is becoming more important and more prevalent throughout the County. Link layer protocols include 10BaseT, Fast Ethernet, GbE, and 802.11 a/b/g. At the network layer, the County only supports routing the Internet Protocol (IP).

FiberNet II

Montgomery County determined that FiberNet should adopt a service provider network model for the next generation of FiberNet. Service providers like AT&T and Verizon have moved from ATM and frame-relay technologies to metro-Ethernet and Multi Protocol Label Switching (MPLS). In doing so, they have been able to offer virtual private network (VPN) solutions based on logical network separation at the IP layer. A major advantage of this combination of technologies is the easy segmentation of networks so that departmental isolation is based on security requirements and business needs. For Montgomery County Government, key workgroups and departments will be given their own virtual private network with

common and shared services being accessed via a stateful firewall. The service provider model enhances FiberNet's ability to provide secure network services to critical Public Safety and Health departments in the county government. It is designed to better respond to Compliance Initiatives as well as improve survivability from network attacks.

Figure 3.8 depicts the general design of FiberNet II.

FiberNet II Core

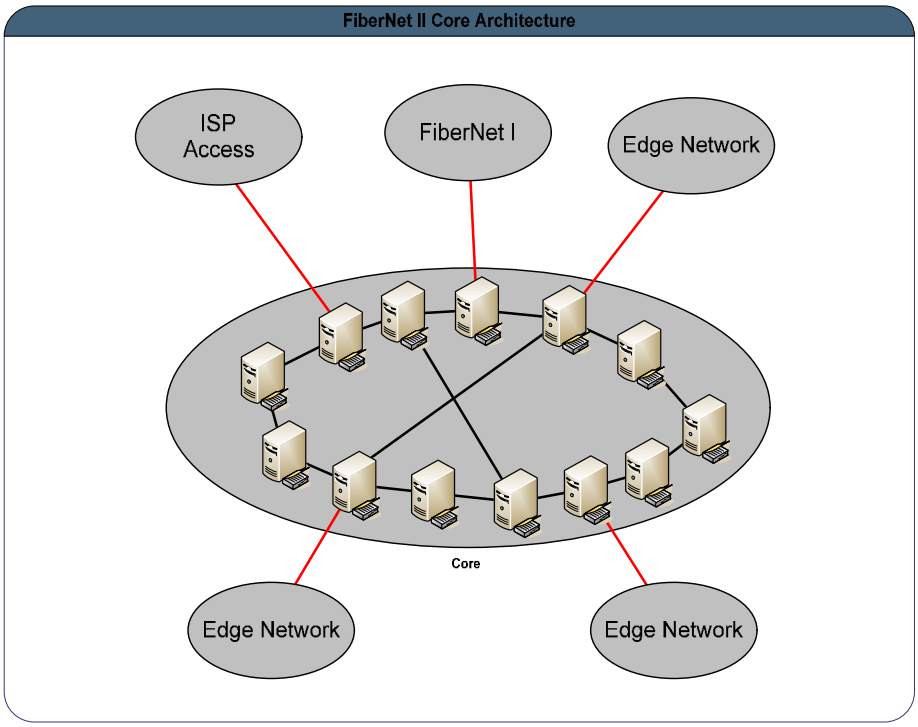


Figure 3.8

The core of FiberNet II is built around a number of 6509 CISCO Routers in a partially meshed configuration where on average every node on the backbone is connected to three neighbor nodes. These form the backbone of the county's MPLS/VPN infrastructure. Customer edge networks are attached to one of the core routers over a fiber optic or frame-relay link.

FiberNet II Edge Architecture

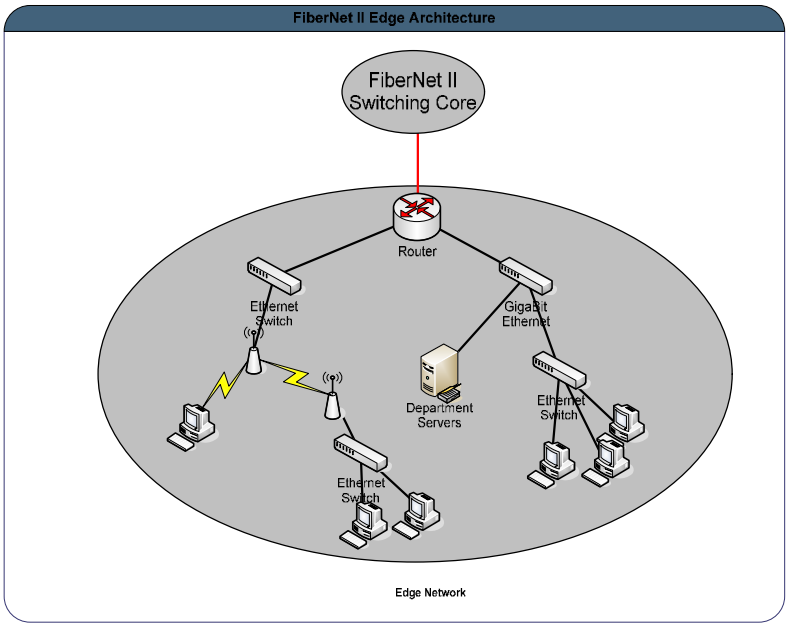


Figure 3.9

FiberNet II departmental edge networks are based around Ethernet and wireless technology. Employees in county offices attach to a local area network through either 802.11 wireless access or direct access to a local Ethernet switch. The county uses CISCO switches and routers to build out their local area networks. Switches are VLAN capable. Where necessary, MPLS capable routers provide the ability to segregate collocated departments and workgroups that will be mapped into departmental IP networks. The edge networks are connected to one of the backbone routers in the core network.

FiberNet Wireless Access Architecture

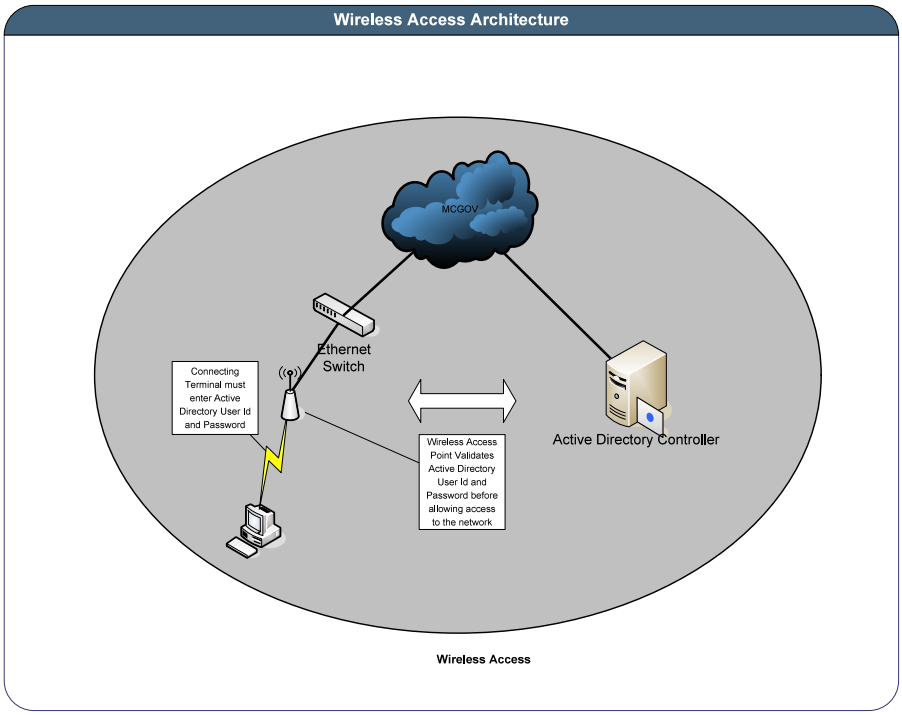


Figure 3.10

In addition to wired technology the county has deployed a large WiFi network. Wireless access is provided in many places via 802.11 b/g/n Cisco access points. The County has deployed Cisco's Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) as its security solution. EAP-FAST is a publicly accessible (RFC 4851) IEEE 802.1X EAP type developed by Cisco Systems. Authentication of a connecting workstation is made through a dialogue with the county's Active Directory infrastructure (see section 3.1 – Active Directory (AD) and Single Sign On (SSO) Services). If the user fails to provide a valid Active Directory login, the workstation is prevented from joining the network.

EAP-FAST has addressed many of the outstanding security issues related to wireless solutions. It provides protection from a variety of network attacks, including man-in-the-middle, authentication forging, weak Initialization Vector (IV) attack (AirSnort), packet forgery (replay attack), and dictionary attacks. EAP-FAST uses symmetric key algorithms to achieve a tunneled authentication process. This tunnel establishment relies on a Protected Access Credential (PAC) that can be managed dynamically by EAP-FAST through an authentication, authorization, and accounting (AAA) server. With a mutually authenticated tunnel, EAP-FAST offers protection from dictionary attacks and man-in-the-middle vulnerabilities. Additionally, the central administration of wireless security enables the County to add users, and to limit their access to specified wireless networks throughout the County's wireless infrastructure.

FiberNet ISP Access Architecture

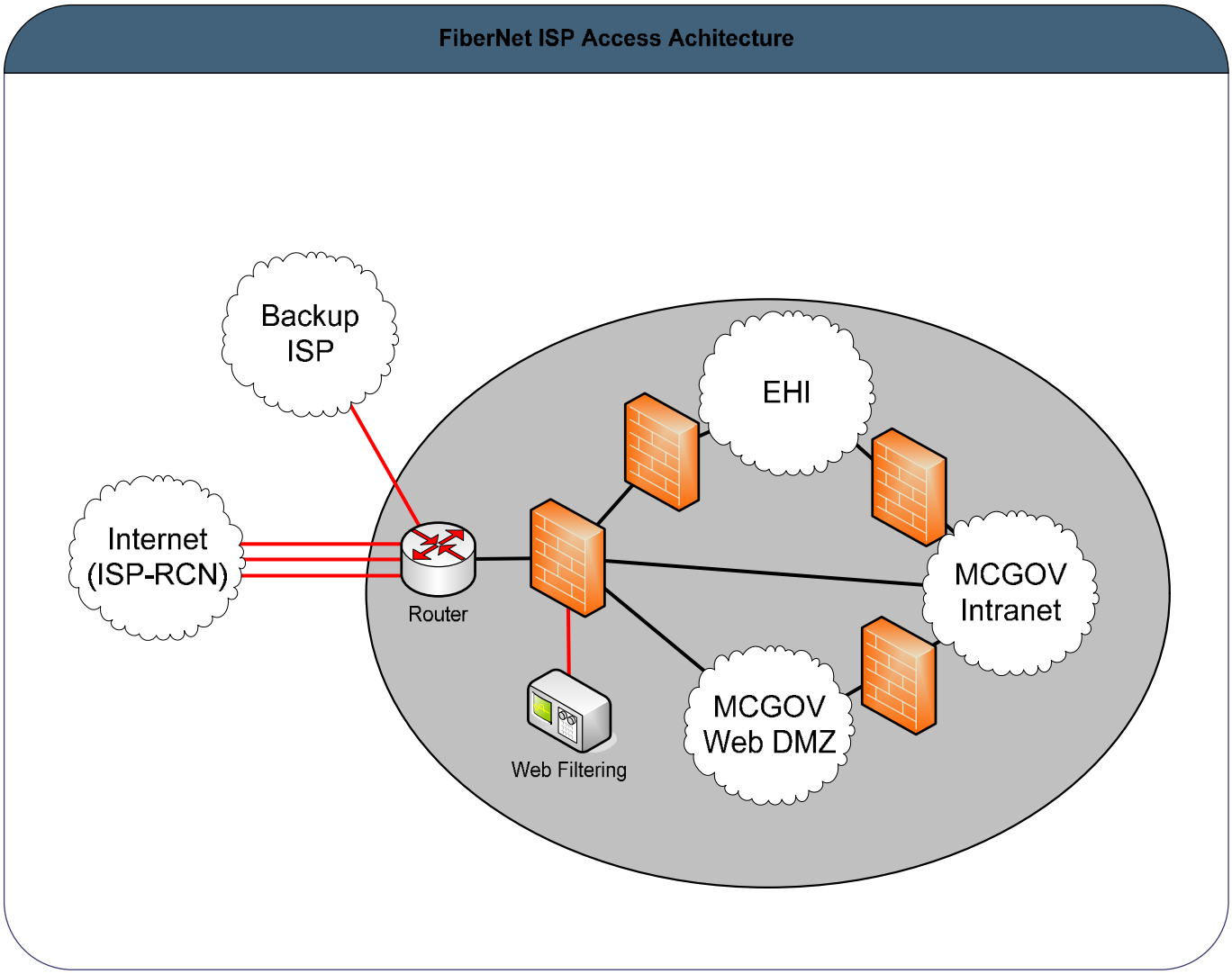


Figure 3.11

Internet access is provided by RCN over multiple T3 circuits that are multi-homed into the county network for load-sharing, redundancy and resiliency. All traffic that enters and exits the county passes through a stateful firewall. Outbound HTTP traffic is filtered through the DTS Security Team's Web Filtering system (See section 3.3 – Security Domain).

The County is working with a second local ISP to multi-home the County's Internet connection. This backup path is available in the event of a RCN failure.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Link Layer Protocols including wireless
Routing & Switching
Perimeter & Internal Security
Network Management
Project Management
Optical Plant Design and Networking
Customer Satisfaction & Support
Network Design

Standards and Guidelines

The County will introduce additional or new standards-based technologies, as these are required. Cost justification of technology is of paramount importance in our decision making process. New technologies must meet the County's architecture goals and must make sense economically. See Table 3-12 for Primary Standards

Table 3-12

IETF Standard/Protocol	**Title/Name**	**Comment**
RFC 768	UDP	User Datagram Protocol
RFC 791	IP	Including IP routing processes
RFC 792	ICMP	
RFC 793	TCP	Transmission Control Protocol
RFC 826	ARP	Address Resolution Protocol
RFC 1918	Address Allocation for Private Internet Space	Network Address Translation is used to permit RFC 1918 address to communicate over the Internet.
RFC 2131	DHCP	IP address management
RFC 2362	PIM/SM	Multicasting
RFC 2390	Reverse ARP	Reverse Address Resolution Protocol
RFC 2571 through RFC 2580, inclusive	SNMP	Network Management
RFC 2547bis	MPLS/VPN	MultiProtocol Label Switching/Virtual Private Networks
RFC 4851	EAP-FAST	802.11 security protocol developed by Cisco Systems and made available to the general public in RFC4851
IEEE Standard/Protocol	Title/Name	Comment
802.1D	Spanning Tree Protocol	
802.1P	Prioritization	
802.1Q	VLAN	
802.3	CSMA/CD	
802.3AD	Link aggregation	Trunking
802.3U	MAC 100 Base-T	Fast Ethernet (100 Mbs)
802.3X	Flow Control	
802.3FX	Fast Ethernet over single mode optical fiber	
802.3Z	MAC Gigabit Ethernet	
802.5	Token Ring	Being replaced with Ethernet
802.11B/G/N	Wireless LAN	
802.1W	Rapid Spanning Tree	
802.1X	Port Based Network Access Control	One of the elements supporting Extensible

		Authentication Protocol (EAP) used to implement 802.11 security.
ITU-T & ATM Forum	Title/Name	Comment
AAL1	Circuit Emulation Services	Used for TDM based services
AAL2/3	Variable Bit Rate	Voice – G711, etc
AAL5	Unspecified Bit Rate	Data
PVS & SPVC	Permanent & Switched Virtual Circuits	

Performance

Network performance is monitored continuously in the optical core, and at the client edge. Network Services has developed an integrated Network Management System using standard based tools like HP Network Node Manager, Statseeker and IBM Netcool. Network devices are configured to send SNMP traps when faults or changes in the network occur. These are parsed, filtered and forward to the Data Center and Network Services team for evaluation and resolution. This system is under constant development and improvement.

Capacity planning is performed periodically to determine whether or not a traffic bottleneck is causing congestion in the network. Statseeker is used to track bandwidth utilization and system availability. Reports are reviewed on a weekly basis to look for developing problems and to analyze problems as these are reported.

In general, site to site response times across FiberNet vary depending upon the time of day, inherent delay, and latency in the traveled circuit. Observed ping response times between sites on the fiber-optic network range between 1 to 3 milliseconds (ms). Adding frame-relay to the traveled circuit adds another 3 to 4 milliseconds, and adding a wireless link adds another 1 to 4 milliseconds. During normal network operation, ping response times are usually below 11 milliseconds, from edge to edge. Network throughput is governed by the most restrictive carrier link in the circuit. FiberNet uses circuits ranging from 10 gigabit/second to 10 megabits/second for Ethernet links and 1.544 megabits/second for frame-relay. Contention and congestion affect throughput and must be considered when designing applications. Each media and every component in FiberNet is shared by every active application traveling a particular communication channel.

Reliability

At the physical layer, reliability has been achieved with redundant components like multiple switches and power supplies, multiple and diverse fiber paths, and uninterruptible power supplies (including dedicated generators) within the supporting infrastructure. FiberNet I and FiberNet II use a partially meshed backbone design. Every FiberNet Hub has at least two diverse links (east-west) attaching to its nearest neighbor. In most cases, there are three links. At the next layer in the OSI model, reliability has been engineered into the electro-optical network core with the use of multiple technologies. On FiberNet I, ATM is the logical link layer protocol . ATM Permanent Virtual Circuits (PVC) and Soft PVCs provide circuit protection by supporting multiple paths to very destination. FiberNet I is a Layer 2 network, recovery from a network fault happens at the Logical Link Layer. On FiberNet II, the same partially meshed backbone provides protection from backbone link failures. FiberNet II is fundamentally a Layer 3 network topology. Fault recovery is performed in the routing plane of the network. This design removes the single point of failure flaw in the FiberNet I.

The County maintains an inventory of spare equipment. Equipment from this inventory is used to quickly replace failures at edge sites and in the core. FiberNet/WAN was designed to transport public safety applications. For this reason redundancy, robustness, proactive monitoring and management have been design requirements from the beginning. The core and the customer edge sites are monitored 24 hours per day, 7 days per week. Field engineering is available within a two hour response time, and all outages are treated as major outages. Service Level Agreements stipulate an eight hour time frame for repairs to electrical component faults. Fiber repair times are more problematic due to external forces like hurricanes, snow storms, thunder storms and accidents. Our experience has been favorable; these types of failures and long-lived outages have been rare.

Availability

The County tracks availability statistics for FiberNet's backbone, and user sites separately. Average availability over the most recent quarter has been 100% for FiberNet's backbone and 99.9% for all user site outages. Public safety and other important sites which operate on a 24 hours, 7 days per week basis receive 2 hour on-site response times with 8 hours as the targeted time to repair for equipment related faults. Most user-site outages are related to local power failures and the recovery there from. Such outages do not reflect upon the stability and reliability of FiberNet core; rather these indicate the assessed criticality of the user site. Sites are not public safety sites or other critical sites, and do not operate on a 24 hours per day, 7 days per week schedule. These are sites closed on the weekends and after 6:00 PM, forcing repairs efforts to wait until the site is accessible.

Security

Although security is addressed as a separate topic within this document, it is also a design goal within the network infrastructure. FiberNet's circuits are inherently secure. Desktop and server connectivity is provided through switches. The County does not use shared media hubs to deliver services. This design principal mitigates the risk of network sniffing and man-in-the-middle attacks. FiberNet is also concerned about the security and survival of its physical infrastructure. FiberNet has added and will continue to add external physical security, fire suppression, environmental monitoring and control systems to this infrastructure.

Management systems and protocols are often a security risk in a large network. The management core for FiberNet is not accessible from the County network and the Internet. Network Services maintains a logically separated NMS network to monitor the networking infrastructure. There is no dial-in capability within the WAN.

Internal security for the network is provided by several firewalls that provide "security in-depth" for the County's IT assets. Internet access is mediated by high-availability firewalls that screen all traffic. Additionally, dedicated internal firewalls segregate special purpose networks from the main County network.

Wireless access to the county network is protected by the use of an Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) solution.

Wireless Access

The Network Services team must specify and install all wireless access points attached to the County's networking infrastructure. Wireless access points must follow the County's architecture and standards. Fundamentally this means using EAP-FAST for authenticating to the county Active Directory. In rare circumstances, Network Services has deployed ARUBA access points for special applications. We fully

anticipate deploying ARUBA access points to support AVAYA 802.11 wireless phones connecting to the County's PBX.

Network Services is currently looking into 802.11n technology as the next generation of WiFi for the County. This technology may enable the County to stop placing data networks in offices.

Internet Access

The Network Services is responsible for protecting the perimeter of the County's network as well as providing security in depth; where it is required. Concerning Internet access, Montgomery County Governmental access to the Internet must pass through designated border routers and firewalls maintained by DTS. Any Internet connection that is not maintained by DTS is considered to connect to a foreign network. The Internet attaching network will not be permitted to connect directly to the County's network. Examples of this type of connection are the Department of Public Libraries and the DOT/Advanced Traffic Management network. Each of these networks connects directly to the Internet without going through a DTS maintained firewall. However, each of these networks in turn connects to the County network through a stateful firewall this is maintained by Network Services.

New Applications or Services

New applications or services must use IP based communications for their Network Protocols, conform to industry best practices and comply with the County's Security Policy as well as legal mandates and contractual obligations entered into by Montgomery County Government, e.g. PCI.

Disaster Recovery

The Network Domain is the most basic IT Service within the County. Almost all Enterprise Services depend on the Network in one form or another. A number of disaster recovery strategies are employed in the Network Domain to avoid and recover from failure such as:

- Multi-homed ISP connections - in the event of one ISP failure the other will take the load.
- Fibernet II is designed with a partially meshed backbone which provides protection from backbone link failures.
    - FiberNet II is fundamentally a Layer 3 network topology.
    - Fault recovery is performed in the routing plane of the network.
    - Fibernet II does not have a single point of failure.
- The County maintains an inventory of spare equipment. Equipment from this inventory is used to quickly replace failures at edge sites and in the core.
- Core and customer edge sites are monitored 24 hours per day, 7 days per week. Field engineering is available within a two hour response time, and all outages are treated as major outages. Service Level Agreements stipulate an eight hour time frame for repairs to electrical component faults.

The Network Domain offers a critical Disaster Recovery service to the Deployment Domain. The Network Services Team supports the ability to drop a deployment zone in one data center and bring it up in another data center. This allows the movement of VMGuests with their IP addresses from one data

center to the working data center. This avoids many Application, Database, ESB exchange, and firewall rule configuration issues.

See the Disaster Recovery Domain for information around prioritization of services and policies.

3.13 PBX Network Domain

Principles

The PBX Network Domain provides advanced voice services for most of the County Executive Branch Departments. The DTS PBX Telephone Services team provides the following services:

- Legacy Voice Services
- VoIP Services
- Voice Mail
- Management of the connection and agreement with the County ILEC
- Maintenance of the County Phone Directory – both online and printed
- Maintenance of the County's 311 connection with the various Telecommunications providers servicing in the County
- Maintenance of the endpoint switches with select departments including MC311
- Maintenance of a backup switch for critical phone numbers

The County maintains a modern Avaya Communication Manager that leverages the Network Domain (see section 3.12) to provide the above services. Communications Manager is a highly reliable and scalable system that provides access between voice and data endpoints.

The DTS PBX Telephone Services team supports both legacy voice and newer VoIP services. New installations are now being installed as VoIP services. The Communication Manager system supports both the old legacy voice and the newer VoIP services, enabling the County to continue to leverage its investment and allocate funds for new locations and new applications.

Select departments such as MC311 have their own Avaya endpoint switch. The PBX Network team supports the endpoint switches and their connection to the main Avaya Switch.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS PBX Telephone Services Team.

Components

The Avaya Communication Manager is a highly reliable and scalable system that supports digital voice, video and data communications and is designed to meet the County's information movement and management requirements, both today and in the future.

The platform provides an open architecture; conforming to QSIG, TCP/IP, ISDN BRI, TAPI, TSAPI, JTAPI, ASAI, LDAP, H.323, and H.248 standards. This translates into better integration and an increased number of high quality applications.

Avaya Communication Manager combines the legacy architecture of its predecessor, Definity ECS, with the IP Telephony Standard H.323 Media Server/Media Gateway architecture. This enables the County to leverage its current infrastructure and minimize capital outlays. With Communication Manager, Definity ECS Expansion Port Networks (EPNs) become Media Gateways that communicate with new S8720 Media Servers via IP addresses. The existing cabinets and cards continue to provide service, enabling the County to continue to support legacy requirements for as long as needed. New media gateways are added as either chassis based G650s or H.248 switches that have call processing elements built in. IP endpoints can be supported from either the legacy gateways or the newer H.248 gateways. All of the capabilities and features that previously existed in the system carry forward to the new gateways. And new features and capabilities are now available to existing users as well.

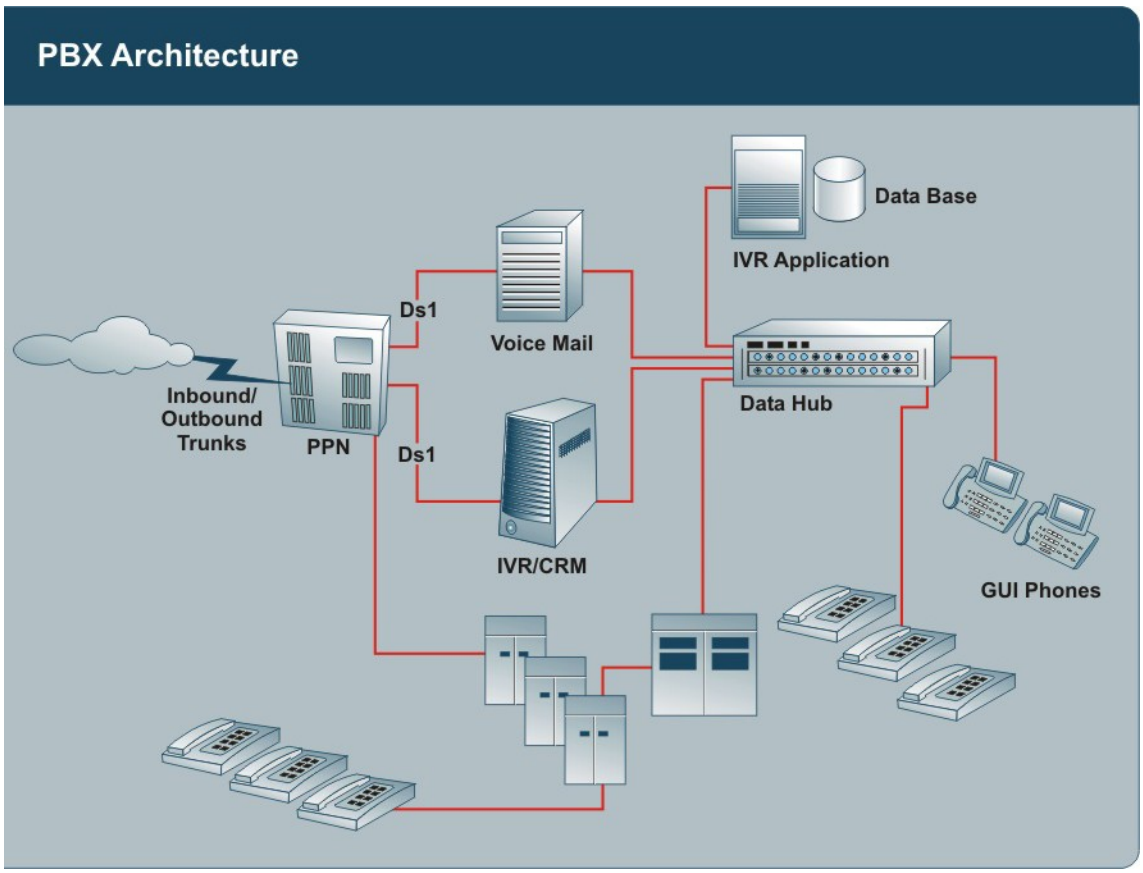


Figure 3-13 PBX Network Domain

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
PBX System Administration programming
Network wiring techniques
Call Center Vector programming
PBX network Design and Installation
VoIP

Standards and Guidelines

- The County conforms to security standards for G3r systems as outlined in the Avaya Toll Fraud and Security Handbook [2]
- All new endpoints are added as VoIP
- Critical Phone numbers are identified through department's telephone services administrators. The PBX Network team uses a backup switch during critical failures and during switch maintenance to keep these numbers operational.

Disaster Recovery

The PBX Network team has a number of Disaster Recovery solutions in place. The first solution relies on 24x7 monitoring support from Avaya and maintenance by the DTS PBX Team of an On Call PBX Administrator who is informed of any outages by Avaya. The On Call PBX Administrator determines the severity of the outage and manages the resolution of the issue.

To maintain availability of critical telephone numbers the PBX Network Team has a backup switch that can support the critical phone numbers during periods of switch maintenance or critical failures.

Finally, departments like MC311 who have their own endpoint switch are connected to the main County PBX switch. Disaster recovery support can be provided on a case by case basis with the department whereby the failure of the endpoint switch or the main County switch can be recovered through the other switch. In the case of VOIP phones the phones can be configured to failover to the other switch for services during a failover. Ability to dial out is maintained with the ability to accept incoming calls requiring additional support which is again provided on a case by case basis.

[2] Avaya Inc., *Avaya Toll Fraud Security Handbook*, May 2003

3.14 Record and Document Management Domain

Principles

The Record and Document Management Domain is Montgomery County's integrated, comprehensive enterprise approach to centrally administer and manage all county electronic records.

The Records Management function for Montgomery County is the responsibility of the Department of General Services (DGS), Division of Real Estate Management Services Section. They own the responsibility for Records Management in the County which includes both physical and electronic records. They define the policy the county will follow, enforce the policy, provide education on the policy, define the tools (warehouse and IT) that will be used to implement the policy, etc.

Records Management is a management discipline that is responsible for the control of official records. It is a methodology for defining important records, their safe storage, how they can be used, how long they must be retained, and when they can be destroyed. A data retention policy is an important aspect to the Records Management function.

The DTS Core Systems team supports their IT Requirements by maintaining a Document Management/Imaging solution. The solution accommodates records from virtually any source, including scanned documents, electronic files (e.g. Microsoft Word, PDF, JPEG, etc), e-mails and attachments, COLD reports and other business applications.

The Document Management/Imaging function is integrated with Records Management which manages the life cycle of the records. The records are kept in the system during the active period when records have the operational value. The inactive records are archived for records management in accordance with the retention policy.

DTS will maintain a Record and Document Management section on the DTS departmental homepage on the Intranet Portal. The Record and Document Management section will contain information about the service as well as an intake form and a roles and responsibility document. Finally, it will contain a directory listing for the electronic Records and Document management sites.

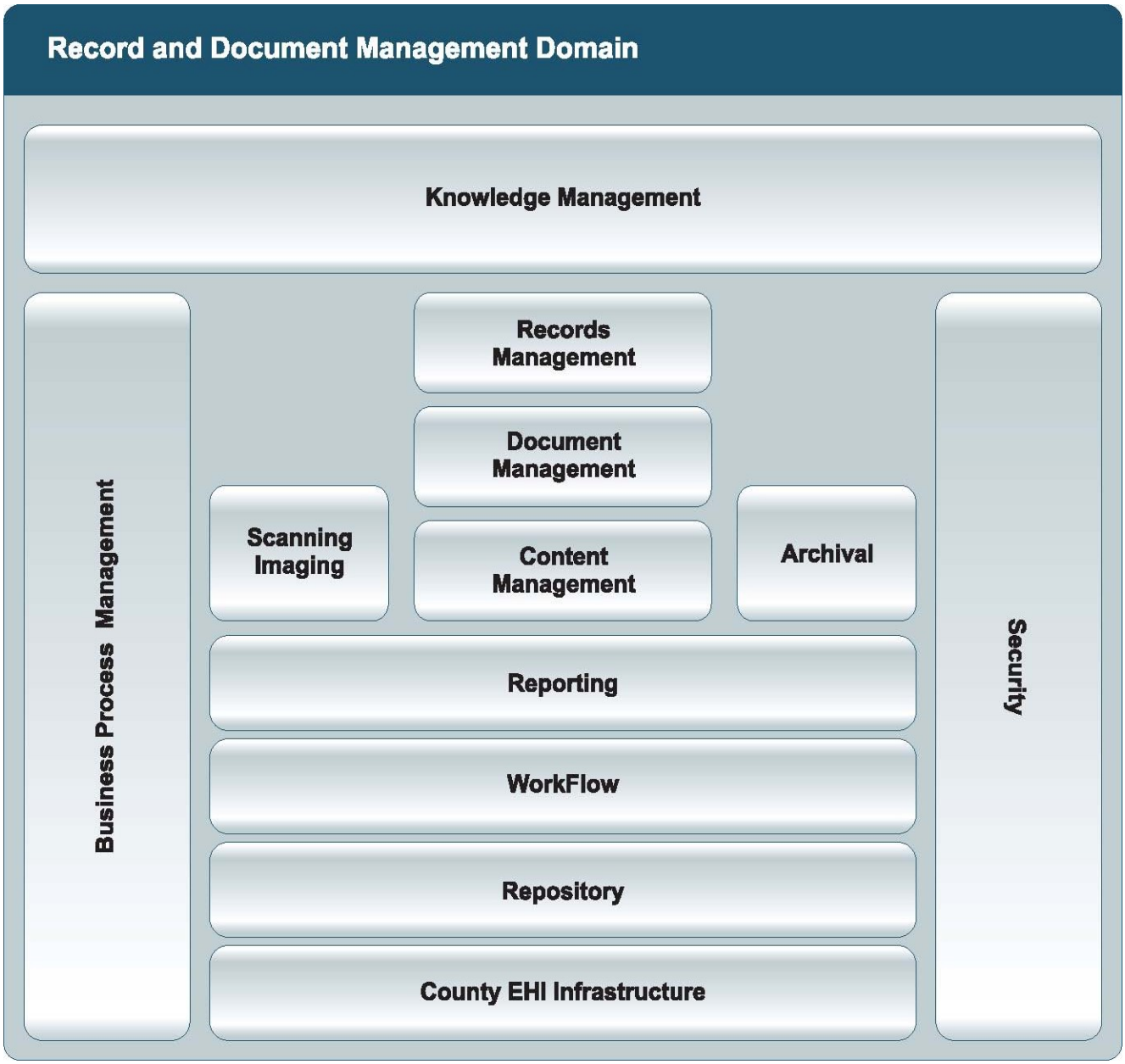


Figure 3-14 Records and Documents Management

Owners

Business Owner

The business owner for this Domain is DGS's Division of Operations Support Services Section.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

The DTS Core Systems Team supports the ZyImage Enterprise Web Server for storage of electronic records and documents. The ZyImage Enterprise platform provides functions for office workers to capture, manage, publish, share, and archive information throughout its entire lifecycle in a single document repository. It is designed for performance, flexibility, and reliability.

The ZyImage system leverages the other Architecture domains including the Deployment Domain (see section 3.4), Network Domain (see section 3.12), Help Desk (see section 3.9), Active Directory & Single Sign On (see section 3.1), Service Enabled Domain (see section 3.16), Enterprise Server Management (see section 3.20) and System Operations Domain (see section 3.17).

When groups are given access to the system their area and content are restricted to an Active Directory group that is under the control of their Department. The owning Department controls membership within that Active Directory group.

The platform has an open architecture, conforming to standards like ODBC, LDAP, Active Directory, TCP/IP, XML, COLD, .NET, and NARA/ERA and offers a robust fuzzy search and retrieval engine. System integration can be done through common gateway interface (cgi) coding to integrate with Microsoft office applications and web applications, or ZyImage Application Integrator. ZyImage accommodates records from virtually any source, including scanned documents, electronic files (e.g. Microsoft Word, PDF, JPEG, etc), e-mails and attachments, COLD reports and other business applications and synchronizes with databases like Oracle, SQL and Access.

The following modules are major ZyImage elements working together to support the enterprise document management and records management need:

- Zyscan converts paper documents and existing image formats into searchable online information. By digitizing the paper documents into electronic format, records become searchable.

- ZyIndex converts and manages scanned and electronic information. This module has a timer program to index all data collection. It also creates web clients for different applications.

- ZyCold automatically converts digital spool files into ZyImage searchable files, and adds key fields for key-field search and full-text retrieval.

- ZyImage for Forms interprets all common types of characters in paper forms, whether they are machine-print (OCR), isolated handprint (ICR), alpha and numeric mark sense (OMR) or bar codes.

- Records Management and Archival plug-ins enable storage of documents into a data repository from County standard desktop applications such as Microsoft Outlook, Microsoft Word, Microsoft Excel, Microsoft Internet Explorer and Adobe Acrobat.

- ZyFind allows searching, finding and organizing the documents in the data repository.

- ZyPublish copies data onto a CD or a DVD, and makes the data searchable.

- ZyImage webserver allows users to share indexes and data over the intranet. Using the browser, authorized users can search information.

- Records Management converts ZyImage into a record-management system and allows users to

manage and search records.

- Document Management adds the additional functions of version control and check-in/check-out, to enable multiple users to work on the same set of documents. This module integrates with Microsoft Office XP applications.

- Workflow allows users to route documents through an organization, according to a specific pre-defined path.

- Audit Trail stores all user activities (such as searching, viewing and editing documents and opening, deleting, and building indexes) in an XML file.

- Advanced Security modules provide document-level security options. The document groups are based on the contents of key fields and protect documents from unauthorized access. The system looks up users in Active Directory and set security rights for specific functions such as building, deleting, and creating indexes and editing, deleting and merging documents.

- Bates Stamping module provides every document and page a unique identifier which can be placed on the original images during the ZyFind export or printing process.

- XML Wrapper modules generate a universal key field structure over scanned paper and electronic file formats. This module connects electronic files to an XML file containing key-field information.

- Application integration enables ZyImage integration with other systems. This module will enable the County to integrate with other business applications.

- ZyAlert modules enable selective dissemination of information. It automatically detects relevant information in huge indexes and sends notification when the requested information is found. This module acts as an information agent which searches the data at set times, based on user profile.

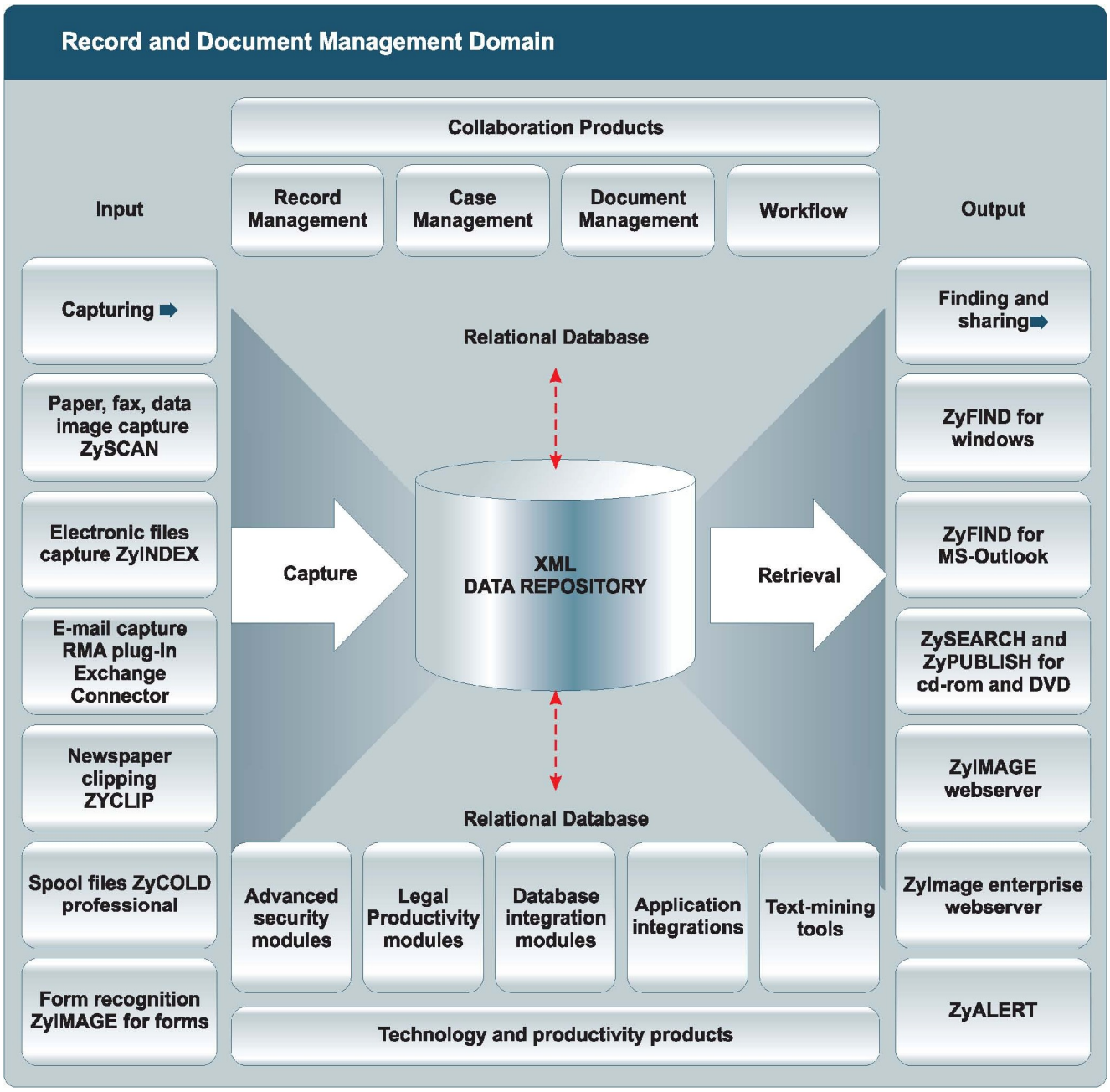


Figure 3-15 Record and Document Management Domain

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Microsoft Windows Operating system knowledge and experience
Microsoft Windows Applications
Data Base Management - Oracle and Microsoft SQL knowledge and experience
Records Management

Visual Basic
Networking
Active Directory
HTML, XHTML
XML, XSLT
Java
ASP.Net
SOAP

Standards and Guidelines

The County needs to comply with the rules and regulations of Montgomery County, the State of Maryland, and the Federal Government. Some of the standards that must be taken into account are HIPAA, Sarbanes-Oxley and COMAR 14.18.02 to 14.18.05 to ensure that vital records needed for business purpose are retained, organized, protected and searchable. The following guidelines should be applied to a document before it enters records management**.**

- Inventory the records (the official documentation of business activities)
- Categorize the records generated. State laws allow records to be grouped into categories (contracts, personnel records, etc.).
- Prepare the metadata, or taxonomy so that the records can be searched
- Consider the format of the electronic data
- Identify the employees responsible for maintaining the record
- Preserve the data and determine how long specific types of records should be maintained.
- Manage hardcopy and electronic documents (including computer generated documents and email)
- Give instructions for disposal of certain records, and update the retention schedule
- Establish procedures for ensuring compliance with the policy
- Enable historical preservation of the County records if it is required
- During litigation:
    - Provide documents and preserve evidence to support positions in litigation
    - Suspend the destruction schedule
- Permit the disposition, discard unnecessary records, and reduce storage costs.
- Comply with federal laws and state-specific requirements
    - COMAR (Code of Maryland Regulations 14:18:04 Electronic Records)
    - HIPAA (Health Insurance Portability and Accountability Act)
    - MPIA (Maryland Public Information Act)
    - NARA/ERA (National Archives and Records Administration/Electronic Records Archives)

Record and Document Management Intake Form

- A requesting team or department must fill out a Record and Document Management Request Form.

Collaboration Agreement

- A requesting team or department must read and agree to the Record and Document Management Agreement. The Record and Document Management agreement lists roles and responsibilities

for the service.

Records Management Administrative Procedure

Montgomery County Office of Management and Budget – Administrative Procedure 6-3, September 8, 1975; *Records Management Addendum*;

3.15 Reporting Domain

Principles

The County uses the Crystal Reports package to meet its diverse Enterprise Reporting requirements. The County uses Crystal Reports because it offers distinct capabilities and optimizes the use of software licenses.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

Crystal Reports will be used to develop reports to various data sources, including On-Line Transaction Processing (OLTP) systems. Crystal Report is comprised of the Crystal Reports Designer (CR) and Crystal Enterprise Server (CE). CR is used for report development and is a package which installs on the developer's desktop. Its design allows for control over data access and presentation and offers a variety of formula functions, operators report formatting, complex logic, and data selection. Once developed, the report is then made available or "published" to the CE server.

The CE server is a web-enabled server, which runs on the Windows operating system. Connectivity to all data sources is through Open Data Base Connectivity (ODBC). Current data sources are Oracle, MS Access, Mainframe-based DB2, PC-based DB2, and MS SQL Server. Other standard data sources are supported. The County is licensed for unlimited connections, and currently hosts 1,500 clients and 2,400 reports. Access by other non-County government entities is provided. The CE server is very scalable, and allows for specific growth options as required.

Clients access the published reports through a desktop client browser from the CE server. Additionally, several applications have been developed in-house which call CR reports directly from the server, bypassing all direct user input. J2EE is the standard application development platform. CE supports Single Sign On by authenticating users with the County's Active Directory (AD). Security for report access is based on individual accounts and AD group membership. Enhanced security is available and can be applied to users, groups, or reports.

Once a report request has been processed on the CE server, the report can be accessed using the following methods:

- Web browser
- PDF (Adobe Acrobat)
- Excel
- Word

Additionally, reports can be scheduled to run once or on a schedule. Users can view the latest or a previous "instance" of a report. Reports can be deposited to file shares or sent as an email attachment in the desired format. Report parameters can be entered via custom application interfaces or directly by the user. Reports can be integrated and are viewable from within an application.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Crystal Reports Designer
Windows Server Administration
Crystal Enterprise Server Administration
Printer Administration
Network concepts and administration
ODBC configuration management
Active Directory concepts and administration
Relational Data Base concepts
Desktop configuration for Crystal clients
Troubleshooting skills
DBA knowledge and administration

Standards and Guidelines

Policies:

Publishing policies and current procedures can be found in Outlook public folders, MCG, and Crystal Reports.

Standards:

Reports must be tested using Crystal Reports from the developer, then tested using Crystal Reports on the CE server, and then tested in "published" form.

Access to reports must be in compliance with security guidelines. Applications which call published Crystal Reports from the CE server should be developed using J2EE. This will provide for secure transmission of the user name, password, and report contents over the intranet and internet.

The CE reports using mainframe DB2 data must be optimized for performance by the database administrator. To minimize the impact of day-to-day reporting, long, complex, CPU intensive reports are to be scheduled to run during off-hours. This level of access is controlled by the Crystal administrator, who can delegate this authority to departmental IT contacts. View on demand reports are CPU intensive, and have no governors on processing time. They can use all of the CPU cycles, effectively locking out all other report processing. Scheduling uses different CE server components which do not exhibit this behavior. For SAS reports accessing the mainframe DB2 data, optimization must be in conjunction with SAS.

Direct access to the CE server via a Web browser requires AD authentication. For example, to access published Crystal Reports, the requestor must have a user account in Active Directory.

There are two kinds of accounts that access Crystal reports, those which are imported from AD and those which are created on the Crystal Enterprise server. The accounts created on the Crystal Enterprise server are not authenticated with AD, and they do not support Single Sign On (SSO). Applications that directly call reports from the CE server use these accounts. This assumes that acceptable security is provided from the application for intranet-only applications. If it is not provided, the application should be developed using J2EE.

Large additions (more than 50 reports), or major applications that rely heavily on Crystal will be examined for their effects on resources. This will be done to ensure satisfactory performance for existing and new application users. The number of reports, their complexity, frequency of generation, and average and maximum concurrent users will be reviewed. From this, the County may determine the potential effects of change on the CE servers.

DB2 on Mainframe – The County is particularly cautious of performance degradation caused by reports which access mainframe DB2 data. Execution of the report's complex queries can have a significant negative effect on processing resources. This can create problems with the application, and with other applications running in the shared mainframe environment. Similar problems can occur on the Intel Database Servers.

3.16 Service Enabled Domain

Principles

The Service Enabled Domain promotes the development of robust, scalable and flexible services for business integration with the County infrastructure. The goal is to achieve a cooperative and secure service and data sharing environment, and to avoid data replication

The County recognizes the importance of developing Services capable of integration with internal and external systems. These Services will be designed and implemented, based on events and messages. An event-based, messaging model will help avoid stovepipes (rigid, self-contained functionally organized service solutions for each department, not acting as a single-entity). To do this, the County hosts a healthy mix of services. Some have been developed in-house, and some are COTS (Commercial Off-The-Shelf) solutions. Each application will document and publish well-defined interfaces to the protocols identified in this section.

An events-based messaging service will foster the maturation of service implementations based on Service Oriented Architecture (SOA). The County encourages the use of XML to define event messages, Web Services technologies for integrating .NET and J2EE services and Enterprise Java Bean (EJB) for integrating J2EE services. The following table lists the County's supported protocols.

Protocols
Message Q
Enterprise Java Bean (EJB)
Java Messaging Services (JMS)
Service Oriented Access Protocol (SOAP)
Secure Hypertext Transfer Protocol (HTTPS)
Web Services Description Language (WSDL)
Universal Description Discovery and Integration (UDDI)
Representational State Transfer (REST)

Table 3-17 Service Enabled Domain Protocols

Enterprise Service Bus (ESB)

The County has deployed and maintains a distributed event services environment for communications between peer Services. This event service environment uses the SOA architecture pattern called Enterprise Service Bus (ESB). ESB is a specific server implementation of Service Enabled Domain services. ESB provides the feature capabilities listed in table 3-18.

Features
Protocol Switching
Message Routing
Message Transforms

Message Transports
Message Security
Message Aggregation/Splitting

Table 3-18 ESB Feature Capabilities

ESB provides a rich, event-based messaging infrastructure that aids the implementation of complex Service Enabled Domain Services and client consumers. Figure 3-19 shows a modular overview of the ESB.

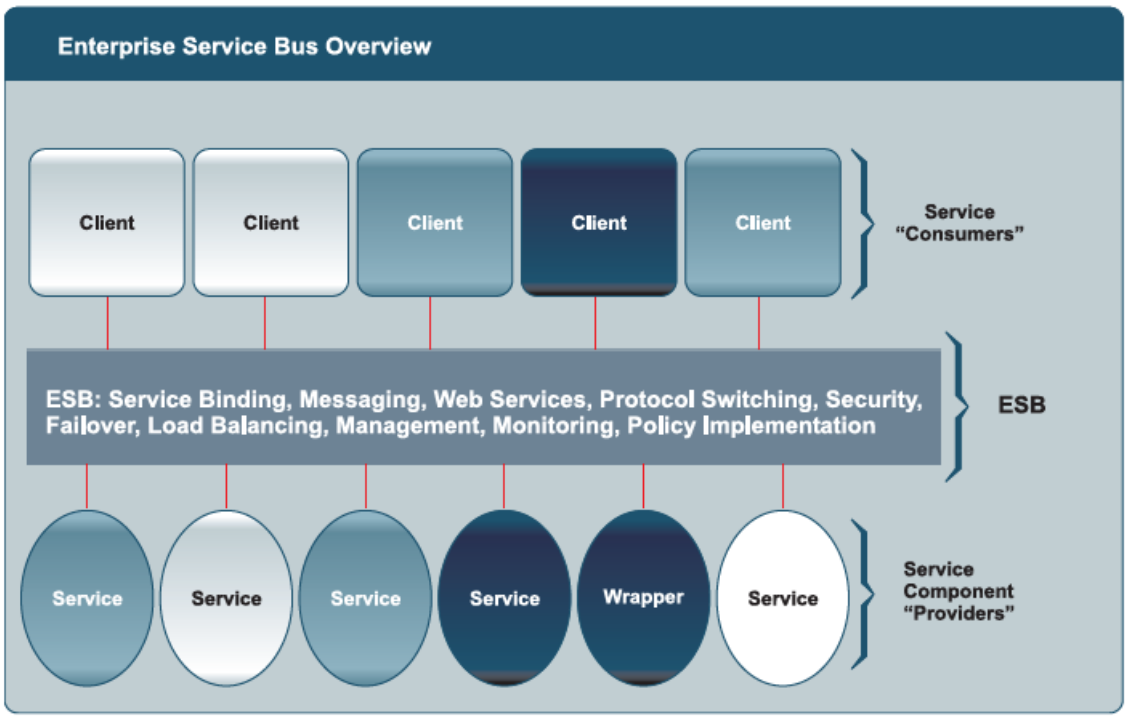


Figure 3-19 Enterprise Service Bus Overview

Compared to a home-grown Service Enabled Domain hosting environment, the standards-based ESB provides extreme flexibility for future integrations and extensibility.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Enterprise Services Architect.

Components

The County will deploy a distributed environment for communications between peer Services. With the development of a robust collection of Business Objects, their Service Interfaces and bindings will expose functions to other applications. Figure 3-20 shows an integration scenario for Services using ESB.

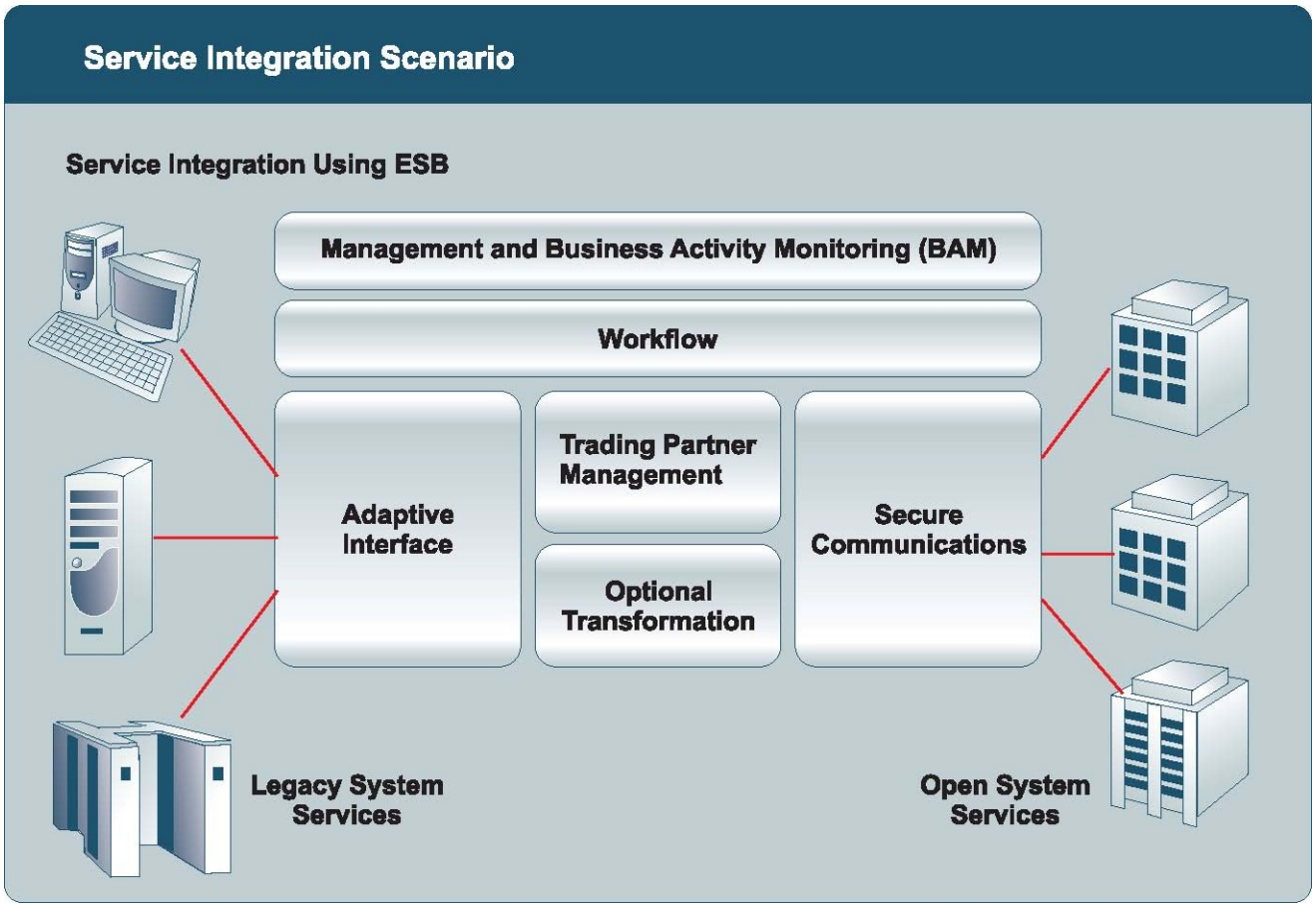


Figure 3-20 Service Integration Scenario

As Figure 3-20 shows, the County encourages the development of wrapper services for legacy system services. This is to enable legacy implementations to participate in event-based Service Enabled Domain.

The County encourages Service providers and consumers to document the message structure, format, data requirements, and security requirements. It also encourages documentation of the event generation, flow, security, and other SLA requirements. For secure communications, the County is using messaging protocols such as HTTPS (for Web services, and normal web calls) and JMS on WebSphere MQ (channels secured as needed). Business Objects may be implemented as EJB, Message Driven Beans or Java objects.

To accommodate diverse technologies, the County recognizes the value of a Service Oriented Domain, and plans to develop an infrastructure to support Web Services . The County encourages Services to be implemented to comply with industry-published standards and specifications like the Web Services –

Interoperability Basic Profile (WS-I BP), which minimally includes vendor-neutral components such as SOAP, WSDL, UDDI and XML and XML Schema.

Security issues are associated with Web Services and other messaging services, and the County will proceed with caution as the technology matures. The County strongly recommends encryption of data in transmission. Upon review of a service and the content of its messages, the County may mandate data encryption. The ESB platform which the County hosts contains a standard set of data encryption capabilities, such as PGP. The County will reserve the right to review the publication of Services (via JNDI or UDDI) both within and outside its Intranet boundaries. Data transmissions to and from systems external to the County will be reviewed and approved on a case-by-case basis.

The County will encourage data transmission in XML format (where the technology permits), particularly in domains where industry standards exist. The County views XML as the interoperability "glue" that allows systems being developed to communicate with each other. It paves the way for future expanded collaboration. This XML data transmission architecture is technology independent, therefore it will work with both J2EE and .NET protocols. Also, XML data transmission architecture on an ESB platform provides a seamless mechanism to transform message data for the requirements of other services and consumer clients. The following Figure 3-21 demonstrates the County's Service Enabled Domain.

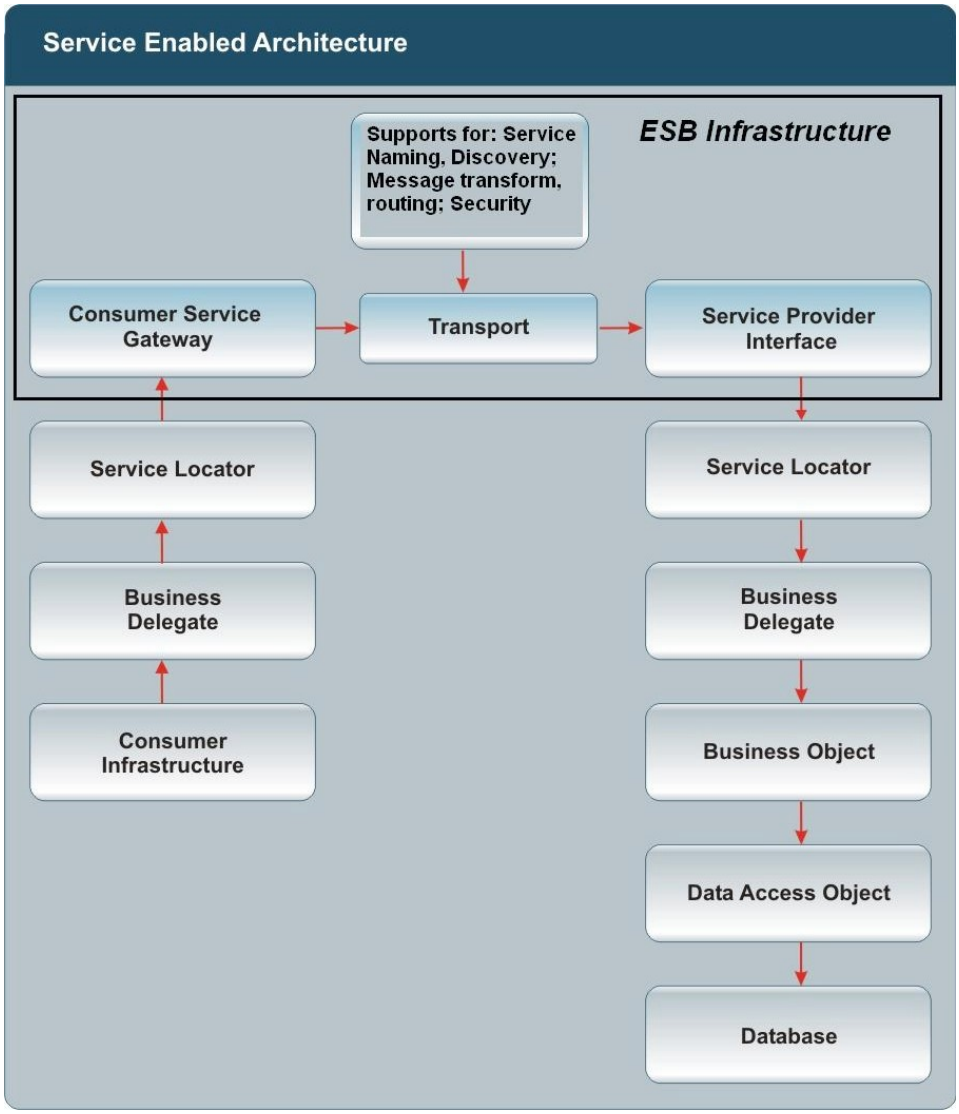


Figure 3-21 Service Enabled Domain

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
WebSphere MQ
Java Message Service (JMS)
Enterprise Service Bus (ESB)
Web Services
Enterprise Java Beans (EJB)
Simple Object Access Protocol (SOAP)
Representational State Transfer (REST)
XML
XSL Transformations (XSLT)

Standards and Guidelines

The County has standards for Java files to have following package structure:

gov.montgomerycountymd.<<dept>>.<<application>>.<<module>>

where

dept will be the short name of the department that owns the application
application will be the short name of the application itself
module will be the implementation section.

The County has standards for .NET namespace:

gov.montgomerycountymd.<<dept>>.<<application>>.<<module>>

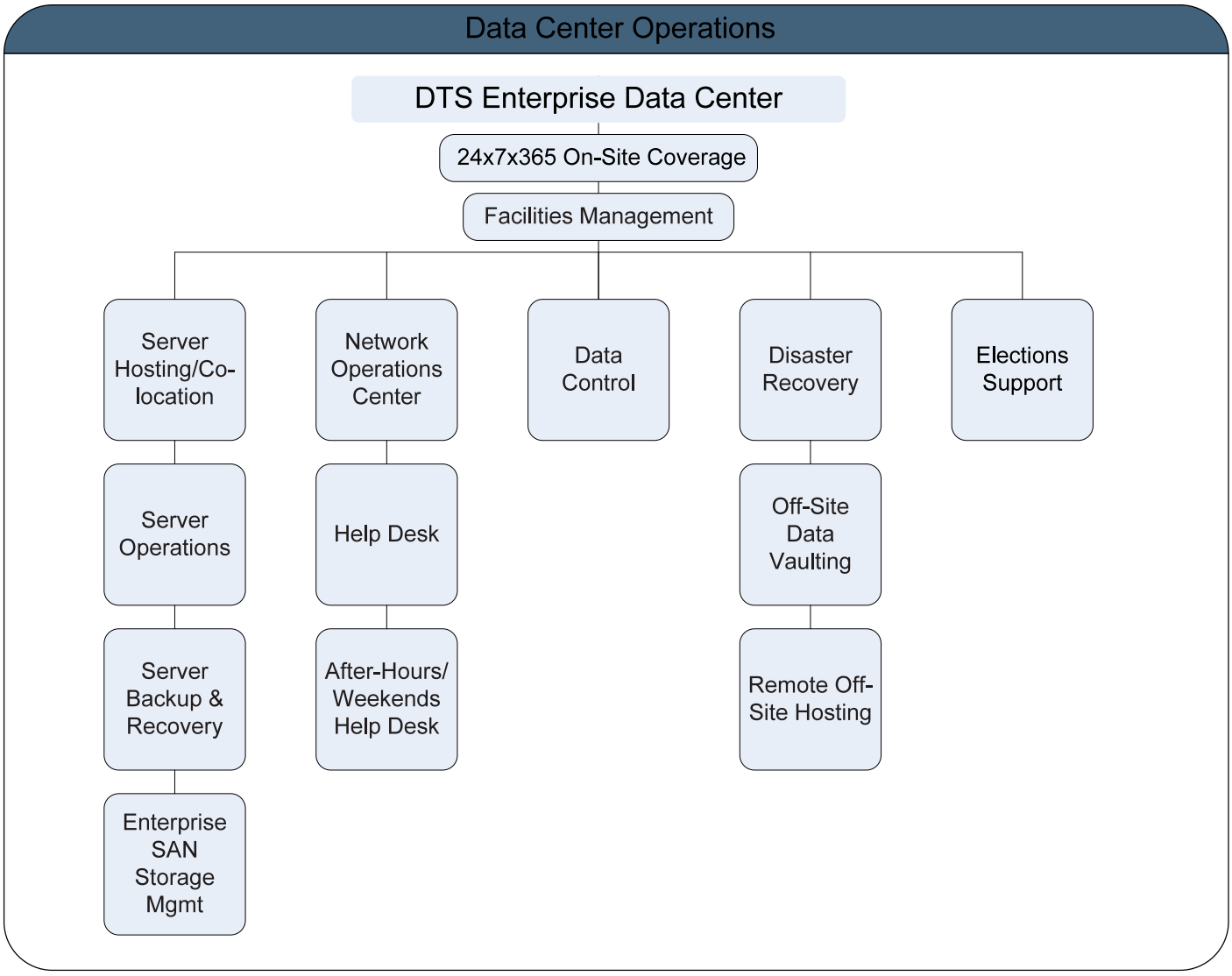
where

dept will be the short name of the department that owns the application
application will be the short name of the application itself
module will be the implementation section.

3.17 System Operations Domain

Principles

Data Center Operations provides first-line operational and virtual support and security (24-hours per day, 7-days a week) for mission critical servers, mainframe and main network hubs that reside in the County's Enterprise Data Centers. Major support services provided by the team include mainframe, server and Storage Area Network (SAN) operations, server backup/recovery, server hosting and system/network monitoring (NOC), and Data Production Control. Data Center Operations coordinates the Disaster Recovery plans and test exercises for several of the County's mission-critical systems. Operations protects the secured Data Center environments around the clock from power outages with UPS units and diesel generators. A constant climate controlled environment for the Data Centers is provided as well as fire protection and suppression systems. All hardware equipment is housed on a raised floor.



Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Data Center Operations Team.

Components

Data Center Operations Services:

Server Hosting/Co-location:

Server hosting and co-location services for Dell Intel, IBM mainframe, IBM & SUN midrange, and various appliances from DTS and other County Departments/Agencies. The County's main Network Hubs and voicemail system are located in the Data Centers. Physical security provided by card access only entry and closed-circuit video surveillance. 24x7 conditioned power uptime provided by a UPS unit connected to a diesel generator supplied by underground fuel tanks. All equipment is housed on a 12" raised floor and all rack cabinets are equipped with dual PDUs for power redundancy, and KVM over IP console switches for remote access. For network connectivity each rack connects to a Cisco switch configurable for accessing any segment on the County's network. Backup & monitoring is provided 24x7 for all equipment housed in the Data Centers.

Server Backup and Recovery:

The Data Center Operations team uses Symantec Veritas NetBackup v6.1. There is one NetBackup Master server that houses the main tape catalog and is where master scheduling and control is done. Communicating with the NetBackup Master are Multiple Media Backup servers with either LTO-2 or LTO-3 tape libraries attached to them. The Media Backup servers are located closer to the data that is going to be backed up and is where the data is physically backed up to.

Oracle database backups are exported to a file, which is then automatically picked-up by the nightly backups. Veritas's NetBackup Oracle and RMAN database agent is used for online backups of the Oracle databases. The Oracle database servers are connected to the Nexsan ATABeast or SATABeast disk arrays for disk-to-disk backups, which are also backed-up by the Veritas tape backup server.

Symantec Veritas Backup Exec v10 is also used for backups on various Windows based systems.

Backups are performed every day according to the following schedule:

- Daily (Incremental) - Monday thru Friday
- Weekly (Full) - Saturday
- Off-site (Full) - Sunday
- Monthly (Full) - 1st Saturday of each month

Server Backup Reporting provided by Aptare's StorageConsole v6.05

Monthly auditing of the server backups are performed by Operations and various server support teams.

Backup Retention Schedule

Backup	Retention Time
Daily	21 days (3 weeks)
Off-site (Full)	21 days (3 weeks)
Monthly (1st Weekend)	91 days (13 weeks)

Enterprise SAN Storage Management:

SAN Storage/Fabric Management & Operations of the County's Enterprise Dell/EMC CX500 Storage Area Network connected to a Connectix 1600 Fiber Channel Switch. Nexsan ATA/SATABeast SAN used for server hosting services and D2D backups and VTL (Virtual Tape Library) connected to QLogic 5202 Fiber Channel Switches. QLogic 2354 Host Bus Adapters (HBA) used by clients connecting to the various SAN configurations. SRM tool by Aptare is used for reporting purposes.

Network Operations Center (NOC):

Server, System & Network Monitoring of all systems located in the Enterprise Data Centers and various mission critical systems Countywide. CiscoWorks & WhatsUp Gold monitoring software used. Operations performs the coordination between Verizon & AMS for completing the trouble tickets on data circuits or switches involved.

Server Operations:

IBM mainframe operations support (see section 5.11 – Mainframe Application Services Domain), includes nightly production batch processing and printing. Staff provides server administrator assistance and the running of the nightly server backups. Operations maintains and runs the Laser Check printing system (Create-a-Check by Piracle) for the printing of the County's payroll checks and advices. Operations maintains an extensive online Procedures Manual.

Data Control:

IBM mainframe Production Control job scheduling using CA-7. Enterprise Job Scheduling using UC4 Global for all platforms (mainframe, windows, linux, unix). Currently MCtime is scheduled by UC4. Mainframe tape management using CA-1. Print output management and ERD/EOS support.

Off-Site Data Vaulting:

Daily off-site data storage vaulting of backup tape cartridges to the County's offsite data storage vendor, Monday – Friday. Emergency 2-hour tape callback available upon special request.

Facilities Management:

Data Center Infrastructure Management and monitoring. Includes electrical power, UPS, air-conditioners (cooling) and fire suppression system management. Card Access entry system and CCTV used for maintaining security of the Data Centers 24x7. Electrical branch circuit and room temperature monitoring is performed by Intellipool Network Monitor.

Hardware Used	Software Used
Dell Power Edge 2850 Dell Power Edge 1855 Blades	Microsoft Server, Redhat Linux
Dell PV132T LTO-2 Tape Library Dell PV136T LTO-3 Tape Library Dell MLM6010 LTO-3 Tape Library FalconStor VTL	Ipswitch WhatsUp Gold Aptare StorageConsole Falconstor IpStor
Dell/EMC CX500 Disk Array/SAN Dell/EMC B162 Fiber Switch Nexsan ATA/SATAT Beast Disk Array/SAN QLogic 5202 Fiber Switch	Veritas NetBackup Enterprise v. 6.1 Veritas NetBackup Oracle/RMAN Agent Veritas Bare Metal Restore v. 6.1 Veritas Backup Exec v10

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Microsoft Windows and Redhat Linux System Administration
Hardware Management and Troubleshooting
Veritas NetBackup Enterprise Administration and Setup
Veritas Backup Exec Administration and Setup
FalconStor IpStor Administration and Setup
SAN Administration and Setup
Veritas Bare Metal Restore Administration and Setup
Help Desk & Customer Service Skills
Basic Networking Skills

Standards and Guidelines

For the Microsoft Windows, Linux, and Sun Solaris platforms, the County's software standard for server backups is Veritas NetBackup Enterprise v. 6.1, and Veritas Backup Exec v. 10 as needed. LTO Tape Libraries containing 2 tape cartridge drives are attached to the backup servers. All server backup tapes are rotated off-site daily.

3.18 Team Collaboration

Principles

The Team Collaboration Service provides an easy to use online meeting place for internal county teams. Team members can come to a team portal and collaborate on projects using their desktop browsers. The collaboration service provides some of the following abilities to a team:

- Announcements
- Meeting Agendas
- Document Sharing
- Calendar
- Tasks
- Discussion Board
- Linking Ability

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

The County uses Microsoft SharePoint services for team collaboration. When a team requests a collaboration site DTS allocates an area on the Enterprise SharePoint server. DTS maintains the overall SharePoint server providing proactive server management and backup facilities. When a team requests a new site it is set up by the DTS SharePoint Administrator. The team must designate their own Site Administrator, who will be responsible for the content and administrative duties for the site, including:

- adding and deleting site users (Users must be county Active Directory members)
- management of the content

DTS will maintain a SharePoint section on the DTS departmental homepage on the Intranet Portal. The SharePoint section will contain information about the service as well as a directory of all SharePoint Sites.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Microsoft SharePoint Services
Team Collaboration
Windows Server
SQL Server

Standards and Guidelines

Collaboration Intake Form

A requesting team or department must fill out a Collaboration Service Request Form. The form contains:

- site description
- owning department
- administrator name
- group members (for initial AD group population)
- estimated project completion date

Collaboration Agreement

A requesting team or department must read and agree to the Collaboration Agreement. The Collaboration agreement lists roles and responsibilities for the service.

Extra Disk Space

The team environment will come with an initial amount of disk space.

Additional space required by the team will be allocated at a cost.

3.19 Configuration Management (CM) Tools

Principles

The Configuration Management Tools Service provides the following functions to a team:

- Version Control Code Repository
- Version Control Document Repository
- Requirements Tracking
- Bug Tracking
- Issues Tracking

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Server Team.

Components

The County uses two Open Source tools to provide the above services. The Version Control functions are provided through the Open Source Subversion Tool. The Requirements Tracking, Bug Tracking, Issue Tracking and the rest of the Application Lifecycle Management functions are provided through the Open Source Trac Tool.

The Subversion Tool is an Open Source follow on to the CVS product. It contains most of CVS's features and many enhancements. Requesting teams will be provided with a subversion project for their use.

The Trac Tool is an Open Source tool that provides requirement, issue and bug tracking to a development/deployment project. Also, the Trac tool provides such project management features as Milestone tracking, Version Timeline tracking, Regression test reports and Custom reports. It can have an interface to a Subversion project where code checkins can be linked to bug reports (and vice versa).

When a team requests one of the above services DTS allocates an area on the Enterprise CM Tools server. DTS maintains the overall CM Tools server providing proactive server management and backup facilities. When a team requests one of the new services it is set up by the DTS CM Tools Administrator. The team must designate their own CM Tools Site Administrator, who will be responsible for the content and administrative duties for the site, including:

- adding and deleting users (Users must be county Active Directory members)
- management of the content

DTS will maintain a CM Tools section on the DTS departmental homepage on the Intranet Portal. The CM Tools section will contain information about the services as well as a directory of all CM Tools sites.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Subversion
Trac
Linux
Apache/SQLite

Standards and Guidelines

CM Tools Intake Form

A requesting team or department must fill out a CM Tools Service Request Form. The form must contain:

- type of tool – repository and/or tracking
- site description
- owning department
- administrator name
- group members (for initial AD group population)
- estimated project completion date

Collaboration Agreement

A requesting team or department must read and agree to the CM Tools Collaboration Agreement. The CM Tools Collaboration Agreement lists roles and responsibilities for the service.

3.20 Enterprise Server Management

Principles

The Enterprise Server Management Service provides the following functions for management of both physical and virtualized Enterprise Servers:

- Availability Monitoring
- Inventory Management
- Configuration Auditing
- Performance Monitoring
- Event Management
- Historical Data Tracking and Reporting
- Incident Alerts and Escalations

Owners

Business Owner

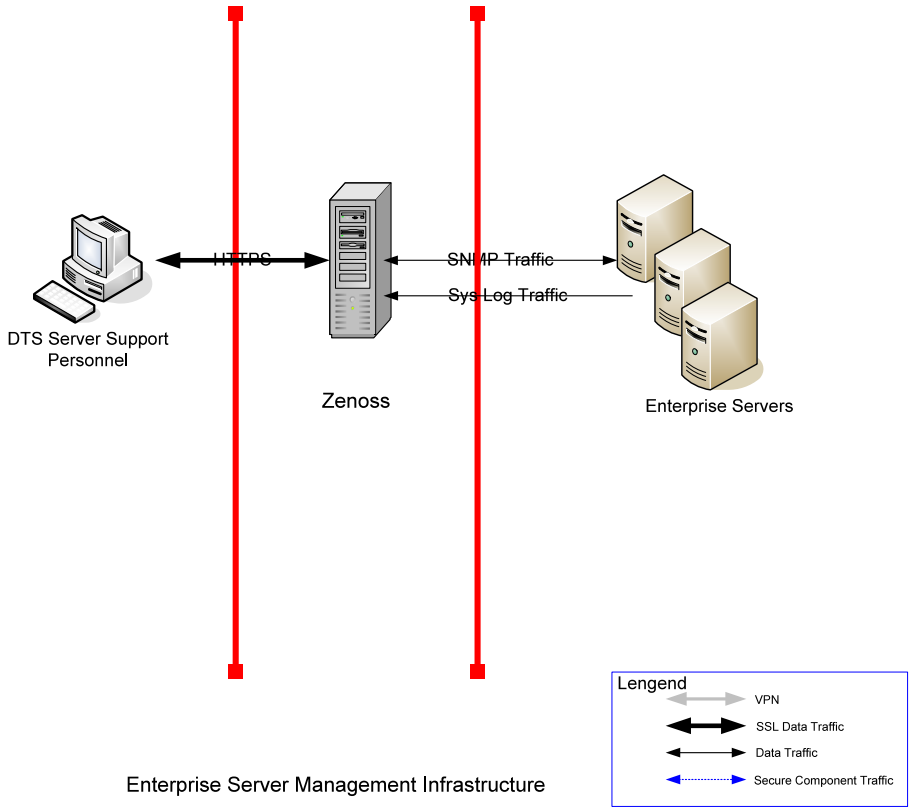
The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Server Team.

Components

Architecture Overview



Description

The County uses the Open Source Zenoss tool to provide the Enterprise Server Management Service functions to Enterprise Servers.

The DTS Server team runs an instance of Zenoss that has SNMP and SysLog access to the Enterprise Servers that the DTS Server Team manages. All physical and virtualized instances are modeled and monitored through the service.

Each server that is going to be modeled and monitored has its Syslog/EventLog and SNMP agent turned on in read only mode – sending the data ONLY to the Zenoss server. The Zenoss server is then provisioned by adding the server to its list of devices to model and monitor.

The Zenoss server is protected by a firewall with access to the server restricted to DTS personnel.

Functions

The DTS Server team uses Zenoss as its primary Enterprise Server Management tool. It uses:

- the monitoring and alert functionality through the use of the Zenoss console during business hours. Server team members respond to system alerts that identify performance and system issues
- the ITIL CMDB standard inventory capability of Zenoss for rich modeling of the servers and their Patch Management and Update process
- the performance monitoring capabilities for proactive alerts and capacity planning exercises
- the email notification capability to alert DTS Server Team Members performing off hours support of critical alert errors such as “System Down”
- various real-time and historical reports

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
SNMP, SysLog
Zenoss, Python

Standards and Guidelines

- All EHI physical and virtualized server instances are monitored. Beyond the server layer, no other devices (such as network appliance, backup servers) are modeled or monitored
- All MCGOV Internet and Intranet Portal Servers are monitored
- Only DTS Support personnel have access to the Zenoss Server (SSO Integrated)
- SNMP probes in monitored physical and virtual Server instances are configured as Read Only. They respond ONLY to the Zenoss server. SysLog probes also respond ONLY to the Zenoss server

3.21 Software as a Service (SaaS)

Principles

The SaaS Domain supports the use of externally hosted applications by Montgomery County. This service provides support that solves the common issues around using an externally hosted application. The common issues that are addressed within the SaaS support are related to:

- Identity
- Security
- Integration

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

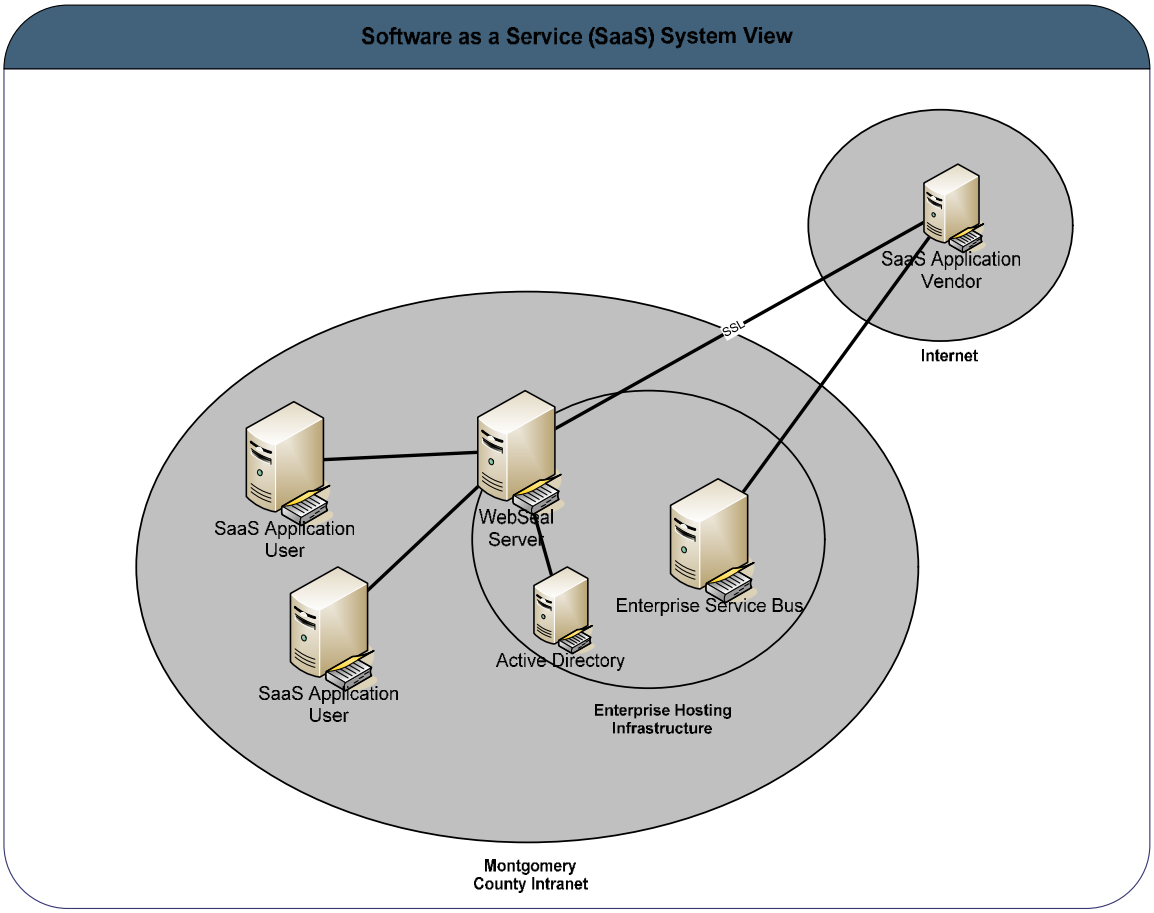
Technical Owner

The technical owner for this Domain is the DTS Enterprise Services Architect.

Components

The supported service makes use of the following IT Architecture Domains:

- Active Directory (AD) and Single Sign On (SSO) Services Domain
- Enterprise Hosting Infrastructure Domain
- Services Enabled Domain



Identity Services support centers around making use of the Active Directory (AD) and Single Sign On (SSO) Services Domain. It allows Departments to restrict access to the externally hosted application through the County Active Directory Domain. Users can be assigned to use the SaaS Application by the owning department through Active Directory.

Security Services support centers around the use of the Enterprise Hosting Infrastructure (EHI) Domain. The EHI is used as a front end to the externally hosted application. Once the user signs on through the normal county single sign on challenge an encrypted tunnel is opened out to the hosted application provider.

Integration Services support centers around the use of the Services Enabled Domain. The county's Enterprise Service Bus is used to securely pull data from the externally hosted application back into county systems or push the data to the externally hosted application from the county systems.

When a Department requests the above service DTS will work with the owning Department to identify the requirements around the application. They will work with the department and the vendor to roll out the service.

When a department requests the new service it must designate their own SaaS Application Administrator, who will be responsible for the content and administrative duties for the externally hosted application, including:

- adding and deleting users (Users must be county Active Directory members)
- being the coordinator and document/security key-owner of integration implementation(s)
- being the primary contact to the SaaS Application vendor

- management of the content

DTS will maintain a SaaS section on the DTS departmental homepage on the Intranet Portal. The SaaS section will contain information about the service as well as a directory of all SaaS sites.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Set
Active Directory Domain Administration
Windows 2003 Administration
TAM User Account creation
Understanding of Security Principles
Enterprise Service Bus (ESB)
Web Services

Standards and Guidelines

SaaS Intake Form

A requesting team or department must fill out a SaaS Service Request Form. The form must contain:

- name of the externally hosted application
- description of the externally hosted application
- vendor information on the externally hosted application
- owning department
- administrator name
- group members (for initial AD group population)
- description of data that must be retrieved from the externally hosted application back into the county
- destination where the retrieved data should go
- estimated retirement date for the application

Collaboration Agreement

A requesting team or department must read and agree to the SaaS Agreement. The SaaS agreement lists roles and responsibilities for the service.

The SaaS Application vendor must support an encrypted SSL tunnel from the county to the application.

The SaaS Application vendor must support static IP Addressing to it's service.

The SaaS Application vendor must refuse connections to the SaaS Application from sources other than the encrypted SSL tunnel from the county

If data within the SaaS Application is needed by the Department the SaaS Application must support retrieval of the data by the county Enterprise Service Bus.

If data that needs to be retrieved by the Department has a high confidentiality or integrity requirement than the SaaS Application must support encryption of the data and key based access to the data.

Recommendations

County Attorney's Office list of issues that need to be considered when procuring a cloud solution (not meant as an exhaustive list but as a starting point)

DTS recommends a Cost Benefit Analysis that includes the full life cycle of the solution and data

Owning departments are still responsible for County Discovery, Records Management, and Security and Privacy Policies

3.22 Database Hosting Infrastructure Platform

Principles

The Database Hosting Infrastructure (DHI) is the framework the County uses to deploy its enterprise databases. The County's DHI goals are to host Enterprise Databases in a standardized secure environment in a cost effective manner. The County benefits from DHI because its data is housed in a centralized manner that supports a centralized Data Architecture. Databases are documented with identified owners. Cost is reduced because the Data Owners benefit from the shared services offered by the Enterprise. The Shared Services not only includes the Database Servers but support services such as monitoring and backup.

DHI encompasses multiple components of the County's IT Framework: Deployment Domain, Network Domain, Security Domain, Help Desk, Active Directory & Single Sign On, and System Operations Domain.

When a new Database is targeted to be hosted in the DHI an intake form is filled out for the database. The intake form contains information about the database with one aspect of the information being the NIST Confidentiality, Integrity and Availability requirements for the application.

Confidentiality

"Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information…" [44 U.S.C., Sec. 3542]

A loss of confidentiality is the unauthorized disclosure of information.

Integrity

"Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity…" [44 U.S.C., Sec. 3542]

A loss of integrity is the unauthorized modification or destruction of information.

Availability

"Ensuring timely and reliable access to and use of information…" [44 U.S.C., SEC. 3542]

A loss of availability is the disruption of access to or use of information or an information system.

The county database standard supports both Oracle and Microsoft SQL Servers.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

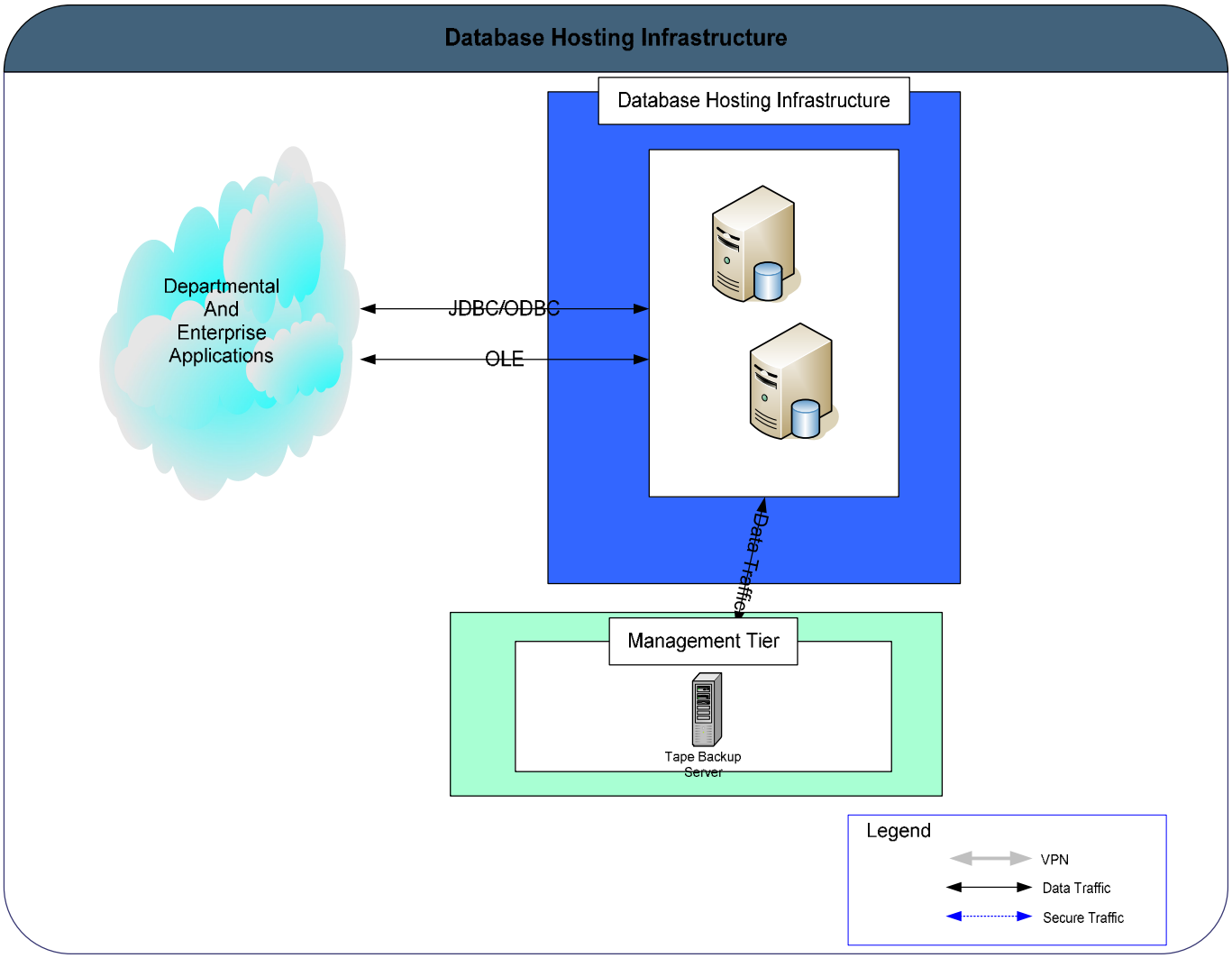
The technical owner for this Domain is:

- DTS Server Team

Components

Architecture Overview

In general, the DHI architecture is based on creating a security zone for just the Enterprise Databases. Access to the database servers is via ODBC/JDBC access only. It is a shared database server environment where multiple databases are hosted on the Enterprise Database Servers. Administrative access is kept within DTS with DTS delegating privileges to change and modify a user's database contents only. DTS does not give access at the database level or higher.


Database Hosting Infrastructure
Database Hosting Infrastructure
Departmental And Enterprise Applications
JDBC/ODBC
OLE
Data Traffic
Management Tier
Tape Backup Server
Legend
VPN
Data Traffic
Secure Traffic

Active Directory

Microsoft Active Directory is the master user registry for all county employees and for all applications hosted in the EHI (see section 3.1 – Active Directory (AD) and Single Sign On (SSO) Services). All LDAP traffic from the Web, Application, and Database tiers is encrypted (LDAPS) and accesses one of the Active Directory controllers. Active Directory also provides the primary DNS service for both Application and Database tiers of servers.

Database Server

The county supports both Oracle and Microsoft SQL servers under the DHI architecture. Users or Applications can access the database servers thru JDBC/ODBC/OLE.

Platform Choice

Hardware

All servers are Intel based and manufactured by Dell Computers. The hardware sizing is based on the County standard as outlined in the Deployment domain (see section 3.4 – Deployment Domain).

Operating System

Production Database Servers are all physical servers. Virtual Machines are not used.

The Operating Systems supported on the servers are:

- CentOS 5
- Microsoft Windows.

CentOS is an Open Source OS which uses the Red Hat Linux kernel and hence is an “identical twin” of Red Hat Linux.

The supported Microsoft Operating System is Windows Server.

Services

Backup Service

The DHI uses the backup services of the System Operations Domain. See section 3.17 – System Operations Domain for details.

Antivirus Service

Antivirus service is provided on the Windows Machines. Virus signatures are automatically synchronized from the county central Antivirus server.

Network

The DHI uses the Network Domain's Firewalls and Switches (see section 3.12 - Network Domain).

The DHI is separated from both the Intranet and the EHI through a stateful firewall. Internet access is not supported.

Security

Database Principles

The general principles that a database must follow are:

- Access to the Database must be through ODBC/JDBC only.
- Access to the Database from the Internet is not allowed.
- DTS solely has access and manages the production database servers.
- DTS delegates privileges to change and modify the database contents. DTS does not give access at the database level or higher.
- inactive session timeout
- Firewall is a stateful firewall

Standards

DHI Hosting Agreement

A requesting team or department must read and agree to the DHI Hosting Agreement. The DHI Hosting agreement lists roles and responsibilities for the database.

Administration Policies

- No access to the database servers other than by DTS employees performing administration services
- Monthly patching of Operating System and middleware software
- Virus updates every 10 minutes
- Daily backups
- Active Directory Group Policies (DTS Server Team Administrators are the only persons allowed to administer the machine and processes)
- Quarterly review of the Firewall Rules
- Quarterly review by Stakeholders of their database intake information
- Outage reports through HelpIT updates
- Maintenance window announcements through HelpIT updates

Database Hosting Intake Form

A requesting team or department must fill out a Database Hosting Service Request Form. The form

contains:

- Database Name
- Database Description
- NIST Security Classification for Confidentiality, Integrity, Availability (High, medium, low)
- Owning Department(s)
- Department(s) Administrators contact name
- Department(s) Administrators contact email
- Department(s) Administrators contact phone
- Department(s) Administrator Active Directory account
- Incident Response Plan
- Expected lifetime of the database

Physical Security

The networking switches and firewalls as well as the hosts that support the Production DHI are all located within one of the Department of Technology Services Data Centers (see section 3.17 – Systems Operation Domain).

Disaster Recovery

The DHI Domain involves the use of physical Deployment Domain Servers housed in the Data Centers in the System Operations Domain. DTS employs a number of disaster recovery strategies in the Deployment and System Operations Domains that essentially cover the following disaster scenarios:

- server loss
- rack loss
- data center loss

The server loss and rack loss strategy has a number of mitigation strategies within the System Operations Domain. Within the DHI Domain the mitigation strategies include:

- use of physical database server machines located in both data centers.
- in the event of individual server or rack failure critical databases will be moved to working database server machines
- in the event of a data center failure critical databases will be moved to working database servers in the other data center.

The design problem for the loss of one of the Data Centers is the prioritization of services that will be brought up in the working data center. See the Disaster Recovery Domain for information around prioritization of services and policies.

Help Desk Support

A key component of the DHI is the Help Desk (see section 3.9 – Help Desk Services). It provides a single point of contact for the users of databases hosted within the DHI. The Help Desk resolves problems or, as needed, routes problems to the DHI administrators.

As part of the intake process for a new DHI database a support plan is developed with the help desk. The support plan includes information such as:

- Identifying the business system owner
- Identifying the DHI Administrator contacts
- Identifying common problems and their resolution that a level 1 support person can handle
- Identifying the contact for level 2 problems

Server Administration

Administration of the DHI Servers is performed by the DTS Server Team (See section 3.20 – Enterprise Server Management)

3.23 Technical Disaster Recovery

Principles

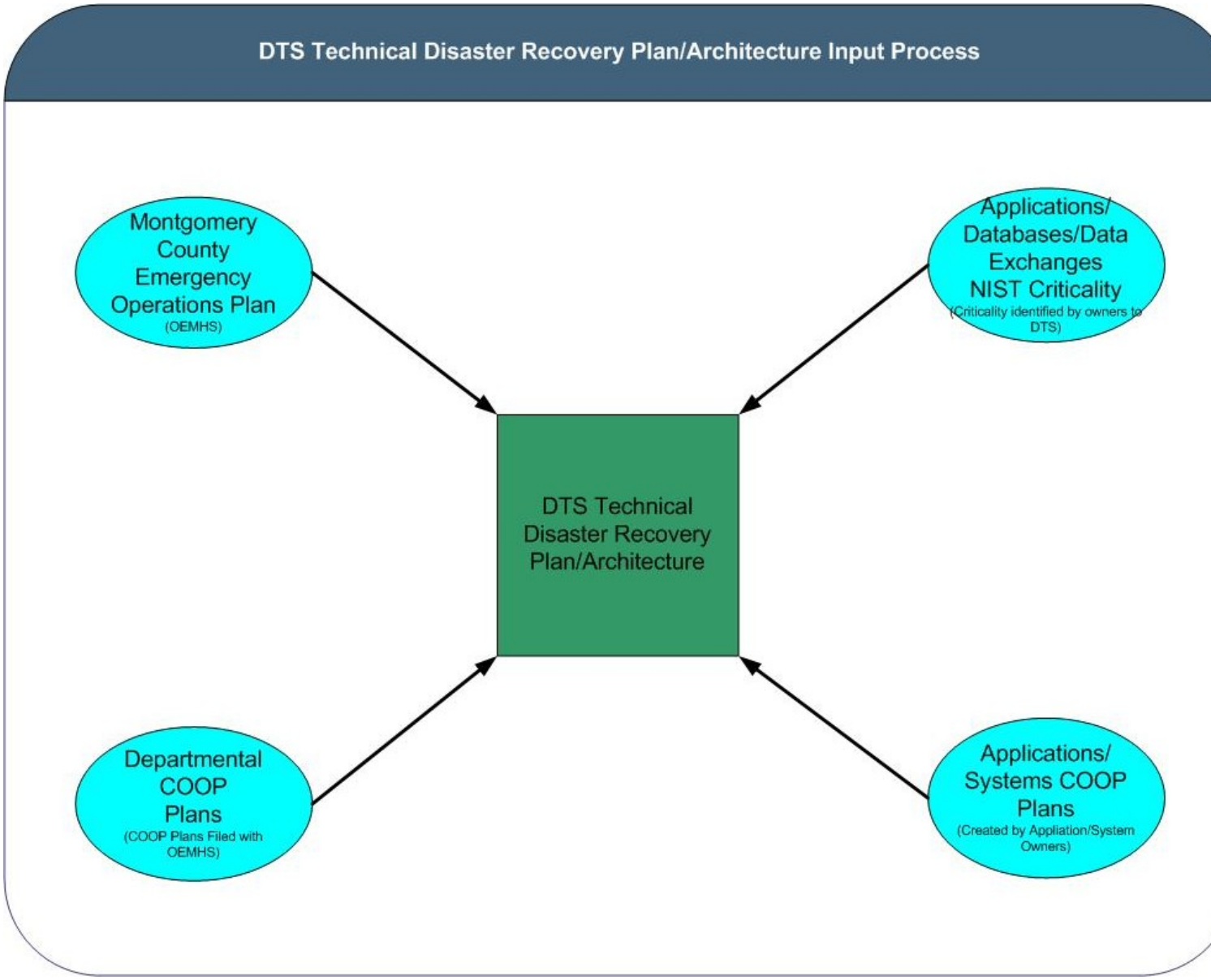
Disaster recovery is a complex undertaking that has both functional and technical components. It is strongly tied to COOP (process owned by OEMHS) and requires an iterative design approach with the business. It is not cost effective for the technical team to design a fully redundant Technical Disaster Recovery Plan and Architecture. A fully redundant plan requires a one for one replication of all services that have to be maintained and regularly exercised by both functional and technical personnel.

The Technical Disaster Recovery Plan and Architecture must work closely with the business to classify all business functions for criticality of operation. Questions that the business should ask itself are:

- How critical is the service?
- How long can it be down?
- Can data be lost? If so, how much?
- How much are you willing to pay? Initial expense? Yearly expense? Support extra functional and technical head count to regularly exercise and update the plan?

An effective Disaster Recovery plan must include use cases to help design and assess the Disaster Recovery plan. The use cases or scenarios help bound the problem and test the design.

The following graphic details the inputs to the Technical Disaster Recovery Plan and Architecture:



Disaster Recovery Strategy

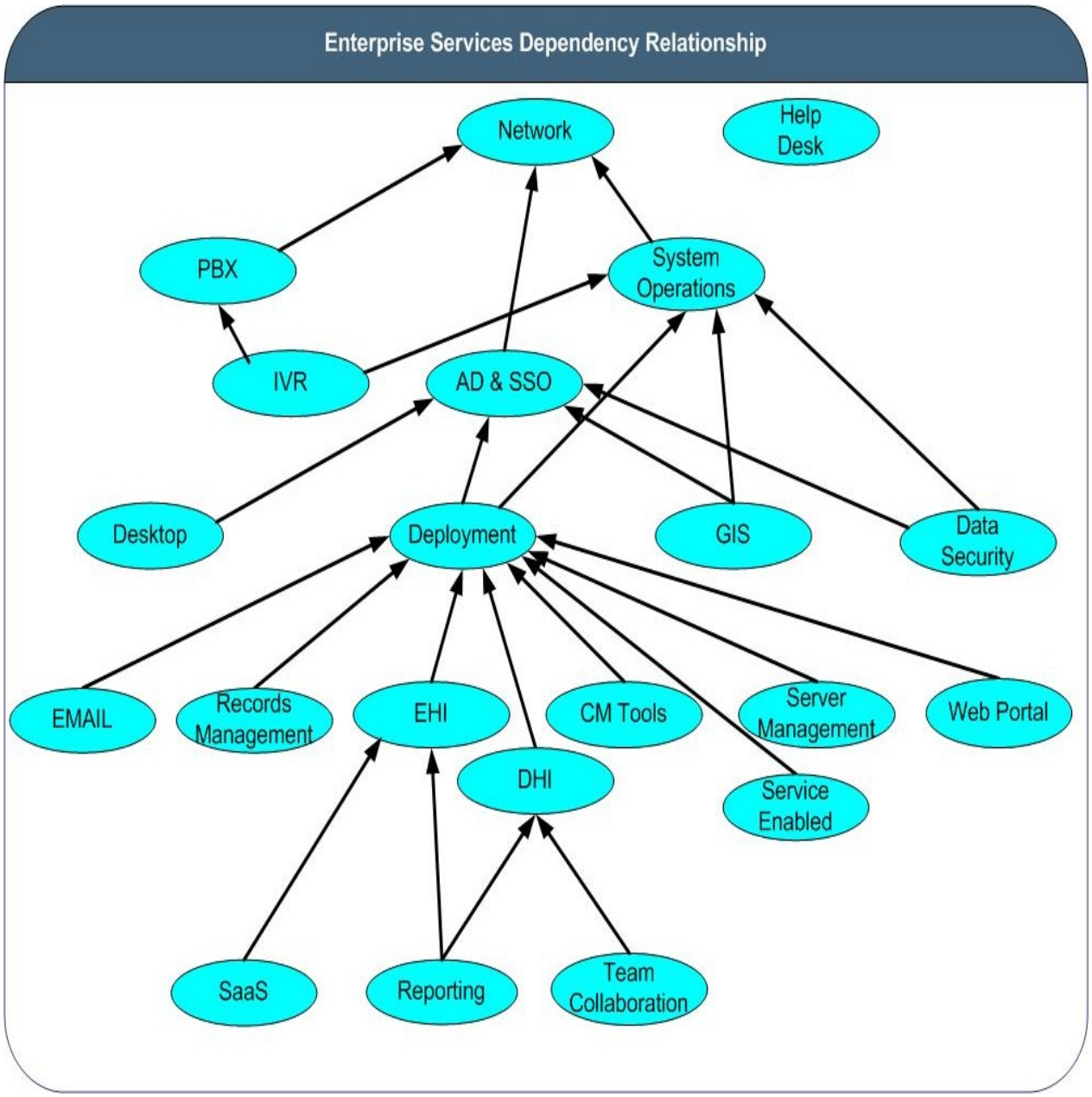
Technical Disaster Recovery is viewed from two perspectives. The first perspective involves the Enterprise Shared Services that are supplied to departments and agencies. The second involves the Enterprise and Departmental Services (applications, databases, and data exchanges) that are being hosted on the shared services infrastructures:

- Deployment Domain - VM Guests provided to departments
- EHI Domain - Enterprise Application Hosting
- DHI Domain - Enterprise Database Hosting
- Services Domain - Enterprise Service Bus (ESB) data exchanges

Enterprise Shared Services

The Department of Technology Services (DTS) offers a number of Enterprise Shared Services. Each one of the services is ranked in importance and the service includes as part of their Domain Architecture a section on Disaster Recovery that documents the processes and strategy for the particular service.

The Enterprise Services are built to work with each other and have the following dependency relationships:



DTS Hosting for Enterprise and Departmental Services

This section covers the hosted applications, databases, and data exchanges in the EHI, DHI, and the ESB.

EHI, DHI, and ESB

Applications, Databases, and Data Exchanges in the EHI, DHI, and ESB ultimately make use of the Deployment Domain. The Deployment Domain involves the use of VM Guests running on VM Hosting Servers housed in the Data Centers in the System Operations Domain. DTS employs a number of

disaster recovery strategies in the Deployment, Network and System Operations Domains that essentially cover the following disaster scenarios:

- server loss
- rack loss
- data center loss

The design problem for any of the three scenarios is the loss of VM Hosting Server capacity and the prioritization of services that will be brought up on the working VM Hosting Servers.

DTS will bring up services on the available capacity following the documented prioritization from highest to lowest **until capacity is exhausted**. DTS will bring up those services on the same IP address.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owners for this Domain are:

- DTS Server Team
- DTS Data Center Management Team
- DTS Core Team
- DTS Networking Team
- DTS PBX Team

Components

Architecture Overview

In general, the Technical Disaster Recovery Domain is based on the Disaster Recovery Sections in each of the component domains. The Disaster Recovery domain is essentially providing the overall guidance, governance, and the process.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
COOP Planning
Disaster Recovery Planning
Technical Services Redundancy

Technical Services Failover
Ability to use Magic Help Desk System

Standards and Guidelines

- Enterprise Services Domain's Disaster Recovery Components (see Disaster Recovery section in each service)
- Hosted Applications(EHI) , Databases(DHI) , Data exchanges (ESB) NIST Classification determines priority
- CIO assigns overall priority for both Enterprise Services and Hosted Services
- DTS declares the DR event
- DTS starts recovering services starting with the highest ranked services first
- Critical Departmental and Enterprise Solution COOP/Disaster Recovery plans
- Outage reports through HelpIT updates
- Data Center Recovery Plan
- Solution Level Disaster Recovery Services Agreement - A team or department that is requesting Solution Level Disaster Recovery Services must read and agree to the Disaster Recovery Service Level Agreement. The Disaster Recovery agreement lists roles and responsibilities for administering the service.
- Solution Level Disaster Recovery Services - Solutions and/or applications often use many interfaces and exchanges and require careful coordination. The Departmental or Enterprise Owners for an application should write a COOP/Disaster Recovery Plan for the application and work with DTS to provide a higher level of Disaster Recovery Services.

3.24 Enterprise File Services Domain

Principles

The County maintains a centralized Shared Enterprise File Service for use by Departments. A Department can request space on the Enterprise File Server(s) that are centrally managed by DTS. The Enterprise File Service is implemented on Microsoft File Servers and makes use of the Active Directory & Single Sign On Domain (see section 3.1) for security. A requesting Department is assigned a directory on the File Server and their administrator is assigned Administrator privileges for the directory. The Administrator has the ability to manage access and file privileges (ie Read/Write/etc).

Services provided to departments include:

- Centrally Managed Enterprise Shared File Service
- Ability to limit access to groups and individuals
- Ability to assign file permissions to groups and individuals
- Daily back ups via the Enterprise System Operations Domain

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

The Enterprise File Service is implemented on Microsoft Enterprise Servers within the Deployment Domain (see section 3.4). The Enterprise File Service is using the hosting and backup services of the System Operations Domain (see section 3.17) and is monitored and managed through the Enterprise Server Management (see section 3.20) Domain.

Requesting departments are assigned a Disk Space Quota that they are charged for and that DTS manages and monitors.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Active Directory Domain Administration
Windows 2003 Administration

Understanding of Security Principles
Ability to use Magic Help Desk System

Standards and Guidelines

Enterprise File Service Hosting Agreement

A requesting team or department must read and agree to the Enterprise File Service Hosting Agreement. The Enterprise File Service Hosting agreement lists roles and responsibilities for the service.

Administration Policies

- Root Access and Administrator privileges are limited to DTS employees performing administration services
- Monthly patching of Operating System and middleware software
- Virus updates every 10 minutes
- Daily backups
- Outage reports through HelpIT updates
- Maintenance window announcements through HelpIT updates
- Highly Recommended that each Administrator use Active Directory Groups for Authorization
- DTS Enterprise File Service Administrators will monitor capacity and notify departments when allocations are reaching maximum limits.
- Departments incur yearly charge backs for various disk quotas.

Disaster Recovery

DTS backs up Enterprise File Servers for disaster recovery purposes. DTS' current recovery process is to restore servers in the event of system crashes, facility loss, or some other disaster. To support the current model, Enterprise Backup tapes (see System Operation Domain) are retained 3 weeks. The Monthly (1st Weekend) backup is retained 13 weeks.

DTS will restore individual files from specific Enterprise file server backup tapes upon request.

3.25 Enterprise Print Services Domain

Principles

The County maintains a centralized Shared Enterprise Print Server for use by Departments. A Department can purchase a compatible printer either directly or through the DCM contract (see section 3.5 Desktop Domain) and have its profile and driver hosted on the Enterprise Print Server(s) that are centrally managed by DTS. The Enterprise Print Service is implemented on Microsoft Servers and makes use of the Active Directory & Single Sign On Domain (see section 3.1) as a directory service. A requesting Department will work with DTS to load their driver and profile on the Print Server. DTS will monitor and manage the centralized print queue. The owning department manages and maintains the printer.

Services provided to departments include:

- Centrally Managed Enterprise Shared Print Service
- Printers listed in a Directory Service (Active Directory)
- Central location for profiles and print drivers
- Authorized usage management
- Simple, local installation by end-user
- Printer firmware, driver updates
- Debug printer problems, interface with vendor
- Provide fax, imaging services
- Printer model compatibility with County's print server architecture

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owner for this Domain is the DTS Core Systems Team.

Components

The Enterprise Print Service is implemented on Microsoft Enterprise Servers within the Deployment Domain (see section 3.4). The Enterprise Print Service is using the hosting and backup services of the System Operations Domain (see section 3.17) and is monitored and managed through the Enterprise Server Management (see section 3.20) Domain.

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Active Directory Domain Administration
Windows 2003 Administration
Understanding of Security Principles
Understanding of Microsoft-based Enterprise printing
Ability to use Magic Help Desk System

Standards and Guidelines

Enterprise Print Service Hosting Agreement

A requesting team or department must read and agree to the Enterprise Print Service Hosting Agreement. The Enterprise Print Service Hosting agreement lists roles and responsibilities for the service.

Administration Policies

- Administrator privileges are limited to DTS employees performing administration services
- Monthly patching of Operating System and middleware software
- Virus updates every 10 minutes
- Daily backups
- Outage reports through HelpIT updates
- Maintenance window announcements through HelpIT updates

Disaster Recovery

DTS backs up Enterprise Print Servers for disaster recovery purposes. DTS' current recovery process is to restore servers in the event of system crashes, facility loss, or some other disaster. To support the current model, Enterprise Backup tapes (see System Operation Domain) are retained 3 weeks. The Monthly (1st Weekend) backup is retained 13 weeks.

3.26 Web Portal Domain

Montgomery County supports both Internet and Intranet web servers within the Web Portal Domain. The primary Internet Portal (http://www.montgomerycountymd.gov) is the main Internet (public access) entry point for County electronic government (eGovernment) services. The primary Intranet Portal (http://portal.mcgov.org) provides eGovernment services for County employees and associates (contractors, volunteers, partners, etc).

The Web Portal Domain is managed with a governance organizational structure that consists of a Change Control Board and an Oversight Committee. The Change Control Board, comprised of representatives from the Office of Public Information (OPI) and the Department of Technology Services (DTS), review, approve, or deny change control or policy, procedural and exception requests from County departments and agencies in accordance with the Web Portal Program Charter. The Oversight Committee, comprised primarily of representatives from the Office of the County Executive (OCEX), the County Attorney's Office (CAT), and key Department Directors or equivalents, creates, reviews, approves, and enforces County Web Portal Governance policies, procedures, and standards.

Montgomery County takes a decentralized approach to managing its web site. A small number of staff within the Department of Technology Services (DTS) and the Public Information Office (PIO), called the Core Web Portal Team, is responsible for designing, developing, testing, and maintaining Web Portal master templates, navigation menus / flows, and styles to support a robust information architecture and to maintain a web site continuity (County Brand), while providing greater flexibility, with regard to look and feel, and space "real estate". In addition, the Core Portal Team is responsible for designing, developing, testing, and maintaining a content management system (CMS) that enables designated non-technical web content contributors (editors) and administrators (approvers), dispersed throughout the County Government's departments and associated agencies, to create, maintain, and manage County Internet (publicly accessible) and Intranet (internal) web content in a secure and organized fashion with minimal training and simple, yet effective workflows. The CMS integrates with Internet and Intranet web content templates and leverages existing County information technology resources.

The Core Portal Team also reviews and recommends Internet and Intranet policies, standards, and practices to the Web Portal Change Control Board and Oversight Committee for their approval.

DTS maintains the Intranet and Internet (MCGOV) Web Portal Domains including County Web and Application Servers, Search Engine (Google) Servers, and Map Servers. In addition, DTS provides Intranet and Internet Server load balancing, incident response, and middleware support. Furthermore, DTS enforces access to the Web Portal Domains. File transfer access (read/write) permissions to the Web Portals are available through the County Content Management System (CMS) for web content and through JFM and/or an equivalent DTS approved tool for web applications.

While most County web content and web applications are hosted or stored on the Portal Servers, some departments (i.e. Department of Permitting Services, Department of Homeland Security and Emergency Management, and Department of Technology Services) own secondary web servers that are linked to and from the primary Portals. Secondary web servers are typically supported by the owning departments or offices and are approved by the PIO and DTS. Other servers currently within the Web Portal Domain are provided below:

<u>Internet – Publicly Accessible Servers within the Web Portal Domain</u>

- County Internet Application Server
    - www2.montgomerycountymd.gov
- Permitting Services Internet Server
    - permittingservices.montgomerycountymd.gov

- MC311
    - www3.montgomerycountymd.gov
- Geographic Information Systems (GIS) Map Server (Storm Operations)
    - www5.montgomerycountymd.gov
- GIS Map Server
    - gis2.montgomerycountymd.gov
- GIS Map Server
    - gis3.montgomerycountymd.gov
- Department of Transportation – Advanced Transportation Management System
    - atms.montgomerycountymd.gov
- Alert Montgomery – Office of Emergency Management and Homeland Security
    - alert.montgomerycountymd.gov
- Department of Recreation's RecWeb Site
    - recweb.montgomerycountymd.gov
- County Multimedia Web Server
    - stream01.montgomerycountymd.gov

Intranet – Employee / Associate Access within the Intranet Web Portal Domain

- Google Mini Search Appliance
- County Intranet GIS Web Server

The Internet and Intranet Portals can support various types of web content files, application programming languages and technologies, and multimedia file formats including, but not limited to the following:

Programming Languages and Technologies

- Adobe Shockwave Flash (SWF)
    - ActionScript /Flex
- Dynamic Hyper Text Mark-up Language (DHTML)
    - HTML, Javascript, and Cascading Style Sheets (CSS)
- Extensible Hyper Text Mark-up Language (XHTML)
- Extensible Mark-up Language (XML)
- Extensible Stylesheet Language Transformations (XSLT)
- Hyper Text Mark-up Language (HTML)
- Keyhole Markup Language (KML)
    - KML is used to specify a set of geo-spatial features (placemarks, images, polygons, 3D models, textual descriptions, etc.) for display in Google Earth, Maps and Mobile, or any other 3D earth browser (geo-browser) implementing the KML encoding
    - Typically compressed in Keyhole Markup Zip (KMZ) files
- Microsoft Active Server Pages (ASP)
- Microsoft Active Server Pages.NET (ASP.NET)
- Really Simple Syndication (RSS) 2.0
- Synchronized Multimedia Integration Language (SMIL or SMI)

Multimedia Files

- Adobe Flash Video (FLV)
- Adobe Shockwave Flash (SWF)
- Microsoft Windows Media Audio (WMA)
- Microsoft Windows Media Video (WMV)
- Moving Picture Experts Group - Layer 3 (MP3)

Web Content Files – Static

- Adobe Portable Document Format (PDF)
- Encapsulated Post Script (EPS)
- Graphics Interchange Format (GIF) – Image File Format
- Hyper Text Mark-up Language (HTML)
- Joint Photographic Experts Group (JPG) - Image File Format
- Microsoft Active Server Pages (ASP)
    - Used as the County's primary web content file format
    - Primarily consists of HTML
- Microsoft Office Files
    - PowerPoint (PPT), Excel (XLS), or Word (DOC, RTF, or TXT)
- Portable Network Graphics (PNG) – Image File Format
- Synchronized Multimedia Integration Language (SMIL or SMI)
- Tagged Image Format (TIFF)
- WinZip Files (ZIP)
    - Used to compress files for faster download speeds

The Web Portal Domain provides accessible web content and rich web applications featuring the following technologies:

- Web 2.0
    - County Information Center web applications enables users to subscribe to Really Simple Syndication (RSS) feeds and on-line newsletters, to read and interact with County Blogs, and to engage County leaders in on-line discussions
    - County On-Demand web applications provide access to web content (i.e. videos, news releases, etc..) using YouTube, Twitter, and Facebook technology
    - The Alert Montgomery System enables users to register to receive emergency alert text messages and notifications
    - MyMontgomery, an on-line mapping application integrated with Google Maps, enables users to find County service locations or places of interest (PLOI) by street address and zip code or by zip code only
- Web Accessibility
    - A dynamic text-only conversion function built into the County Web Portal templates enables screen reader browsers and other assistive technologies to access County web content (static)
    - A language translation web application uses Google's machine language translation tools to dynamically convert County web content into Spanish/Hispanic, Chinese, French, Korean and Vietnamese languages
- Web Content Discovery and Management
    - A semantic – friendly County Services Center web application / database is integrated with Google Site Search technology to enable users to quickly find on-line County services and information by keyword or phrase
    - A Content Management System is used to maintain and manage County Web Portal (Internet and Intranet) web content. Content providers are trained and encouraged to use descriptive links and page titles to improve content discovery

26.2 Owners

Business Owner

The business owner for this Domain is the Public Information Office.

Technical Owner

The technical owners for this Domain are:

- DTS Application Development and Integration Team
- DTS Server Team
- Public Information Office

26.3 Internet (MCGOV) Web Portal Domain

Principles

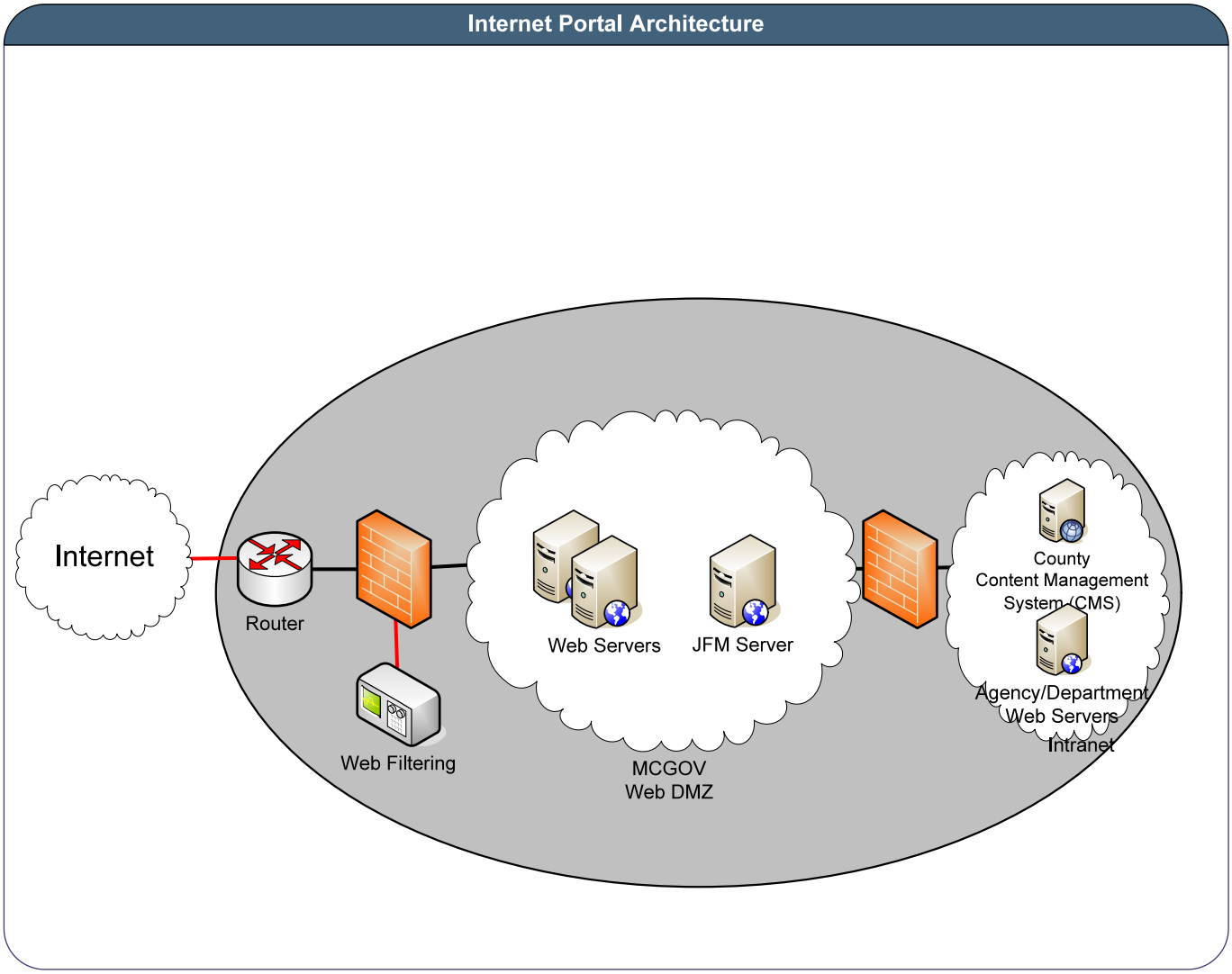
The audience for the Internet Portal includes, but is not limited to the following:

- County Residents and Visitors
- Other Government entities
- Business owners and operators
- Job seekers
- Other constituents

The publicly accessible web applications and content deployed on MCGOV Servers generally support the following functions:

1. Data Collection
    a. Recording or capturing data from constituents (i.e. registration for a meeting, survey, etc…)
    b. Enabling constituents to report an incident, event, etc… (i.e. pothole, street light outage, etc…)
2. Information Referral
    a. General query, results, and details information referral applications
    b. Interactive maps and travel directions (ArcGIS and Google map services)
    c. Multimedia streams (video and audio)
    d. Static web pages providing information referral services
    e. Web Services (i.e. street address validation)
3. On-line Payment Transactions
4. Subscriptions, Blogs, Interactive Messaging
    a. On-line newsletter and RSS feed subscriptions
    b. Blogs (Read-only)
    c. Message Boards (Live Discussion)
    d. Messaging (Emergency Alerts)

Components


Internet Portal Architecture
Internet
Router
Web Filtering
Web Servers
JFM Server
MCGOV
Web DMZ
County
Content Management
System (CMS)
Agency/Department
Web Servers
Intranet

Web Servers

The MCGOV DMZ consists of several Web Servers and includes links to publicly available applications running within the Enterprise Hosting Infrastructure (EHI) (See section 3.7 – Enterprise Hosting Infrastructure Platform). The Web Servers within the MCGOV DMZ are Dell Servers running Microsoft IIS Server and follow the Deployment Domain (see section 3.4 – Deployment Domain).

MCGOV – Internet Portal Server (www.montgomerycountymd.gov)

The Internet Portal (www.montgomerycountymd.gov) is used as the primary platform to deploy web content and applications to the public. A well-defined Internet Portal directory structure was created in a manner to enable application developers and content contributors to efficiently store and publish applications and content in addition to sharing common files. Content, Application, and Text Version Master Templates, which are used to provide web site design continuity (same look and feel) and flexibility (templates can be quickly altered to affect thousands of web pages), are stored in the County web site's root directory. In addition, County standard Content and Text master templates, written in traditional ASP, facilitate master template recognition (enabling relative link references), help to avoid content duplication (content can be assigned to multiple portals by link), address accessibility issues (content only converted to text on the fly), and interfaces with the Google Site Search Server.

Application master templates are available to County application developers in ASP and ASP.NET format. Code snippets are also provided in ASP master template common libraries or global files for application developers use to prevent common security vulnerabilities including web scraping (framing), SQL-Injections, and cross-scripting attacks. The proper use of the master templates by County application developers are enforced by the County Internet URL and Standard Design Template Policy. County Internet Privacy Policy, User Rights, Accessibility, and Disclaimer are provided for Portal visitors as well. The Internet Portal also provides a Secure Socket Layer (SSL) certificate for applications that require transmission encryption. Port 80 is the default open port using Hyper Text Transfer Protocol (HTTP). File transfer access (read/write) permissions to the Server is available through the County Content Management System (CMS) for web content and through JFM for web applications.

MCGOV – Internet Application Server (www2.montgomerycountymd.gov)

The Internet Application Server was created to store and serve ASP.NET web applications. The Server currently runs Microsoft IIS 6.x along with the ASP.NET Framework 1.1. and ASP.NET Framework 2.0 and consists of a directory structure that is similar to that of the Internet Portal Server. Application Server hosted applications are typically encrypted using Secure Socket Layer (SSL) certificate, thereby minimizing the risk in having Internet data transmissions intercepted or corrupted by unknown third party entities or hackers. Port 80 is the default open port using Hyper Text Transfer Protocol (HTTP). JFM can be used to deploy web applications.

Agency/Department Web Servers

Departments like Department of Permitting Services (permittingservices.montgomerycountymd.gov), Department of Homeland Security and Emergency Management (alert.montgomerycountymd.gov), and the Department of Technology Services (gis.montgomerycountymd.gov) have their own MCGOV Dell Web Servers. These departments typically have staff or contractors maintain and manage their servers, content, and applications. However, even though their applications and content are not hosted on the primary County Internet Server, the departments are expected to follow the County Internet URL and Standard Design Template Policy, unless they are granted an exception as specified in the Policy.

Content Management System (CMS)

The County CMS Server is housed in the data center (see section 3.4 – Deployment Domain and section 3.17 – System Operations Domain) and is the County's primary web content management system and repository. The CMS enables non-technical web content contributors or editors and publishers (approvers), dispersed throughout the County's departments and associated agencies, to create, maintain, and manage web content in a secure and organized fashion with minimal training and simple, yet effective workflows.

Authorization, Access, and Authentication

CMS users gain access to the system by opening the CMS URL using a Microsoft Internet Explorer web browser, entering their County Active Directory computer login user name and password, and selecting the web portal (Internet or Intranet) to update into the form provided. A user is authenticated using a County Active Directory and authorized, using a CMS SQL database, to edit content within their authorized and designated content directory and sub-directories. The CMS distinguishes between two types of users - those publishing the content and those approving it:

1. Content Editor
    a. A content editor can maintain and manage content, but does not have the ability to approve content to web portals
2. Content Approver
    a. An approver has the capability to maintain, manage, and approve content for publication on either web portal

A simple workflow has been incorporated into the system to enable content editors to submit content updates to their approvers or supervisors for review and approval. On request by an authorized County Content Manager or Department Director, DTS-ADT staff members update CMS application groups within the Active Directory – placing users in either Editor (User) or Approver group in order to allow them access to the CMS. Users may have permission to access both Internet and Intranet web content, but not during the same session.

Content File Management

After logging into the CMS, the file manager window opens and displays all of the folders and files within the user's authorized content directory. The file manager window enables users to navigate within their authorized content area, to access on-line help, and to perform content file management tasks. Users can use the file management buttons and links to upload or download multiple web or image files (pdf, html, asp, doc, gif, jpg, etc..), create or open new editable web content files or folders and to view, edit, rename, copy, delete, submit, or approve exiting content files or folders. Users can also determine web file's size (bytes) as well as the date and time it was last modified on the content server and last approved on its designated web portal. The CMS also allows all users to generate content freshness reports that provide a list of files, with their approval date and time stamps, that have been uploaded their respective web portals. User can then update stale content as necessary. The file manager also enables users to logout of their CMS session.

Content Editing

The user can either create a new content file to edit or edit an existing file listed in the CMS File Manager. Once a file, in .ASP or HTML file format, has been selected for editing, it is indicated as locked within the file manager and can not be opened by another content editor to eliminate any instances of more than one user editing the same page and overwriting another person's changes. The content editing tools enable users to edit web content text and assign County-approved web styles within their portal template content area (outlined with a blue box) without allowing them to edit the content master

template design or layout, which enforces County web design standards and policies. Each editable web content file contains HTML Comment tags identifying the content work area. The WYSIWYG content editor enables users to easily maintain or update text and insert, resize, and position images, tables, text boxes, or horizontal lines. CMS enables content editors to use the following word processing features:

- justify, center, and indent
- bold, italicize, underline, and bullet
- undo and redo text change
- spell checking
- find/replace, remove undesired text formats
- subscript and superscript
- insert special characters
- absolute positioning

In addition, the tool enables users to add and modify hyperlinks, mail links, anchors, page title and meta tags as well as saving, printing, previewing the web page in a another browser window. The CMS also enables users to view source code. Once the user has completed their edit session, they can save and exit the session in order to go back to the file manager window. They can also cancel the session without saving or by simply closing the web browser. When the browser window is closed, the system automatically ends the session and records that the session has ended. In addition, the CMS generates a session end courtesy message indicating that a session is about to end, thus providing a distracted user the opportunity to save their content and continue. If the content is not saved by the user prior to the session's end, the CMS saves the latest content version prior to closing the session.

Submitting and Approving Content to Selected Web Portals

Multiple content files can be submitted by the content editor to the Content Approver for review and approval. A CMS form enables the Content Editor to send a content update email message to their supervisor notifying them that web content changes have been made and that the content updates need to be reviewed. Once the supervisor receives the email, then he or she uses the CMS to review the updates and approve the content to either the Intranet or the Internet web portal. To approve the content, the Approver simply selects the content file(s) to approve and clicks the Approve and Upload button to update the selected Portal. The directory structure and files maintained on the content server match those found on the Internet and Intranet production servers. Consequently, the files are uploaded to their correct location every time. If the user creates a new folder, then the user need only approve the file within that folder and the new folder will automatically be created on the portal servers.

Java File Manager (JFM) Server

The JFM Server provides file transfer access to the Web Servers. Department users who have a special need to update their application content on the Web Servers can be provided access. They are provided access to their application folders on the Web Server and are restricted by privilege level to only their folders.

Google Site Search

The Google Site Search service provides sophisticated text-matching techniques to enable County Internet Portal visitors to quickly search and locate relevant web content by keyword or phrase. When a search is initiated by a user, the Google Site Search service searches all indexed web pages that contain all the keywords submitted. Basically, Google ignores common words and characters such as "where" and "how", as well as certain single digits and single letters, because they tend to slow down searches without improving results. In addition, Google searches are not case sensitive. If a search result cannot be found or is not relevant, then typically the web site visitor will refine their search by updating and resubmitting their search keywords or phrases to make them more specific.

Google Site Search is a cloud- hosted customizable search engine, built using Google's core search technology that enables the County to index 500,000 pages and to submit 3,000,000 search queries per year. County web site search forms, available in almost all County web pages, use Google Site Search technology to find relevant non-excluded content on a daily basis throughout the year. Google Site Search enables the County to crawl web servers / content outside of the County's firewall and currently indexes web page docs (html, htm, .asp, .cfm, .pdf, and .xml) and Microsoft Office file formats (.doc, .xls, and .ppt) from the following servers.

- http://www.montgomerycountymd.gov
- http://www2.montgomerycountymd.gov
- http://www3.montgomerycountymd.gov/311
- http://montgomerycountymd.libanswers.com
- http://montgomerycountymd.libguides.com
- http://permittingservices.montgomerycountymd.gov
- http://www.hocmc.org

Google Site Search department-specific search filters, refinements, and content weighing are available to County departments as well through Google Site Search.

Intranet Portal

Principles

The function of the Intranet portal is to support:

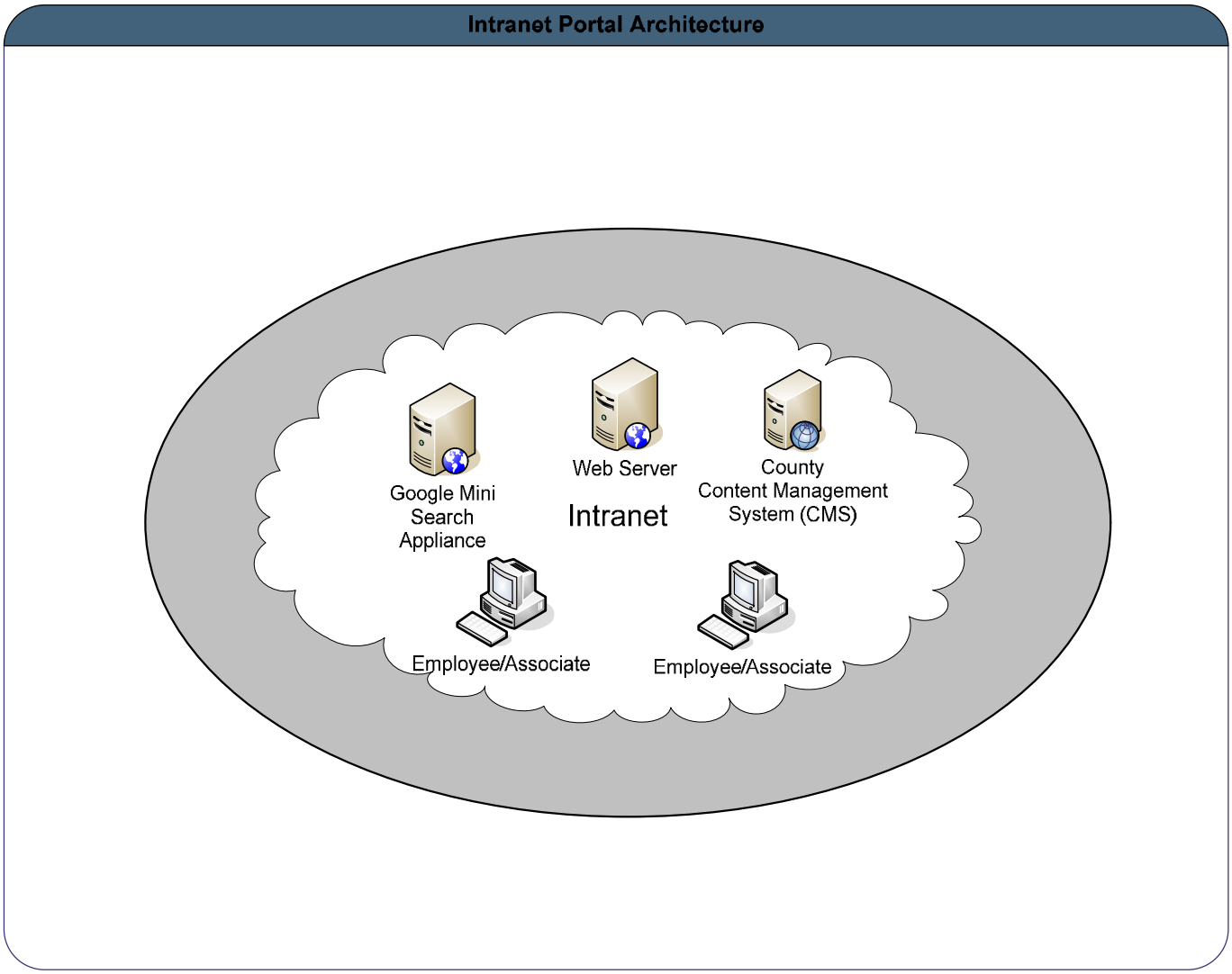
- Employee communications
- Employee services
- Departmental pages

The audience for the Intranet portal includes:

- Employees, Paid Interns, Temporary Workers (Active)

- Associates (Active)
  - Contractors
  - Partners - affiliated company/business user accounts, partners to the County
  - Volunteers - Volunteers, unpaid Interns

Components


Intranet Portal Architecture
Google Mini Search Appliance
Web Server
Intranet
County Content Management System (CMS)
Employee/Associate
Employee/Associate

Web Servers

The Intranet Portal is run on a single Web Server. The web server follows the Deployment Domain (see section 3.4 **–** Deployment Domain).

The Intranet Portal is a Dell Server running Microsoft IIS server and Cold Fusion Server as well as ASP.NET 1.1 and ASP.NET 2.0 frameworks. The Intranet Portal is used as the primary platform to deploy web content and applications (ASP, ASP.NET, and CFM) to County employees and associates within the work place and within the County Firewall. Much like the Internet Portal, a well-defined Intranet Portal directory structure was created in a manner to enable application developers and content contributors to efficiently store and publish applications and content in addition to sharing common files. As a result, static web content files are stored in the **Content** folder, dynamic web application files are published in the **Apps** folder, and commonly used files, such as scripts, images, and style sheets, are maintained in the **Common** folder relative to the web site's root directory. Content, Application, and Text Version Master Templates, which are used to provide web site design continuity (same look and feel) and flexibility (templates can be quickly altered to affect thousands of web pages), are stored in the Portal's web site's root directory (inetpub/wwwroot/). In addition, standardized master templates facilitate template recognition, help to avoid content duplication (content can be assigned to multiple portals by link), address accessibility issues (content only converted to text on the fly), and interfaces with the Intranet Google Mini Search Server.

Intranet application master templates are available to County application developers in ASP, ASP.NET, and Cold Fusion format. The proper use of the master templates by County application developers are enforced by the County Internet URL and Standard Design Template Policy. County Internet Privacy Policy, User Rights, Accessibility, and Disclaimer are provided for Portal visitors as well. The Internet Portal also provides a Secure Socket Layer (SSL) certificate for applications that require transmission encryption. Port 80 is the default open port using Hyper Text Transfer Protocol (HTTP). File transfer access (read/write) permissions to the Server is available through the County Content Management System (CMS) for web content and through JFM and/or an equivalent DTS approved tool for web applications.

Content Management System

See the Internet Portal section.

Google Mini Search Appliance

The Google Mini Search Appliance - M2 (search.mcgov.org), a rack mountable server (1U), combines Google's PageRank™ technology with sophisticated text-matching techniques to enable County Intranet Portal visitors to quickly search and locate relevant web content by keyword or phrase. The Google Mini supports a customizable interface that enables Intranet Portal template integration for search forms, search results, and advanced search results web pages. Consequently, web site visitors commonly enter a keyword(s) or a phrase, encompassed with quotes, within a County Intranet Portal template search form to quickly generate a search results web page presented within a County template.

When a search is initiated by a user, the Google Mini searches all indexed web pages that contain all the keywords submitted. Basically, Google ignores common words and characters such as "where" and "how", as well as certain single digits and single letters, because they tend to slow down searches without improving results. In addition, Google searches are not case sensitive. If a search result cannot be found or is not relevant, then typically the web site visitor will refine their search by updating and resubmitting their search keywords or phrases to make them more specific.

To improve the chances of content discovery, the Google Mini enables customized sub-site or department-specific search collections to be defined, thus, refining and improving the search results for advanced searches conducted within those collections. In addition, the Google Mini advanced web search options enable users to refine their search parameters by using a more detailed search form. Users can find results:

- By department-specific search filter listed in drop-down menu
    - Default Internet Portal Template search form includes all indexed Internet pages
- With all of the words
    - This is the default search setting
    - Search engine math equivalent (trash AND removal)
- With the exact phrase
    - inserts quotes around search keywords (i.e. "trash removal")
- With any of the words
    - Search engine math equivalent (trash OR removal)
- Without the words (i.e. trash removal -bins)
    - Search engine math equivalent (trash removal -bins)
- By Returning pages in various languages (Spanish)
- By Returning results where the search keyword or phrase is located:
    - Anywhere on the page
    - Within the page title
    - In the URL of the page
- By Only returning or not returning results from a specific web site or domain
- By Sorting by Relevance or by Date (descending)
    - Relevance is determined by Google algorithms (PageRank) and/or by user weighted values

The Montgomery County Google Mini Search Appliance – M2 currently enables search indexes of up to 100,000 web pages, including (Microsoft Office files, and PDF files). In addition, the Google Mini Administration tool enables administrators to configure, create, and schedule search collections, to schedule search exclude specified content from search crawls, to weight content to tune searches, and to generate keyword search reports. The Google Mini can be configured to search 220 different file formats

and automatically detects 28 different languages. In order for the Google Mini to crawl documents, the documents need to be web-enabled (i.e., accessible by HTTP or HTTPS protocol) or reside on networked file systems. The County's Google Mini currently "crawls" the primary Intranet web servers on a daily basis (scheduled crawl mode).

In-house Competency/Skill Set

To uphold a high level of service and component availability, DTS personnel are trained in key areas. These key area skills are listed in the table below.

Skill Set
Content Management
Web Development
User Interface Design
Database Administration
Microsoft IIS Server Management
Microsoft .NET Services
Microsoft IIS Server Security
Search Engine Administration
Training Skills
Technical Writing

Standards and Guidelines

Social Media

Interim Administrative Procedure 6-8, Social Media

Content

The following are general County Content Management standards and guidelines:

- **Performance Guideline**
  - The County expects a turn around time for Web content in 3 seconds or less
- **Availability Guideline**
  - The County expects Web content to be available no less than 99.5% of the time
  - The County expects the CMS to be available no less than 99% of the time
- **Content Management Standards, tutorials, frequently asked questions, workflow diagrams, and user group presentations**
  - Available on DTS Intranet Web Site (http://portal.mcgov.org/content/departments_intranet/dts/Resources/WEP/index.asp)
- **Web Content Management User Group Blog (available on Intranet Web Site)** http://portal.mcgov.org/apps/News/Blog/IntraGenericBlog.asp?blogID=5&Cat=web%20policy

- Information Architecture
- Usability Studies
- Policies, Procedures, and Design Standards

- **County Internet URL and Standard Design Template Policy**

  Naming Convention Syntax Examples:

  - Internet Primary Portal
    - www.montgomerycountymd.gov/content/<<dept>>/sub-folder(s)/ web page
    - www.montgomerycountymd.gov/content/<<dept>>/web page
    - www.montgomerycountymd.gov/content/<<portal>>/sub-folder(s)/ web page
    - www.montgomerycountymd.gov/content/<<portal>>/web page
  - Intranet Primary Portal
    - portal.mcgov.org/content/<<portaldirectory>>/<<dept/project>>/web page
    - portal.mcgov.org/content/<<portaldirectory>>/<<dept/project>>/sub-folder(s)/ /web page
  - Syntax Definitions
    - portaldirectory = Intranet portal directory (i.e. departments_intranet)
    - dept = short name of the department that owns the application

- **Shortcut and Accessibility Standards**

Applications

See the MCG Enterprise Architecture Application Architecture document.

3.27 Mobile Computing Domain

Principles

The Mobile Computing Domain provides support for Mobile Client devices such as smart phones, netbooks and tablets. It is an extension of the Desktop (DCM)(see section 3.5), Network (see section 3.12), and Data Security domains (see section 3.3).

With the advance in intelligence of non-traditional mobile computing devices the County has found the need to support these devices for County Mobile User populations and as secondary devices.

The user populations for this domain are expected to include:

- traditional seat machine for mobile users where the seat machine is a device such as a tablet or netbook
- secondary or user owned personal devices employed as productivity aids

Support comes in two categories that correspond to:

- behind the fire-wall devices
- outside the fire-wall devices

Mobile device support that is behind the firewall is for County owned devices that can meet County Security and management policies. This support means that they can access the internal County wireless network through the Wireless Access security protocol (see section 3.12 Network Domain for details). The Mobile Device is considered a County Device that is owned by the County and is centrally managed in an inventory system, has a standard image, can be managed through a remote login service, and is using the Enterprise Virus Protection Services (see section 3.3 Data Security Domain for details). Devices such as these are acting as seat machines and are supported through the help desk and DCM replacement schedule like a DCM desktop or laptop.

Mobile device support that is outside the firewall can include County Owned devices purchased through the DCM contract as well as personal devices. These devices operate outside the internal County network. For these devices the County offers limited County Application support that includes Internet access for applications like:

- MCTime (timesheet)
- County Email and Calendaring (see section 3.6 Email System Services)
- ERP Employee self-service

The device must support the particular Application's Web Browser Requirements.

Additionally, the County VPN offers limited support for mobiles that can allow them to log in to the internal County network and access certain behind the fire-wall services.

Owners

Business Owner

The business owner for this Domain is the DTS CIO.

Technical Owner

The technical owners for this Domain are:

- DTS Client Computers (DCM) Team
- Security Team (VPN)
- Network Team

Components

Mobile Device

The mobile device can be any mobile device that meets VPN access requirements or the browser requirements of the externally offered applications.

County owned devices are possible either as a seat machine offered through the County DCM contract or as a departmental purchased system that can be bought through the DCM contract but is not a seat machine.

Network Access

All personal and non-centrally managed devices must access County Services outside the internal County network. The Network Team is planning to upgrade current County wireless access points to support both internal County network access as well as external access. External access will tunnel the device out to the County external Firewall where they can access County Internet based services or use the VPN to access the internal County network.

Application Support

The County Email and Calendaring system (see section 3.6 Email System Services) supports Internet access via OWA. Other application owners can chose to make their application available externally by hosting them in the Enterprise Hosting Infrastructure (see section 3.7 Enterprise Hosting Infrastructure Domain). These applications can support mobile devices if the mobile device browser can meet the EHI and Application minimum requirements.

Security (VPN)

The DTS Security Team maintains a VPN (see section 3.3 Data Security Domain for details) and is the primary solution for external users to gain access to the County internal network. Users must be approved for the VPN and use a device that is supported by the VPN. Upon login all devices are checked for up to date Operating Systems and for certain class of machines for up to date Virus checking software and definitions.

In-house Competency/Skill Set

To maintain the architectural components, DTS personnel are trained for proficiency in specific areas. These skills are listed in the following table.

Skill Sets
Desktop Computer Management
Tablet, Netbook, and Smartphone administration
Virtual Private Networking Administration
Network Access Point Administration
Enterprise Application development and support.

Standards and Guidelines

- Service Level Agreement (SLA) for Mobile Device Support under Desktop Computer Modernization (DCM) Program
    - SLA for departments using mobile devices

- Office of Management and Budget – Administrative Procedure 6-1 *Use of County-Provided Internet, Intranet, and Electronic Mail Services*

- Office of Management and Budget – Administrative Procedure 6-6 *Information Technology Policies and Procedures*

- Office of Management and Budget – Administrative Procedure 6-7 *Information Resources Security*

- Office of Management and Budget – Administrative Procedure 8-2 *HIPAA Compliance and Responsibilities*

DEPARTMENT OF GENERAL SERVICES
OFFICE OF PROCUREMENT
255 Rockville Pike, Suite 180, Rockville, MD 20850-4166
VOICE: 240-777-9942 TTY: 240-777-9956 FAX: 240-777-9952

January 15, 2013

****

ALL SOLICITATION AMENDMENTS MUST BE ACKNOWLEDGED BY THE OFFEROR PRIOR TO THE HOUR AND DATE SPECIFIED IN THE SOLICITATION (AS AMENDED) FOR RECEIPT OF OFFERS. **FAILURE TO ACKNOWLEDGE AN AMENDMENT MAY BE CAUSE TO REJECT OFFER**.

****

DESCRIPTION OF AMENDMENT –

Changes:

1) The RFP closing Date and Time is extended to January 29, 2013 NO LATER THAN 3:00 p.m.

2) Replace pages 16, 22, 23, and I1 (Price Sheet) with Revised Pages. Changes are in bold and *italicized.*

There are no other changes.

The enclosed information is provided in response to vendor inquiries.

****

THE SOLICITATION PROVISION ENTITLED "SOLICITATION AMENDMENT" IS APPLICABLE TO THIS AMENDMENT. THE CHANGE SET FORTH BELOW ARE HEREBY INCORPORATED INTO THE ABOVE-CITED SOLICITATION. THE DATE SPECIFIED FOR RECEIPT OF OFFERS **IS EXTENDED.**

ISSUED BY: _____
David E. Dise, CPPO
Director, Department of General Services

NAME OF OFFEROR: _____
(Type or print)

NAME AND TITLE OF PERSON
AUTHORIZED TO SIGN: _____
(Type or print)

OFFEROR'S SIGNATURE: _____ DATE :_____

Questions and Answers

1) Since the standard terms are not applicable to the licensing of software, will we be able to utilize the vendor's end user license agreement (EULA)?
Answer: The General Terms and Conditions (Section B) are applicable to the RFP. If, the County reaches an agreement with a vendor that has a EULA license agreement, the license agreement becomes a subordinate part of the County contract. The County generally does not sign the license agreement as a separate standalone document. In general, the County's terms and conditions take precedence over the license agreement.

2) Our licensing costs are based on a named user versus concurrent, how many users will need access to the system?
Answer: RFP page 19, section 11,b,1: "Provide installation for fifty seats/workstations". Licensing by named user is fine so long as the license may transfer to replacement staff members.

3) All nine council offices will have access? Will they also enter new issues?
Answer: Staff within all nine Council offices and within the Legislative Information Services office will access the tool on their desktop to open, assign and manage case work.

4) Can more information be given as to the expectations of integration with social media tools such as Facebook?
Answer: Offerors should indicate if their solution integrates with social media tools such as Facebook.

5) Could you confirm that the County is expecting to host the data and application internally? Would the county accept alternate pricing options (one for installed/on-premise, one for fully hosted in the cloud)?
Answer: The County Council is requesting to host data internally and does not wish to host data externally or in the cloud.

6) Does the County prefer a Commercial Off the Shelf product or a Custom Designed product?
Answer: The County prefers a solution that readily meets the requirements of the RFP with minimal customization. Also, see answers to questions numbered 12 and 13.

7) Does onsite training need to include all travel related expenses?
Answer: All costs including travel related expenses should be included on Attachment I, Price Sheet.

8) Can the RFP be provided in Word format?
Answer: The RFP is downloadable in PDF format to maintain its integrity of the document and its content. If there is a specific table or pricing sheet that is easier to fill in using MS Office, please provide us with the specific need.

9) With this solicitation if our company is not a minority, woman or veteran owned will we be at a disadvantage?
Answer: This RFP is available for all offerors to respond. Proposals will be rated based on the Method of Award and the Evaluation Criteria.

10) Would the County consider purchasing directly via the federal government's General Services Administration Schedule 70 contract vehicle?
Answer: The County intends to award a contract resulting from this RFP for a solution that will meet the County's needs.

11) Is there a budget for this project that you can share with us?
Answer: The County is looking for Offerors to propose solutions and pricing that will provide best value to the County. Although price is subject to negotiations, Offerors should be aware that proposed pricing (Attachment I) will be considered in the evaluation of their proposals.

12) Will the Council consider expanding the functionality of the existing MC311 system for this project?
Answer: The Council will consider expanding the functionality of the existing MC311 system if the proposed solution is comparable to a COTS product in that minimal customization is required in order to accomplish the workflow stated within the RFP. Further, Council must retain exclusive access to all content stored in the database, further the database must be housed onsite within the Council Office. See also answers to questions numbered 6 and 13.

13) How is this RFP CRM different than the CRM implemented for MC311?
Answer: While the Council participated with the overall MC311 solution, a primary focus of this RFP is for correspondence management unique to Council's requirements and separate from MC311. The Council is looking to have a solution that readily meets it requirements for correspondence management to maximize our services to the public.

14) Can you please verify the number of Employee users for the proposed system?
Answer: RFP page 19, III, 11.,b.,1. states "Provide installation for fifty seats/workstations".

15) Why is the County requiring an on-premises solution and not open to a cloud based solution for this solicitation, especially when it uses cloud services in other aspects of the IT portfolio (e.g., the Granicus Platforms and Open Suites mentioned in the RFP)?
Answer: The three most prominent reasons the County is requiring an on-premises solution are security, efficiency and access.

SECTION C - SCOPE OF SERVICES:

I. Background

The Montgomery County Government, County Council, located at 100 Maryland Avenue in Rockville, Maryland, is the legislative branch of County Government. The Council has nine members, five elected by district and four elected at-large. Each Councilmember office has four or five staff members. There is also a central staff that includes the Office of Legislative Information Services (LIS). The Council Office as a whole receives a large amount communications and needs a solution to effectively process this information. In 2011, about 46,000 communication records were processed by Councilmember offices and LIS combined. Management includes but is not limited to the intake of issues from residents, businesses, partner agencies, and County departments.

The Council Office needs an on-premise commercial off the shelf (COTS) constituent/customer relationship management (CRM) system ***or comparable*** that offers casework management, issue tracking, workflow management, storage, reporting, and marketing of electronic communications. Communications records arrive via email to the main Council address, County.Council@montgomerycountymd.gov and to the Councilmember's public facing mailbox, Councilmember.Lastname@montgomerycountymd.gov, by phone, US postal mail, and facsimile. Microsoft Outlook, Access, and Word are the primary tools for communications management.

Offices use the following workflow to process correspondence. Each communications record is stamped with a control number, date, and time of receipt. The control number and information from the correspondence, such as return address, is entered into a Microsoft Access database. The correspondence is then scanned onto the file server and the original correspondence is filed in the LIS office. At the end of the day, an itemized email detailing the daily correspondence received to LIS is sent to staff. This email offers embedded hyperlinks that reference each item stored on the file server. When a response to correspondence is sent, the analyst sends or delivers the electronic or hard copy response to LIS, where it is scanned onto the file server, printed, and stored in the LIS library with the original correspondence. Data stored on the file server is then synched with the Council's Record Management System (RMS). This system offers a desktop search tool to track case information and supporting documentation. In addition to storing case information, the RMS stores bills, zoning text amendments, public hearings, Council and committee packets, minutes, and resolutions. The response is then referenced within the Microsoft Access database and the case is closed.

Reports are generated regularly regarding case status, ownership, average time to case closure, etc. These reports are stored on the file server to review and improve customer service, staff development, managing staff case load, etc.

When responding to many constituents regarding one particular issue, staff will extract contact information from the Microsoft Access database in order to customize a bulk response Newsletters are sent monthly as well as on demand with approximately 25,000 subscribers per office. In addition to managing the public facing mailbox for the Councilmember, each office maintains a private calendar. Information from the calendar may be referenced in casework.

II. Intent

The intent of the Council is to enter into a contract with a qualified contractor in order to obtain a secure, reliable, and accessible on-premise constituent/customer relationship management (CRM) system. The system should provide the means to link supporting content to a case as well as reference content stored in the following locations. Supporting data for a case may come from:

- The Council's Content Management System (website) used to publish Council and Committee agendas and packets as part of the Council's transparency initiative. An example is the ability to create a

Director approves, negotiations may be held simultaneously or successively with one or more offerors prior to making an award.

g. After the successful conclusion of negotiations, the Director will publicly post the name(s) of the proposed awardee(s).

h. The County reserves the right to cancel the solicitation. The solicitation cancellation will be publicly posted.

2. EVALUATION CRITERIA

a. Written Proposal Evaluation Criteria

The QSC will evaluate the written proposals based on the following criteria.

		POINTS
1.	Description of COTS constituent/customer relationship software solution ***or comparable*** and how it meets the stated needs and objectives in the RFP	20
2.	Description of compatibility and adaptability of proposed solution with the County technical architecture	20
3.	Overall quality and clarity of the proposal and the understanding of the work to be performed in accordance with the scope of services as listed	15
4.	Expertise providing the services requested in Scope of Services for a COTS constituent/customer relationship software solution ***or comparable***	15
5.	System support warranties for hardware and software, operations support and software upgrades	10
6.	Vendor's past experience including description of projects of similar scope completed in the last three (3) years.	10
7.	Price Sheet (Attachment I)	10
	Highest possible QSC score for written proposal evaluation:	100

b. **Structured Demonstration Evaluation Criteria**

The QSC will evaluate the structured demonstrations based on the following criteria:

1. Ability of the COTS solution ***or comparable*** to meet the requirements and objectives contained in this RFP	30
2. Integration with Microsoft Outlook that prevents rekeying of data	25
3. Ability of COTS solution ***or comparable*** to support the workflow identified in this RFP	20
4. Client side customization features	5
5. Features offered out of the box	10
6. Ease of Use	10
Highest Possible QSC Score for Structured Demonstration	100

SECTION F – SUBMISSIONS

1. PROPOSAL SUBMISSIONS

FAILURE OF AN OFFEROR TO SUBMIT ALL REQUIRED PROPOSAL SUBMISSIONS MAY RENDER YOUR PROPOSAL UNACCEPTABLE AS DETERMINED BY THE DIRECTOR, DEPARTMENT OF GENERAL SERVICES.

Offerors must submit one original and five (5) copies of their proposal in the format below. Written proposals will be evaluated on only what is submitted. The offeror must submit sufficient information to enable the QSC to evaluate the offeror's capabilities and experience. Proposals must include the following information (including labeled sections numbered as shown):

a. A cover letter with a brief description of the firm, including the offeror's name, address, telephone number and fax number.

b. The Acknowledgment (page 4) of this solicitation must be submitted and signed by a person authorized to bind the offeror to the proposal.

c. At least three references that may be contacted to attest to the quality and timeliness of the offeror's work of similar nature and scope to the scope required by the County. (see Attachment A)
d. If this solicitation is subject to the Wage Requirements Law (see page 1), then the offeror must submit the appropriate Wage Requirements forms in Attachment G. Failure to submit and complete the required material information on the form(s) will make your proposal unacceptable under County law and will be rejected.
e. Metropolitan Washington Council of Governments Rider Clause - Attachment B
f. Minority, Female, Disabled Persons Subcontractor Performance Plan (Attachment D). **To ensure a contract can move forward as a result of this solicitation, this plan needs to be submitted with your proposal.**
g. Minority Business Program and Offeror's Representation - Attachment C
h. Provide a description of the proposed COTS constituent/customer relationship software solution ***or comparable***.
i. Provide a narrative of the compatibility and adaptability of this product solution with the County's technical architecture, including an Architecture Impact Statement.
j. Provide a detailed services plan that describes how the software solution will meet the needs of the County as outlined in the Scope of Services.
k. Provide a training plan and train-the-trainer training methods and support materials.
l. Provide a description of additional training and prices.
m. Provide a completed Attachment I Price Sheet:
n. Provide a description of any discounts that will be offered if other public entities in Montgomery County make purchase as a result of the resultant.
o. Provide a description of any competitive pricing or discount on future product enhancements that would be available to the County.
p. Provide information about any applicable discounts available to current clients on future purchases.
q. Provide a description of similar projects your firm has performed under previous contracts within the business community and/or government entities within the last three years.
r. Provide a description of the system support and warranties for hardware, software, operations support and software upgrades.
s. Describe firm's expertise in successfully providing similar COTS constituent/customer relationship software solutions ***or comparable***.

2. AWARD SUBMISSIONS

Prior to the execution of the contract, the following items must be submitted:

a. Minority, Female, Disabled Person Subcontractor Performance Plan (contract value greater than $50,000) – Attachment D
b. Offeror's Certification of Cost and Price (contract value greater than $100,000) – Attachment E
c. Certificate of Insurance (see mandatory insurance requirements) - Attachment F
Awardee must provide the applicable insurance coverage and all costs for this coverage must be calculated into your proposal price. These insurance requirements supersede those found in the Provision #21 of the General Conditions between County and Contractor and are applicable to any contract executed as a result of this solicitation.

SECTION G - COMPENSATION

The contractor will be paid on a monthly basis within 30 days of submission of an acceptable and proper invoice, approved by the County.

ATTACHMENT I

PRICE SHEET

I. COTS *or comparable* On-Site Solution

Software License(s)	$_____
Installation	$_____
Warranty maintenance (Year 1)	$_____
Mandatory Onsite training (Technical & Non-Technical Personnel)	$_____
Hardware	$_____
Other (Cost of Configurations & customizations)	$_____
Total Cost of ownership for year one	$_____

II. Hardware

This includes server architecture required by the solution.
The County is responsible for procurement of hardware. $ _(_____)__

III. Warranty and Maintenance

Contract Year 2	$ _____
Contract Year 3	$ _____

IV. AGGREGATE TOTAL **$_____**

OPTIONAL SERVICES

I. Training

On-going Traditional Training Sessions (per day) $ _____

(Please include any and all itemized listing.
The offeror may attach any additional pricing information or detail

II. Add-ons/plug-ins $ _____

Software that is packaged separate from the license that may enhance the product. For example, a plug-in for Microsoft Outlook that integrates Outlook with the solution, or a mapping system that identifies the location of a County address using the Internet, etc.

Notice to Offerors

Request for Proposals
#1026052
Customer Relationship Management System

This solicitation may be subject to the County's Wage Requirements law for service contracts. If this solicitation is subject to that law, then the appropriate space will be marked in the box denoting "This is a Services Contract", at the bottom of the next page (page 1). And, in this event, the "Wage Requirements for Services Contract Addendum" (Attachment "G") should be attached.

If this solicitation is subject to the Wage Requirements law (see above explanation), then the "Wage Requirements Certification" and, if applicable, the "501(c) (3) Nonprofit Organization's Employee's Wage and Health Insurance Form" (see Attachment "G"), must be completed and submitted with your proposal. If you fail to submit and complete the required material information on the form(s), your proposal may be unacceptable under County law and may be rejected.

As noted in Attachment "G" (Section A, Wage Requirements Compliance), a contractor required to comply with the Wage Requirements Law must quarterly (January, April, July, and October for the prior quarter) submit certified payroll records for all employees, and any subcontractors, governed by the Wage Requirements Law, for each payroll period to the Office of Business Relations and Compliance, Attn: Wage Program Manager. These payroll records must include the following for each employee and any subcontractors: name; address; position/title; daily straight time hours worked; daily overtime hours worked; straight time hourly pay rate; overtime hourly pay rate; any deduction for health insurance; total gross wages paid for each period; and total net wages paid after any additions and deductions for each pay period.

Please note the information pertaining to the Wage Requirements law is on Attachment "G". Please note for services contracts, you can find the current mandatory wage rate, per hour, payable to employees under Section 11B-33A of the County Code, by going to the website (www.montgomerycountymd.gov), and clicking on "Departments," "General Services," "Office of Procurement,", and then "Living Wage." . Also, the Wage Requirements law ("Living Wage") is available at the same website.

REQUEST FOR PROPOSALS
RFP# **1026052**
Customer Relationship Management System
December 20, 2012

Montgomery County, Maryland is soliciting proposals for the provision of the above-referenced goods/services as outlined in this document.

One original and five (5) copies of your proposal must be submitted in a sealed envelope/package no later than 3:00 PM on January 23, 2013 to the Department of General Services, Office of Procurement, Rockville Center, 255 Rockville Pike, Suite 180, Rockville, Maryland 20850-4166. The sealed proposal package must be clearly marked with the solicitation number, due date, and due time.

There will not be an optional pre-submission conference.
The County will not accept fax proposals or proposals sent via e-mail. All faxed or e-mailed proposals will be returned.

Should you have any questions regarding the technical information or the scope of services contained in this solicitation, please contact Michelle Parsons, at (240) 777-7878 or michelle.parsons@montgomerycountymd.gov.

Should you have any questions regarding procurement information (i.e., terms and conditions) contained in this solicitation, please contact Penny Perrus Karakaya (240) 777-9925.

(The Office of Procurement will check one of the boxes below to indicate whether this RFP is a services contract, a Construction Contract, or neither)

This is a Services Contract (see Section A, Services Contract):	**X**

or

This is a Construction Contract (See Attachment H):	

or

This is not a Services Contract (disregard Section A, Services Contract) and is not a Construction Contract (disregard Attachment H):	

David E. Dise, Director
Department of General Services

Revised 08/10

TABLE OF CONTENTS

Acknowledgment 4
Name and Signature Requirements for Proposals and Contracts
Acknowledgment of Solicitation Amendments
Section A Instructions, Conditions and Notices 5
Acceptance Time
Acknowledgment
Contract Documents
Determination of Responsibility
Joint Procurement
Late Proposals
Minority, Female, Disabled Person Program Compliance
Montgomery County Code and Procurement Regulations
Optional Pre-submission Conference
Payment Terms
Proposals
Proposal Withdrawal/Modification
Proprietary & Confidential Information
Protests
Public Posting
Qualification of Offerors
Questions
Services Contract
Solicitation Amendments
Solicitation Preparation Expenses
Verbal Explanations
Section B General Conditions of Contract Between County and Contractor 10
Accounting System and Audit, Accurate Information
Americans with Disabilities Act
Applicable Laws
Assignments and Subcontracts
Changes
Contract Administration
Cost & Pricing Data
Disputes
Documents, Materials and Data
Duration of Obligation
Entire Agreement
Ethics Requirements/Political Contributions
Guarantee
Hazardous and Toxic Substances
Health Insurance Portability and Accountability Act (HIPAA) Compliance
Immigration Reform and Control Act
Inconsistent Provisions
Indemnification
Independent Contractor
Inspections
Insurance
Intellectual Property Approval and Indemnification - Infringement

TABLE OF CONTENTS

	Non-Conviction of Bribery	
	Non-Discrimination in Employment	
	Payments	
	Personal Property	
	Termination for Default	
	Termination for Convenience	
	Time	
	Work Under the Contract	
Section C	Scope of Services	16
	Background	
	Intent	
	Specifications	
	Contractor Qualifications	
	Contractor Responsibility	
	County Responsibility	
Section D	Performance Period	21
	Term	
	Price Adjustments	
Section E	Method of Award/Evaluation Criteria	21
	Procedures	
	Evaluation Criteria	
Section F	Submissions	22
	Proposal Submissions	
	Award Submissions	
Section G	Compensation	23
Section H	Contract Administrator	24
	Authority	
	Using Department	
Section I	Special Terms and Conditions	24
Section J	Ethics	25

ATTACHMENTS

A.	References	A1
B.	Metropolitan Washington Council of Governments Rider Clause	B1
C.	Minority Business Program & Offeror's Representation	C1
D.	Minority-Owned Business Addendum to the General Conditions of Contract Between County and Contractor, and its companion document entitled Minority, Female, Disabled Person Subcontractor Performance Plan	D1
E.	Offeror's Certification of Cost and Price	E1
F.	Mandatory Insurance Requirements	F1
G.	Wage Requirements for Services Contract Addendum to the General Conditions of Contract Between County and Contractor, and its companion documents entitled "Wage Requirements Certification" and "501(c) (3) Nonprofit Organization's Employee's Wage and Health Insurance Form"	G1
H.	Prevailing Wage Requirements for Construction Contract Addendum to the General Conditions of Contract between County and Contractor	H1
I.	Price Sheet	I1
J.	Montgomery County Government Enterprise Architecture	J1

Montgomery County, Maryland
Acknowledgment Page

ACKNOWLEDGMENT

The offeror must include a signed acknowledgment that all the terms and conditions of the offer may, at the County's option, be made applicable in any contract issued as a result of this solicitation. Offers that do not include such an acknowledgment may be rejected. Executing and returning (with the offer) the acknowledgment shown below will satisfy this requirement.

The undersigned agrees that all the terms and conditions of this solicitation and offer may, at the County's option, be made applicable in any contract issued as a result of this solicitation.

Business Firm's Typed Name: _____

Printed Name and Title of
Person Authorized to Sign Proposal: _____

Signature: _____ Date: _____

NAME AND SIGNATURE REQUIREMENTS FOR PROPOSALS AND CONTRACTS

The correct legal business name of the offeror must be used in all contracts. A trade name (i.e., a shortened or different name under which the firm does business) must not be used when the legal name is different. Corporations must have names that comply with State Law. The offeror's signature must conform to the following:

All signatures must be made by an authorized officer, partner, manager, member, or employee. The signing of this offer or a contract is a representation by the person signing that the person signing is authorized to do so on behalf of the offeror or contractor.

By submitting a proposal under this Solicitation, the Offeror agrees that Montgomery County has within 120 days after the due date in order to accept the proposal.

ACKNOWLEDGMENT OF SOLICITATION AMENDMENTS

The Offeror acknowledges receipt of the following amendment(s) to the solicitation:

Amendment Number	Date

SECTION A - INSTRUCTIONS, CONDITIONS AND NOTICES

The following provisions are applicable to this solicitation:

ACCEPTANCE TIME

By submitting a proposal under this solicitation, the offeror agrees that Montgomery County has within 120 days after the due date in order to accept the proposal. Montgomery County reserves the right to reject, as unacceptable, any offer that specifies less than 120 days of acceptance time. Upon mutual agreement between the County and the offeror, the acceptance time for the offeror's proposal may be extended.

ACKNOWLEDGMENT

The offeror is to include the signed acknowledgment (Page 4) indicating agreement with all the terms and conditions of the solicitation.

CONTRACT DOCUMENTS

The following documents will be incorporated into the contract resulting from this solicitation:

1. General Conditions of Contract Between County & Contractor.
2. Minority Business Program & Offeror's Representation.
3. Minority-Owned Business Addendum to the General Conditions of Contract Between County & Contractor.
4. Minority, Female, Disabled Person Subcontractor Performance Plan.
5. Offeror's Certification of Cost & Price (for contracts above $100,000)
6. Wage Requirements for Services Addendum and Wage Requirements Certification
7. All representations and certifications listed in this document.

DETERMINATION OF RESPONSIBILITY

The Offeror has the burden of demonstrating affirmatively its responsibility in connection with this solicitation. A debarred potential offeror must automatically be considered non-responsible in connection with this solicitation. The County reserves the right to consider an offeror non-responsible who has previously failed to perform properly or to complete, in a timely manner, contracts of a similar nature, or if investigation shows the offeror unable to perform the requirements of the contract.

An offeror may be requested at any time by the Director, Department of General Services or the Using Department to provide additional information, references and other documentation and information that relate to the determination of responsibility. Failure of an offeror to furnish requested information may constitute grounds for a finding of non-responsibility of the prospective offeror.

The Director may deny the award, renewal, or assignment of a contract to or for any offeror who is in default of payment of any money due the County.

The factors, which may be considered in connection with a determination of responsibility, include:

1. The ability, capacity, organization, facilities, and skill of the offeror to perform the contract or provide the goods or services required;
2. The ability of the offeror to perform the contract or provide the services within the time specified without delay, interruption or interference;
3. The integrity, reputation, and experience of the offeror, and its key personnel;
4. The quality of performance of previous contracts or services for the County or other entities. Past unsatisfactory performance, for any reason, is sufficient to justify a finding of non-responsibility;
5. The previous and existing compliance by the offeror with laws and ordinances relating to the contract or services;

6. The sufficiency of financial resources of the offeror to perform the contract or provide the services;
7. The certification of an appropriate accounting system, if required by the contract type;
8. A bid bond and the offeror's evidence of ability to furnish a performance bond may be considered evidence of responsibility; and
9. Past debarment by the County or other entity.

JOINT PROCUREMENT

The following entities within Montgomery County must be able to purchase directly from any contract resulting from this Solicitation:

Maryland-National Capital Park & Planning Commission (M-NCPPC)
Montgomery College (MC)
Montgomery County Public Schools (MCPS)
Montgomery County Revenue Authority
Montgomery County Housing Opportunities Commission (HOC)
Washington Suburban Sanitary Commission (WSSC)
Municipalities & Special Tax Districts in Montgomery County

While this solicitation is prepared on behalf of Montgomery County, it is intended to apply for the benefit of the above-named entities as though they were expressly named throughout the document. Each of these entities may purchase from the successful offeror under the same prices and services of the contract with Montgomery County, in accordance with each entity's respective laws and regulations, or an entity may choose not to procure from the successful offeror at the entity's sole discretion. If one of the above-named entities elects to purchase under the contract, the price shall be determined by using unit costs and other pertinent costs that are provided in the offer. Montgomery County shall not be held liable for any costs, payments, or damages incurred by the above jurisdictions.

LATE PROPOSALS

Responses to this Solicitation received after the date and time specified in a solicitation are considered late and may not, under any circumstances, be considered for any award resulting from the solicitation.

MINORITY, FEMALE, DISABLED PERSON PROGRAM COMPLIANCE

Under County law, this solicitation is subject to the Montgomery County Code and the Montgomery County Procurement Regulations regarding participation in the Minority-Female-Disabled Person (MFD) procurement program. Further information regarding the County's MFD program is contained within this solicitation (see the attachment entitled "Minority-Owned Business Addendum to the General Conditions of Contract Between County and Contractor" and its companion document entitled "Minority, Female, Disabled Person Subcontractor Performance Plan").

MONTGOMERY COUNTY CODE AND PROCUREMENT REGULATIONS

The Montgomery County Code and the Montgomery County Procurement Regulations are applicable to this solicitation and any contract awarded pursuant to this solicitation.

OPTIONAL PRE-SUBMISSION CONFERENCE

If a Pre-Submission Conference is held, it is optional, though highly recommended that prospective offerors attend this pre-submission conference. For information regarding the date, time, and place of the conference, please see page 1 of this solicitation.

PAYMENT TERMS

The County's payment terms are net thirty (30) days.

PROPOSALS
Sealed proposals are due in the Office of Procurement, 255 Rockville Pike, Suite 180, Rockville MD 20850-4166, for the purchase of supplies, material, equipment and/or services in accordance with the instructions, terms, conditions and specifications and/or scope of services set forth in this solicitation. Proposals must be returned in a sealed envelope, and clearly marked with the RFP number, due date, and time. Proposals received after the time specified will be returned unopened to the offeror. The County will not be responsible for proposals received after the due date, due to premature or late deliveries, postal/courier delays, or opening of a proposal if it is improperly addressed or identified.

PROPOSAL WITHDRAWAL/MODIFICATION
Proposals may be withdrawn or may be modified by the offeror upon receipt of a written request received before the time specified for due date and due time. Requests to withdraw or modify an offeror's proposal received after the solicitation due date and time will not be considered.

PROPRIETARY & CONFIDENTIAL INFORMATION
This is to notify prospective offerors that the County has unlimited data rights regarding proposals submitted in response to its solicitations. Unlimited data rights mean that Montgomery County has the right to use, disclose, reproduce, prepare derivative works, distribute copies to the public, or perform publicly and display publicly any information submitted by offerors in response to this or any solicitation issued by the County. However, information that is deemed to be confidential commercial or financial information as defined by the Maryland Information Act, State Government Article 10-617, will be exempted from disclosure if the submitter can show that release of such information would cause substantial competitive harm to the submitter's competitive position. It is the responsibility of the offeror to clearly identify each part of his/her offer that is confidential commercial or financial information by stamping the bottom right-hand corner of each pertinent page with one inch bold face letters stating the words "confidential" or "proprietary." The offeror agrees that any portion of the proposal that is not stamped as proprietary or confidential will be deemed not to be proprietary or confidential.

PROTESTS
All protests made pursuant to this solicitation must be in writing and delivered to the Director, Department of General Services: (a) within ten (10) days after the Director, Department of General Services, publicly posts the proposed award, if the offeror seeks as a remedy the award of the contract or costs under 11B-36(h) of the Montgomery County Code, or (b) before the submission date for proposals, if the offeror seeks as a remedy the cancellation or amendment of the solicitation. Each protest must contain a protest filing fee in the amount of $500 (US currency); if the fee is paid by check, then the check must be made out to Montgomery County Government. The Director, Department of General Services, may return the filing fee to the protesting offeror, if the protest is sustained. The Director, Department of General Services, must dismiss any protest not timely received.

Only an offeror who is "aggrieved" may file a protest. Aggrieved means that the offeror who is filing the protest may be eligible for an award of the contract if the protest is sustained (e.g., a fourth ranked offeror is not aggrieved unless the grounds for a protest, if sustained, would disqualify the top three ranked offerors or would require that the solicitation be reissued).

Each protest must contain the following: identification of the solicitation; the name, address and telephone number of the protesting offeror; a statement supporting that the offeror is aggrieved; and specification of all grounds for the protest, including submission of detailed facts and all relevant documents, citation to relevant language in the solicitation, regulations, or law relied upon; and, all other matters which the offeror contends

supports the protest. The burden of production of all relevant evidence, data and documents, and the burden of persuasion, to support the protest is on the offeror making the protest.

PUBLIC POSTING

It is the responsibility of the offerors to keep informed of the current status of any proposed awardee for contracts in which they are interested as per Section 3.2.2 of the Procurement Regulations.

Of particular importance is the fact that the notice of a decision to make an award will be accomplished by a public posting of the proposed awardee

Information regarding the proposed awardee(s) under this solicitation or any solicitation issued by the Montgomery County Office of Procurement will be posted on Montgomery County's website at: www.montgomerycountymd.gov/content/DGS/pro/public_awards.asp.

QUALIFICATION OF OFFERORS

Offerors may be required to furnish satisfactory evidence that they are qualified and regularly engaged in performing the services for which they are submitting a proposal and maintain a regularly established place of business. An authorized representative of the County may visit any prospective contractor's plant, place of business or place where the services are performed to determine ability, capacity, reliability, financial stability and other factors necessary to perform the contract. If so requested, an offeror may be required to submit information about its reputation, past performance, business and financial capability and other factors that demonstrate that the offeror is capable of satisfying the County's needs and requirements for a specific contract.

QUESTIONS

All technical and nontechnical questions pertaining to this solicitation should be directed to the individuals whose names are indicated on Page 1.

SERVICES CONTRACT (County Code 11B-33A)

Under County law, a solicitation for a contractor to provide services is subject to the Montgomery County Code regarding compliance with certain wage requirements payable to the Contractor's employees. Additional information regarding the County's wage requirements is contained within this solicitation (see the provision entitled "Wage Requirements for Services Contracts Addendum to The General Conditions of Contract between County and Contractor" and its companion document entitled "Wage Requirements Certification"). If Contractor fails to submit and complete the required material information on the Wage Requirements Certification form, its proposal may be deemed unacceptable under County law and may be rejected.

SOLICITATION AMENDMENTS

In the event that an amendment to this solicitation is issued, all solicitation terms and conditions will remain in effect unless they are specifically changed by the amendment. Offerors are responsible for checking the website at http://www.montgomerycountymd.gov/content/DGS/PRO/public_solicitations.asp_periodically to remain informed of any solicitation amendments. Offerors must acknowledge receipt of such solicitation amendments, to the place designated, and prior to the hour and date specified in the solicitation (or as amended) for receipt of offers. Offerors may acknowledge solicitation amendments by one of the following:

1. By returning one signed copy of the amendment either with the Offeror's response to the solicitation or by sending a signed copy of the amendment separately to the Office of Procurement.
2. By acknowledging receipt of the amendment on the Acknowledgment (see page 4) submitted.

SECTION A - INSTRUCTIONS, CONDITIONS AND NOTICES (continued)

3. By stating that the amendment is acknowledged in a signed letter that refers to the solicitation and amendment numbers.

SOLICITATION PREPARATION EXPENSES

All costs incurred in the preparation and submission of solicitations will be borne by the offeror and shall not be incurred in anticipation of receiving reimbursement from the County.

VERBAL EXPLANATIONS

Verbal explanations or instructions given by a Montgomery County employee to an offeror in regard to this solicitation will not be binding on the County. Any information given to an offeror in response to a request will be furnished to all offerors as an amendment to this solicitation, if such information is deemed necessary for the preparation of solicitations, or if the lack of such information would be detrimental to the uninformed offerors. Such amendments only, when issued by the Director, Department of General Services, will be considered as being binding on the County.

END SECTION A - INSTRUCTIONS, CONDITIONS AND NOTICES

SECTION B - GENERAL CONDITIONS OF CONTRACT BETWEEN COUNTY & CONTRACTOR

1. ACCOUNTING SYSTEM AND AUDIT, ACCURATE INFORMATION

The contractor certifies that all information the contractor has provided or will provide to the County is true and correct and can be relied upon by the County in awarding, modifying, making payments, or taking any other action with respect to this contract including resolving claims and disputes. Any false or misleading information is a ground for the County to terminate this contract for cause and to pursue any other appropriate remedy. The contractor certifies that the contractor's accounting system conforms with generally accepted accounting principles, is sufficient to comply with the contract's budgetary and financial obligations, and is sufficient to produce reliable financial information.

The County may examine the contractor's and any first-tier subcontractor's records to determine and verify compliance with the contract and to resolve or decide any claim or dispute arising under this contract. The contractor and any first-tier subcontractor must grant the County access to these records at all reasonable times during the contract term and for 3 years after final payment. If the contract is supported to any extent with federal or state funds, the appropriate federal or state authorities may also examine these records. The contractor must include the preceding language of this paragraph in all first-tier subcontracts.

2. AMERICANS WITH DISABILITIES ACT

The contractor agrees to comply with the nondiscrimination requirements of Titles II and III, and other provisions, of the Americans with Disabilities Act of 1990, Pub. Law 101-336, and ADA Amendments Act of 2008, Pub. Law 110-325, as amended, currently found at 42 U.S.C., § 12101, et seq.

3. APPLICABLE LAWS

This contract must be construed in accordance with the laws and regulations of Maryland and Montgomery County. The Montgomery County Procurement Regulations are incorporated by reference into, and made a part of, this contract. In the case of any inconsistency between this contract and the Procurement Regulations, the Procurement Regulations govern. The contractor must, without additional cost to the County, pay any necessary fees and charges, obtain any necessary licenses and permits, and comply with applicable federal, state and local laws, codes and regulations. For purposes of litigation involving this contract, except for contract Disputes discussed in paragraph 8 below, exclusive venue and jurisdiction must be in the Circuit Court for Montgomery County, Maryland or in the District Court of Maryland for Montgomery County.

The prevailing wage law (County Code §11B-33C) applies to construction contracts. Specifically, under County law, a County financed construction contract is subject to the Montgomery County Code regarding compliance with the prevailing wage paid to construction workers, as established for the County by the Maryland State Commissioner of Labor and Industry. Additional information regarding the County's prevailing wage requirements is contained within this solicitation/contract (see the provision entitled "Prevailing Wage Requirements for Construction Contract Addendum to the General Conditions of Contract between County and Contractor").

Furthermore, certain non-profit and governmental entities may purchase supplies and services, similar in scope of work and compensation amounts provided for in a County contract, using their own contract and procurement laws and regulations, pursuant to the Maryland State Finance and Procurement Article, Section 13-101, et. seq**.**

Contractor and all of its subcontractors must comply with the provisions of County Code §11B-35A and must not retaliate against a covered employee who discloses an illegal or improper action described in §11B-35A. Furthermore, an aggrieved covered employee under §11B-35A is a third-party beneficiary under this Contract, who may by civil action recover compensatory damages including interest and reasonable attorney's fees, against the contractor or one of its subcontractors for retaliation in violation of that Section. (Effective June 28, 2010).

Contractor and all of its subcontractors must provide the same benefits to an employee with a domestic partner as provided to an employee with a spouse, in accordance with County Code §11B-33D. An aggrieved employee, is a third-party beneficiary who may, by civil action, recover the cash equivalent of any benefit denied in violation of §11B-33D or other compensable damages. (Effective January 1, 2011).

4. ASSIGNMENTS AND SUBCONTRACTS

The contractor may not assign or transfer this contract, any interest herein or any claim hereunder, except as expressly authorized in writing by the Director, Department of General Services. Unless performance is separately and expressly waived in writing by the Director, Department of General Services, an assignment does not release the contractor from responsibility for performance of this contract. Unless otherwise provided in the contract, the contractor may not contract with any other party for furnishing any of the materials or services herein contracted for without the written approval of the Director, Department of General Services. Any subcontract for any work hereunder must comport with the terms of this Contract and County law, and must include any other terms and conditions that the County deems necessary to protect its interests.

5. CHANGES

The Director, Department of General Services, may unilaterally change the work, materials and services to be performed. The change must be in writing and within the general scope of the contract. The contract will be modified to reflect any time or money adjustment the contractor is entitled to receive. Contractor must bring to the Contract Administrator, in writing, any claim about an adjustment in time or money resulting from a change, within 30 days from the date the Director, Department of General Services, issued the change in work, or the claim is waived. Any failure to agree upon a time or money adjustment must be resolved under the "Disputes" clause of this contract. The contractor must proceed with the prosecution of the work as changed, even if there is an unresolved claim. No charge for any extra work, time or material will be allowed, except as provided in this section.

6. CONTRACT ADMINISTRATION

A. The contract administrator, subject to paragraph B below, is the Department representative designated by the Director, Department of General Services, in writing and is authorized to:
   (1) serve as liaison between the County and the contractor;
   (2) give direction to the contractor to ensure satisfactory and complete performance;
   (3) monitor and inspect the contractor's performance to ensure acceptable timeliness and quality;
   (4) serve as records custodian for this contract, including wage and prevailing wage requirements;
   (5) accept or reject the contractor's performance;
   (6) furnish timely written notice of the contractor's performance failures to the Director, Department of General Services, and to the County Attorney, as appropriate;
   (7) prepare required reports;
   (8) approve or reject invoices for payment;
   (9) recommend contract modifications or terminations to the Director, Department of General Services;
   (10) issue notices to proceed; and

(11) monitor and verify compliance with any MFD Performance Plan.

B. The contract administrator is NOT authorized to make determinations (as opposed to recommendations) that alter, modify, terminate or cancel the contract, interpret ambiguities in contract language, or waive the County's contractual rights.

7. COST & PRICING DATA

Chapter 11B of the County Code and the Montgomery County Procurement Regulations require that cost & pricing data be obtained from proposed awardees/contractors in certain situations. The contractor guarantees that any cost & pricing data provided to the County will be accurate and complete. The contractor grants the Director, Department of General Services, access to all books, records, documents, and other supporting data in order to permit adequate evaluation of the contractor's proposed price(s). The contractor also agrees that the price to the County, including profit or fee, may, at the option of the County, be reduced to the extent that the price was based on inaccurate, incomplete, or noncurrent data supplied by the contractor.

8. DISPUTES

Any dispute arising under this contract that is not disposed of by agreement must be decided under the Montgomery County Code and the Montgomery County Procurement Regulations. Pending final resolution of a dispute, the Contractor must proceed diligently with contract performance. Subject to subsequent revocation or alteration by the Director, Department of General Services, the head of the County department, office or agency ("Department Head") of the contract administrator is the designee of the Director, Department of General Services, for the purpose of dispute resolution. The Department Head or his/her designee must forward to the Director, Department of General Services, a copy of any written resolution of a dispute. The Department Head may delegate this responsibility to another person (other than the contract administrator). A contractor must notify the contract administrator of a claim in writing, and must attempt to resolve a claim with the contract administrator prior to filing a dispute with the Director, Department of General Services or designee. The contractor waives any dispute or claim not made in writing and received by the Director, Department of General Services, within 30 days of the event giving rise to the dispute or claim, whether or not the contract administrator has responded to a written notice of claim or resolved the claim. The Director, Department of General Services, must dismiss a dispute that is not timely filed. A dispute must be in writing, for specific relief, and any requested relief must be fully supported by affidavit of all relevant calculations, including cost and pricing information, records, and other information. At the County's option, the contractor agrees to be made a party to any related dispute involving another contractor.

9. DOCUMENTS, MATERIALS AND DATA

All documents materials or data developed as a result of this contract are the County's property. The County has the right to use and reproduce any documents, materials, and data, including confidential information, used in the performance of, or developed as a result of, this contract. The County may use this information for its own purposes, including reporting to state and federal agencies. The contractor warrants that it has title to or right of use of all documents, materials or data used or developed in connection with this contract. The contractor must keep confidential all documents, materials, and data prepared or developed by the contractor or supplied by the County.

10. DURATION OF OBLIGATION

The contractor agrees that all of contractor's obligations and warranties, including all requirements imposed by the Minority Owned Business Addendum to these General Conditions, if any, which directly or indirectly are intended by their nature or by implication to survive contractor performance, do survive the completion of performance, termination for default, termination for convenience, or termination by mutual consent of the contract.

11. ENTIRE AGREEMENT

There are no promises, terms, conditions, or obligations other than those contained in this contract. This contract supersedes all communications, representations, or agreements, either verbal or written, between the parties hereto, with the exception of express warranties given to induce the County to enter into the contract.

12. ETHICS REQUIREMENTS/POLITICAL CONTRIBUTIONS

The contractor must comply with the ethics provisions contained in Chapters 11B and 19A, Montgomery County Code, which include the following:

(a) a prohibition against making or offering to make certain gifts. Section 11B-51(a).
(b) a prohibition against kickbacks. Section 11B-51(b).
(c) a prohibition against a person engaged in a procurement from employing or offering to employ a public employee. Section 11B-52(a).
(d) a prohibition against a contractor that is providing a recommendation to the County from assisting another party or seeking to obtain an economic benefit beyond payment under the contract. Section 11B-52(b)
(e) a restriction on the use of confidential information obtained in performing a contract. Section 11B-52(c).
(f) a prohibition against contingent fees. Section 11B-53.

Furthermore, the contractor specifically agrees to comply with Sections 11B-51, 11B-52, 11B-53, 19A-12, and/or 19A-13 of the Montgomery County Code.

In addition, the contractor must comply with the political contribution reporting requirements currently codified under Title 14 of the Election Law, Annotated Code of Maryland.

13. GUARANTEE

A. Contractor guarantees for one year from acceptance, or for a longer period that is otherwise expressly stated in the County's written solicitation, all goods, services, and construction offered, including those used in the course of providing the goods, services, and/or construction. This includes a guarantee that all products offered (or used in the installation of those products) carry a guarantee against any and all defects for a minimum period of one year from acceptance, or for a longer period stated in the County's written solicitation. The contractor must correct any and all defects in material and/or workmanship that may appear during the guarantee period, or any defects that occur within one (1) year of acceptance even if discovered more than one (1) year after acceptance, by repairing, (or replacing with new items or new materials, if necessary) any such defect at no cost to the County and to the County's satisfaction.

B. Should a manufacturer's or service provider's warranty or guarantee exceed the requirements stated above, that guarantee or warranty will be the primary one used in the case of defect. Copies of manufacturer's or service provider's warranties must be provided upon request.

C. All warranties and guarantees must be in effect from the date of acceptance by the County of the goods, services, or construction.

D. The contractor guarantees that all work shall be accomplished in a workmanlike manner, and the contractor must observe and comply with all Federal, State, County and local laws, ordinances and regulations in providing the goods, and performing the services or construction.

E. Goods and materials provided under this contract must be of first quality, latest model and of current manufacture, and must not be of such age or so deteriorated as to impair their usefulness or safety. Items that are used, rebuilt, or demonstrator models are unacceptable, unless specifically requested by the County in the Specifications.

14. HAZARDOUS AND TOXIC SUBSTANCES

Manufacturers and distributors are required by federal "Hazard Communication" provisions (29 CFR 1910.1200), and the Maryland "Access to Information About Hazardous and Toxic Substances" Law, to label each hazardous material or chemical container, and to provide Material Safety Data Sheets to the purchaser. The contractor must comply with these laws and must provide the County with copies of all relevant documents, including Material Safety Data Sheets, prior to performance of work or contemporaneous with delivery of goods.

15. HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA) COMPLIANCE

In addition to the provisions stated above in Section 3. "Applicable Laws," contractor must comply with all requirements in the federal Health Insurance Portability and Accountability Act (HIPAA), to the extent that HIPAA is applicable to this contract. Furthermore, contractor must enter into the County's standard Business Associate Agreement or Qualified Service Organization Agreement when contractor or the County, as part of this contract, may use or disclose to one another, to the individual whose health information is at issue, or to a third-party, any protected health information that is obtained from, provided to, made available to, or created by, or for, the contractor or the County.

16. IMMIGRATION REFORM AND CONTROL ACT

The contractor warrants that both the contractor and its subcontractors do not, and shall not, hire, recruit or refer for a fee, for employment under this contract or any subcontract, an alien while knowing the alien is an unauthorized alien, or any individual without complying with the requirements of the federal Immigration and Nationality laws, including any verification and record keeping requirements. The contractor further assures the County that, in accordance with those laws, it does not, and will not, discriminate against an individual with respect to hiring, recruitment, or referral for a fee, of an individual for employment or the discharge of an individual from employment, because of the individual's national origin or, in the case of a citizen or prospective citizen, because of the individual's citizenship status.

17. INCONSISTENT PROVISIONS

Notwithstanding any provisions to the contrary in any contract terms or conditions supplied by the contractor, this General Conditions of Contract document supersedes the contractor's terms and conditions, in the event of any inconsistency.

18. INDEMNIFICATION

The contractor is responsible for any loss, personal injury, death and any other damage (including incidental and consequential) that may be done or suffered by reason of the contractor's negligence or failure to perform any contractual obligations. The contractor must indemnify and save the County harmless from any loss, cost, damage and other expenses, including attorney's fees and litigation expenses, suffered or incurred due to the contractor's negligence or failure to perform any of its contractual obligations. If requested by the County, the contractor must defend the County in any action or suit brought against the County arising out of the contractor's negligence, errors, acts or omissions under this contract. The negligence of any agent, subcontractor or employee of the contractor is deemed to be the negligence of the contractor. For the purposes of this paragraph, County includes its boards, agencies, agents, officials and employees.

19. INDEPENDENT CONTRACTOR

The contractor is an independent contractor. The contractor and the contractor's employees or agents are not agents of the County.

20. INSPECTIONS

The County has the right to monitor, inspect and evaluate or test all supplies, goods, services, or construction called for by the contract at all reasonable places (including the contractor's place of business) and times (including the period of preparation or manufacture).

21. INSURANCE

Prior to contract execution by the County, the proposed awardee/contractor must obtain at its own cost and expense the insurance specified in the applicable table (See Tables A and B) or attachment to these General Conditions, with one or more insurance company(s) licensed or qualified to do business in the State of Maryland and acceptable to the County's Division of Risk Management. Contractor must keep this insurance in full force and effect during the term of this contract, including all extensions. Unless expressly provided otherwise, Table A is applicable to this contract. The insurance must be evidenced by one or more Certificate(s) of Insurance and, if requested by the County, the proposed awardee/contractor must provide a copy of any and all insurance policies to the County. At a minimum, the proposed awardee/contractor must submit to the Director, Department of General Services, one or more Certificate(s) of Insurance prior to award of this contract, and prior to any contract modification extending the term of the contract, as evidence of compliance with this provision. The contractor's insurance must be primary. Montgomery County, MD, including its officials, employees, agents, boards, and agencies, must be named as an additional insured on all liability policies. Thirty days written notice to the County of cancellation or material change in any of the policies is required, unless a longer period is required by applicable law. In no event may the insurance coverage be less than that shown on the applicable table, attachment, or contract provision for required insurance. The Director, Department of General Services, may waive the requirements of this section, in whole or in part.

RFP # **1026052**

TABLE A. - INSURANCE REQUIREMENTS
(See Paragraph #21 Under the General Conditions of Contract
Between County and Contractor)

CONTRACT DOLLAR VALUES (IN $1,000's)

	Up to 50	Up to 100	Up to 1,000	Over 1,000
Workers Compensation (for contractors with employees) Bodily Injury by				
Accident (each)	100	100	100	See
Disease (policy limits)	500	500	500	Attachment
Disease (each employee)	100	100	100	
Commercial General Liability minimum combined single limit for bodily injury and property damage per occurrence, including contractual liability, premises and operations, and independent contractors	300	500	1,000	See Attachment
Minimum Automobile Liability (including owned, hired and non-owned automobiles) Bodily Injury				
each person	100	250	500	See
each occurrence	300	500	1,000	Attachment
Property Damage each occurrence	300	300	300	
Professional Liability* for errors, omissions and negligent acts, per claim and aggregate, with one year discovery period and maximum deductible of $25,000	250	500	1,000	See Attachment

Certificate Holder
Montgomery County Maryland (Contract #)
Office of Procurement
Rockville Center
255 Rockville Pike, Suite 180
Rockville, Maryland 20850-4166

*Professional services contracts only

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TABLE B. - INSURANCE REQUIREMENTS
(See Paragraph #21 Under the General Conditions of Contract
Between County and Contractor)

	Up to 50	Up to 100	Up to 1,000	Over 1,000
Commercial General Liability minimum combined single limit for bodily injury and property damage per occurrence, including contractual liability, premises and operations, independent contractors, and product liability	300	500	1,000	See Attachment

Certificate Holder
Montgomery County Maryland (Contract #)
Office of Procurement
Rockville Center
255 Rockville Pike, Suite 180
Rockville, Maryland 20850-4166

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22. INTELLECTUAL PROPERTY APPROVAL AND INDEMNIFICATION - INFRINGEMENT

If contractor will be preparing, displaying, publicly performing, reproducing, or otherwise using, in any manner or form, any information, document, or material that is subject to a copyright, trademark, patent, or other property or privacy right, then contractor must: obtain all necessary licenses, authorizations, and approvals related to its use; include the County in any approval, authorization, or license related to its use; and indemnify and hold harmless the County related to contractor's alleged infringing or otherwise improper or unauthorized use. Accordingly, the contractor must protect, indemnify, and hold harmless the County from and against all liabilities, actions, damages, claims, demands, judgments, losses, costs, expenses, suits, or actions, and attorneys' fees and the costs of the defense of the County, in any suit, including appeals, based upon or arising out of any allegation of infringement, violation, unauthorized use, or conversion of any patent, copyright, trademark or trade name, license, proprietary right, or other related property or privacy interest in connection with, or as a result of, this contract or the performance by the contractor of any of its activities or obligations under this contract.

23. NON-CONVICTION OF BRIBERY

The contractor hereby declares and affirms that, to its best knowledge, none of its officers, directors, or partners or employees directly involved in obtaining contracts has been convicted of bribery, attempted bribery, or conspiracy to bribe under any federal, state, or local law.

24. NON-DISCRIMINATION IN EMPLOYMENT

The contractor agrees to comply with the non-discrimination in employment policies and/ or provisions prohibiting unlawful employment practices in County contracts as required by Section 11B-33 and Section 27-19 of the Montgomery County Code, as well as all other applicable state and federal laws and regulations regarding employment discrimination.

The contractor assures the County that, in accordance with applicable law, it does not, and agrees that it will not, discriminate in any manner on the basis of race, color, religious creed, ancestry, national origin, age, sex, marital status, disability, or sexual orientation.

The contractor must bind its subcontractors to the provisions of this section.

25. PAYMENTS

No payment by the County may be made, or is due, under this contract, unless funds for the payment have been appropriated and encumbered by the County. Under no circumstances will the County pay the contractor for legal fees. The contractor must not proceed to perform any work (provide goods, services, or construction) prior to receiving written confirmation that the County has appropriated and encumbered funds for that work. If the contractor fails to obtain this verification from the Office of Procurement prior to performing work, the County has no obligation to pay the contractor for the work.

If this contract provides for an additional contract term for contractor performance beyond its initial term, continuation of contractor's performance under this contract beyond the initial term is contingent upon, and subject to, the appropriation of funds and encumbrance of those appropriated funds for payments under this contract. If funds are not appropriated and encumbered to support continued contractor performance in a subsequent fiscal period, contractor's performance must end without further notice from, or cost to, the County. The contractor acknowledges that the County Executive has no obligation to recommend, and the County Council has no obligation to appropriate, funds for this contract in subsequent fiscal years. Furthermore, the County has no obligation to encumber funds to this contract in subsequent fiscal years, even if appropriated funds may be available. Accordingly, for each subsequent contract term, the contractor must not undertake any performance under this contract until the contractor receives a purchase order or contract amendment from the County that authorizes the contractor to perform work for the next contract term.

26. PERSONAL PROPERTY

All furniture, office equipment, equipment, vehicles, and other similar types of personal property specified in the contract, and purchased with funds provided under the contract, become the property of the County upon the end of the contract term, or upon termination or expiration of this contract, unless expressly stated otherwise.

27. TERMINATION FOR DEFAULT

The Director, Department of General Services, may terminate the contract in whole or in part, and from time to time, whenever the Director, Department of General Services, determines that the contractor is:

(a) defaulting in performance or is not complying with any provision of this contract;
(b) failing to make satisfactory progress in the prosecution of the contract; or
(c) endangering the performance of this contract.

The Director, Department of General Services, will provide the contractor with a written notice to cure the default. The termination for default is effective on the date specified in the County's written notice. However, if the County determines that default contributes to the curtailment of an essential service or poses an immediate threat to life, health, or property, the County may terminate the contract immediately upon issuing oral or written notice to the contractor without any prior notice or opportunity to cure. In addition to any other remedies provided by law or the contract, the contractor must compensate the County for additional costs that foreseeably would be incurred by the County, whether the costs are actually incurred or not, to obtain substitute performance. A termination for default is a termination for convenience if the termination for default is later found to be without justification.

28. TERMINATION FOR CONVENIENCE

This contract may be terminated by the County, in whole or in part, upon written notice to the contractor, when the County determines this to be in its best interest. The termination for convenience is effective on the date specified in the County's written notice. Termination for convenience may entitle the contractor to payment for reasonable costs allocable to the contract for work or costs incurred by the contractor up to the date of termination. The contractor must not be paid compensation as a result of a termination for convenience that exceeds the amount encumbered to pay for work to be performed under the contract.

29. TIME

Time is of the essence.

30. WORK UNDER THE CONTRACT

Work may not commence under this contract until all conditions for commencement are met, including execution of the contract by both parties, compliance with insurance requirements, encumbrance of funds, and issuance of any required notice to proceed.

31. WORKPLACE SAFETY

The contractor must ensure adequate health and safety training and/or certification, and must comply with applicable federal, state and local Occupational Safety and Health laws and regulations.

THIS FORM MUST NOT BE MODIFIED WITHOUT THE PRIOR APPROVAL OF THE OFFICE OF THE COUNTY ATTORNEY.

SECTION C - SCOPE OF SERVICES:

I. Background

The Montgomery County Government, County Council, located at 100 Maryland Avenue in Rockville, Maryland, is the legislative branch of County Government. The Council has nine members, five elected by district and four elected at-large. Each Councilmember office has four or five staff members. There is also a central staff that includes the Office of Legislative Information Services (LIS). The Council Office as a whole receives a large amount communications and needs a solution to effectively process this information. In 2011, about 46,000 communication records were processed by Councilmember offices and LIS combined. Management includes but is not limited to the intake of issues from residents, businesses, partner agencies, and County departments.

The Council Office needs an on-premise commercial off the shelf (COTS) constituent/customer relationship management (CRM) system that offers casework management, issue tracking, workflow management, storage, reporting, and marketing of electronic communications. Communications records arrive via email to the main Council address, County.Council@montgomerycountymd.gov and to the Councilmember's public facing mailbox, Councilmember.Lastname@montgomerycountymd.gov, by phone, US postal mail, and facsimile. Microsoft Outlook, Access, and Word are the primary tools for communications management.

Offices use the following workflow to process correspondence. Each communications record is stamped with a control number, date, and time of receipt. The control number and information from the correspondence, such as return address, is entered into a Microsoft Access database. The correspondence is then scanned onto the file server and the original correspondence is filed in the LIS office. At the end of the day, an itemized email detailing the daily correspondence received to LIS is sent to staff. This email offers embedded hyperlinks that reference each item stored on the file server. When a response to correspondence is sent, the analyst sends or delivers the electronic or hard copy response to LIS, where it is scanned onto the file server, printed, and stored in the LIS library with the original correspondence. Data stored on the file server is then synched with the Council's Record Management System (RMS). This system offers a desktop search tool to track case information and supporting documentation. In addition to storing case information, the RMS stores bills, zoning text amendments, public hearings, Council and committee packets, minutes, and resolutions. The response is then referenced within the Microsoft Access database and the case is closed.

Reports are generated regularly regarding case status, ownership, average time to case closure, etc. These reports are stored on the file server to review and improve customer service, staff development, managing staff case load, etc.

When responding to many constituents regarding one particular issue, staff will extract contact information from the Microsoft Access database in order to customize a bulk response Newsletters are sent monthly as well as on demand with approximately 25,000 subscribers per office. In addition to managing the public facing mailbox for the Councilmember, each office maintains a private calendar. Information from the calendar may be referenced in casework.

II. Intent

The intent of the Council is to enter into a contract with a qualified contractor in order to obtain a secure, reliable, and accessible on-premise constituent/customer relationship management (CRM) system. The system should provide the means to link supporting content to a case as well as reference content stored in the following locations. Supporting data for a case may come from:

- The Council's Content Management System (website) used to publish Council and Committee agendas and packets as part of the Council's transparency initiative. An example is the ability to create a

hyperlink to the website containing supporting material and/or download the material from the website and upload to the CRM.

- ZyLab's ZyImage, the Council's Record and Management System used to store bills, correspondence, zoning text amendments, resolutions, and other historical or archived content. An example is the ability to create a hyperlink to the internal website and/or if applicable, migration material from the RMS to the CRM. Or migrate data within this system to the new CRM.

- Granicus Platforms and Open Suites, a cloud based solution embedded onto the Council website to store agendas, minutes, archived and streaming video for public hearings and committees, http://www6.montgomerycountymd.gov/csltmpl.asp?url=/content/council/ondemand/index.asp, also part of the government transparency initiative. An example is the ability to create a hyperlink to the website containing supporting material and/or download the material from the website and upload to the CRM.

- The office file server. In-progress work is typically stored here, for example drafts for response to a communication.

The offeror, in its response, should provide information about the ability to obtain an enterprise or multiple user pricing contract to permit any software product/solution designed and/or purchased as a result of this solicitation to be used for similar services within Montgomery County Government.

III. Specifications

The contractor must provide an on-premise CRM turn-key solution available to Council staff for the management of communications. The solution is not required to be publicly accessible; however, being publicly accessible by staff would enhance the solution.

a. The CRM solution must satisfy the following requirements:

1. Provide case management and workflow automation in support of work identified in the Background section above. For example, provide workflows to support:
   a) Electronic communications with internal users of the CRM solution as well as external users not owning the CRM solution. For example, Councilmember offices route casework not only through their offices and between offices, but to departments within the County as well as to other local, state and federal governments.
   b) The assignment of casework to multiple parties for response, while preventing duplicative case information.

2. Provide an easy to use, secure, and reliable interface that enables individual Council staff to build a customized dashboard. The system should provide the ability to:
   a) Log all correspondence quickly and efficiently.
   b) Create new fields as needed.
   c) Quickly locate open cases by constituent last name or case number.
   d) Pre-populate fields with County data to enable a drop down menu offering. For example, create a field to associate the case with a particular committee: Education; Health and Human Services; Government Operations and Fiscal Policy; Planning, Housing & Economic Development; Public Safety; Transportation, Infrastructure, Energy & Environment that is pre-populated in order to avoid rekeying the committee.
   e) Enable reminders and/or alerts on casework for staff follow up.
   f) Mark casework as private (internal to individual office) vs. public (external to other offices within the Council).

g) Display real time trend information, such as top issues captured today, number of cases or calls captured today.

3. Standard integration with:
   a) Microsoft Outlook so that incoming electronic mail may easily port to the CRM solution where a case may then be created and managed to completion. This critical requirement eliminates the need to rekey data received in Microsoft Outlook into the CRM solution.
   b) Electronically stamp correspondence with index/reference/control number. Begin after the last control number entered into the legacy system.
   c) Provide backup and disaster recovery of content.
   d) The Offeror solution must be compatible with the County's Enterprise Architecture, as contained in the "Montgomery County Government Enterprise Architecture"(Attachment J)
   e) Optional integration of open database with other County owned content databases such databases associated with Siebel/MC311, ZyLab and ESRI.

4. Provide a mapping solution for staff to quickly locate and support address related issues.

5. Provide document management, workflow and version control. For example, draft a response to an email received from a resident using Microsoft Word, store that document within the system, and share that document with other. Version control would provide the ability to roll back to the previous version of the document, perhaps to a version drafted by an office member during the workflow phase.

6. Provide robust search capability for tracking content within the CRM solution. For example, track an issue through the life cycle including casework, investigation, citizen requests and or comments and legislative monitoring.

7. Provide a robust database for the storage of all casework material.
   a) Provide a sound database design and structure to secure communications records within each of the nine Council offices and LIS.
   b) Provide administration, access, and control over the database schema, technical and customer based product user guides.
   c) Upload scanned content to the CRM database from Microsoft Outlook, the file server, the website, Granicus and/or ZyLab's ZyImage.

8. Provide contact management. Enable the import of contact information from Microsoft Outlook to populate the CRM solution with current content.

9. Provide social outreach and eMarketing campaign management allowing for the:
   a) Creation of target groups within the system – for example, find all cases relative to a specific category or keyword.
   b) Pull information such as email addresses and home addresses from within the CRM target group and create a mail merge of data into a standard response.
   c) Submit an email broadcast message.
   d) Integration with other social media tools such as Facebook, YouTube, and Twitter.
   e) Integration with other newsletter design tools such as Adobe CS and Microsoft Word to move content from the CRM to the web and print.

10. Provide a variety of standard and customizable letters, reports and newsletters. Examples include:
    a) Case status, report showing open cases and cases closed.
    b) Case owner workload.

c) Council newsletters.
d) Report on repeating citizens issues.
e) Report on common issues in the County.
f) Track casework by Councilmanic district*.
g) Identify top number of cases by Councilmanic district.

* The Councilmanic district identifies which Councilmember represents each particular district within the County according the Board of Elections.

11. Provide a CRM knowledge base for staff population and reference for product support.

b. INSTALLATION AND OPERATIONALSUPPORT

1. Provide installation for fifty seats/workstations and configuration of hardware, software and engineering.

2. Design and build a secure database(s) to store records for ten separate and distinct offices.

c. TECHNICAL SUPPORT AND TRAINING

1. Live technical support via telephone, including software and network engineering support, is necessary 24/7/365.
   (a.) Ability to troubleshoot installation, configuration, and operation of hardware and software.
   (b.) Access to knowledge bases or technical documentation via web is preferred.

2. Maintenance of hardware / software.

3. Licensing, patches, and upgrades will be included in the support/maintenance. Such licensing, patches, and upgrades must be provided as they become available.

4. Seamless management and customer support for technical and office staff.

5. Provide sufficient onsite training for key technical and non-technical staff.

6. Host an on-line tutorial or similar means for remotely training for new staff.

d. OTHER REQUIREMENTS

1. One year warranty on all parts, labor, installation of proper operation of system.
2. Redundant power capacity.
3. Resilient connection and power.
4. Reflect best practices and used in similarly organized counties or non-profit agencies.
5. Enterprise Architecture Compliance and Architectural Impact Statement
   (a) Enterprise Architecture Compliance:
   The Montgomery County Department of Technology Services, in concert with the various departments, has developed an Enterprise Architecture as defined in the "Montgomery County Government Enterprise Architecture," Attachment J ("Technology Architecture"). All contractors that design, build, or modify information systems for Montgomery County are expected to complete an Architecture Impact Statement and specify either that they comply or document where they deviate from the Technology Architecture. Montgomery County will assess the contractor's Architecture Impact Statement prior to contract award. The assessment will consider the cost to the County of any proposed changes and whether the changes are consistent with the County's long term strategy.

(b) Architecture Impact Statement:

Develop an Architecture Impact Statement that assesses how the proposed system will meet the Technology Architecture, Attachment I. The impact statement should list which Architecture Domains, as defined in the Technology Architecture, will be used by the proposed solution, which domains will be changed by the proposed solution and details of the changes, and which domains if any should be added to the proposed solution. The assessment should also address the following items:

- List of Architecture Domains that will be used by the proposed solution.
- Domains that will be changed by the proposed solution and details.
- Description of differences between current state and proposed state.
- Description of why changes are required to be made.

The successful Contractor must have the ability to meet deadlines as established by the County and respond to questions or requests in a timely manner and/or in the timeframe set forth by the County. Any software product/solution designed and/or purchased as a result of this solicitation, and any work related to installation, testing and troubleshooting necessary to permit operation of the software product/solution, must be completed by within 60 days from the date of Contract execution.

IV. CONTRACTOR QUALIFICATIONS

The Contractor must have a proven record of accomplishment providing a similar scope of services stated in this RFP for local governments or non-profit organizations similar to Montgomery County.

V. CONTRACTOR RESPONSIBILITY

The successful Contractor will be responsible for:

- Providing project management and implementation services with regard to the CRM system.
- Gathering the necessary information needed from representatives of the Montgomery County Government, including but not limited to the Council and the Department of Technology Services.
- A detailed services plan that describes how the CRM solution will meet the needs of the Council as outlined in the Scope of Services.
- Onsite training session for both technical and non-technical personnel sufficient to ensure staff fully understands the system and how to operate it.
- A training plan and train the trainer training methods and support materials.
- Suggested additional training and prices.
- All software installation and configuration necessary to complete this project will be the responsibility of the Contractor.
- A complete set of operation manuals must be included with any on-site installation.
- Describe whether any discounts will be offered if other Joint Procurement entities in Montgomery County purchase directly from this contract.
- Annual warranty price.
- Describe means to provide information and competitive pricing for future product enhancements.
- Provide information about any applicable discounts available to current clients on future purchases

VI. COUNTY RESPONSIBILITY

Council staff or representatives will respond to the Contractor concerning the Scope of Services and Specifications in a timely manner as would be reasonable given the nature of response requested. It is in the County's best interest to respond within a timely manner so as to facilitate completion of work envisioned with the Scope of Services and Specifications.

SECTION D - PERFORMANCE PERIOD

1. TERM

The effective date of this Contract begins upon signature by the Director, Office of Procurement. The period in which Contractor must perform all work under the Contract begins on the Contract's effective date and ends after a one year period from the date of final County acceptance of the turn-key solution Before this term for performance ends, the Director at his/her sole option may (but is not required to) renew the term. Contractor's satisfactory performance does not guarantee a renewal of the term. The Director of the Office of Procurement may exercise this option to renew this term two times for one year each.

2. PRICE ADJUSTMENTS

Prices quoted are firm for a period of two years after execution of the contract. Any request for a price adjustment, after this two-year period is subject to the following:

- Approval or rejection by the Director, Department of General Services or designee
- Submitted in writing to the Director, Department of General Services and accompanied by supporting documentation justifying the Contractor's request. A request for any price adjustment may not be approved unless the contractor submits to the county sufficient justification to support that the Contractor's request is based on its net increase in costs in delivering the goods/services under the contract.
- Submitted sixty (60) days prior to contract expiration date, if the contract is being amended.
- May not be approved which exceeds the amount of the annual percentage change of the Consumer Price Index (CPI) for the twelve-month period immediately prior to the date of the request. The request shall be based upon the CPI for all urban consumers issued for the Washington-Baltimore, DC-MD-VA-WV Metropolitan area by the United States Department of Labor, Bureau of Labor Statistics for ALL ITEMS.
- The County will approve only one price adjustment for each contract term, if a price adjustment is approved.
- Should be effective sixty (60) days from the date of receipt of the contractor's request.
- Executed by written contract amendment.

SECTION E - METHOD OF AWARD/EVALUATION CRITERIA

1. PROCEDURES

a. Upon receipt of proposals, the Qualification and Selection Committee (QSC) will review and evaluate all proposals in accordance with the evaluation criteria listed below under Section E.2.a.
b. Structured demonstrations will be conducted with the three highest ranked on offerors achieving a minimum score of 70 points on the written evaluation . The QSC will also review an offeror for responsibility.
c. The QSC will make its award recommendation of the highest ranked offeror based on the QCS's combined written and structured demonstration score and its responsibility determined for each scope of service defined in the solicitation.
d. The Using Department Head will review and forward the QSC recommendation with concurrence, objection, or amendment to the Director, Department of General Services.
e. The Director, Department of General Services, may approve, approve with conditions, or reject the Using Department Head's recommendation.
f. Upon approval of a recommended award to a proposed awardee(s), by the Director, Department of General Services, the County will enter into negotiations with the proposed awardee(s). If a contract cannot be successfully negotiated with the proposed awardee, the Using Department will proceed to negotiations with the next highest ranked offeror after obtaining approval from the Director. If the

Director approves, negotiations may be held simultaneously or successively with one or more offerors prior to making an award.

g. After the successful conclusion of negotiations, the Director will publicly post the name(s) of the proposed awardee(s).

h. The County reserves the right to cancel the solicitation. The solicitation cancellation will be publicly posted.

2. EVALUATION CRITERIA — POINTS

a. Written Proposal Evaluation Criteria

The QSC will evaluate the written proposals based on the following criteria.

		POINTS
1.	Description of COTS constituent/customer relationship software solution and how it meets the stated needs and objectives in the RFP	20
2.	Description of compatibility and adaptability of proposed solution with the County technical architecture	20
3.	Overall quality and clarity of the proposal and the understanding of the work to be performed in accordance with the scope of services as listed	15
4.	Expertise providing the services requested in Scope of Services for a COTS constituent/customer relationship software solution	15
5.	System support warranties for hardware and software, operations support and software upgrades	10
6.	Vendor's past experience including description of projects of similar scope completed in the last three (3) years.	10
7.	Price Sheet (Attachment I)	10
	Highest possible QSC score for written proposal evaluation:	100

b. **Structured Demonstration Evaluation Criteria**

The QSC will evaluate the structured demonstrations based on the following criteria:

1.	Ability of the COTS solution to meet the requirements and objectives contained in this RFP	30
2.	Integration with Microsoft Outlook that prevents rekeying of data	25
3.	Ability of COTS solution to support the workflow identified in this RFP	20
4.	Client side customization features	5
5.	Features offered out of the box	10
6.	Ease of Use	10
	Highest Possible QSC Score for Structured Demonstration	100

SECTION F - SUBMISSIONS

1. PROPOSAL SUBMISSIONS

FAILURE OF AN OFFEROR TO SUBMIT ALL REQUIRED PROPOSAL SUBMISSIONS MAY RENDER YOUR PROPOSAL UNACCEPTABLE AS DETERMINED BY THE DIRECTOR, DEPARTMENT OF GENERAL SERVICES.

Offerors must submit one original and five (5) copies of their proposal in the format below. Written proposals will be evaluated on only what is submitted. The offeror must submit sufficient information to enable the QSC to evaluate the offeror's capabilities and experience. Proposals must include the following information (including labeled sections numbered as shown):

a. A cover letter with a brief description of the firm, including the offeror's name, address, telephone number and fax number.

b. The Acknowledgment (page 4) of this solicitation must be submitted and signed by a person authorized to bind the offeror to the proposal.

c. At least three references that may be contacted to attest to the quality and timeliness of the offeror's work of similar nature and scope to the scope required by the County. (see Attachment A)
d. If this solicitation is subject to the Wage Requirements Law (see page 1), then the offeror must submit the appropriate Wage Requirements forms in Attachment G. Failure to submit and complete the required material information on the form(s) will make your proposal unacceptable under County law and will be rejected.
e. Metropolitan Washington Council of Governments Rider Clause - Attachment B
f. Minority, Female, Disabled Persons Subcontractor Performance Plan (Attachment D). **To ensure a contract can move forward as a result of this solicitation, this plan needs to be submitted with your proposal.**
g. Minority Business Program and Offeror's Representation - Attachment C
h. Provide a description of the proposed COTS constituent/customer relationship software solution.
i. Provide a narrative of the compatibility and adaptability of this product solution with the County's technical architecture, including an Architecture Impact Statement.
j. Provide a detailed services plan that describes how the software solution will meet the needs of the County as outlined in the Scope of Services.
k. Provide a training plan and train-the-trainer training methods and support materials.
l. Provide a description of additional training and prices.
m. Provide a completed Attachment I Price Sheet:
n. Provide a description of any discounts that will be offered if other public entities in Montgomery County make purchase as a result of the resultant.
o. Provide a description of any competitive pricing or discount on future product enhancements that would be available to the County.
p. Provide information about any applicable discounts available to current clients on future purchases.
q. Provide a description of similar projects your firm has performed under previous contracts within the business community and/or government entities within the last three years.
r. Provide a description of the system support and warranties for hardware, software, operations support and software upgrades.
s. Describe firm's expertise in successfully providing similar COTS constituent/customer relationship software solutions.

2. <u>AWARD SUBMISSIONS</u>

Prior to the execution of the contract, the following items must be submitted:

a. Minority, Female, Disabled Person Subcontractor Performance Plan (contract value greater than $50,000) – Attachment D
b. Offeror's Certification of Cost and Price (contract value greater than $100,000) – Attachment E
c. Certificate of Insurance (see mandatory insurance requirements) - Attachment F
Awardee must provide the applicable insurance coverage and all costs for this coverage must be calculated into your proposal price. These insurance requirements supersede those found in the Provision #21 of the General Conditions between County and Contractor and are applicable to any contract executed as a result of this solicitation.

SECTION G - COMPENSATION

The contractor will be paid on a monthly basis within 30 days of submission of an acceptable and proper invoice, approved by the County.

SECTION H - CONTRACT ADMINISTRATOR

1. AUTHORITY

The Director, Department of General Services, is the delegated contracting officer. Therefore, the Director, Department of General Services, must approve amendments, modifications, or changes to the terms, conditions, or minority, female, and disabled subcontractor plans in writing.

2. USING DEPARTMENT

The contract administrator for any contract(s) resulting from this solicitation will be Mary Jane Berry.

The contract administrator's duties include, but are not limited to the following:

1. Serve as liaison between the County and Contractor;
2. Give direction to the Contractor to ensure satisfactory and complete performance;
3. Monitor and inspect the Contractor's performance to ensure acceptable timeliness and quality;
4. Serve as Records Custodian for this contract, including Wage Requirements;
5. Accept or reject the contractor's performance;
6. Furnish timely written notice of the contractor's performance failures to the Director, Department of General Services and to the County Attorney, as appropriate;
7. Prepare required reports;
8. Approve or reject invoices for payment;
9. Recommend contract modifications or terminations to the Director, Department of General Services;
10. Issue notices to proceed; and
11. Monitor and verify compliance with any MFD Performance Plan.

SECTION I - SPECIAL TERMS AND CONDITIONS

1. DATE/TIME WARRANTY

Contractor warrants that product(s) furnished pursuant to this Contract shall, when used in accordance with the Product documentation, be able to accurately process date/time data (including, but not limited to, calculating, comparing, and sequencing) transitions, including leap year calculations. Where a Contractor proposes or an acquisition requires that specific Products must perform as a package or system, this warranty shall apply to the Products as a system.

Where Contractor is providing ongoing services, including but not limited to: i) consulting, integration, code or data conversion, ii) maintenance or support services, iii) data entry or processing, or iv) contract administration services (e.g. billing, invoicing, claim processing). Contractor warrants that services shall be provided in an accurate and timely manner without interruption, failure or error due to the inaccuracy of Contractor's business operations in processing date/time data (including, but not limited to, calculating, comparing, and sequencing) various date/time transitions, including leap year calculations. Contractor shall be responsible for damages resulting from any delays, errors or untimely performance resulting there from, including but not limited to the failure or untimely performance of such services.

This Date/Time Warranty shall survive beyond termination or expiration of this contract through: a) ninety (90) days or b) the Contractor or Product manufacturer/developer stated date/time warranty term, whichever is longer. Nothing in this warranty statement shall be construed to limit any rights or remedies otherwise available under this Contract for breach of warranty.

2. SOFTWARE SOURCE CODE ESCROW

If the Contractor does not provide the County with a copy of all software source codes, then the Contractor must deliver to the County an executed Software Source Code Escrow Agreement ("Escrow Agreement") between

the Contractor and an authorized source code holding agent. The Contractor shall pay the escrow fee without any cost to the County for a period of five years from the date that the system is accepted. Contractor must designate the County as a third-party beneficiary in the Escrow Agreement. The Contractor must further designate the County as a licensee of the software product. The County must have an unencumbered authority under the Escrow Agreement to initiate release of the source code for the use of the software product. After the Escrow Agreement expires at the end of the five-year term, the County must have the right to, at its sole option, extend the Escrow Agreement at its own expense.

SECTION J - ETHICS

As a result of being awarded this contract the successful contractor may be ineligible for the award of related contracts. Montgomery County Code Sections 11B-52(b) and (c) state:

A contractor providing an analysis or recommendation to the County concerning a particular matter must not, without first obtaining the written consent of the Chief Administrative Officer:

(1) Assist
   (a) another party in the matter; or
   (b) another person if the person has a direct and substantial interest in the matter; or

(2) Seek or obtain an economic benefit from the matter in addition to payment to the contractor by the County.

ATTACHMENT A

REFERENCES
(Must submit at least three)

You are requested to provide references to the County with your proposal. The three (3) references must be from individuals or firms currently being serviced or supplied under similar contracts, or for whom work of a similar scope has been performed within the last year. Names for references shall be of individuals who directly supervised or had direct knowledge of the services or goods provided. Failure of an offeror to provide the County with references within the time frame as stated herein may result in the offeror being considered non-responsible.

NAME OF FIRM: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP:

CONTACT PERSON: _____ PHONE: _____

NAME OF FIRM: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP:

CONTACT PERSON: _____ PHONE: _____

NAME OF FIRM: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP:

CONTACT PERSON: _____ PHONE: _____

ATTACHMENT B

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS RIDER CLAUSE

USE OF CONTRACT(S) BY MEMBERS COMPRISING THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS PURCHASING OFFICERS' COMMITTEE.

A. If authorized by the offeror(s), resultant contract(s) will be extended to any or all of the listed members as designated by the offeror to purchase at contract prices in accordance with contract terms.
B. Any member utilizing such contract(s) will place its own order(s) directly with the successful Contractor. There shall be no obligation on the part of any participating member to utilize the contract(s).
C. A negative reply will not adversely affect consideration of your proposal.
D. It is the awarded vendor's responsibility to notify the members shown below of the availability of the Contract(s).
E. Each participating jurisdiction has the option of executing a separate contract with the awardee. Contracts entered into with a participating jurisdiction may contain general terms and conditions unique to that jurisdiction including, by way of illustration and not limitation, clauses covering minority participation, non-discrimination, indemnification, naming the jurisdiction as an additional insured under any required Comprehensive General Liability policies, and venue. If, when preparing such a contract, the general terms and conditions of a jurisdiction are unacceptable to the awardee, the awardee may withdraw its extension of the award to that jurisdiction.
F. The issuing jurisdiction shall not be held liable for any costs or damages incurred by another jurisdiction as a result of any award extended to that jurisdiction by the awardee.

In pricing section of contract:

OFFEROR'S AUTHORIZATION TO EXTEND CONTRACT:

YES	NO	JURISDICTION
		Alexandria, Virginia
		Alexandria Public Schools
		Alexandria Sanitation Authority
		Arlington County, Virginia
		Arlington County Public Schools
		Bladensburg, Maryland
		Bowie, Maryland
		Charles County Public Schools
		College Park, Maryland
		Culpeper County, Virginia
		District of Columbia
		District of Columbia Courts
		District of Columbia Public Schools
		District of Columbia Water & Sewer Authority
		Fairfax, Virginia
		Fairfax County, Virginia
		Fairfax County Water Authority
		Falls Church, Virginia
		Fauquier County Schools & Government, Virginia
		Frederick, Maryland
		Frederick County, Maryland
		Gaithersburg, Maryland
		Greenbelt, Maryland
		Herndon, Virginia
		Leesburg, Virginia
		Loudoun County, Virginia
		Loudoun County Public Schools
		Loudoun County Sanitation Authority
		Manassas, Virginia
		City of Manassas Public Schools

YES	NO	JURISDICTION
		Manassas Park, Virginia
		Maryland-National Capital Park & Planning Commission
		Metropolitan Washington Airports Authority
		Metropolitan Washington Council of Governments
		Montgomery College
		Montgomery County, Maryland
		Montgomery County Public Schools
		Northern Virginia Community College
		OmniRide
		Potomac & Rappahannock Transportation Commission
		Prince George's County, Maryland
		Prince George's County Public Schools
		Prince William County, Virginia
		Prince William County Public Schools
		Prince William County Service Authority
		Rockville, Maryland
		Spotsylvania County Schools
		Stafford County, Virginia
		Takoma Park, Maryland
		Upper Occoquan Sewage Authority
		Vienna, Virginia
		Virginia Railway Express
		Washington Metropolitan Area Transit Authority
		Washington Suburban Sanitary Commission
		Winchester, Virginia
		Winchester Public Schools

_____
Vendor Name

ATTACHMENT C

Minority Business Program & Offeror's Representation

It is the policy of the County to recruit actively, minority-owned businesses to provide goods and services to perform governmental functions pursuant to Section 11B-57 of the County Code. Minority-owned businesses are described in County law as Minority/Female/Disabled Person-owned businesses (MFD). MFD businesses include certain non-profit entities organized to promote the interests of persons with a disability demonstrating (on a contract by contract basis) that at least 51% of the persons used by the non-profit entity to perform the services or manufacture the goods contracted for by the County, are persons with a disability. MFD firms also include those firms that are 51% owned, controlled and managed by one or more members of a socially or economically disadvantaged minority group, which include African Americans who are not of Hispanic origin, Hispanic Americans, Native Americans, Asian Americans, Women and Mentally or Physically Disabled Persons.

Section 7 – "Minority Contracting" Montgomery County Procurement Regulations specifies the procedure to be followed and will govern the evaluation of offers received pursuant to this solicitation. A copy of Section 7 of the Procurement Regulations is available upon request.

Prior to awarding contracts with a value of $50,000 or more, a prospective Contractor (who is not a certified MFD firm) must demonstrate that a minimum percentage of the overall contract value as set by the County, will be subcontracted to certified MFD businesses. A decision as to whether the prospective Contractor has demonstrated a good faith effort to meet this subcontracting requirement will be made by the Director, Department of General Services or his/her designee, who may waive this requirement.

A sample of the MFD Report of Payment Received is attached. This form is mailed to the MFD Subcontractor to complete for documentation of payment by the Prime contractor. It is <u>not</u> to be completed by the Prime contractor nor submitted with the MFD Subcontractor Performance Plan.

The Director, Department of General Services or his /her designee determines whether a waiver of MFD subcontracting would be appropriate, under Section 7.3.3.5 of the Procurement Regulations.

For further information regarding the MFD Business Program, please contact the MFD Program, Office of Business Relations and Compliance, at (240) 777-9912.

Offerors are encouraged (but not required) to complete the following:

I hereby represent that this is a Minority Business firm as indicated below (CIRCLE ONE):

AFRICAN AMERICAN	ASIAN AMERICAN	DISABLED PERSON
FEMALE	HISPANIC AMERICAN	NATIVE AMERICAN

Attach one of the following certification documents from: Maryland Department of Transportation (MDOT); Virginia Small, Women & Minority-Owned Business: Federal SBA 8(a); MD/DC Minority Supplier Development Council, Women's Business Enterprise National Council; or City of Baltimore.

Montgomery County MFD Report of Payments Received For Office Use
Office of Business Relations and Compliance

SAMPLE ONLY! NOT TO BE USED BY PRIME

MFD Subcontractor Company Name: _____

Prime Contractor Company Name: _____

Contract Number/Title: _____

Project Location: _____

MFD Subcontract Amount: $ _____

PLEASE READ CAREFULLY BEFORE SIGNING

This certifies that for the month of _____, my company received $ _____for work performed, services rendered and/or materials supplied on the above contract.

TOTAL AMOUNT OF SUBMITTED INVOICES TO DATE: $ _____

TOTAL PAYMENTS RECEIVED TO DATE: $ _____

Are you experiencing any contract problems with the prime contractor and/or the project? YES ☐ NO ☐

Comments: _____

I certify that the above information is true and accurate to the best of my record documentation and knowledge.

_____
(TYPED/PRINTED COMPANY NAME)

_____ _____
(TYPED/PRINTED NAME OF COMPANY OFFICIAL) (TITLE)

_____ _____
(SIGNATURE OF COMPANY OFFICIAL) (DATE)

( ) - ( ) -
TELEPHONE FAX E-MAIL

Mail to: Alvin Boss, Program Specialist II
255 Rockville Pike, Ste. 180
Rockville, MD 20850

SAMPLE

ATTACHMENT D

Minority-Owned Business Addendum to the General Conditions of Contract Between County and Contractor, and its companion document "Minority, Female, Disabled Person Subcontractor Performance Plan".

A. This contract is subject to the Montgomery County Code and the Montgomery County Procurement Regulations regarding participation in the Minority-Female-Disabled Person (MFD) procurement program.

B. Contractor must subcontract a percentage of the total dollar value of the contract, including all modifications and renewals, to certified minority owned businesses. The MFD subcontracting goal may be waived under appropriate circumstances by submission of a letter to the Office of Business Relations and Compliance. The letter must explain why a waiver is appropriate. The Director, Department of General Services or designee may waive, in whole or in part, the MFD subcontracting goal if the Director determines that a waiver is appropriate under Section 7.3.3.5 of the Montgomery County Procurement Regulations. In determining if a waiver should be granted, the Director may require the Contractor to submit additional information; the Director may require the Contractor to submit some or all of this information on forms approved by the Director.

C. The attached MFD Subcontractor Performance Plan, which must be approved by the Director, is an integral part of the contract between County and Contractor. In a multi-term contract, Contractor must submit a MFD Subcontract Performance Plan to be in effect for the life of the contract, including any renewal or modification.

D. Contractor must include in each subcontract with a minority owned business a provision that requires the use of binding arbitration with a neutral arbitrator to resolve disputes between the Contractor and the minority owned business subcontractor. This arbitration provision must describe how the cost of dispute resolution will be apportioned; the apportionment must not, in the judgment of the Director, attempt to penalize a minority owned business subcontractor for filing an arbitration claim.

E. County approval of the MFD Subcontractor Performance Plan does not create a contractual relationship between the County and the minority owned business subcontractor.

F. Contractor must notify and obtain prior written approval from the Director regarding any change in the MFD Subcontractor Performance Plan.

G. Before receiving final payment under this contract, Contractor must submit documentation showing compliance with the MFD Subcontracting Performance Plan. Documentation may include, at the direction of the Director, invoices, copies of subcontracts with minority owned businesses, cancelled checks, affidavits executed by minority owned business subcontractors, waivers, and arbitration decisions. The Director may require Contractor to submit periodic reports on a form approved by the Director. The Director may conduct an on-site inspection for the purpose of determining compliance with the MFD Subcontractor Performance Plan. If this is a multi-term contract, final payment means the final payment due for performance rendered for each term of the contract.

H. If the Contractor fails to submit documentation demonstrating compliance with the MFD Subcontractor Performance Plan, to the satisfaction of the Director, after considering relevant waivers and arbitration decisions, the Contractor is in breach of this contract. In the event of a breach of contract under this addendum, the Contractor must pay to the County liquidated damages equal to the difference between all amounts the Contractor has agreed under its Plan to pay minority owned business subcontractors and all amounts actually paid minority owned business subcontractors with appropriate credit given for any relevant waiver or arbitration decision. Contractor and County acknowledge that damages which would result to the County as a result of a breach under this addendum are difficult to ascertain, and that the liquidated damages provided for in this addendum are fair and reasonable in estimating the damage to the County of a breach of this addendum by Contractor. In addition, the County may terminate the contract. As the result of a breach under this addendum, the Director, Department of General Services, must find the Contractor non-responsible for purposes of future procurement with the County for the ensuing three years.

RFP # **1026052**

MINORITY, FEMALE, DISABLED PERSON SUBCONTRACTOR PERFORMANCE PLAN

Contractor's Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

CONTRACT NUMBER/PROJECT DESCRIPTION: _____

A. Individual designated assigned by Contractor to monitor ensure Contractor's compliance with MFD Subcontractor Performance Plan:

Name: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

B. This Plan covers the life of the contract from contract execution through the final contract expiration date.

C. The percentage of total contract dollars, including modifications and renewals, to be paid to all certified minority owned business subcontractors, is _____% of the total dollars awarded to Contractor.

D. Each of the following certified minority owned businesses will be paid the percentage of total contract dollars indicated below as a subcontractor under the contract.

I hereby certify that the business (es) listed below are certified by one of the following: Maryland Department of Transportation (MDOT); Virginia Small, Woman and Minority Owned Business (SWAM); Federal SBA (8A); MD/DC Minority Supplier Development Council (MSDC); Women's Business Enterprise National Council (WBENC); or City of Baltimore. Certification Letter must be attached.
For assistance, call 240-777-9912.

1. Certified by: _____

Subcontractor Name: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

CONTACT PERSON: _____

Circle MFD Type:

AFRICAN AMERICAN	ASIAN AMERICAN	DISABLED PERSON
FEMALE	HISPANIC AMERICAN	NATIVE AMERICAN

The percentage of total contract dollars to be paid to this subcontractor: _____

This subcontractor will provide the following goods and/or services: _____

_____

2. Certified by: _____

Subcontractor Name: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

CONTACT PERSON: _____

Circle MFD Type:

AFRICAN AMERICAN	ASIAN AMERICAN	DISABLED PERSON
FEMALE	HISPANIC AMERICAN	NATIVE AMERICAN

The percentage of total contract dollars to be paid to this subcontractor: _____

This subcontractor will provide the following goods and/or services: _____

_____

3. Certified by: _____

Subcontractor Name: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

CONTACT PERSON: _____

Circle MFD Type:

AFRICAN AMERICAN	ASIAN AMERICAN	DISABLED PERSON
FEMALE	HISPANIC AMERICAN	NATIVE AMERICAN

The percentage of total contract dollars to be paid to this subcontractor: _____

This subcontractor will provide the following goods and/or services: _____

_____

4. Certified By: _____

Subcontractor Name: _____

Title: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone Number: _____ Fax Number: _____ Email: _____

CONTACT PERSON: _____

Circle MFD Type:

AFRICAN AMERICAN	ASIAN AMERICAN	DISABLED PERSON
FEMALE	HISPANIC AMERICAN	NATIVE AMERICAN

The percentage of total contract dollars to be paid to this subcontractor: _____

This subcontractor will provide the following goods and/or services: _____

_____

E. The following language will be inserted in each subcontract with a certified minority owned business listed in D above, regarding the use of binding arbitration with a neutral arbitrator to resolve disputes with the minority owned business subcontractor; the language must describe how the costs of dispute resolution will be apportioned:

_____

_____

_____

_____

F. Provide a statement below, or on a separate sheet that summarizes maximum good faith efforts achieved, and/or the intent to increase minority participation through out the life of the contract or the basis for a full waiver request:

_____

_____

_____

_____

_____

G. A full waiver request must be justified and attached.

Full Waiver Approved: _____ Date: _____
MFD Program Officer

Partial Waiver Approved: _____ Date: _____
MFD Program Officer

Full Waiver Approved: _____ Date: _____
Director
Department of General Services

Partial Waiver Approved: _____ Date: _____
Director
Department of General Services

The Contractor submits this MFD Subcontractor Performance Plan (Plan Modification No.) in accordance with the Minority Owned Business Addendum to General Conditions of Contract between County and Contractor.

CONTRACTOR SIGNATURE

USE ONE:

1. TYPE CONTRACTOR'S NAME: _____

_____

Signature

Typed Name

Date

2. TYPE CORPORATE CONTRACTOR'S NAME: _____

Signature

Typed Name

Date

I hereby affirm that the above named person is a corporate officer or a designee empowered to sign contractual agreements for the corporation.

Signature

Typed Name

Title

Date

APPROVED:

Director, Department of General Services Date

Section 7.3.3.4(a) of the Procurement Regulations requires:
The Contractor to notify the Director, Department of General Services of any proposed change to the Subcontractor Performance Plan.

ATTACHMENT E

OFFEROR'S CERTIFICATION OF COST AND PRICE

The Director, Department of General Services, has the authority to require that contract cost and pricing principles are followed. Cost and Pricing Data must be submitted by offerors or contractors in the attached format prior to the execution of any contract or contract amendment based on the following:

1. A competitively negotiated contract valued at more than $100,000.
2. A non-competitive contract valued at more than $50,000.
3. Any contract modification for which the price adjustment is expected to exceed $50,000, except contract modifications that are fully in accordance with the terms and conditions of the contract.
4. Any other contracts or contracts modification, as may be required by the CAO or Director.

OFFEROR'S CERTIFICATION

This cost proposal reflects our best estimates and/or actual costs as of this date and conforms to the cost exhibits and schedules provided by the County's Office of Procurement. By submitting this proposal, the offeror grants the contracting officer or an authorized representative the right to examine, as the basis for pricing that will permit an adequate evaluation of the proposed price, books, records, documents, and other types of factual information, if specifically referenced or included in the cost proposal.

The offeror also agrees that the price to the County, including profit or fee, may, at the option of the County, be adjusted to reduce the price to the County to the extent that the price was based on inaccurate, incomplete, or non-current data supplied by the offeror.

_____
Name

_____
Title

_____
Name of Firm

_____
Date of Submission

_____
Signature of Authorized Representative

COST AND PRICE REQUIREMENTS

By submitting your proposal, you, if selected for negotiation, grant the Contracting Officer or an authorized representative the right to examine those books, records, documents and any other supporting data that will permit adequate evaluation of the proposed price. This right may be exercised at any time prior to award of a contract. The Montgomery County Government may utilize an independent contractor for cost and price analysis or to examine your books and records.

The Cost/price for any resultant contract will be negotiated on the basis of the successful offeror's normal estimating and/or accounting system or the system set forth in Cost Accounting Standards Board Disclosure Statement as required by Public Law 100-679.

Prior to contract execution, the intended awardee may be required to provide the following information;

A. Latest and previous year's financial statement or profit and loss statement.
B. Burdened rate verification detailing the composition and value of the elements of Fringe Benefits, Overhead, General and Administrative Overhead, Profit or Fee.

ATTACHMENT F

MANDATORY INSURANCE REQUIREMENTS

MANDATORY INSURANCE REQUIREMENTS – *Constituent / Customer Relationship Management (CRM) system to provide casework management, workflow automation, document and contact management, and to support email campaigns and reporting*

Prior to the execution of the contract by the County, the proposed awardee must obtain at their own cost and expense the following insurance with an insurance company/companies licensed to do business in the State of Maryland and acceptable to the Division of Risk Management. This insurance must be kept in full force and effect during the term of this contract, including all extensions. The insurance must be evidenced by a certificate of insurance, and if requested by the County, the proposed awardee/Contractor shall provide a copy of the insurance policies. The Contractor's insurance shall be primary.

Commercial General Liability
A minimum limit of liability of ***one million dollars ($1,000,000)***, combined single limit, for bodily injury and property damage coverage per occurrence including the following coverages:

Contractual Liability
Premises and Operations
Independent Contractors
Products and Completed Operations

Professional Liability
Professional liability insurance covering errors and omissions and negligent acts committed during the period of contractual relationship with the County with a limit of liability of at least ***one million dollars ($1,000,000)*** per claim and aggregate and a maximum deductible of $25,000. Contractor/proposer agrees to provide a one-year discovery period under this policy.

Workers' Compensation/Employer's Liability
Meeting all statutory requirements of the State of Maryland Law and with the following minimum Employers' Liability limits:

Bodily Injury by Accident - $100,000 each accident
Bodily Injury by Disease - $500,000 policy limits
Bodily Injury by Disease - $100,000 each employee

Additional Insured
Montgomery County, Maryland, its elected and appointed officials, officers, consultants, agents and employees must be named as an additional insured on Contractor's Commercial and Excess/Umbrella Insurance for liability arising out of contractor's products, goods and services provided under this contract.

Policy Cancellation
Should any of the above policies be cancelled before the expiration date thereof, written notice must be delivered to the County in accordance with the policy provisions.

Certificate Holder
Montgomery County, Maryland
County Council / Mary Jane Berry
100 Maryland Ave, 5th floor
Rockville, Maryland 20850

ATTACHMENT G

Wage Requirements for Services Contract Addendumto the General Conditions of Contract Between County and Contractor

A. This contract is subject to the wage requirements of Section 11B-33A of the Montgomery County Code. A County contract for the procurement of services must require the contractor and any of its subcontractors to comply with the wage requirements of this Section, subject to exceptions from coverage for particular contractors noted in 11B-33A(b) and for particular employees noted in 11B-33A(f).

B. Conflicting requirements (11B-33A(g)): If any federal, state, or County law or regulation requires payment of a higher wage, that law or regulation controls. If any applicable collective bargaining agreement requires payment of a higher wage, that agreement controls.

C. Nonprofit organizations who are exempt from the wage requirements under 11B-33A must specify the wage the organization intends to pay to those employees who will perform direct, measurable work under the contract, and any health insurance the organization intends to provide to those employees.

D. A contractor must not split or subdivide a contract, pay an employee through a third party, or treat an employee as a subcontractor or independent contractor, to avoid the imposition of any requirements in 11B-33A.

E. Each contractor and subcontractor covered under 11B-33A must: certify that it is aware of and will comply with the applicable wage requirements; keep and submit any verifiable records necessary to show compliance; and conspicuously post notices, approved and/or supplied by the County, informing employees of the wage requirements.

F. An employer must comply with Section 11B-33A during the initial term of the contract and all subsequent renewal periods and must pay an increase adjustment in this wage rate, if any, automatically effective July 1 of each year. The County will adjust the wage rate by the annual average increase in the Consumer Price Index for all urban consumers for the Washington-Baltimore metropolitan area, or successor index, for the previous calendar year and must calculate the adjustment to the nearest multiple of 5 cents.

G. An employer must not discharge or otherwise retaliate against an employee for asserting any right or filing a complaint of a violation, under the wage requirements.

H. The sanctions under Section 11B-33(b), that apply to noncompliance with nondiscrimination requirements, apply with equal force and scope to noncompliance with the wage requirements under 11B-33A.

I. The County may assess liquidated damages for any noncompliance by contractor with the Section 11B-33A wage requirements at the rate of 1% per day of the total contract amount, or for a requirements contract, the estimated annual contract value, for each day of the violation. This liquidated damages amount includes the amount of any unpaid wages, with interest. In the event of a breach of contract under this paragraph, the Contractor must pay to the County liquidated damages noted above, in addition to any other remedies available to the County. Contractor and County acknowledge that damages that would result to the County as a result of a breach under this paragraph are difficult to ascertain, and that the liquidated damages provided for in this paragraph are fair and reasonable in estimating the damage to the County resulting from a breach of this paragraph by Contractor. In addition, the contractor is jointly and severally liable for any noncompliance by a subcontractor. Furthermore, Contractor agrees that an aggrieved employee, as a third-party beneficiary, may by civil action enforce the payment of wages due under the Section 11B-33A wage requirements and recover from Contractor any unpaid wages with interest, a reasonable attorney's fee, and damages for any retaliation for asserting any right or claim under the 11B-33A wage requirements.

J. The Director may conduct random audits to assure compliance with Section 11B-33A. The Director may conduct an on-site inspection(s) for the purpose of determining compliance.

K. If the Contractor fails, upon request by the Director, to submit documentation demonstrating compliance with Section 11B-33A to the satisfaction of the Director, the Contractor is in breach of this contract. In the event of a breach of contract under this paragraph, upon request by the County, the Contractor must pay to the County liquidated damages noted in paragraph I. above, in addition to any other remedies available to the County. Contractor and County acknowledge that damages that would result to the County as a result of a breach under this paragraph are difficult to ascertain, and that the liquidated damages provided for in this paragraph are fair and reasonable in estimating the damage to the County resulting from a breach of this paragraph by Contractor.

RFP # **1026052**

Wage Requirements Certification

(Montgomery County Code, Section 11B-33A)

Business Name					
Address					
City		State		Zip Code	
Phone Number		Fax Number			
E-Mail Address					

Please provide in the spaces below the contact name and information of the individual designated by your firm to monitor your compliance with the County's wage requirements, unless exempt under Section 11B-33A(b) (see section B. below):

Contact Name		Title	
Phone Number		Fax Number	
E-mail Address			

YOU MUST MARK ☑☒ ALL BOXES BELOW that apply in the event that you, as an "Offeror," are awarded the contract and become a "Contractor":

☐ A. Wage Requirements Compliance

This Contractor as a "covered employer" will comply with the requirements under Section 11B-33A, Wage Requirements. Contractor and its subcontractors will pay all employees not exempt under the wage requirements, and who perform direct measurable work for the County, the wage requirements effective at the time the work is performed. The proposal price(s) submitted under this solicitation include(s) sufficient funds to meet the wage requirements. A "covered employer" must quarterly (January, April, July and October for the prior quarter) submit certified payroll records for all employees, and any subcontractor employees, governed by the Wage Requirements Law, for each payroll period to the Office of Business Relations and Compliance, Attn: Wage Program Manager. These payroll records must include the following: name; address; position/title; daily straight time hours worked; daily overtime hours worked; straight time hourly pay rate; overtime hourly pay rate; any deduction for health insurance; total gross wages paid for each period; and total net wages paid after any additions and deductions for each pay period.

B. Exemption Status (if applicable)

This Contractor is exempt from 11B-33A, "Wage Requirements," because it is:

1. Reserved [Intentionally left blank].

☐ 2. a contractor who, at the time a contract is signed: has received less than $50,000 from the County in the most recent 12-month period; and will be entitled to receive less than $50,000 from the County under that contract in the next 12-month period. Section 11B-33A(b) (2).

☐ 3. a contract with a public entity. Section 11B-33A(b) (3).

☐ 4. a contract with a nonprofit organization that has qualified for an exemption from federal income taxes under Section 501(c) (3) of the Internal Revenue Code. Section 11B-33A(b) (4) (**must complete item C below**).

☐ 5. an employer to the extent that the employer is expressly precluded from complying with this Section by the terms of any federal or state law, contract, or grant. Section 11B-33A(b) (8) (**must specify the law, or furnish a copy of the contract or grant**).

☐ C. Nonprofit Wage & Health Information

This Contractor is a Nonprofit organization that is exempt from coverage under Section 11B-33A(b) (4). Accordingly, the contractor has completed the 501(c) (3) Nonprofit Organization's Employee's Wage and Health Insurance Form which is attached. See Section11B-33A(c) (2).

☐ D. Nonprofit's Comparison Price(s) (if desired)

This Contractor is a Nonprofit organization that is opting to pay its covered employees the hourly rate specified in the wage requirements. Accordingly, Contractor is duplicating the blank quotation sheet on which it is submitting its price(s) in the IFB, and is submitting on this duplicate form its price(s) to the County had it not opted to pay its employees the hourly rate specified in the wage requirements. For bid evaluation purposes, this price(s) will be compared to price(s) of another Nonprofit organization(s) that is paying its employees an amount consistent with its exemption from paying the hourly rate under the wage requirements. This revised information on the duplicate quotation sheet must be clearly marked as your Nonprofit organization comparison price(s). In order to compare your price(s), the revised information on the duplicate quotation sheet must be submitted with your bid, must show how the difference between your price(s) and your Nonprofit organization comparison price(s) was calculated, and will not be accepted after the bid opening date. See Section 11B-33A(c) (2).

☐ E. Wage Requirements Reduction (if applicable)

This Contractor is a "covered employer", and it desires to reduce its hourly rate paid under the wage requirements by an amount equal to, or less than, the per employee hourly cost of the employer's share of the health insurance premium. Contractor certifies that the per employee hourly cost of the employer's share of the premium for that insurance is: **$**_____. See Section 11B-33A(d).

Contractor Certification

CONTRACTOR SIGNATURE: Contractor submits this certification form in accordance with Section 11B-33A of the Montgomery County Code. Contractor certifies that it, and any and all of its subcontractors that perform services under the resultant contract with the County, adheres to Section 11B-33A of the Montgomery County Code.

Authorized Signature		Title of Authorized Person	
Typed or printed name		Date	

.

501(c) (3) Nonprofit Organization's Employee's Wage and Health Insurance Form

Business Name					
Address					
City		State		Zip Code	
Phone Number		Fax Number			
E-Mail Address					

Please provide below the employee labor category of all employee(s) who will perform direct measurable work under this contract, the hourly wage the organization pays for that employee labor category, and any health insurance the organization intends to provide for that employee labor category:

Employee Labor Category	Wage per Hour	Name of Health Insurance Provider(s) and Plan Name* (e.g. ABC Insurer, Inc. , HMO Medical and Dental)

NOTE: IF NO HEALTH INSURANCE PLAN IS PROVIDED PLEASE STATE "NONE".

ATTACHMENT H

Prevailing Wage Requirements for Construction Contract Addendum to the General Conditions of Contract between County and Contractor

The Contractor and all Subcontractors must comply with the Prevailing Wage Law contained in Chapters 11B-33C and 20-75 of the Montgomery County Code. Prevailing wage means the wage rate paid by employers that is determined by a governmental authority, based upon a particular geographic area, for a given class of labor and type of project. The purpose of a prevailing wage is to ensure that construction workers who work on public works contracts are paid the going rate for their services. The prevailing wage rates are established by the State of Maryland and apply to all of the Contractor's employees and any Subcontractors. The Contractor and any Subcontractors must comply with all of the requirements of the Prevailing Wage Law including, but not limited to, the following:

1. Pay employees the prescribed rate as annually established by the State of Maryland Commissioner of Labor and Industry; the prevailing wage rates in effect on the date a solicitation is issued will apply throughout the term of a contract resulting from that solicitation.

2. Pay employees overtime for work more than 10 hours in any single day, work more than 40 hours in a work week, or work on Sunday or legal holiday;

3. Classify employees in their proper work classification in conformance with the schedule established by the State of Maryland Commissioner of Labor and Industry;

4. Electronically submit payroll records through www.LCPTracker.net, within 14 days after the end of each payroll period, to verify that Prevailing Wage rates have been paid to employees. The payroll records must include the following:

   A. The name, address and telephone number of the Contractor or Subcontractor;
   B. The name and location of the job;
   C. Each employee's:
      a. Name;
      b. Current address unless previously reported;
      c. Specific work classification;
      d. Daily straight time and overtime hours;
      e. Total straight time and overtime hours for the payroll period;
      f. Rate of pay;
      g. Fringe benefits by type and amount;
      h. Gross wages.

5. If a Contractor or any Subcontractors are late in submitting copies of any payroll records required to be submitted under the Prevailing Wage Law, the County may deem Contractor's invoice(s) submitted to the County for payment unacceptable until the Contractor and Subcontractors provide the required records; and, the County may postpone processing payments otherwise due under the Contract or under an agreement to finance the Contract;

6. The Contractor and all Subcontractors must retain all payroll records for a period not less than five (5) years after the Work is completed;

7. The County may inspect the payroll records at any reasonable time and as often as it deems necessary;

8. The County may perform random or regular audits and investigate any complaint of a violation of the Prevailing Wage Law;

9. In the event the County determines that a provision of the Prevailing Wage Law has been violated, the County may withhold payment to the Contractor in an amount sufficient to pay each employee of the Contractor or any Subcontractors the full amount of wages due under the Prevailing Wage Law, and an amount sufficient to satisfy a liability of a Contractor or any subcontractors for liquidated damages as provided under the Prevailing Wage Law, pending a final decision on the violation by the County;

10. Contractor may appeal a written decision of the Director, Department of General Services, that the Contractor violated a provision of the Prevailing Wage Law to the Chief Administrative Officer ("CAO"), within ten (10) days after receiving a copy of the decision. The CAO must designate a hearing officer to conduct a hearing upon receipt of a timely appeal. If the Contractor does not appeal a written decision within ten (10) days after receipt, the decision of the Director, Department of General Services, becomes final and binding;

11. Contractor and all Subcontractors must not discharge, or otherwise retaliate against, an employee for asserting any right under the Prevailing Wage Law or for filing a complaint of a violation;

12. An aggrieved employee is a third-party beneficiary of this Contract and the employee may by civil action recover the difference between the prevailing wage for the type of work performed and the amount actually received, with interest and a reasonable attorney's fee; and

13. Each Contract subject to the Prevailing Wage Law may specify the payment of liquidated damages to the County by the Contractor and any Subcontractors for any noncompliance with the Prevailing Wage Law. Liquidated damages are: $10 for each calendar day that the payroll records are late; $20 per day for each day that an employee is misclassified; and $50 per violation of the requirement to post the prevailing wage rates at the work site.

14. Where the initial Contract Sum is below the $500,000.00 threshold, but it is subsequently increased and exceeds the $500,000.00 threshold due to an approved Contract Modification, the amount of any such Contract Modification that causes the Contract Sum to exceed the $500,000.00 threshold is subject to the Prevailing Wage Law.

15. The Contractor and all Subcontractors must post a clearly legible statement of each prevailing wage rate in a prominent and easily accessible place at the Work Site during the entire time Work is being performed, in English and any other language that is primarily spoken by the employees, at the Work Site.

ATTACHMENT I

PRICE SHEET

I. COTS On-Site Solution

Software License(s)	$_____
Installation	$_____
Warranty maintenance (Year 1)	$_____
Mandatory Onsite training (Technical & Non-Technical Personnel)	$_____
Hardware	$_____
Other (Cost of Configurations & customizations)	$_____
Total Cost of ownership for year one	$_____

II. Hardware

This includes server architecture required by the solution.
The County is responsible for procurement of hardware. $ _(_____)__

III. Warranty and Maintenance

Contract Year 2	$ _____
Contract Year 3	$ _____

IV. AGGREGATE TOTAL **$_____**

OPTIONAL SERVICES

I. Training

On-going Traditional Training Sessions (per day) $ _____

(Please include any and all itemized listing.
The offeror may attach any additional pricing information or detail

II. Add-ons/plug-ins $ _____

Software that is packaged separate from the license that may enhance the product. For example, a plug-in for Microsoft Outlook that integrates Outlook with the solution, or a mapping system that identifies the location of a County address using the Internet, etc.

Montgomery County Government
Enterprise Architecture

Department of Technology Services
Montgomery County Government, MD

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VERSION	DATE	DESCRIPTION	AUTHOR
1.0	16 March, 2011	Initial Version	Mike Tarquinio, Montgomery County Government

Table of Contents

1.0 Introduction 4
1.1 About Montgomery County 4
1.1.1 Municipalities 4
1.2 Enterprise Architecture Program 5
1.3 Purpose 5
1.4 Document Format 5
1.5 Enterprise Architecture Document Change Management 6
1.6 References 6
2.0 Enterprise Architecture 8
2.1 Business Architecture 9
2.2 Technical Architecture 9
2.3 Data Architecture 9
2.4 Application Architecture 9
2.5 Performance Architecture 9
3.0 Enterprise Architecture Slices 10

1.0 Introduction

1.1 About Montgomery County

Montgomery County is Maryland's most populous jurisdiction and one of its most affluent. The County is located adjacent to the nation's capital, Washington, D.C., and includes 497 square miles of land area. The topography is rolling with small hills. Elevations range from 52 feet above sea level near the District Line to 850 feet in the northern portion of the County near Damascus. Demographics about the county are available from the Maryland-National Capital Park and Planning Commission's Center for Research & Information Systems Web Site [10].

Montgomery County, named after General Richard Montgomery, was established by the State Convention in 1776, functioned under the County Commission system until 1948, when voters adopted a charter giving the County home rule and a council-manager form of government. In 1968, the voters approved a new charter providing for separate legislative and executive branches of government, with the legislative power vested in an elected council and executive power in an elected county executive. The new charter was fully implemented in 1970 with the November election of an executive and a council. The County Council is currently composed of nine members, four of whom are nominated and elected by voters from the entire County, and five who are elected by voters in each of the County's five Councilmanic districts. Terms for the County Executive and County Council are 4 years.

Current **budget information** is available at this site, including general information about the budget process and fiscal policy.

1.1.1 Municipalities

The incorporated cities, towns, villages, and municipalities enact many of their own laws. The incorporated cities are Rockville, Gaithersburg, and Takoma Park. Other incorporated municipalities are Barnesville, Brookeville, Chevy Chase, Friendship Heights, Garrett Park, Glen Echo, Kensington, Laytonsville, Poolesville, Somerset, and Washington Grove.

* Above information taken from the County Internet Web Site at the following link [9]

1.2 Enterprise Architecture Program

Starting in 2000 the Department of Technology Services initiated an Enterprise Architecture program that resulted in the official publishing of the Montgomery County Technical Architecture document in 2003. The architecture has been updated on a roughly yearly basis since that time.

1.3 Purpose

The purpose of the Enterprise Architecture Program is to communicate:

- the results of County business decisions (related to IT);
- the County IT Architecture and infrastructure;
- how the County manages its data; and
- how the County builds or acquires applications.

In general, it communicates how the organization has invested in its IT infrastructure (including hardware, software, processes and people). The County continues to make significant investments in IT and must communicate to many parties how future investments align or impact the architecture and infrastructure.

1.4 Document Format

The Montgomery County Enterprise Architecture consists of five separate sub-architectures: Business, Technical, Data, Application, and Performance. Each one of the sub-architectures is a standalone document but all five are subcomponents of the entire Enterprise Architecture.

The County has assembled information detailing its technologies and its direction. To avoid releasing potentially sensitive information the county follows a strict release process that involves review at multiple levels (See Section 10-617(g) of the Maryland Public Information Act).

The owner of all five sub-architecture documents and this rollup document is Mike Tarquinio (michael.tarquinio@montgomerycountymd.gov) the Department of Technology Service Enterprise Architect. The Department is located at the Department of Technology Services, 101 Monroe Street, 13th Floor, Rockville, Maryland 20850.

1.5 Enterprise Architecture Document Change Management

The Montgomery County Government Enterprise Architecture document is published by the DTS Enterprise Architect. The Enterprise Architect is responsible for working with DTS Content Experts and department representatives (through TOMG) to create a coherent Enterprise Architecture. The document adheres to stringent change management controls and follows a defined change management process.

Change requests can be initiated via DTS content experts, TOMG members, or the DTS Enterprise Architect. Contact the DTS Enterprise Architect Mike Tarquinio (michael.tarquinio@montgomerycountymd.gov) for further details.

1.6 References

1. Montgomery County Office of Management and Budget– Administrative Procedure 6-1, June 14, 2004; *Use of the County-Provided Internet, Intranet, and Electronic Mail Services*;

2. Montgomery County Office of Management and Budget – Administrative Procedure 6-6, May 4, 2005; *Information Technology Policies and Procedures*;

3. Montgomery County Office of Management and Budget – Administrative Procedure 6-7, May 4, 2005; *Information Resources Security*;

4. Montgomery County Department of Technology Services, September 2004; *Computer Security Guideline*;

5. Montgomery County Department of Technology Services, September 2004; *DTS Strategic Update 2006 - 2007*;

6. Montgomery County Government, May 31, 2007; *Montgomery County Code*;

7. Montgomery County Department of Technology Services, July 19, 2007; *Enterprise Architecture Configuration Management Plan*

8. Montgomery County Department of Technology Services, April 14, 2008; *Montgomery County Government Public Safety Information Technology Architecture*

9. Montgomery County Government; *About Montgomery County*; *http://www.montgomerycountymd.gov/mcgtmpl.asp?url=/content/mcgInfo/county/AboutCnty.asp* ; page accessed 3/14/2011

10. Maryland-National Capital Park and Planning Commission; *MontgomeryPlanning.Org, Center for Research & Information Systems*; http://www.montgomeryplanning.org/research/index.shtm ; page accessed 3/14/2011

11. Montgomery County Department of Technology Services, March 16, 2011; Montgomery County Government Enterprise Architecture Business Architecture;

12. Montgomery County Department of Technology Services, March 16, 2011; Montgomery County Government Enterprise Architecture Technical Architecture;

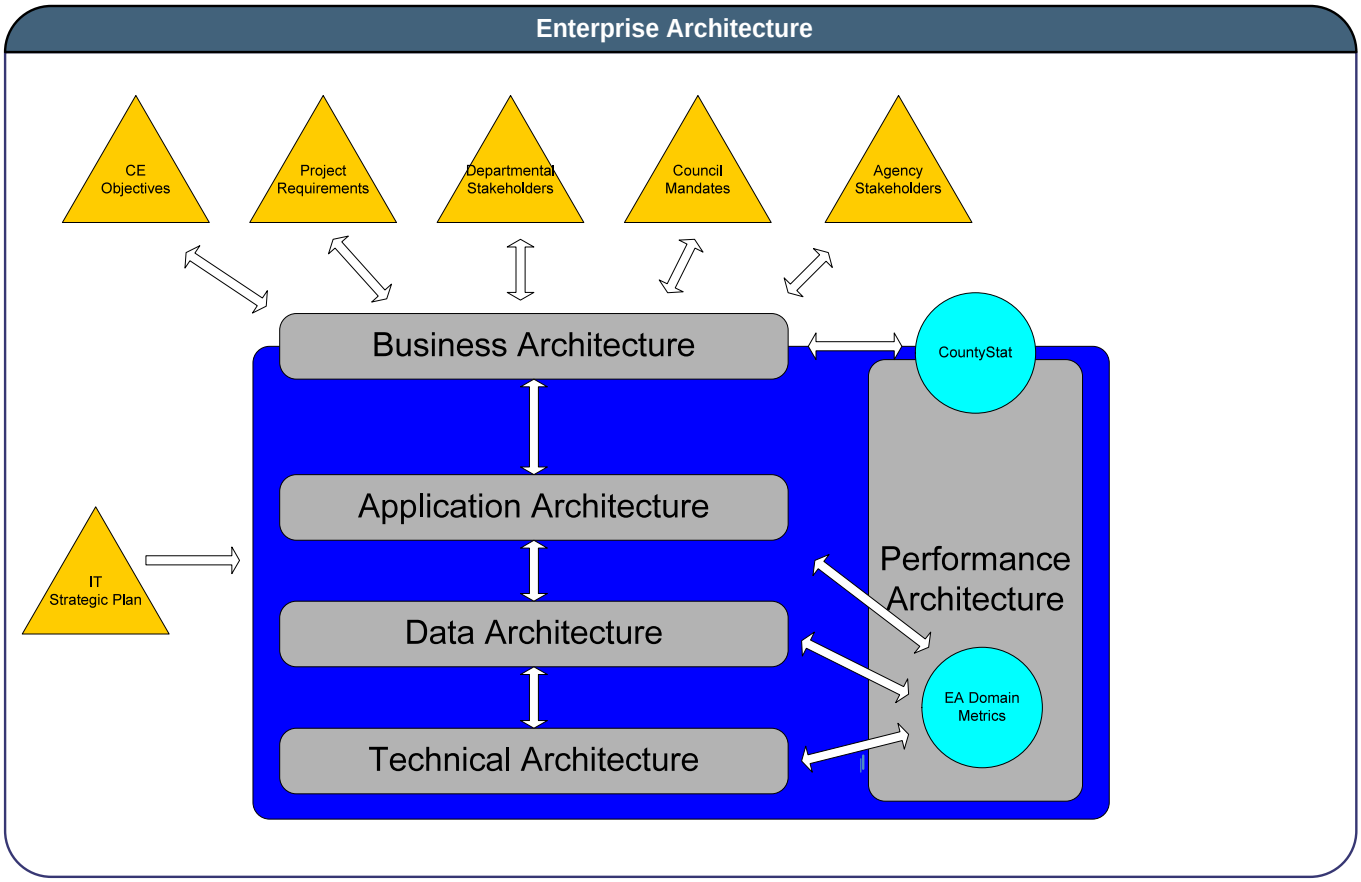
13. Montgomery County Department of Technology Services, March 16, 2011; Montgomery County Government Enterprise Architecture Data Architecture;

14. Montgomery County Department of Technology Services, March 16, 2011; Montgomery County Government Enterprise Architecture Application Architecture;

15. Montgomery County Department of Technology Services, March 16, 2011; Montgomery County Government Enterprise Architecture Performance Architecture;

16. Montgomery County CountyStat*; CountyStat;* http://www.montgomerycountymd.gov/mcgtmpl.asp?url=/content/exec/stat/index.asp; accessed 3/24/2011;

2.0 Enterprise Architecture



The County's Enterprise Architecture effort is based around maintaining an Enterprise Architecture that defines the following:

- Business Architecture - http://www.montgomerycountymd.gov/content/dts/architecture/docs/businessarchitecture.pdf
- Technical Architecture - http://www.montgomerycountymd.gov/content/dts/architecture/docs/technicalarchitecture.pdf
- Data Architecture (future release)
- Application Architecture (future release)
- Performance Architecture - http://www.montgomerycountymd.gov/content/dts/architecture/docs/performancearchitecture.pdf

The Enterprise Architecture presents well-defined, strategic standards adopted for the development and delivery of the County's information systems. It provides a cohesive blueprint to optimally design, purchase, develop, deploy and manage information systems for the County.

2.1 Business Architecture

The Business Architecture defines the business strategy, processes, business domains, and governance.

2.2 Technical Architecture

The Technical Architecture defines the IT infrastructure and standards.

2.3 Data Architecture

The Data Architecture defines the business physical and logical data structure and its data management policies and governance

2.4 Application Architecture

The Application Architecture defines application development standards and supported environments.

2.5 Performance Architecture

The Performance Architecture defines a program of process improvement based on metrics. At the business level the County has defined an extensive program called CountyStat [15]. The CountyStat program has developed metrics and process improvement around the business of Montgomery County Government. At the technical level the Department of Technology Services has developed an Enterprise Architecture data warehouse strategy where key domain metrics are collected and reported on. Essentially, the Enterprise Architecture has been metered and those metrics are fed into business and technical decisions.

3.0 Enterprise Architecture Slices

The Department of Technology Services Enterprise Architect creates domain specific enterprise architecture slices as project and business need arise. Each slice covers a specific domain and is meant to fulfill either a project or program need. The slice is meant to do a deeper dive into a specific domain while inheriting all the properties of the County Enterprise Architecture. The slice is maintained as the need continues and as the domain users remain engaged and supportive. Slices might not be meant for public distribution and have a limited population. Slices have been created either currently or in the past for ERP, Criminal Justice, and Public Safety.