

COMMONWEALTH OF PENNSYLVANIA DEPARTMENTS OF HUMAN SERVICES, INSURANCE, AND AGING

INFORMATION TECHNOLOGY STANDARD

Name Of Standard: DHS IT Environment Summary	Number: STD-DHS001
Domain: Appendix II	Category: Summary of IT Environment
Date Issued: 04/01/2002	Issued By Direction Of: 
Date Revised: 05/03/2016	Clifton Van Scyoc, Dir of Division of Tech Engineering

Abstract:

The Bureau of Information Systems within DHS has established an intranet site that contains Department wide IT Business and Technical Standards. This site, referred to as the **Business and Technical Standards/Policies Compliance Document**, is a central repository of technical standards and policies followed by the Commonwealth of Pennsylvania, Department of Human Services (DHS).

This document contains a summary of the information technology environment within DHS.

General:

The purpose of this document is to give a summary of the information technology environment at DHS that serves as an introduction to this environment for information technology contractors and vendors that might work with DHS. Authorized contractors and vendors that do not have access to the DHS intranet, must gain access to the DHS **Business and Technical Standards/Policies Compliance Document** at our internet site shown below. For more information regarding this document, contact William Torres at wtorres@pa.gov and Richard Davis at riedavis@pa.gov.

<http://www.dhs.pa.gov/provider/busandtechstandards/index.htm>

This document DOES NOT contain specific information related to the current application architecture environment within DHS. [DHS Application Lifecycle Management \(ALM\) Baseline](#) documents contains a variety of information related to: application architecture, security architecture, content management, desktop tools and testing and monitoring. These documents are only available to DHS intranet users.

Standard:

DHS Information Technology Environment Summary

Description

The **DHS Information Technology Environment Summary** table describes, for each technology category, the existing environment, and any standards applicable to that category. The three columns in the table contain the following information:

Technology Category column

The Technology Category column lists each technology category.

Retire column

Technologies that are being phased out.

Plans should be developed to phase out and replace, especially if there is risk involved such as lack of vendor support.

Current Environment column

The Current Environment column describes, in broad terms, the current standard in the related category. This is not to provide a precise, comprehensive inventory, but a summary list.

Future Direction column

The Future Direction column describes, in broad terms, standards established for the future at either DHS and/or the Commonwealth of Pennsylvania. Where no formal standards exist, but there are broadly acknowledged directions or ad hoc standards, this is noted. Where helpful and available, industry trends and directions are noted.

Environment Summary

- * = Commonwealth-wide standards
- ** = DHS standards
- *** = Current industry trends/directions

DHS Information Technology Environment Summary

Technology Category	Retire	Current Environment	Future Direction
Desktop Platforms		Total of about 20,100 (Department-wide)	
Hardware	<ul style="list-style-type: none"> • Minimum Desktop <ol style="list-style-type: none"> a. Pentium 4 or lower b. 1GB MHz or lower Processor c. 1GB RAM d. 120GB Hard Drive e. 17" CRT monitor • Note – Pentium 4 or lower computers should be scheduled for replacement 	<ul style="list-style-type: none"> • Standard Desktop <ol style="list-style-type: none"> a. Intel Core i3 b. 3.3GHz (or higher) Processor c. 8GB DDR3-1333MHz SDRAM d. 320GB 7,200rpm Hard Drive e. 23" Wide Monitor, DVI f. CD-R/DVD-R • High-end Desktop <ol style="list-style-type: none"> a. Intel Core i5 b. 3.1GHz (or higher) Processor c. 8-16GB DDR3-1333MHz SDRAM d. 500GB 7,200rpm Hard Drive e. 23" Wide Monitor, DVI f. CD-R/DVD-R 	<p>For developers of Windows based applications:</p> <ol style="list-style-type: none"> a. Intel Core i5 b. 3GHz or higher c. 16GB RAM d. 500GB Hard Drive e. CD-R/DVD-R <p>* 8GB RAM for all Standard Desktops</p>
Operating Systems	<ul style="list-style-type: none"> • Windows 2000 Professional • Windows XP 	<ul style="list-style-type: none"> • Windows 7 (64 bit) • Windows 7 (32 bit as needed) 	
Laptops / Notebooks		Total of about 1,100 (Department-wide)	

Technology Category	Retire	Current Environment	Future Direction
<p>Hardware</p>	<ul style="list-style-type: none"> • Minimum Laptop <ul style="list-style-type: none"> a. Pentium 4 or lower b. 1GHz or lower Processor c. 1GB RAM d. 100GB Hard Drive • All Motion brand tablets: includes 1600 and 1700. Most were issued to OCYF staff (Total of about 100 Department-wide). 	<ul style="list-style-type: none"> • Standard Notebook <ul style="list-style-type: none"> a. Intel Core i3 b. 2.2GHz (or higher) Processor c. 8GB DDR3-1333MHz SDRAM d. 250GB 5,400rpm Hard Drive e. 15" HD(1366x768) Anti-Glare LED-backlit f. Internal 8x DVD+/-RW • High-end Notebook <ul style="list-style-type: none"> a. Intel Core i5 b. 2.6GHz (or higher) Processor c. 8 – 16GB DDR3-1333MHz SDRAM d. 320GB 7,200rpm Hard Drive e. 17" HD(1366x768) Anti-Glare LED-backlit f. Internal 8x DVD+/-RW • Standard Tablet <ul style="list-style-type: none"> a. Intel Core 2 Duo SU9600 with VT (1.6GHz, 3M L2 Cache, 800Mhz, FSB) b. LED LCD c. 2GB DDR3 SDRAM, (1GB Integrated) d. 512MB RAM e. 120GB Hard Drive f. Free Fall Sensor g. External USB Modem h. CD/DVD Drive i. Wireless LAN (802.11) Mini Card 	<ul style="list-style-type: none"> • Dell ATG Laptop Computers

Technology Category	Retire	Current Environment	Future Direction
Operating Systems	<ul style="list-style-type: none"> Windows 2000 Professional Windows XP 	<ul style="list-style-type: none"> Windows 7 	** Windows 8
Tablets			
Hardware	<ul style="list-style-type: none"> Motorola Xoom 	<ul style="list-style-type: none"> Motorola Xyboard 10.1 Samsung Galaxy Tab 8.9 or 10.1 	
Operating Systems		<ul style="list-style-type: none"> Android 	
Handhelds			
Hardware		<ul style="list-style-type: none"> Blackberry Smartphone Tablets (Xcom/iPad) 	
Servers			

Technology Category	Retire	Current Environment	Future Direction
<p>Network Server Hardware</p>	<ul style="list-style-type: none"> • Dell platforms for small to medium applications • RISC processors • Pentium PIII, and PIV • UNIX • ITANIUM Processors (Oracle Server) 	<ul style="list-style-type: none"> • IBM platforms for small to medium applications <ul style="list-style-type: none"> A. Base Config <ul style="list-style-type: none"> a. 2 socket: quad cores b. Intel Xeon c. 3.06GHz d. 12MB Cache e. 1333MHz f. 95w <p>8GB memory 2 – 146GB OS – Raid 1 146GB/300GB in Raid 5 for data Intel NIC's</p> <ul style="list-style-type: none"> B. Base Config <ul style="list-style-type: none"> a. 2 socket: 4, 6, 8, 10 cores b. Intel Xeon c. 3.06GHz d. 12 MB Cache e. 1333MHz f. 95w <p>16GB memory – min 2 – 300GB OS – Raid 1 300GB Raid 5 for data Intel NIC's</p> <ul style="list-style-type: none"> • Unisys ES Platform for large, n-tier applications • EM64T (Oracle) • Look to use VMWare whenever possible • Oracle Exadata 	<p>*** DHS approach is consistent with industry standards</p> <p>*** Procure from Gartner defined enterprise-tier vendors -- servers configured for capacity</p> <p>** Centralize application servers (to facilitate support), distributed file and print servers (to reduce load on network)</p> <p>*** Next and future generation Intel-based for small to midsize systems</p> <p>*** Oracle Exadata for OLTP</p>

Technology Category	Retire	Current Environment	Future Direction
Network Server Software	<ul style="list-style-type: none"> Window 2000 Server Windows 2003 Server R2, Enterprise Server, and Datacenter Windows .NET Framework 3.5 and 4 	<ul style="list-style-type: none"> Windows 2008/2012 Server R2, Enterprise Server and Datacenter. All hardware licensed with 2008/2012 R2. Windows .NET Framework 4.6 Oracle Enterprise Linux 5.5 	
Web Server	<ul style="list-style-type: none"> IIS 6.0 IIS 5.0 IIS 4.0 	<ul style="list-style-type: none"> IIS 7 and IIS 7.5 	
IDE		<ul style="list-style-type: none"> Microsoft Visual Studio 2015 	
Media Server		<ul style="list-style-type: none"> Cisco Content Delivery Engine 	<ul style="list-style-type: none"> Cisco Wide Area Acceleration Services
Storage Management	<ul style="list-style-type: none"> EMC Symmetrix with 2GB of cache & 1 terabyte of usable disk space, 1 EMC Symmetrix with 32GB of cache & 9 terabytes of usable disk space, 1 Storage Tek tape silo with 20 tape drives & 618 dlt tape slots at 70GB per tape EMC Centera 	<ul style="list-style-type: none"> EMC DMX3 EMC Clarion EMC Data Domain Sun STK SL8500 Tape Silo EMC VMAX 	

Data Base Management Systems	<ul style="list-style-type: none"> • Oracle Enterprise Edition 10.2.0.3. • MS SQL Server 2005 and lower 	<ul style="list-style-type: none"> • Oracle version 11gR2 • SQL Server Enterprise Edition 2008 R2 • UDS2200 • SQL Server 2012 Enterprise Edition • SQL Server Enterprise Edition 2014 • SQL Server Client Tools 2014 • SQL Server Express 2014 	<ul style="list-style-type: none"> • Oracle 12c Enterprise Edition • SQL Server Enterprise Edition 2014 (in transition)
Rapid Application Development		<ul style="list-style-type: none"> • Oracle Apex (CAMA) Ver.5.1 	
DATABASE PROVIDER		<ul style="list-style-type: none"> • ODP .NET 11.2.0.4 	
DATABASE DEVELOPMENT & ADMINISTRATION		<ul style="list-style-type: none"> • SQL Plus 11.2.0.4 • SQL Developer 4.0 • PL/SQL Developer 10.5 • Oracle Developer Tools for .NET 11.2.0.4 • SQL Server Management Studio 2014 • TOAD 11.5 • DBArtisan 9.2 	
Data Modeling		<ul style="list-style-type: none"> • ERWin 9.6.4 	
Database Monitoring		<ul style="list-style-type: none"> • Oracle Enterprise Manager (Grid Control) 12c • SQL Server Enterprise Manager 2014 • Idera Diagnostics Manager for SQL Server 8.0 	
		<ul style="list-style-type: none"> • 	
		<ul style="list-style-type: none"> • 	

Applications			
Personal Productivity Tools			
Office Productivity Suite	<ul style="list-style-type: none"> • MS Office 2000 • MS Office XP • MS Office 2003 • MS Office 2007 	<ul style="list-style-type: none"> • MS Office 2010 	<ul style="list-style-type: none"> • MS Office 2012
Word Processing	<ul style="list-style-type: none"> • MS Word 2000 • MS Word XP • MS Word 2007 	<ul style="list-style-type: none"> • MS Word 2010 	<ul style="list-style-type: none"> • MS Word 2012
Spreadsheet	<ul style="list-style-type: none"> • MS Excel 2000 • MS Excel XP • MS Excel 2007 	<ul style="list-style-type: none"> • MS Excel 2010 	<ul style="list-style-type: none"> • MS Excel 2012
Presentation Graphics	<ul style="list-style-type: none"> • MS PowerPoint 2000 • MS PowerPoint XP • MS PowerPoint 2007 	<ul style="list-style-type: none"> • MS PowerPoint 2010 	<ul style="list-style-type: none"> • MS PowerPoint 2012
Diagramming	<ul style="list-style-type: none"> • Visio 2000 • Visio 2003 • Visio 2007 	<ul style="list-style-type: none"> • Visio 2010 	<ul style="list-style-type: none"> • Visio 2012
Organization Charts		<ul style="list-style-type: none"> • ** Broderbund Software's Org Plus • Visio 2010 	<ul style="list-style-type: none"> • Visio 2012
Email and Calendaring	<ul style="list-style-type: none"> • MS Outlook 2007 	<ul style="list-style-type: none"> • MS Outlook 2010 	<ul style="list-style-type: none"> • MS Outlook 2012
Secure Mail		<ul style="list-style-type: none"> • IronPort 	
Survey Software		<ul style="list-style-type: none"> • Zoomerang used but not a standard 	

Desktop Database	<ul style="list-style-type: none"> • MS Access XP • MS Access 97 or lower • FoxPro • MySql • Progress • DB4 • RBase • Lotus Approach 97 • MS Access 2007 	<ul style="list-style-type: none"> • MS Access 2010 	<ul style="list-style-type: none"> • MS Access 2012
Internet Browser	<ul style="list-style-type: none"> • MS Internet Explorer 7 • MS Internet Explorer 8.0 • MS Internet Explorer 9.0 	<ul style="list-style-type: none"> • Firefox & Chrome for non-Commonwealth managed devices • MS Internet Explorer 11.0 	
Mainframe Host Connectivity		<ul style="list-style-type: none"> • For enterprise server: Accessory Manager ver 9, Telnet VT100 • WebTS and OpenTI/OpenOLTP 	
Server Connectivity	<ul style="list-style-type: none"> • PC Anywhere 	<ul style="list-style-type: none"> • Dameware • DirectConnect • SCCM Remote Control • Windows Remote Desktop • Terminal Server 	
Statistical Analysis		<ul style="list-style-type: none"> • SPSS Desktop Version 11.0 	<ul style="list-style-type: none"> • SPSS Desktop Version 18.0
<i>User Development Tools</i>			
Learning Management System		<ul style="list-style-type: none"> • eLMS through OIT 	
Collaboration Tools	<ul style="list-style-type: none"> • DocuShare 6.5.3 CPX 	<ul style="list-style-type: none"> • DocuShare 6.6.1 CPX 	
<i>Other Tools</i>			
Project Management	<ul style="list-style-type: none"> • MS Project 2000 	<ul style="list-style-type: none"> • MS Project Server 2010 • MS Project 2010 • Clarity (Only within PMO) 	
ETL (Extract, Transform and Load)		<ul style="list-style-type: none"> • Informatica 9.0.1 	<ul style="list-style-type: none"> • Informatica 10.x

GIS Mapping	<ul style="list-style-type: none"> • ArcIMS 9.3.1 • ArcGIS Server 9.3.1 	<ul style="list-style-type: none"> • ESRI's ArcView 9.3.1 • ArcGIS Server 10.1 SP1 	<ul style="list-style-type: none"> • ESRI's ArcView 10.0 • ArcGIS Server 10..3.1
DATA DISCOVERY/VISUALIZATION	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Endeca 3.1 	<ul style="list-style-type: none"> •
SEARCH	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Google Appliance 7.2 	<ul style="list-style-type: none"> •
REPORTING	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • SQL Server Reporting Services 2014 	<ul style="list-style-type: none"> •
FILE/IMAGE STORAGE	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Docushare 6.6.1.6 • Oracle WebCenter Content Core 11g • EMC Documentum Content Server 7.1 	<ul style="list-style-type: none"> •
Imaging/Document Intake	<ul style="list-style-type: none"> • FileClerk 2.0.9 	<ul style="list-style-type: none"> • FileClerk 2.0.9 • Conveyor Scriptable • FileNet Viewer 3.3 	<ul style="list-style-type: none"> • FileClerk 3.x.x
Self Service Reporting	<ul style="list-style-type: none"> • Cognos BI 7 & 8 	<ul style="list-style-type: none"> • Cognos BI 10.2.0 • Cognos Report Studio 	<ul style="list-style-type: none"> • Cognos 10.2.2
DATA WAREHOUSE	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Cognos Connection • Cognos PowerPlay/Transformer 10.2 	<ul style="list-style-type: none"> •
Transaction Managers		<ul style="list-style-type: none"> • Transaction Information Processor (TIP) • Microsoft Distribution Transaction Coordinator 	
		<ul style="list-style-type: none"> • 	

Middleware	<ul style="list-style-type: none"> • JBOSS 4.2.2 Used with eMediary • Microsoft BizTalk 2009 	<ul style="list-style-type: none"> • IBM Websphere MQ 6.0 • WebMethods Integration Server 7.1.2 • WebMethods Broker 7.1.2 • WebMethods Trading Network 7.1.2 • webMethods Designer 7.1.2 • Web Services • JBOSS 4.0.5 • SOAP 1.2 • Unisys OpenTI/OpenOLTP • MOVEit Secure FTP-Central 8.0.11 • MOVEit Secure FTP - DMZ ver. 8.1 • Informatica PowerCenter 8.1.1 	<ul style="list-style-type: none"> • MOVEit DMZ ver. 8.2 • MOVEit Central ver. 8.1
WEBMETHODS	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • WebMethods 9.8 	<ul style="list-style-type: none"> •
Mainframe Integration	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • OpenTI 11.1.8 • JCA 1.0 	<ul style="list-style-type: none"> •
Data Integration	<ul style="list-style-type: none"> • Microsoft BizTalk 2013 	<ul style="list-style-type: none"> • Microsoft BizTalk 2016 • KMSYS 1.0 • IBM WebSphere 6.4.5 • Informatica ETL Tool 9.0.1 • IBM MQ Services – ESB toolkit(provide with BizTalk) 2013 • SQL Server Integration Services (SSIS) 10.5 	<ul style="list-style-type: none"> •

Groupware/Mail System		<ul style="list-style-type: none"> MS Exchange (Located at CTC) 	
Componentware		<ul style="list-style-type: none"> Java enhanced solutions including WebTS from Unisys, and MQSeries from IBM. Java Messaging Services (JMS) to support MQSeries .Net Framework Unisys OpenTI/OpenOLTP AJAX 	
Workflow	<ul style="list-style-type: none"> DocuShare 6.5.3 CPX 	<ul style="list-style-type: none"> DocuShare 6.6.1 CPX 	<ul style="list-style-type: none"> XEROX Forms Module
Installation Tools		<ul style="list-style-type: none"> Install Shield 	
Systems Management Tools			
Output Management		<ul style="list-style-type: none"> DEPCON Print Services 	
Job Scheduling/ Batch Services	<ul style="list-style-type: none"> OPCON 4.25.03 	<ul style="list-style-type: none"> OPCON /XPS (5.20 SP1) – Batch on all servers 	<ul style="list-style-type: none"> OPCON 16 or Latest Version

<p>Storage Recovery</p>		<ul style="list-style-type: none"> • On enterprise server, Integrated Recovery Utility or File Administration System (FAS) • Veritas Netbackup with LTO3 tapes, for enterprise backup • SL8500 Tape Silo (10,000 Tape capacity) <p>□□□□□□□□</p> <p>3000 tapes LTO3 Tapes –</p> <p>420GB size</p> <p>4 Robots arms in the Tape Silo</p> <p>Within the Tape Silo there are:</p> <p>46 drives of which 45 are LTO and 1 is DLT</p> <ul style="list-style-type: none"> • 11 Media Servers talking to the Tape Silo • 1 □ Master Server talking to the 10 Media Servers • EMC Data Domain • Oracle RMAN to Data Domain • Native SQL Server Backups to Data Domain 	<ul style="list-style-type: none"> • Enterprise Recovery Manager with Veritas 7.0 Database Edition Agent for SQL Server • Veritas Netbackup 7.0 Enterprise Edition • Add 5 additional Media Servers • Cluster Master Media, Decrease Media Servers to 10
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Systems Management Server		<ul style="list-style-type: none"> System Center Configuration Mgr 2007 (SCCM) 	<ul style="list-style-type: none"> SCCM 2010
Security			
Operating Systems		<ul style="list-style-type: none"> Currently use security inherent in each operating system <ul style="list-style-type: none"> Note: Use Network Associates (McAfee) for desktop virus protection Version 8.5i HIPS (Host Intrusion Prevention) DPH Anti-Virus McAfee 8.5i 	<ul style="list-style-type: none"> *** McAfee is consistent with industry trends *** NSA C-2 level compliance ** Windows Server 2008 Active Directory ** 64 bit Topology Domain Controllers DPH Anti-Virus McAfee 8.7i
SITEMINDER		<ul style="list-style-type: none"> Policy Server 12.52 SP1 Policy Store 12.52 SP1 WAM UI 12.52 SP1 Report Server 3.3 SP1 WEB Agents 12.52 SP1 	<ul style="list-style-type: none">
IDENTITY MANAGER		<ul style="list-style-type: none"> IDM Server 12.6.4 WebSphere 8.5 FP2 WebSphere plug-in ver.7 	<ul style="list-style-type: none">
SOA GATEWAY		<ul style="list-style-type: none"> Policy Manager 7.1.10 Network Director 7.1.10 Microsoft Gateway ver.7 	<ul style="list-style-type: none">
ITIM		<ul style="list-style-type: none"> ITIM 5.1.0.9 WebSphere App Server (WAS) ver.7.0.0.23 Tivoli Directory Integrator (TDI) ver.7.1.0.7 Tivoli Directory Server (TDS) ver. 6.3.0.17 DB2 ver.9.7.200.359 WebSphere Plugin 7 	<ul style="list-style-type: none">
SAILPOINT		<ul style="list-style-type: none"> Identity IQ 6.3 	<ul style="list-style-type: none">

CyberArk		<ul style="list-style-type: none"> • EPV 9.2 • CPM 9.2 • PSM 9.2 • PVWA 9.2 	•
RADIANTLOGIC VDS		<ul style="list-style-type: none"> • VDS Server 7.1.15 	•
APPLICATION MONITORING		<ul style="list-style-type: none"> • SPLUNK 6.2.1 	•
CA Advanced Auth		<ul style="list-style-type: none"> • AuthMinder 7.1.01 • RiskMinder 3.1.01 • Adapter 2.2.9 	•
VIRTUALIZATION		<ul style="list-style-type: none"> • Hyper-V • VMware 	•
Operating System		<ul style="list-style-type: none"> • Windows 2012/R2 • Linux- Red Hat Enterprise Linux (RHEL) v6.6 • NETSCALER CITRIX 	•
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		•	•
Applications		•	•

Network	<ul style="list-style-type: none"> • Custom per application; use NT domain passwords at sign on 	<ul style="list-style-type: none"> • Custom per application; use Active Directory passwords at sign on • Applications to be integrated with Unified Security (CA SiteMinder) at inception or with major revisions • Radiant Logic Virtual Directory; used for combining authentication and authorization directories • IBM Tivoli Identity Manager; provisioning of Commonwealth employees • CA Identity Manager R12.5 Web based User management tool (Business Partners and Citizens) • CA R12.5 SOA Security Manager (Web Service security) • Computer Associates Security Products (SiteMinder) for authentication and authorization to web-based or web-enabled applications, both for intranet and internet access 	<ul style="list-style-type: none"> • ** CA R12.x Web Access Manager • Web Service Security Appliance
VPN for Remote Access	<ul style="list-style-type: none"> • ISA Proxy Server 2004 • IBM ISS (Intrusion Protection Systems) • Imperva (Web Application Firewall) • McAfee IPS 	<ul style="list-style-type: none"> • Checkpoint Firewalls • Checkpoint IPS • BlueCoat Proxy with Content Filtering Append (at OA) • ISA Proxy Server 2006 	<ul style="list-style-type: none"> • Database Application FW • Data Loss Prevention (DLP)
Desktop	Checkpoint Connectra	<ul style="list-style-type: none"> • Checkpoint Mobile Access Blade 	<ul style="list-style-type: none"> •
Laptop	Safeboot	<ul style="list-style-type: none"> • Bitlocker with full disk encryption 	<ul style="list-style-type: none"> • Bitlocker as released with new Microsoft Operating System
Tablets	Safeboot	<ul style="list-style-type: none"> • Bitlocker with full disk encryption 	<ul style="list-style-type: none"> • Bitlocker as released with new Microsoft Operating System

<i>Communications</i>	Safeboot	<ul style="list-style-type: none"> • Bitlocker with full disk encryption 	<ul style="list-style-type: none"> • Bitlocker as released with new Microsoft Operating System
Protocols		<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
LAN Topology		<ul style="list-style-type: none"> • TCP/IP (RFC1720- to evolve) 	<ul style="list-style-type: none"> • * TCP/IP
Network Transport		<ul style="list-style-type: none"> • Ethernet 100 Base T (IEEE 802.3u) • Ethernet 100 VG (IEEE 802.12) <p>Fast Ethernet at edge and Gigabit Ethernet at core of LAN; switched 100 Base-T Ethernet services as edge architecture; switched Gigabit Ethernet (1000Base-T) switches for campus hub uplinks, server farms, and enterprise storage.</p> <ul style="list-style-type: none"> • 10Gig Core Connections 	<ul style="list-style-type: none"> • * IEEE 802.3, IEEE 802.3u, IEEE 802.12, IEEE 802.5 • ** IP • *** Fast Ethernet at edge and Gigabit Ethernet at core of LAN; switched 100 Base-T Ethernet services as edge architecture; switched Gigabit Ethernet (1000Base-T) switches for campus hub uplinks, server farms, and enterprise storage. • 10Gig Core Connections
Network Management Tools	Frame Relay for remote site circuits	<ul style="list-style-type: none"> • TCP/IP • MPLS Circuits • Ethernet Circuits for WAN 	<ul style="list-style-type: none"> • * Ethernet Circuits for WAN • * TCP/IP for WAN transport architecture • Native TCP/IP for trans-LAN traffic
Routers	<ul style="list-style-type: none"> • Scrutinizer Netflow 	<ul style="list-style-type: none"> • Any that read SNMP (Simple Network Management Protocol) Agents (RFC 1157 - to evolve) • Cisco network mgmt. tools and Concord tools are viable to manage a Cisco network; centralize enterprise management wherever possible • Netflow Auditor version 9 • Solar Winds • WildPackets Sniffer 	<ul style="list-style-type: none"> • * SNMP
Ethernet Switches	Cisco 3825	<ul style="list-style-type: none"> • Cisco 2901 & 3925 	<ul style="list-style-type: none"> • IEEE 802.3, IEEE 802.5 • Cisco base

Fiber, wiring	<ul style="list-style-type: none"> • Bay Networks 350F, 450, 450T & 470s • 3Com • HP • Compaq • Dell • Cisco 3500 • Cisco 3650 v1 • Cisco 2960 	<ul style="list-style-type: none"> • Cisco 3560 v2 or newer, & 3750 	<ul style="list-style-type: none"> • ** Cisco
Adapter cards	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • EIA/TIA 568-1991 	<ul style="list-style-type: none"> • * EIA/TIA 568-1991
Voicemail	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • (On STATE Contract) 	
Voice Response/Voice Processing	<ul style="list-style-type: none"> • Octel 	<ul style="list-style-type: none"> • Verizon National Unified Messaging System • Penn Connect Xpressions 	<ul style="list-style-type: none"> •
<i>Printers/Scanners</i>	<ul style="list-style-type: none"> • Voice Information Processing System (VIPS), communicating to Unisys enterprise server 	<ul style="list-style-type: none"> • IVR Connection • Cisco On Premise Solution 	<ul style="list-style-type: none"> •
Desktop Printers	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
LAN	Use is discouraged; those used are Lexmark (predominantly), Xerox and HP	Reduce dependence on individual desktop printers	** No desktop printers
Network Printers (High Speed)	All brands and models as required.	<ul style="list-style-type: none"> • Existing HP, Lexmark and Xerox • Existing Imagistics • Existing MFD's • Xerox, Cannon & HP Scanners 	<ul style="list-style-type: none"> • ** Printers, Copiers and MFD's must be purchased and/or leased from vendors listed on the DGS contract: • Kyocera, Toshiba, IKON
Desktop Scanners		<ul style="list-style-type: none"> • Network connected (HP, Lexmark and Xerox) – Located at various locations within DHS 	<ul style="list-style-type: none"> • ** HP, Lexmark and Xerox
	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Xerox 262i Scanners 	<ul style="list-style-type: none"> •
		<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

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Exemptions from this Standard:

Any deviations from the DHS IT Environment must be approved by the DHS Architecture Review Board (ARB) prior to beginning the planning phase of a project.

Refresh Schedule:

All standards and referenced documentation identified in this standard will be subject to review and possible revision annually or upon request by the DHS Information Technology Standards Team.

Standard Revision Log:

Change Date	Version	Change Description	Author and Organization
04/01/2002	1.0	Initial Creation	Beverly Shultz
12/19/2003	1.1	Updated document	Standards section
09/01/2006	1.2	Updated document	SLM Section
10/24/2006	2.0	Updated document	SLM Section
09/08/2008	2.1	Updated content & reformatted	Standards Team Lead
04/13/2010	2.2	Updated content	Standards Team Lead
08/23/2010	2.3	Updated Content	Standards Team Lead
09/30/2010	2.4	Updated Content	Rich Sage
10/12/2010	2.5	Updated Content	Rich Sage
01/31/2011	2.6	Updated Content	Domain Leads
04/20/2012	2.7	Updated Content & cosmetic changes to appearance	Domain Leads/Rich Gill
08/21/2013	2.8	Updated content, and cosmetic changes to appearance	Domain Leads/Rich Gill
02/23/2015	2.9	Updated content, and cosmetic changes to appearance	Domain Leads/Rich Gill/Rich Davis
05/03/2016	3.0	Updated content, and cosmetic changes to appearance	Domain Leads William Torres
