

# The Technical Architecture at NETL

The FEA-PMO breaks the architecture building blocks down from a Service Area to a Service Category, to a Service Standard, and then to a Service Specification. Each technology specification lies at the lowest level and can be a technology, standard, or method. Designations for the technology specifications include a state to classify each specification relative to its usefulness at NETL. The Product Lifecycle Management (PLM) Process shows the application being most productive in the growth and maturity stage, where assessments including architecture and economic components are considered. Understanding the technical architecture of an application allows the application to grow and maintain a solid foundation to support the business needs.

## Technology Specification States

A technology specification in the application architecture will be on one of the three primary states (Target, Retire, and Obsolete). There are a few supporting states (Initial, TBD, and Unsupported). The state describes the use of the technology specification at NETL, but does not determine the timeframe in which it will become obsolete from a vendor support perspective. The states are below.

<b>Classification</b>	<b>Description</b>
Target	Technology is a target and should be used whenever appropriate. Certain conditions may be applicable. For example, the technology specification may be used for larger applications or when another technology is used. Every target item is not required for every project; it should not be used if it is not needed.
Retire	The technology is currently in use but will be migrated to a newer, more efficient technology. The technology will remain in this classification until the technology has been migrated to the target replacement at which point it will become obsolete.
Obsolete	Obsolete technologies are not in place at NETL and will be considered out-of-date when building or maintaining systems.
<i>TBD (To Be Determined)</i>	If this technology is required, research is required in order to find the appropriate product. This may include items that it is known that a research study is required, where newer technologies may be being watched to ensure their maturity, or where we are not using at this time but may in the future.. Periodic evaluations will determine if maturity and usefulness have changed.
<i>Unsupported</i>	A conscious decision was made to not include the technology into the Target Architecture. The technology may or may not be obsolete in this scenario, however, NETL has chosen not to use or support this technology.

Once initially in the queue for consideration, research may be required in the TBD state where it will be determined if the technology specification is part of the target or not supported. If it is unsupported, the technology specification will not be considered going forward. If it moves to the Target, it will eventually move to the retire state when deemed necessary during periodic evaluations described later in this document. Once the target is removed from use at NETL, it will become obsolete. A state transition diagram showing the states paths is below. Each technology in the Architecture must follow these transitions.

# Complete Technical Architecture

Area	Category	Standard	Technology	Description	State	Vendor	Website
1 Service Access and Delivery				Refers to the collection of standards and specifications to support external access, exchange, and delivery of Service Components or capabilities. This area also includes the Legislative and Regulatory requirements governing the access and usage of the specific Service Component.			
1.1 Access Channels				Access Channels define the interface between an application and its users, whether it is a browser, personal digital assistant or other medium.			
1.1.1 Web Browser				Define the program that serves as your front end to the World Wide Web on the Internet. In order to view a site, you type its address (URL) into the browser's location field.			
	Firefox (Mozilla)			<p>Mozilla Firefox is a free, cross-platform, graphical web browser with a corresponding email client (Thunderbird). Firefox includes an integrated pop-up blocker, tabbed browsing, live bookmarks, support for open standards, and an extension mechanism for adding functionality. Although other browsers have introduced these features, Firefox became the first such browser to achieve wide adoption.</p> <p>Although, we may want to investigate the compatibility of Mozilla Firefox with .NET due to its growing popularity and better (or perceived better) security.</p> <p>Currently, this product is not as mature as our target. It should be researched and modified appropriately. 5/1/06: Changed to unsupported from TBD by IT Architecture Board.</p>	Unsupported	Mozilla	<a href="http://en.wikipedia.org/wiki/Firefox">http://en.wikipedia.org/wiki/Firefox</a>
	Internet Explorer - 6.x			Microsoft Internet Explorer (MSIE) is the most widely used World Wide Web browser.	Retire	Microsoft	<a href="http://www.microsoft.com/windows/ie/default.msp">http://www.microsoft.com/windows/ie/default.msp</a>
	Internet Explorer - 7.x			<p>Microsoft Release the version of the Internet Explorer Browser, version 7.0, on 10 October 2007. NETL currently supports version 6.0 which, at the current patch level, has been proven to be secure and provides the key features required for NETL users to access the Internet, Intranet and web-based applications.</p> <p>Internet Explorer (IE) Version 7 adds some new features, most notably tabbed browser windows. IE v7 is also now part of Microsoft's standard Windows configuration and is automatically installed if a user utilizes Microsoft's automatic upgrade mechanism.</p>	Target	Microsoft	<a href="http://www.microsoft.com/windows/ie/default.msp">http://www.microsoft.com/windows/ie/default.msp</a>
	Netscape Communicator			<p>Netscape Communicator was a proprietary Internet suite produced by Netscape Communications Corporation. Initially released in June 1997, Netscape Communicator 4.0 was the successor to Netscape Navigator 3.x and included more groupware features intended to appeal to enterprises. Netscape was purchased by AOL Time Warner (AOL-TW) in 1998. AOL-TW has announced that it will no longer support the development of the Netscape browser as of 1 February 2008.</p> <p>NETL has made a decision not to support this technology.</p>	Unsupported	AOL (Time-Warner)	<a href="http://blog.netscape.com/2007/12/28/end-of-support-for-netscape-web-browsers/">http://blog.netscape.com/2007/12/28/end-of-support-for-netscape-web-browsers/</a>

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		1.1.2	Wireless / PDA	Define the technologies that use transmission via the airwaves. Personal Digital Assistant (PDA) is a handheld computer that serves as an organizer for personal information. It generally includes, at a minimum, a name and address database, to-do list and note taker.			
			Blackberry	The BlackBerry is a wireless handheld device introduced in 1999 which supports push e-mail, mobile telephone, text messaging, internet faxing, web browsing and other wireless information services. Developed by the Canadian company Research In Motion (RIM), it delivers information over the wireless data networks of mobile phone service companies. BlackBerry first made headway in the marketplace by concentrating on e-mail.  5/1/06: Changed from "TBD" to "Target" by IT Architecture Board.	Target	Research In Motion (RIM)	<a href="http://en.wikipedia.org/wiki/BlackBerry">http://en.wikipedia.org/wiki/BlackBerry</a>
			Palm Operating System	Palm OS (also known as Garnet OS) is an embedded operating system initially developed by U.S. Robotics' owned Palm Computing, Inc. for personal digital assistants (PDAs) in 1996. Palm OS is designed for ease of use with a touchscreen-based graphical user interface. It is provided with a suite of basic applications for personal information management. Besides Palm, several other licensees have manufactured devices powered by Palm OS. The currently licensed version from ACCESS is now called Garnet OS, as the Palm trademark belongs to Palm, Inc.  5/1/06: Changed to Retire from Unsupported by IT Architecture Board. Working towards retirement is the goal. NETL has made a decision not to support this Technology.	Retire	Various	<a href="http://www.palmos.com/dev/">http://www.palmos.com/dev/</a>
			Pocket PC - Phone Edition	A Pocket PC, abbreviated P/PC or PPC, is a hardware specification for a handheld-sized computer (Personal digital assistant) that runs the Windows Mobile operating system. It may have the capability to run an alternative operating system like NetBSD or Linux. It has many of the capabilities of modern desktop PCs.  Currently there are thousands of applications for handhelds adhering to the Microsoft Pocket PC specification, many of which are freeware. Some of these devices also include mobile phone features.  NETL has made a decision not to support this Technology.	Unsupported	Microsoft	<a href="http://en.wikipedia.org/wiki/Pocket_PC">http://en.wikipedia.org/wiki/Pocket_PC</a>
			Pocket PC 2005	Microsoft's environment for PDA level devices.  We currently do not develop applications for wireless / PDAs, but this technology is in use at NETL.	Target	Microsoft	<a href="http://www.microsoft.com/mobile/pocketpc/learnmore.asp">http://www.microsoft.com/mobile/pocketpc/learnmore.asp</a>
			Symbian Epoc	A leading environment for web capable cellular phones.  NETL has made a decision not to support this Technology.	Unsupported		<a href="http://www.symbian.com/developer/index.html">http://www.symbian.com/developer/index.html</a>

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		1.1.3 Collaboration / Communications		Define the forms of electronic exchange of messages, documents, or other information. Electronic communication provides efficiency through expedited time of delivery.			
			Click-to-Meet	<p>Click-to-Meet is a scalable solution for delivering enterprise-wide voice, video, and data collaboration. A unified solution for conducting online team meetings, training, and one-to-one sessions, this client-server software platform links all your desktops and is as easy to use as a standard Web browser.</p> <p>5/1/2006: Added by IT Architecture Board. WebEx is preferred for use at NETL over Click to Meet.</p>	Retire	RADVISION Ltd.	<a href="http://www.radvision.com/Products/Desktop/CTMPlatform/?source=adwords?adcopy=Cebuusamarch2007Gctm888software71113&amp;gclid=CLuMuo_a2JECFQgRGgod3QwpbA">http://www.radvision.com/Products/Desktop/CTMPlatform/?source=adwords?adcopy=Cebuusamarch2007Gctm888software71113&amp;gclid=CLuMuo_a2JECFQgRGgod3QwpbA</a>
			Electronic Mail (E-mail): Microsoft Exchange/Outlook	<p>Microsoft Exchange Server is a messaging and collaborative software product developed by Microsoft. It is part of the Microsoft Servers line of server products and is widely used by enterprises using Microsoft infrastructure solutions. Exchange's major features consist of electronic mail, calendaring, contacts and tasks, and support for the mobile and web-based access to information, as well as supporting data storage.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Microsoft_Exchange_Server">http://en.wikipedia.org/wiki/Microsoft_Exchange_Server</a>
			Facsimile (Fax): Microsoft Exchange/Outlook fax solution	<p>Fax (short for facsimile, from Latin fac simile, "make similar", i.e. "make a copy") is a telecommunications technology used to transfer copies (facsimiles) of documents, especially using affordable devices operating over the telephone network. The word telefax, short for telefacsimile, for "make a copy at a distance", is also used as a synonym. The device is also known as a telecopier in certain industries. When sending documents to people at large distances, faxes have a distinct advantage over postal mail in that the delivery is nearly instantaneous, yet its disadvantages in quality and its proprietary format have relegated it to a position beneath email as the prevailing form of electronic document transferral.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Facsimile">http://en.wikipedia.org/wiki/Facsimile</a>
			Fax Server	<p>A fax server is a set of software running on a server computer which is equipped with one or more fax-capable modems attached to telephone lines (or, more recently, software modem emulators which use T.38 ("Fax over IP") technology to transmit the signal over an IP network). Its function is to accept documents from users, convert them into faxes, and transmit them, as well as to receive fax calls and either store the incoming documents or pass them on to users. Users may communicate with the server in several ways, through either a local network or the Internet. In a big organisation with heavy fax traffic, the computer hosting the fax server may be dedicated to that function, in which case the computer itself may also be known as a fax server.</p> <p>5/1/2006: Added by IT Architecture Board.</p>	Target	N/A (various)	<a href="http://en.wikipedia.org/wiki/Fax_server">http://en.wikipedia.org/wiki/Fax_server</a>
			Groupwise 6.5.3	<p>GroupWise is a cross-platform collaborative software product from Novell, Inc. offering e-mail, calendaring, instant messaging and document management.</p> <p>5/1/06: Changed to "Retire" by IT Architecture Board.</p>	Retire	Novell	<a href="http://en.wikipedia.org/wiki/GroupWise">http://en.wikipedia.org/wiki/GroupWise</a>

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			Instant Messaging: ICQ	<p>ICQ is an instant messaging computer program, owned by Time Warner's AOL subsidiary. ICQ was first developed by the Israeli company Mirabilis. The first version of the program was released in November 1996 and it was one of the first Internet wide instant messaging services. The name ICQ is an initialism on the phrase "I seek you".</p> <p>5/1/2006: Added by IT Architecture Board.</p>	Unsupported	AOL / Time Warner	<a href="http://en.wikipedia.org/wiki/ICQ">http://en.wikipedia.org/wiki/ICQ</a>
			Kiosk	<p>In information technology, a kiosk (pronounced KEE-ahsk) is a small physical structure (often including a computer and a display screen) that displays information for people walking by. Kiosks are also used at trade shows and professional conferences.</p> <p>More sophisticated kiosks let users interact and include touch screens, sound, and motion video. A number of companies specialize in creating multimedia kiosks. A simple kiosk can be created using HTML pages and graphics, setting the typesize large enough to attract people from a short distance, and removing the Web browser's tool bar so that the display screen is effectively in "kiosk mode." The presentation can be designed to simply loop through a series of pages or to allow user interaction and exploration. Having a separate printed sign that invites people to your home-made kiosk may help.</p>	TBD	N/A (concept)	<a href="http://whatis.techtarget.com/definition/0,,sid9_gci212445,00.html">http://whatis.techtarget.com/definition/0,,sid9_gci212445,00.html</a>
			Lotus Notes	<p>Lotus Notes is a client-server, collaborative application owned by IBM Software Group. IBM defines the software as an "integrated desktop client option for accessing business e-mail, calendars and applications on [an] IBM Lotus Domino server."</p> <p>5/1/06: Changed to Retire by IT Architecture Board.</p>	Retire	IBM Corporation	<a href="http://en.wikipedia.org/wiki/Lotus_Notes">http://en.wikipedia.org/wiki/Lotus_Notes</a>
			NetMeeting (Microsoft)	<p>Microsoft NetMeeting is a VoIP and multi-point videoconferencing client included in many versions of Microsoft Windows (from Windows 95 OSR2 to Windows XP). It uses the H.323 protocol for video and audio conferencing, and is interoperable with OpenH323-based clients such as Ekiga, and Internet Locator Service (ILS) as reflector. It also uses a slightly modified version of the ITU T.120 Protocol for whiteboarding, application sharing, desktop sharing, remote desktop sharing (RDS) and file transfers. The secondary Whiteboard in NetMeeting 2.1 and later utilizes the H.324 protocol.</p> <p>5/1/2006: Added by IT Architecture Board.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/NetMeeting">http://en.wikipedia.org/wiki/NetMeeting</a>
			WebEx Service	<p>provides on-demand collaboration, online meeting, web conferencing and video conferencing applications. Its products include "Meeting Center", "Training Center", "Event Center", "Support Center", "Sales Center" "MeetMeNow", "PCNow", "WebEx AIM Pro Business Edition" "WebEx WebOffice" and others. According to analyst firm IDC, WebEx is an on-demand market leader.</p> <p>5/1/2006: Added by IT Architecture Board.</p>	Target	WebEx Communications (Cisco subsidiary)	<a href="http://www.webex.com/enterprise/index.html">http://www.webex.com/enterprise/index.html</a>

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			Windows Sharepoint Services (WSS)	Windows SharePoint Services (WSS) or Windows SharePoint is the basic part of SharePoint, offering collaboration and document management functionality by means of web portals, by providing a centralized repository for shared documents, as well as browser-based management and administration of them. It allows creation of Document libraries, which are collections of files that can be shared for collaborative editing. SharePoint provides access control and revision control for documents in a library.  5/1/2006: Added by IT Architecture Board.	Target	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_SharePoint_Services">http://en.wikipedia.org/wiki/Windows_SharePoint_Services</a>
		1.1.4	Other Electronic Channels	Define the other various mediums of information exchange and interface between a user and an application.			
			Public Networks	Public Network access channels are those communication mediums that provide data transmission services to the public. For Target Architecture purposes, This was added to capture the non-application types of service access available at the lab. Examples are Cable Services, Satellite, Wireless.  5/15/2006: Added by IT Architecture Board. This item was reclassified by M. Wodzinski after reading the FEA CRM carefully.	Target	N/A	<a href="http://en.wikipedia.org/wiki/Computer_network">http://en.wikipedia.org/wiki/Computer_network</a>
			System-To-System	System to System involves at least two computers that exchange data or interact with each other independent of human intervention or participation.  Example: WebServices, XML	Target	N/A (Generic Concept)	
			Uniform Resource Locator (URL)	URL is the global address of documents and other resources on the World Wide Web. The first part of the address indicates what protocol to use (i.e. "http://"), and the second part specifies the IP address or the domain name where the resource is located (i.e. "www.firstgov.gov").	Target	None (W3C Industry Standard)	<a href="http://en.wikipedia.org/wiki/URL">http://en.wikipedia.org/wiki/URL</a>
			Web Service (WS)	Web services (sometimes called application services) are services (usually including some combination of programming and data, but possibly including human resources as well) that are made available from a business's web server for Web users or other Web-connected programs.  Web Services will aid in the development of SOA (Service Oriented Architecture).	Target	None (W3C - Industry Standard)	<a href="http://en.wikipedia.org/wiki/Web_service">http://en.wikipedia.org/wiki/Web_service</a>

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<b>1.2 Delivery Channels</b>				Delivery Channels define the level of access to applications and systems based upon the type of network used to deliver them.			
1.2.1 Internet				The Internet is a worldwide system of computer networks in which users at any one computer can, if they have permission, get information from any other computer.			
	Citrix MetaFrame			Citrix MetaFrame Server is a remote access/application publishing product that allows people to connect to applications available from central servers. One advantage of publishing applications using Presentation Server is that it lets people connect to these applications remotely, from their homes, airport Internet kiosks, smart phones, and other devices outside of their corporate networks. From an end-user perspective, users can log in to their corporate network from, for example, an airport kiosk, see all of the applications they would see everyday at work, including Outlook email and any internal applications, and access them from the kiosk in a secure environment. To the user, the application would appear as if it was installed and running on their computer (seamless desktop integration), whereas in reality, the application is running on the Citrix Presentation Server, usually hosted in their corporate environment.	Target	Citrix Systems, Inc.	<a href="http://en.wikipedia.org/wiki/Metaframe">http://en.wikipedia.org/wiki/Metaframe</a>
	Internet			The Internet is a worldwide, publicly accessible series of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP). It is a "network of networks" that consists of millions of smaller domestic, academic, business, and government networks, which together carry various information and services, such as electronic mail, online chat, file transfer, and the interlinked web pages and other resources of the World Wide Web (WWW).	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Internet">http://en.wikipedia.org/wiki/Internet</a>
1.2.2 Intranet				An Intranet is a private network that is contained within an enterprise. It may consist of many interlinked local area networks and is used to share company information and resources among employees.			
	NETL Intranet			NETL maintains an internal Intranet that allows users to read the NETL Bulletin Board, review internal documents from various NETL business units, access standard forms, search for NETL staff contact information, and access various other internal documents.	Target		<a href="http://intranet/">http://intranet/</a>
1.2.3 Extranet				An Extranet is a private network that uses the Internet protocol and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company.			
	SharePoint Portal 2003			NETL has deployed multiple Portals that provide a means of collaboration between the NETL centers and external R&D organizations. As of 8/9/2007, ~20+ sites support the various NETL groups including: CHRIS Team Web Site, OSAP, PMC - Eastern States Partnership, PMC - TVMI, Carbon Sequestration Partnership (CCS), Solid State Lighting Team Site, North American Carbon Sequestration Atlas, Appliance Standards, Stochastic Energy Deployment Systems Model, SynFuels History, etc.	TargetNew	Microsoft	

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		1.2.4	Peer-to-Peer (P2P)	Peer to Peer is a class of applications that operate outside the DNS system, have significant or total autonomy from central servers, and take advantage of resources available on the Internet.			
			Peer to Peer (P2P)	A peer-to-peer (or "P2P", or, rarely, "PtP") computer network uses diverse connectivity between participants in a network and the cumulative bandwidth of network participants rather than conventional centralized resources where a relatively low number of servers provide the core value to a service or application. Peer-to-peer networks are typically used for connecting nodes via largely ad hoc connections. Such networks are useful for many purposes. Sharing content files (see file sharing) containing audio, video, data or anything in digital format is very common, and realtime data, such as telephony traffic, is also passed using P2P technology.  NETL has made a decision not to support this Technology. 5/15/06 IT Architecture Board Meeting: This technology may exist currently but we do not support it.	Unsupported	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Peer-to-peer">http://en.wikipedia.org/wiki/Peer-to-peer</a>
		1.2.5	Virtual Private Network (VPN)	A private data network that makes use of the public telecommunication infrastructure, maintaining privacy through the use of a tunneling protocol and security procedures.			
			Virtual Private Network (VPN) with Secure Key Access	A Private Data Network that makes use of the public telecommunication infrastructure, maintaining privacy through the use of a tunneling protocol and security procedures.  VPN with secure key access is for developers/infrastructure support as often must control the box.  Research suggestion: ITES Technical staff and typical end-user may require two different methods of access, therefore two different procedures.	Target	None (Industry Standard)	<a href="http://en.wikipedia.org/wiki/Virtual_private_network">http://en.wikipedia.org/wiki/Virtual_private_network</a>
<b>1.3 Service Requirements</b>				Service Requirements define the necessary aspects of an application, system or service to include legislative, performance, and hosting.			
		1.3.1	Legislative / Compliance	Defines the prerequisites that an application, system or service must have mandated by congress or governing bodies.			
			Privacy: Liberty Alliance	The Liberty Alliance was formed in 2001 by approximately 30 organizations to establish open standards, guidelines and best practices for federated identity management. The Liberty Alliance met this goal with the release of Liberty Federation in 2002, the industry standard for successfully addressing the many authentication, privacy and security challenges surrounding online identity management. Deployed by organizations around the world, Liberty Federation allows consumers and users of Internet-based services and e-commerce applications to authenticate and sign-on to a network or domain once from any device and then visit or take part in services from multiple Web sites. This federated approach does not require the user to reauthenticate and can support privacy controls established by the user. The market requirements documents and case studies of deploying organizations, as well as presentations of deployments are available. The Liberty Alliance contributed its federation specifications, ID-FF, to OASIS, forming the foundation for SAML 2.0, the converged federation specification that Liberty now recognizes.	TBD	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/Liberty_Alliance">http://en.wikipedia.org/wiki/Liberty_Alliance</a>

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		Privacy: Platform for Privacy Preferences (P3P)		<p>A specification that will allow a users' Web browser to automatically understand Web sites' privacy practices. Privacy policies will be embedded in the code of a Web site. Browsers will read the policy, and then, automatically provide certain information to specific sites based on the preferences set by the users. For instance, if the site is an e-commerce site, the browser will automatically provide shipping info. If the site is requesting demographic info, then the browser will know to provide it anonymously. The P3P specification was developed by the W3C P3P Syntax, Harmonization, and Protocol Working Groups, including W3C Member organizations and experts in the field of Web privacy. P3P is based on W3C specifications that have already been established, including HTTP, XML and Resource Description Framework (RDF).</p> <p>5/15/2006: IT Architecture Board changed from "TBD" to "Target". NETL is currently P3P Compliant. From an application perspective, further investigation is required. It is assumed that this is restricted to Federal Web sites rather than an application. In the future, this will have to be reviewed from an application perspective.</p>	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/P3P">http://en.wikipedia.org/wiki/P3P</a>
		Section 508: Developers Document		<p>In 1998 the US Congress amended the Rehabilitation Act to require Federal agencies to make their electronic and information technology accessible to people with disabilities. Inaccessible technology interferes with an individual's ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. 794d), agencies must give disabled employees and members of the public access to information that is comparable to the access available to others.</p>	Target	U.S. Government (Congress)	<a href="http://en.wikipedia.org/wiki/Section_508">http://en.wikipedia.org/wiki/Section_508</a>
		Security (Cyber)		<p>A branch of computer science that addresses enforcement of 'secure' behavior on the operation of computers. The definition of 'secure' varies by application, and is typically defined implicitly or explicitly by a security policy that addresses confidentiality, integrity and availability of electronic information that is processed by or stored on computer systems.</p> <p>The traditional approach is to create a trusted security kernel that exploits special-purpose hardware mechanisms in the microprocessor to constrain the operating system and the application programs to conform to the security policy. These systems can isolate processes and data to specifier domains and restrict access and privileges of users. This approach avoids trusting most of the operating system and applications.</p> <p>5/15/2006: IT Architecture Board placed in the parking lot.</p>	TBD	N/A (general concept)	<a href="http://en.wikipedia.org/wiki/Computer_security">http://en.wikipedia.org/wiki/Computer_security</a>

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			Web Content Accessibility	Refers to hardware and software that helps people who are physically or visually impaired.  This obviously depends on the need of the person. It is our target to accommodate, but depending on the needs, technology will likely have to be researched to find the best possible solution.	Target		
<b>1.3.2 Authentication / Single Sign-on (SSO)</b> Refers a method that provides users with the ability to login one time, getting authenticated access to all their applications and resources.							
			Active Directory	Microsoft's Active Directory, which is an essential component of the Windows 200X architecture, presents organizations with a directory service designed for distributed computing environments. Active Directory allows organizations to centrally manage and share information on network resources and users while acting as the central authority for network security. In addition to providing comprehensive directory services to a Windows environment, Active Directory is designed to be a consolidation point for isolating, migrating, centrally managing, and reducing the number of directories that companies require.  Must investigate tie to HSPD-12 Security Requirements. 5/15/2006: IT Architecture Board recommended	Target	Microsoft	<a href="http://www.microsoft.com/Windows2000/technologies/directory/ad/default.mspx">http://www.microsoft.com/Windows2000/technologies/directory/ad/default.mspx</a>
			Authentication (Generic)	Authentication is the act of establishing or confirming something (or someone) as authentic, that is, that claims made by or about the thing are true. For modern IT, this typically involves the use of a directory service to verify whether a username and password is valid to gain access to an application or service. Authentication technology is a key access control technology to manage cyber security.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Authentication">http://en.wikipedia.org/wiki/Authentication</a>
			Web Admin	NETL-built application to manage users and passwords. One userid/password is used for all applications using the web admin tool. WebAdmin refers to the administration application used by support personnel. It does not refer to the technology used by application for authentication.	Target	Custom Software (ITES)	
			eDirectory (Novell)	A directory service that provides authentication and authorization functions. Novell eDirectory (formerly called Novell Directory Services, NDS) is an X.500 compatible directory service software product released in 1993 by Novell, Inc. for centrally managing access to resources on multiple servers and computers within a given network.	Target	Novell	<a href="http://en.wikipedia.org/wiki/EDirectory">http://en.wikipedia.org/wiki/EDirectory</a>

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		1.3.3	Hosting	Refers to the service provider who manages and provides availability to a web site or application, often bound to a Service Level Agreement (SLA). The Hosting entity generally maintains a server farm with network support, power backup, fault tolerance, load balancing, and storage backup.			
	Hosting: External (ISP/ASP/FirstGov)			The outsourcing of a web site or application with a managed service provider. An Internet Service Provider (ISP) provides telecommunications circuits, server co-location, and web site and application hosting. An Application Service Provider (ASP) offers software-based services for high-end business applications and specific-needs applications such as payroll, sales force automation, and human resources. USA.gov (formerly FirstGov) is the official managed service provider for the Federal Government.  We are prepared to host from other agencies. We will not outsource our information to other ISPs. We only accept applications from DOE.	Target	N/A (various)	<a href="http://www.usa.gov">www.usa.gov</a> , <a href="http://wikipedia.org/wiki/ISP">wikipedia.org/wiki/ISP</a> , <a href="http://wikipedia.org/wiki/ASP">wikipedia.org/wiki/ASP</a>
	Hosting: Web Hosting Service			A web hosting service is a type of Internet hosting service that allows individuals and organizations to provide their own websites accessible via the World Wide Web. Web hosts are companies that provide space on a server they own for use by their clients as well as providing Internet connectivity, typically in a data center. Webhosts can also provide data center space and connectivity to the Internet for servers they do not own to be located in their data center, called colocation.	Target	N/A (various)	<a href="http://en.wikipedia.org/wiki/Web_hosting_service">http://en.wikipedia.org/wiki/Web_hosting_service</a>
<b>1.4 Service Transport</b>				Service Transport defines the end to end management of the communications session to include the access and delivery protocols.			
		1.4.1	Supporting Network Services	These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.			
	DHCP (Dynamic Host Configuration Protocol)			Dynamic Host Configuration Protocol (DHCP) is a protocol used by networked devices (clients) to obtain various parameters necessary for the clients to operate in an Internet Protocol (IP) network. By using this protocol, system administration workload greatly decreases, and devices can be added to the network with minimal or no manual configurations.  Discussion of whether DHCP can handle the accountability issues. Want assigned IP addresses / central management. Servers are static right now.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/DHCP">http://en.wikipedia.org/wiki/DHCP</a>
	DHS (Domain Name System)			A protocol used for translating domain names (i.e. <a href="http://www.feapmo.gov">www.feapmo.gov</a> ) to their respective IP addresses. DNS is collectively a network of devices which store query results. As one DNS server or device cannot provide the translated IP address, it queries other DNS devices. This process is invisible to the user.	Target	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/Domain_name_system">http://en.wikipedia.org/wiki/Domain_name_system</a>
	Directory Services (X.500)			A directory service (DS) is a software application — or a set of applications — that stores and organizes information about a computer network's users and network resources, and that allows network administrators to manage users' access to the resources. Additionally, directory services act as an abstraction layer between users and shared resources.	TBD	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Directory_services">http://en.wikipedia.org/wiki/Directory_services</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		ESMTP (Extended Simple Mail Transfer Protocol)		Extended SMTP (ESMTP), sometimes referred to as Enhanced SMTP, is a definition of protocol extensions to the Simple Mail Transfer Protocol standard. The extension format was defined in RFC 1869 in 1995.  RFC 1869 established a structure for all existing and future extensions, to produce a consistent and manageable means by which ESMTP clients and servers can be identified and ESMTP servers can indicate supported extensions to connected clients.	Target	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/ESMTP">http://en.wikipedia.org/wiki/ESMTP</a>
		H.323 Protocol		H.323 is an umbrella recommendation from the ITU Telecommunication Standardization Sector (ITU-T) that defines the protocols to provide audio-visual communication sessions on any packet network. It is widely implemented by voice and videoconferencing equipment manufacturers, is used within various Internet real-time applications and is widely deployed worldwide by service providers and enterprises for both voice and video services over Internet Protocol (IP) networks.	Target	ITU Telecommunication Standardization Sector (ITU)	<a href="http://en.wikipedia.org/wiki/H.323">http://en.wikipedia.org/wiki/H.323</a>
		IMAP / POP3 (Internet Message Access Protocol / Post Office Protocol)		IMAP4rev1 allows a client to access and manipulate electronic mail messages on a server. IMAP4rev1 permits manipulation of remote message folders, called "mailboxes", in a way that is functionally equivalent to local mailboxes. IMAP4rev1 also provides the capability for an offline client to resynchronize with the server. POP3 is the most commonly used protocol for retrieving e-mail from a mail host.	Target	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/IMAP">http://en.wikipedia.org/wiki/IMAP</a>
		Lightweight Directory Access Protocol (LDAP)		Lightweight Directory Access Protocol (LDAP) is a subset of X.500 designed to run directly over the TCP/IP stack. LDAP is, like X.500, both an information model and a protocol for querying and manipulating it. LDAPv3 is an update developed in the IETF (Internet Engineering Task Force), which address the limitations found during deployment of the previous version of LDAP.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/LDAP">http://en.wikipedia.org/wiki/LDAP</a>
		Multipurpose Internet Mail Extensions (MIME)		MIME extends the format of Internet mail to allow non-US-American Standard Code for Information Interchange (ASCII) textual messages, non-textual messages, multi-part message bodies, and non-US-ASCII information in message headers. MIME support allows compliant email clients and servers to accurately communicate embedded information to internal and external users.	Target	N/A (industry standard)	<a href="http://www.mhonarc.org/~ehood/MIME/2045/rfc2045.html">http://www.mhonarc.org/~ehood/MIME/2045/rfc2045.html</a>
		Simple Mail Transfer Protocol (SMTP)		SMTP facilitates transfer of electronic-mail messages. It specifies how two systems are to interact, and the messages format used to control the transfer of electronic mail.	Target	N/A (Industry Standard)	<a href="http://rfc.net/rfc821.html">http://rfc.net/rfc821.html</a>
		Simple Network Management Protocol (SNMP) All < V3		SNMP Eliminates several of the security vulnerabilities in earlier version.  5/15/2006: IT Architecture Board added old versions and marked as retire.	Retire	N/A (Industry Standard)	<a href="http://www.ietf.org/rfc/rfc2570.txt?number=2570">http://www.ietf.org/rfc/rfc2570.txt?number=2570</a>
		Simple Network Management Protocol (SNMP) V3		SNMP Eliminates several of the security vulnerabilities in earlier version.  5/15/2006: IT Architecture Board added Version 3 and made this a target item.	Target	N/A (Industry Standard)	<a href="http://www.ietf.org/rfc/rfc2570.txt?number=2570">http://www.ietf.org/rfc/rfc2570.txt?number=2570</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		T.120 Protocol / Service		T.120 is an ITU-T recommendation that describes a series of communication and application protocols and services that provide support for real-time, multipoint data communications. It is used by products such as Cisco WebEx's MeetingCenter, Microsoft NetMeeting, Nortel CS 2100 and Lotus Sametime to support application sharing, real-time text conferencing and other functions.	TBD	N/A (Generic technology)	<a href="http://www.imtc.org/t120body.htm">http://www.imtc.org/t120body.htm</a>
	1.4.2 Service Transport			These consist of the protocols that define the format and structure of data and information that is either accessed from a directory or exchanged through communications.			
		FTP (File Transfer Protocol)		FTP or File Transfer Protocol is used to transfer data from one computer to another over the Internet, or through a network.  Specifically, FTP is a commonly used protocol for exchanging files over any TCP/IP based network to manipulate files on another computer on that network regardless of which operating systems are involved (if the computers permit FTP access). There are many existing FTP client and server programs. FTP servers can be set up anywhere between game servers, voice servers, internet hosts, and other physical servers.	Retire	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/FTP">http://en.wikipedia.org/wiki/FTP</a>
		HTTP (Hyper Text Transfer Protocol)		HTML, an initialism of HyperText Markup Language, is the predominant markup language for web pages. It provides a means to describe the structure of text-based information in a document — by denoting certain text as links, headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other objects. HTML is written in the form of tags, surrounded by angle brackets. HTML can also describe, to some degree, the appearance and semantics of a document, and can include embedded scripting language code which can affect the behavior of web browsers and other HTML processors.	Target	W3C (World Wide Web Consortium)	<a href="http://en.wikipedia.org/wiki/Http">http://en.wikipedia.org/wiki/Http</a>
		HTTPS (Hyper Text Transfer Protocol Secure)		The protocol for accessing a secure Web server. Using HTTPS in the URL instead of HTTP directs the message to a secure port number rather than the default Web port number of 80. The session is then managed by a security protocol.	Target	W3C (industry standard)	<a href="http://en.wikipedia.org/wiki/HTT">http://en.wikipedia.org/wiki/HTT</a> PS
		IPSEC (IP Security)		A set of protocols used to secure IP packet exchange. Tunnel and Transport are the two (2) modes supported by IPSEC. IPSEC uses certificates and Public Keys to authenticate and validate the sender and receiver.	Target	Internet Engineering Task Force (IETF)	<a href="http://en.wikipedia.org/wiki/IPS">http://en.wikipedia.org/wiki/IPS</a> EC
		IPv4 - Internet Protocol version 4		Internet Protocol version 4 (IPv4) is the fourth iteration of the Internet Protocol (IP) and it is the first version of the protocol to be widely deployed. IPv4 is the dominant network layer protocol on the Internet and apart from IPv6 it is the only standard internetwork-layer protocol used on the Internet.  7/7/06: Added per IT Architecture Board V4 as "Retire". Also added V6 as "Target".	Retire	Internet Engineering Task Force (IETF)	<a href="http://en.wikipedia.org/wiki/IPv4">http://en.wikipedia.org/wiki/IPv4</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			IPv6 - Internet Protocol version 6	This is the protocol of the Internet and has become the global standard for communications. IP accepts packets from TCP, adds its own header and delivers a "datagram" to the data link layer protocol. It may also break the packet into fragments to support the maximum transmission unit (MTU) of the network.  7/7/06: Added v6 per IT Architecture Board as "Target".	Target	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/IPv6">http://en.wikipedia.org/wiki/IPv6</a>
			Transmission Control Protocol (TCP)	TCP provides transport functions, which ensures that the total amount of bytes sent is received correctly at the destination.	Target	None (IETF - Industry Standard)	<a href="http://en.wikipedia.org/wiki/Transmission_Control_Protocol">http://en.wikipedia.org/wiki/Transmission_Control_Protocol</a>
			User Datagram Protocol (UDP)	7/7/06: Added UDP per IT Architecture Board. The User Datagram Protocol offers only a minimal transport service -- non-guaranteed datagram delivery -- and gives applications direct access to the datagram service of the IP layer. UDP is used by applications that do not require the level of service of TCP or that wish to use communications services (e.g., multicast or broadcast delivery) not available from TCP.  UDP is almost a null protocol; the only services it provides over IP are checksumming of data and multiplexing by port number. Therefore, an application program running over UDP must deal directly with end-to-end communication problems that a connection-oriented protocol would have handled -- e.g., retransmission for reliable delivery, packetization and reassembly, flow control, congestion avoidance, etc., when these are required. The fairly complex coupling between IP and TCP will be mirrored in the coupling between UDP and many applications using UDP.	Target		
			Wireless Application Protocol (WAP)	The Wireless Application Protocol (WAP) is an open, global specification that empowers users of digital mobile phones, pagers, personal digital assistants and other wireless devices to securely access and interact with Internet/intranet/extranet content, applications, and services.	TBD		<a href="http://www.wapforum.org/">http://www.wapforum.org/</a>

## 2 Service Platform and Infrastructure

Refers to the collection of delivery and support platforms, infrastructure capabilities and hardware requirements to support the construction, maintenance, and availability of a Service Component or capabilities.

### 2.1 Support Platforms

Support platforms are hardware or software architectures. The term originally dealt with only hardware, and it is still used to refer to a CPU model or computer family.

#### 2.1.1 Wireless / Mobile

Radio transmission via the airwaves. Various communications techniques are used to provide wireless transmission including infrared "line of sight," cellular, microwave, satellite, packet radio and spread spectrum.

Java 2 Platform, Micro Edition (J2ME)

The Java Platform-Micro Edition or Java ME (previously known as Java 2 Platform, Micro Edition or J2ME) is a specification of a subset of the Java platform aimed at providing a certified collection of Java APIs for the development of software for small, resource-constrained devices such as cell phones, PDAs and set-top boxes.

TBD

Sun Microsystems

<http://en.wikipedia.org/wiki/J2ME>

This technology is designated as "Retire" in the APM Database but there is some question as to whether it should be "TBD".

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Windows CE (Microsoft)	Windows CE (also known officially as Windows Embedded CE since version 6.0, and sometimes abbreviated WinCE) is a variation of Microsoft's Windows operating system for minimalistic computers and embedded systems. Windows CE is a distinctly different kernel, rather than a trimmed-down version of desktop Windows.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Windows_CE">http://en.wikipedia.org/wiki/Windows_CE</a>
		2.1.2	Platform Independent	Defines the operating systems and programming languages that are able to execute and run on any platform or operating system. A platform is the underlying hardware and software comprising a system.			
			Java 2 Platform Enterprise Edition (J2EE)	Java Platform, Enterprise Edition (J2EE) or Java EE is a widely used platform for server programming in the Java programming language. The Java EE Platform differs from the Standard Edition (SE) of Java in that it adds additional libraries which provide functionality to deploy fault-tolerant, distributed, multi-tier Java software, based largely on modular components running on an application server.  7/7/06: IT Architecture Board comments that may be used in COTS products but should not be used for in-house development.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/J2EE">http://en.wikipedia.org/wiki/J2EE</a>
			Linux (Red Hat Linux)	7/7/06: IT Architecture Board changed from TBD to Target. Original: Linux is an open source operating system that runs on multiple hardware platforms. With the ability to run on many platforms, including the PC and Macintosh, Linux has become an alternative to proprietary systems.  Not the standard; Although none of our primary development should be occurring on a Linux platform at this time, Linux can still be very useful in a supporting role since it offers some mature, generally free utilities that can aid development. A free software project called MONO has the ability to compile C# and general .NET applications natively to Linux and will continue to improve, allowing us to support Linux with a minimum of effort.	Target		<a href="http://www.linux.org/">http://www.linux.org/</a>
			Tomcat (Apache)	Apache Tomcat is the servlet container that is used in the official Reference Implementation for the Java Servlet and JavaServer Pages technologies. The Java Servlet and JavaServer Pages specifications are developed by Sun under the Java Community Process.  Apache Tomcat is developed in an open and participatory environment and released under the Apache Software License.  NOTE: NETL currently uses Tomcat for the Adobe LiveCycle. It is used only to run a production application and not intended to be used as a JAVA development platform.	Retire	Apache.org	<a href="http://tomcat.apache.org/">http://tomcat.apache.org/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		2.1.3	Platform Dependent	Defines the operating systems and programming languages that are able to execute and run on a specific platform or operating system. A platform is the underlying hardware and software comprising a system.			
			.NET Framework 1.1 (Microsoft)	<p>The Microsoft .NET Framework is a software component that is a part of Microsoft Windows operating systems. It has a large library of pre-coded solutions to common program requirements, and manages the execution of programs written specifically for the framework. The .NET Framework is a key Microsoft offering, and is intended to be used by most new applications created for the Windows platform.</p> <p>.NET Framework 1.1: This was the first major .NET Framework upgrade.</p> <p>7/7/06: IT Architecture board agreed to designate this technology as "Retire" to be replaced by .NET 2.0.</p>	Retire	Microsoft Corporation	<a href="http://www.microsoft.com/windows/ie/default.mspx">http://www.microsoft.com/windows/ie/default.mspx</a>
			.NET Framework 2.0 (Microsoft)	<p>The Microsoft .NET Framework is a software component that is a part of Microsoft Windows operating systems. It has a large library of pre-coded solutions to common program requirements, and manages the execution of programs written specifically for the framework. The .NET Framework is a key Microsoft offering, and is intended to be used by most new applications created for the Windows platform.</p> <p>.NET Framework 2.0: Released with Visual Studio .NET 2005 and Microsoft SQL Server 2005.</p> <p>7/7/06: IT Architecture board agreed to designate this technology as "Target".</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/.NET_Framework#.NET_Framework_2.0">http://en.wikipedia.org/wiki/.NET_Framework#.NET_Framework_2.0</a>
			Desktop OS: Windows NT 4.0 Workstation	<p>Windows NT is a family of operating systems produced by Microsoft, the first version of which was released in July 1993. It was originally designed to be a powerful high-level-language-based, processor-independent, multiprocessing, multiuser operating system with features comparable to Unix. It was intended to complement consumer versions of Windows that were based on MS-DOS. NT was the first fully 32-bit version of Windows.</p>	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_NT">http://en.wikipedia.org/wiki/Windows_NT</a>
			Mac OS X	<p>Mac OS X (pronounced Mac OS Ten) is a line of graphical operating systems developed, marketed, and sold by Apple Inc., the latest of which is pre-loaded on all currently shipping Macintosh computers. Mac OS X is the successor to the original Mac OS, which had been Apple's primary operating system since 1984. Unlike its predecessors, Mac OS X is a Unix-based operating system built on technology that had been developed at NeXT through the second half of the 1980s until Apple purchased the company in early 1997.</p> <p>NETL has made a decision not to support this Technology.</p>	Unsupported	Apple Inc.	<a href="http://en.wikipedia.org/wiki/Mac_OS_X">http://en.wikipedia.org/wiki/Mac_OS_X</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Solaris (Server OS)	<p>Solaris is a Unix-based operating system introduced by Sun Microsystems in 1992 as the successor to SunOS.</p> <p>Solaris is known for its scalability, especially on SPARC systems, as well for being the origin for many innovative features such as DTrace and ZFS. Solaris supports SPARC-based and x86-based workstations and servers from Sun and other vendors, with efforts underway to port to additional platforms.</p>	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/Solaris_(operating_system)">http://en.wikipedia.org/wiki/Solaris_(operating_system)</a>
				7/7/06: Added by IT Architecture Board as Target			
			Windows 2000 Professional	<p>Windows 2000 (also referred to as Win2K) is a preemptive, interruptible, graphical and business-oriented operating system designed to work with either uniprocessor or symmetric multi-processor computers. Windows 2000 is classified as a hybrid kernel operating system. The Windows 2000 Professional operating system is typically used for "client" computers.</p>	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Windows_2000">http://en.wikipedia.org/wiki/Windows_2000</a>
				7/7/06: Added by IT Architecture Board as "Retire"			
			Windows 2000 Professional (Server OS)	<p>Windows 2000 (also referred to as Win2K) is a preemptive, interruptible, graphical and business-oriented operating system designed to work with either uniprocessor or symmetric multi-processor computers. It is part of the Microsoft Windows NT line of operating systems and was released on February 17, 2000. It was succeeded by Windows XP in October 2001 and Windows Server 2003 in April 2003. Windows 2000 is classified as a hybrid kernel operating system.</p>	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_2000_Professional">http://en.wikipedia.org/wiki/Windows_2000_Professional</a>
			Windows 2000 Server Advanced (Server OS)	<p>Windows 2000 (also referred to as Win2K) is a preemptive, interruptible, graphical and business-oriented operating system designed to work with either uniprocessor or symmetric multi-processor computers. It is part of the Microsoft Windows NT line of operating systems and was released on February 17, 2000. It was succeeded by Windows XP in October 2001 and Windows Server 2003 in April 2003. Windows 2000 is classified as a hybrid kernel operating system.</p>	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_2000">http://en.wikipedia.org/wiki/Windows_2000</a>
			Windows 2000 Server Standard (Server OS)	<p>Windows 2000 (also referred to as Win2K) is a preemptive, interruptible, graphical and business-oriented operating system designed to work with either uniprocessor or symmetric multi-processor computers. It is part of the Microsoft Windows NT line of operating systems and was released on February 17, 2000. It was succeeded by Windows XP in October 2001 and Windows Server 2003 in April 2003. Windows 2000 is classified as a hybrid kernel operating system.</p>	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_2000">http://en.wikipedia.org/wiki/Windows_2000</a>
			Windows 2003 Server Edition (Server OS)	<p>Windows Server 2003 is a server operating system produced by Microsoft. Introduced on April 24, 2003 as the successor to Windows 2000 Server, it is considered by Microsoft to be the cornerstone of their Windows Server System line of business server products. An updated version, Windows Server 2003 R2 was released to manufacturing on 6 December 2005.</p> <p>According to Microsoft, Windows Server 2003 is more scalable and delivers better performance than its predecessor, Windows 2000.</p>	Target	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_2003">http://en.wikipedia.org/wiki/Windows_2003</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Windows NT 4.0 Server (Server OS)	<p>A family of operating systems produced by Microsoft, the first version of which was released in July 1993. It was originally designed to be a powerful high-level-language-based, processor-independent, multiprocessing, multiuser operating system with features comparable to Unix. It was intended to complement consumer versions of Windows that were based on MS-DOS. NT was the first fully 32-bit version of Windows.</p> <p>Windows NT 4.0 Server is no longer supported by Microsoft and has been replaced by Windows Server 2003.</p>	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Windows_NT">http://en.wikipedia.org/wiki/Windows_NT</a>
			Windows NT 4.0 Workstation	<p>Windows NT 4.0 is a preemptive, graphical and business-oriented operating system designed to work with either uniprocessor or symmetric multi-processor computers. It is a 32-bit Windows system available in both workstation and server editions with a graphical environment similar to that of Windows 95. Windows NT 4.0 is classified as a hybrid kernel operating system. This version of Microsoft Windows is typically used for "client" computers.</p> <p>7/7/06: Added by IT Architecture Board as "Retire"</p>	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Windows_NT_4.0">http://en.wikipedia.org/wiki/Windows_NT_4.0</a>
			Windows XP Professional (Client)	<p>Windows XP is a line of operating systems developed by Microsoft for use on general-purpose computer systems, including home and business desktops, notebook computers, and media centers. The name "XP" stands for eXPerience. Windows XP is the first consumer-oriented operating system produced by Microsoft to be built on the Windows NT kernel (version 5.1) and architecture.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Windows_XP">http://en.wikipedia.org/wiki/Windows_XP</a>
<b>2.2 Delivery Servers</b>				<p>Delivery Servers are front-end platforms that provide information to a requesting application. It includes the hardware, operating system, server software, and networking protocols.</p>			
			2.2.1 Web Servers	<p>A web server is a computer that provides World Wide Web services on the Internet. It includes the hardware, operating system, web server software, TCP/IP protocols and the web site content (web pages). If a web server is used internally and not by the public it may be known as an "intranet server."</p>			
			Apache HTTP Server	<p>The Apache HTTP Server, commonly referred to simply as Apache, is a web server notable for playing a key role in the initial growth of the World Wide Web. Apache was the first viable alternative to the Netscape Communications Corporation web server (currently known as Sun Java System Web Server), and has since evolved to rival other Unix-based web servers in terms of functionality and performance.</p> <p>7/7/06: IT Architecture Board changed from "Unsupported" to "Retire". Required as COTS products use. NETL has made a decision not to support this Technology.</p>	Retire	Apache.org	<a href="http://en.wikipedia.org/wiki/Apache_HTTP_Server">http://en.wikipedia.org/wiki/Apache_HTTP_Server</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			IIS (Internet Information Server) - v4.0	Microsoft Internet Information Services (IIS, formerly called Internet Information Server) is a set of Internet-based services for servers using Microsoft Windows. It is the world's second most popular web server in terms of overall websites, behind Apache HTTP Server.  IIS 4.0 was included in the Windows NT 4.0 operating system. This technology was replaced by IIS version 6.x.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Internet_Information_Services">http://en.wikipedia.org/wiki/Internet_Information_Services</a>
			IIS (Internet Information Server) - v6.0	Windows Internet Explorer (formerly Microsoft Internet Explorer abbreviated MSIE), commonly abbreviated to IE, is a series of graphical web browsers developed by Microsoft and included as part of the Microsoft Windows line of operating systems starting in 1995.  It has been the most widely used web browser since 1999, attaining a peak of about 95% usage share during 2002 and 2003 with IE6 and steadily declining since, despite the introduction of IE7.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Internet_Explorer">http://en.wikipedia.org/wiki/Internet_Explorer</a>
			<b>2.2.2 Media Servers</b> Provide optimized management of media based files such as audio and video streams and digital images.				
			RealAudio	RealAudio is a proprietary audio format developed by RealNetworks. It uses a variety of audio codecs, ranging from low-bitrate formats that can be used over dialup modems, to high-fidelity formats for music. It can also be used as a streaming audio format, that is played at the same time as it is downloaded. Many internet radio stations use RealAudio to stream their programming over the internet in real time.  NETL has made a decision not to support this technology.	Unsupported	RealNetworks	<a href="http://en.wikipedia.org/wiki/Real_Audio">http://en.wikipedia.org/wiki/Real_Audio</a>
			Windows Media Services	Part of Windows Server (2000 and .Net) optimized to deliver streaming media and dynamic digital content over intranet and internet delivery channels.	Target	Microsoft	<a href="http://www.microsoft.com/windowsserver2003/technologies/wimedia/default.aspx">http://www.microsoft.com/windowsserver2003/technologies/wimedia/default.aspx</a>
			<b>2.2.3 Application Servers</b> In a three tier environment, a separate computer (application server) performs the business logic, although some part may still be handled by the user's machine. After the web exploded in the mid 1990s, application servers became web-based.				
			Application Servers: IIS 6.0	An application server is a software engine that delivers applications to client computers or devices, typically through the Internet and using the HyperText Transfer Protocol. Application servers are distinguished from web servers by the extensive use of server-side dynamic content and frequent integration with database engines.  7/7/06: IT Architecture Board would like to add a reference of the dependency on .NET technology.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Application_Server">http://en.wikipedia.org/wiki/Application_Server</a>
			LiveCycle	Adobe LiveCycle Enterprise Suite software is an integrated J2EE server solution that blends electronic forms, process management, document security, and document generation to create and deliver applications.  LiveCycle is a web-based standard-alone forms processing application.	Target	Adobe	<a href="http://www.adobe.com/products/livecycle/">http://www.adobe.com/products/livecycle/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			WebLogic Application Server v8.1	The WebLogic Application Server utilizes a Java 2 Enterprise Edition (J2EE) architecture and provides a general platform for accessing and executing Java applications.	Retire	BEA Systems, Inc.	<a href="http://www.bea.com/framework.jsp?CNT=index.htm&amp;FP=/content/products/weblogic/server/">http://www.bea.com/framework.jsp?CNT=index.htm&amp;FP=/content/products/weblogic/server/</a>
			<b>2.2.4 Portal Servers</b>	Portals represent focus points for interaction, providing integration and single source corporate information.			
			Portal Servers	Portals represent focus points for interaction, providing integration and single-source corporate information.  A web portal is a site that functions as a point of access to information on the World Wide Web. Portals present information from diverse sources in a unified way. Aside from the search engine standard, web portals offer other services such as news, stock prices, infotainment and various other features. Portals provide a way for enterprises to provide a consistent look and feel with access control and procedures for multiple applications, which otherwise would have been different entities altogether.	TBD	N/A (various)	<a href="http://en.wikipedia.org/wiki/Web_portal">http://en.wikipedia.org/wiki/Web_portal</a>
			<b>2.3 Software Engineering</b>	Software engineering covers the technology associated with building software systems as well as technical solutions supporting management issues, such as testing, modeling and versioning. The TRM is concerned with component technical architecture, not engineering processes.			
			<b>2.3.1 Integrated Development Environment (IDE)</b>	This consists of the hardware, software and technology that facilitate the development of software applications and systems.			
			Adobe Creative Suite	Adobe Creative Suite is a collection of graphic design, video editing, and web development applications made by Adobe Systems. CS3 includes several programs, including Dreamweaver, Flash, and Fireworks that were developed by Macromedia, a former rival acquired by Adobe in 2005.	Target	Adobe (Macromedia)	<a href="http://en.wikipedia.org/wiki/Adobe_Creative_Suite">http://en.wikipedia.org/wiki/Adobe_Creative_Suite</a>
			Authorware Tool v7.0	currently associated with the CBT application. Authorware is the leading visual authoring tool for creating rich-media e-learning applications for delivery on corporate networks, CD/DVD, and the Web. Develop accessible applications that comply with learning management system (LMS) standards. Create content by importing Microsoft PowerPoint presentations and integrating them with other media, and then monitor student progress with data-tracking and database connectivity features.	RetireNew	Macromedia Academic	
			Centura / Gupta v2.1.9	Centura (a.k.a. Gupta or Team Developer) is a Rapid Application Development (RAD) tool for creating applications. RAD involves iterative development, and the construction of prototypes. Traditionally the rapid application development approach involves compromises in usability, features, and/or execution speed. It is described as a process through which the development cycle of an application is expedited. RAD's objective is to enable quality products to be developed faster, saving valuable resources.	Retire	Gupta Technologies (Unify)	<a href="http://www.unify.com/Products/TeamDeveloper/default.aspx">http://www.unify.com/Products/TeamDeveloper/default.aspx</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Centura/Gupta 4.1	Centura (a.k.a. Gupta or Team Developer) is a Rapid Application Development (RAD) tool for creating applications. RAD involves iterative development, and the construction of prototypes. Traditionally the rapid application development approach involves compromises in usability, features, and/or execution speed. It is described as a process through which the development cycle of an application is expedited. RAD's objective is to enable quality products to be developed faster, saving valuable resources.	Retire	Unify (formerly Gupta)	<a href="http://www.unify.com/Products/TeamDeveloper/default.aspx">http://www.unify.com/Products/TeamDeveloper/default.aspx</a>
			Delphi 4.0	Delphi is an object oriented derivative of Pascal mostly known as the primary programming language of Borland Delphi. It is also known as the Delphi programming language when describing the dialect used by Borland Delphi.  Borland used the name "Object Pascal" for the programming language in the first versions of Borland Delphi, but later renamed it to the "Delphi programming language". However, compilers that claim to be Object Pascal compatible are often trying to be compatible with Delphi source code.	Retire	Borland	<a href="http://en.wikipedia.org/wiki/Delphi_language">http://en.wikipedia.org/wiki/Delphi_language</a>
			Dreamweaver	A web development application that provides support for web technologies such as CSS, JavaScript, and various server-side scripting languages and frameworks including ASP.NET, ColdFusion, JavaServer Pages, and PHP. As a WYSIWYG Presto-based editor, Dreamweaver can hide the details of pages' HTML code from the user, making it possible for non-coders to create web pages and sites. It also has some site management tools and a templization feature for creating multiple pages with similar structures.	Target	Adobe (Macromedia)	<a href="http://en.wikipedia.org/wiki/Dreamweaver">http://en.wikipedia.org/wiki/Dreamweaver</a>
			FileNet Panagon v5.2	FileNet Enterprise Content Management (ECM) products are designed to help organizations manage all their content and control business processes. FileNet ECM can be used to help ensure compliance by managing digital content, e-mail, images, web content, records, forms, and business processes. It manages content wherever information resides and in whatever format, so that the content can be quickly accessed. FileNet software securely manages and controls images, digital content, web content, records, forms, and e-mails. In addition, FileNet can help streamline processes involving people, business systems, and content. It transparently declares records while capturing information from e-forms and enabling team collaboration.  The current version of FileNet is integrated with Provenance ForeMost v2.5 to provide DoD 5015.2 certified records management. Provenance Systems was ultimately purchased by EMC / Documentum. The new version of FileNet (P8) has its own certified version of Records Management.  7/7/06: IT Architecture board designated this technology as "TBD".	TBD	IBM (International Business Machines Corp.)	<a href="http://www-306.ibm.com/software/data/content-management/filenet-records-manager/">http://www-306.ibm.com/software/data/content-management/filenet-records-manager/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Java Development Kit (JDK/SDK) 5.0	<p>The Java Development Kit (JDK) is a Sun Microsystems product aimed at Java developers. Since the introduction of Java, it has been by far the most widely used Java SDK. On 17 November 2006, Sun announced that it would be released under the GNU General Public License (GPL), thus making it free software. This happened in large part on 8 May 2007[1] and the source code was contributed to the OpenJDK.</p> <p>The JDK is a subset of what is loosely defined as a Software development kit (SDK) in the general sense. In the descriptions which accompany their recent releases for Java SE, EE, and ME, Sun acknowledge that under their terminology, the JDK forms the subset of the SDK which is responsible for the writing and running of Java programs.[citation needed] The remainder of the SDK is composed of extra software, such as Application Servers, Debuggers, and Documentation.</p>	Target	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/Java_Development_Kit">http://en.wikipedia.org/wiki/Java_Development_Kit</a>
			Oracle Forms	<p>Oracle Forms (part of the Oracle Developer Suite - formerly Developer 2000 or D2K) is a Rapid Application Development (RAD) environment for developing database applications using Oracle's PL/SQL database language.</p> <p>7/7/06: IT Architecture Board made Retire.</p>	Retire	Oracle Corporation	<a href="http://en.wikipedia.org/wiki/Oracle_Forms">http://en.wikipedia.org/wiki/Oracle_Forms</a>
			Skelta BPM.NET 2006	<p>Skelta BPM.NET is a workflow serving service that can be embedded in a .NET application or used SharePoint (as a webpart). This 3rd Party software augments the NETL .NET software development environment by providing a mechanism for designing and executing workflows within an application. Extensive reporting is also provided that can be used to support business process audits.</p>	TargetNew	Skelta Software	<a href="http://www.skelta.com">http://www.skelta.com</a>
			Visual Studio (before 2003)	<p>A complete development system providing the tools for analyzing and modeling all aspects of an application before a single component is built so that developers can design efficient architectures and reduce time to market. Developers can choose the programming language they know best and the language that is best suited to the solution, including Microsoft Visual Basic, Visual C++, Visual J++, and Visual FoxPro. Visual Studio is used to build scalable, data-driven Web sites and applications.</p>	Retire	Microsoft	<a href="http://msdn.microsoft.com/vstudio/productinfo/previous/vs6/new.asp">http://msdn.microsoft.com/vstudio/productinfo/previous/vs6/new.asp</a>
			Visual Studio 2003 (.Net v. 1.1)	<p>7/7/06: IT Architecture Board changed from Target to Retire. Original: A comprehensive tool set for rapidly building and integrating XML Web services, Microsoft Windows-based applications, and Web solutions. This is the successor to Visual Studio.</p>	Retire	Microsoft	<a href="http://msdn.microsoft.com/vstudio/productinfo/default.asp">http://msdn.microsoft.com/vstudio/productinfo/default.asp</a>
			Visual Studio 2005 (.NET v2.0)	<p>A comprehensive tool set for rapidly building and integrating XML Web services, Microsoft Windows-based applications, and Web solutions. This is the successor to Visual Studio.</p>	Target	Microsoft	<a href="http://msdn.microsoft.com/vstudio/productinfo/default.asp">http://msdn.microsoft.com/vstudio/productinfo/default.asp</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Visual Studio Team System (VSTS) 2008	Microsoft Visual Studio is the main Integrated Development Environment (IDE) from Microsoft. It can be used to develop console and graphical user interface applications along with Windows Forms applications, web sites, web applications, and web services in both native code as well as managed code for all platforms supported by Microsoft Windows, Windows Mobile, .NET Framework, .NET Compact Framework and Microsoft Silverlight.  The Team System version of Visual Studio provides collaborative functions for team-level software development.	TBD	Microsoft Corporation	<a href="http://msdn.microsoft.com/en-us/vsts2008/default.aspx">http://msdn.microsoft.com/en-us/vsts2008/default.aspx</a>
			WebSphere Studio	Integrated Java (J2EE) environment for programmers build Java, web, and web services applications. Successor to IBM Visual Age. <a href="http://www-3.ibm.com/software/awdtools/studiositedev/">http://www-3.ibm.com/software/awdtools/studiositedev/</a>	Retire		
		2.3.2 Software Configuration Management		Technology applicable to all aspects of software development from design to delivery specifically focused on the control of all work products and artifacts generated during the development process. Several technical solutions on the market provide the integration of the software configuration management functions.			
			Change Management (Generic)	The change management process in systems engineering is the process of requesting, determining attainability, planning, implementing and evaluation of changes to a system. It has two main goals : supporting the processing of changes and enabling traceability of changes, which should be possible through proper execution of the process.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Change_management_(engineering)">http://en.wikipedia.org/wiki/Change_management_(engineering)</a>
			Collage (Serena)	Serena Collage delivers enterprise-class content management enabling customers to easily and rapidly design, create, deploy and maintain their website code and content. Collage supports simple browser-based content authoring, integration with popular desktop applications, flexible content workflow support, consistent use of brand guidelines and accessibility standards.	Target	Serena Software, Inc.	<a href="http://www.serena.com/Products/collage/">http://www.serena.com/Products/collage/</a>
			Defect Tracking (Generic)	This generic technology refers to the identification, assignment, and management of discovered defects within an application, product or solution. Defect tracking tools provide searchable defect data to identify urgent and related defects or bugs. The architecture should be built to facilitate the pushing of software patches across the enterprise.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Defect_tracking">http://en.wikipedia.org/wiki/Defect_tracking</a>
			Defect Tracking: PITS	The Project Issue Tracking System (PITS) is a tool that provides an automated approach to tracking and reporting IV&V and/or program issues through closure. The system also provides advanced reporting capabilities, collaboration features well suited for distributed users, and extreme extensibility through comprehensive configuration capabilities.  7/7/06: Changed from "Target" to "Retire" by IT Architecture Board.	Retire	Titan Group (L3 communications)	<a href="http://www.titan.com/home.html">http://www.titan.com/home.html</a>
			Deployment Management (Generic)	Refers to the capability of software delivery to remote networked desktops, servers, and mobile devices across an enterprise. Deployment automation tools provide centralized and accelerated delivery of applications to users via push technologies, eliminating the need for manual installation and configuration.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Software_deployment">http://en.wikipedia.org/wiki/Software_deployment</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Issue Management (Generic)	Issue management systems are commonly used by product development companies to manage requests, changes to products, and reported defects. Issue management is a formal process that typically utilizes a workflow similar to: [issue submitted] -> [open] -> [in evaluation] -> [in work] -> [in test] -> [closed] Where the [in test] and [in work] phases often loop.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Issue_management">http://en.wikipedia.org/wiki/Issue_management</a>
			PITS (Project Issue Tracking System)	The Project Issue Tracking System (PITS) is a tool that provides an automated approach to tracking and reporting IV&V and/or program issues through closure. The system also provides advanced reporting capabilities, collaboration features well suited for distributed users, and extreme extensibility through comprehensive configuration capabilities. The system is very flexible and has been used to create various repositories used by the NETL IT function.	Target	Titan Systems (L3 Communications)	<a href="http://www.titan.com/home.html">http://www.titan.com/home.html</a>
			PVCS Tracker	PVCS, or Polytron Version Control System, is a software package for revision control of files, in particular source code files.  7/7/06: IT Architecture Board added as "Retire". The PITS database is currently used for changed control.	Retire	Serena Software	<a href="http://en.wikipedia.org/wiki/PVCS">http://en.wikipedia.org/wiki/PVCS</a>
			Peopletools 8.4.8	PeopleTools 8.48 provides customers with an expanded ability to adopt a service oriented architecture (SOA) and also allows customers to create and natively support Web services and integrate legacy or custom applications with PeopleSoft Enterprise applications. New Web services functionality, including PeopleTools Service Designer, coupled with PeopleTools Integration Broker, will help lower costs, make it easier to integrate with PeopleSoft applications and simplify the creation and deployment of Web services. For example, by offering wizard driven configuration and deployment, PeopleSoft customers can rapidly develop and deploy Web services for use within a SOA. Services published from PeopleTools Service Designer and Integration Broker can be consumed by Oracle Fusion Middleware BPEL Process Manager for Enterprise Web Services Orchestration and Business Process Automation. Further, Pagelets and Services published from PeopleTools can also be integrated into Oracle Fusion Middleware Enterprise Portal to provide a single point of access to all enterprise applications.	Target	Oracle	<a href="http://www.oracle.com/corporate/press/2006_jul/peopletools-848.html">http://www.oracle.com/corporate/press/2006_jul/peopletools-848.html</a>
			Project Server 2003 (Microsoft)	Microsoft Office Project Server is a project management server solution made by Microsoft. It leverages Windows SharePoint Services as its foundation, and utilizes both a web interface and Microsoft Project as the client application.	Target	Microsoft	<a href="http://en.wikipedia.org/wiki/Project_Server">http://en.wikipedia.org/wiki/Project_Server</a>
			Requirements Management and Traceability (Generic)	The purpose of requirements management is to manage the requirements of a project and to identify inconsistencies between those requirements and the project's plans and work products. Requirements management practices include change management and traceability.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Requirements_Management">http://en.wikipedia.org/wiki/Requirements_Management</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Source Safe (Microsoft)	Visual SourceSafe also provides an extensive feature set designed to save time and money through reliable source code control. It enables development teams to automatically protect and track their most valuable source code, documentation, binaries, and all other file types as they change throughout the software life cycle. For example, check in and check out file locking securely protects files from accidental overwrite by preventing more than one user from modifying the same file at once.	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Visual_SourceSafe">http://en.wikipedia.org/wiki/Visual_SourceSafe</a>
			Task Management (Generic)	Task management is a process of managing task (or task portfolio) during its lifecycle, including planning, testing, tracking and reporting. Effective task management suppose managing all aspects of a task including its status, priority, time, human and financial resources assignments, recurrency, notifications and so on. Managing multiple individual or team tasks may require a special task management software which is available on the Web. Task management is a part of project management and process management.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Task_management">http://en.wikipedia.org/wiki/Task_management</a>
			Version Management (Generic)	Revision control (also known as version control (system) (VCS), source control or (source) code management (SCM)) is the management of multiple revisions of the same unit of information. It is most commonly used in engineering and software development to manage ongoing development of digital documents like application source code, art resources such as blueprints or electronic models, and other projects that may be worked on by a team of people. Changes to these documents are usually identified by incrementing an associated number or letter code, termed the "revision number", "revision level", or simply "revision" and associated historically with the person making the change. A simple form of revision control, for example, has the initial issue of a drawing assigned the revision number "1". When the first change is made, the revision number is incremented to "2" and so on.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Version_management">http://en.wikipedia.org/wiki/Version_management</a>
			Version Management: Visual Studio 2005 Team System Solution	Refers to tracking and controlling versions of files. Version Management includes capabilities such as labeling, branching, merging, version content comparisons, and security and permission management across version-controlled projects.	Target	Microsoft	<a href="http://lab.msdn.microsoft.com/vs2005/">http://lab.msdn.microsoft.com/vs2005/</a>
			Visual Studio Team System (VSTS) 2003	Visual Studio Team System (VSTS) uses Team Foundation Server (TFS) as the data storage and collaboration backend. TFS provides a source control repository, work item tracking and reporting services.  This technology was replaced by the use of the upgraded version: Visual Studio Team System 2005.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Visual_Studio_Team_System">http://en.wikipedia.org/wiki/Visual_Studio_Team_System</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			iHEAT (Call Center Management)	iHEAT is a computer software package that manages and maintains lists of issues, as needed by an organization. Issue tracking systems are commonly used in an organization's customer support call center to create, update, and resolve reported customer issues, or even issues reported by that organization's other employees. An issue tracking system often also contains a knowledge base containing information on each customer, resolutions to common problems, and other such data.	Target	FrontRange Solutions USA Inc.	<a href="http://www.heatitsm.com">http://www.heatitsm.com</a>
				7/7/06: Added by IT Architecture Board as Target			
	2.3.3	Test Management		Technology which supports the consolidation of all testing activities and results. Test Management activities include test planning, designing (test cases), execution, reporting, code coverage, and heuristic and harness development.			
			Automated Testing (Generic)	Test automation is the use of software to control the execution of tests, the comparison of actual outcomes to predicted outcomes, the setting up of test preconditions, and other test control and test reporting functions. Commonly, test automation involves automating a manual process already in place that uses a formalized testing process.	TBD	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Automated_testing">http://en.wikipedia.org/wiki/Automated_testing</a>
			Bobby (Watchfire)	Watchfire® Bobby™ 5.0 is a web accessibility desktop testing tool designed to help expose barriers to accessibility and encourage compliance with existing accessibility guidelines, including Section 508 of the US Rehabilitation Act and the W3C's Web Content Accessibility Guidelines (WCAG). Bobby spiders through a website and tests on a page-by-page basis to see if it meets several accessibility requirements, including readability by screen readers, the provision of text equivalents for all images, animated elements, audio and video displays. Bobby can see local web pages, as well as web pages behind your firewall. It performs over 90 accessibility checks. During a scan, Bobby checks HTML against select accessibility guidelines and then reports on the accessibility of each web page.	TBD	Watchfire	<a href="http://www.watchfire.com/products/desktop/bobby/default.aspx">http://www.watchfire.com/products/desktop/bobby/default.aspx</a>
			Business Cycle Testing (Generic)	This "general technology" refers to the emulation of activities performed over a period of time that is relevant to the application under test.	Target	Generic Technology	
			Configuration Testing (Generic)	Refers to a test to ensure that the application or system can handle all hardware and software variables and requirements that have been defined.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Visual_Studio_Team_System">http://en.wikipedia.org/wiki/Visual_Studio_Team_System</a>
			Functional Testing (Generic)	Software functional testing is the process of checking software, to verify that it satisfies its requirements and to detect errors.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Software_Testing">http://en.wikipedia.org/wiki/Software_Testing</a>
				Software testing is an empirical investigation conducted to provide stakeholders with information about the quality of the product or service under test, with respect to the context in which it is intended to operate. This includes, but is not limited to, the process of executing a program or application with the intent of finding software bugs.			
				Testing can never completely establish the correctness of computer software. Instead, it furnishes a criticism or comparison that compares the state and behaviour of the product against a specification.			

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Installation Testing (Generic)	Implementation testing or installation testing is a kind of quality assurance work in the software industry that focuses on what customers will need to do to install and set up the new software successfully. The testing process may involve full, partial or upgrades install/uninstall processes.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Installation_testing">http://en.wikipedia.org/wiki/Installation_testing</a>
			Load/Stress/Volume Testing (Generic)	<p>Load testing is the process of creating demand on a system or device and measuring its response. In mechanical systems it refers to the testing of a system to certify it under the appropriate regulations (LOLER in the UK - Lifting Operations and Lifting Equipment Regulations). Load testing is usually carried out to a load 1.5x the SWL (Safe Working Load) periodic recertification is required.</p> <p>In software engineering it is a blanket term that is used in many different ways across the professional software testing community.</p>	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Load_testing">http://en.wikipedia.org/wiki/Load_testing</a>
			Mercury Quick Test	<p>Quick Test Professional (QTP) is an automated functional Graphical User Interface (GUI) testing tool created by the HP subsidiary Mercury Interactive that allows the automation of user actions on a web or client based computer application. It is primarily used for functional regression test automation. QTP uses a scripting language built on top of VBScript to specify the test procedure, and to manipulate the objects and controls of the application under test.</p> <p>As Functional test suit it works together with Mercury Interactive WinRunner and supports enterprise Quality Insurance.</p>	TBD	Hewlett Packard (HP) / Mercury Interactive	<a href="http://en.wikipedia.org/wiki/HP_QuickTest_Professional">http://en.wikipedia.org/wiki/HP_QuickTest_Professional</a>
			Performance Profiling (Generic)	In software engineering, performance analysis, more commonly profiling, is the investigation of a program's behavior using information gathered as the program runs (i.e. it is a form of dynamic program analysis, as opposed to static code analysis). The usual goal of performance analysis is to determine which parts of a program to optimize for speed or memory usage.	TBD	Generic Technology	<a href="http://en.wikipedia.org/wiki/Performance_analysis">http://en.wikipedia.org/wiki/Performance_analysis</a>
			Reliability Testing (Generic)	<p>The purpose of reliability testing is to discover potential problems with the design as early as possible and, ultimately, provide confidence that the system meets its reliability requirements.</p> <p>Reliability testing may be performed at several levels. Complex systems may be tested at component, circuit board, unit, assembly, subsystem and system levels. (The test level nomenclature varies among applications.) Testing proceeds during each level of integration through full-up system testing, developmental testing, and operational testing, thereby reducing program risk.</p>	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Reliability_engineering#Reliability_testing">http://en.wikipedia.org/wiki/Reliability_engineering#Reliability_testing</a>
			Security and Access Control Testing (generic)	Access control is the ability to permit or deny the use of a particular resource by a particular entity. Access control mechanisms can be used in managing physical resources (such as a movie theater, to which only ticketholders should be admitted), logical resources (a bank account, with a limited number of people authorized to make a withdrawal), or digital resources (for example, a private text document on a computer, which only certain users should be able to read).	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Access_Control">http://en.wikipedia.org/wiki/Access_Control</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Test Manager 2000 (Titan)	test Manager 2000 was developed by Titan, a division of L-3 Communications, for managing test cases. This software is no longer supported as a product from the vendor.	Retire	Titan (L-3 Communications)	<a href="http://www.titan.com/home.html">http://www.titan.com/home.html</a>
			Usability Testing or 508 Testing (Generic)	Usability testing is a technique used to evaluate a product by testing it on users. This can be seen as an irreplaceable usability practise, since it gives direct input on how real users use the system. This is in contrast with usability inspection methods where experts use different methods to evaluate a user interface without involving users.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Usability_Testing">http://en.wikipedia.org/wiki/Usability_Testing</a>
		2.3.4 Modeling		Technology support the process of representing entities, data, business logic, and capabilities for aiding in software engineering.			
			CASE Management (Generic)	Computer Aided Software Engineering (CASE) software that provides a development environment for programming teams. CASE systems offer tools to automate, manage and simplify the development process. Visual Studio Team Systems is a suite of applications that supports CASE by integrating various aspects of the software development process.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Computer_aided_software_engineering">http://en.wikipedia.org/wiki/Computer_aided_software_engineering</a>
			Casewise Corporate Modeler	Casewise is an Enterprise Modeling Tool that provides a process of understanding an enterprise business and improving its performance through creation of enterprise models. This includes the modeling of the relevant business domain (usually relatively stable), business processes (usually more volatile), and IT.  7/7/06: IT Architecture Board added as Target	Target	Casewise Ltd	<a href="http://www.casewise.com">www.casewise.com</a>
			ER/Studio	Embarcadero ER/Studio, an industry-leading data modeling tool, helps companies discover, document, and re-use data assets. With round-trip database support, data architects have the power to easily reverse-engineer, analyze, and optimize existing databases. Productivity gains and enforcement of organizational standards can be achieved with ER/Studio's strong collaboration capabilities.	Target	Embarcadero Technologies	<a href="http://www.embarcadero.com/products/erstudio/">http://www.embarcadero.com/products/erstudio/</a>
			ERwin	CA ERwin Data Modeler (ERwin) is a software tool for data modeling (data requirements analysis, database design etc) of custom developed information systems, including databases of transactional systems and data marts. ERwin's data modeling engine is based upon the IDEF1X method, although it now supports diagrams displayed with information engineering notation as well.  7/7/06: IT Architecture Board added as retire. 1/28/2008: IT Architecture Board decided to replace ERwin [Retire] with Embarcadero ER Studio [Target]	Retire	CA (Computer Associates)	<a href="http://en.wikipedia.org/wiki/CA_ERwin_Data_Modeler">http://en.wikipedia.org/wiki/CA_ERwin_Data_Modeler</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Unified Modeling Language (UML)	<p>A standardized specification language for object modeling. UML is a general-purpose modeling language that includes a graphical notation used to create an abstract model of a system, referred to as a UML model.</p> <p>UML is officially defined at the Object Management Group (OMG) by the UML metamodel, a Meta-Object Facility metamodel (MOF). Like other MOF-based specifications, the UML metamodel and UML models may be serialized in XML. UML was designed to specify, visualize, construct, and document software-intensive systems.</p> <p>UML is not restricted to modeling software. UML is also used for business process modeling, systems engineering modeling, and representing organizational structures. The Systems Modeling Language (SysML) is a Domain-Specific Modeling language for systems engineering that is defined as a UML 2.0 profile.</p> <p>UML has been a catalyst for the evolution of model-driven technologies, which include model-driven development (MDD), model-driven engineering (MDE), and model-driven architecture (MDA). By establishing an industry consensus on a graphic notation to represent common concepts like classes, components, generalization, aggregation, and behaviors, UML has allowed software developers to concentrate more on design and architecture.</p> <p>UML models may be automatically transformed to other representations (e.g. Java) by means of QVT-like transformation languages, supported by the OMG.</p> <p>UML is extensible, offering the following mechanisms for customization: profiles and stereotype. The semantics of extension by profiles have been improved with the UML 2.0 major revision.</p>	Target	None (OMG Industry Standard)	<a href="http://en.wikipedia.org/wiki/Unified_Modeling_Language">http://en.wikipedia.org/wiki/Unified_Modeling_Language</a>
		Visio 2003		<p>Computer Aided Software Engineering (CASE) software that provides a development environment for programming teams. CASE systems offer tools to automate, manage and simplify the development process. Microsoft Visio is diagramming software for Microsoft Windows. It uses vector graphics to create diagrams.</p> <p>7/7/06: IT Architecture Board changed from "Target" to "Retire".</p>	Target	Microsoft Corporation	<a href="http://www.sei.cmu.edu/legacy/case/case_what.html">http://www.sei.cmu.edu/legacy/case/case_what.html</a> <a href="http://office.microsoft.com/en-us/FX010857981033.aspx">http://office.microsoft.com/en-us/FX010857981033.aspx</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
	<b>2.4 Database / Storage</b>			Database / Storage refers to a collection of programs that enables storage, modification, and extraction of information from a database, and various techniques and devices for storing large amounts of data.			
	<b>2.4.1 Database</b>			Refers to a collection of information organized in such a way that a computer program can quickly select desired pieces of data. A database management system (DBMS) is a software application providing management, administration, performance, and analysis tools for databases.			
		Access 2000		Microsoft Access is a relational database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools. It is a member of the Microsoft Office application suite.  7/7/06: IT Architecture Board added as "Retire". It was replaced by the use of Access 2003.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Microsoft_Access">http://en.wikipedia.org/wiki/Microsoft_Access</a>
		Access 2003		Microsoft Access is a relational database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools. It is a member of the 2007 Microsoft Office system.  7/7/06: IT Architecture Board added as "Target"	Target	Microsoft Corporations	<a href="http://en.wikipedia.org/wiki/Microsoft_Access">http://en.wikipedia.org/wiki/Microsoft_Access</a>
		Access 97		Microsoft Access is a relational database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools. It is a member of the 2007 Microsoft Office system.  7/7/06: IT Architecture Board split into 97, 2000 and 2003 as separate, keeping this item Access 97 marked as "Retire".	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Microsoft_Access">http://en.wikipedia.org/wiki/Microsoft_Access</a>
		DB2 (Database 2) IBM		DB2 is one of IBM's lines of relational database management system (or, as IBM now calls it, data server) software products within IBM's broader Information Management Software line. Although there are different "editions" and "versions" of DB2 which run on devices ranging from handhelds to mainframes, most often DB2 refers to DB2 Enterprise Server Edition or the top-of-the-line DB2 Data Warehouse Edition (DB2 DWE), which runs on Unix, Windows or Linux servers; or DB2 for z/OS. Beside DB2 there exists Informix, which was acquired by IBM in 2001.	Unsupported	IBM (International Business Machines)	<a href="http://en.wikipedia.org/wiki/IBM_DB2">http://en.wikipedia.org/wiki/IBM_DB2</a>
		FoxPro		Visual FoxPro is a data-centric object-oriented and procedural programming language produced by Microsoft. It is derived from FoxPro (originally known as FoxBASE) which was developed by Fox Software beginning in 1984. Fox Technologies merged with Microsoft in 1992 and the software acquired further features and the prefix "Visual". The last version of FoxPro (2.6) worked under Mac OS, DOS, Windows, and Unix: Visual FoxPro 3.0, the first "Visual" version, dropped the platform support to only Mac and Windows, and later versions were Windows-only. The current version of Visual FoxPro is COM-based and Microsoft has stated that they do not intend to create a Microsoft .NET version.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Visual_FoxPro">http://en.wikipedia.org/wiki/Visual_FoxPro</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Oracle RDBMS - Version 7 or older	The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle), a relational database management system (RDBMS) software product released by Oracle Corporation, has become a major factor in database computing.  Version Numbering: Oracle7: 7.0.16 — 7.3.4	Retire	Oracle Corporation	<a href="http://en.wikipedia.org/wiki/Oracle_Database">http://en.wikipedia.org/wiki/Oracle_Database</a>
			Oracle RDBMS - Version 8.1.7.0	The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle), a relational database management system (RDBMS) software product released by Oracle Corporation, has become a major factor in database computing.	Retire	Oracle Corporation	<a href="http://www.oracle.com/technology/products/database/oracle10g/index.html">http://www.oracle.com/technology/products/database/oracle10g/index.html</a>
			Oracle RDBMS - Version 8.1.7.4	The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle), a relational database management system (RDBMS) software product released by Oracle Corporation, has become a major factor in database computing.	Retire	Oracle Corporation	<a href="http://www.oracle.com/technology/products/database/oracle10g/index.html">http://www.oracle.com/technology/products/database/oracle10g/index.html</a>
			Oracle RDBMS - Version 9i	The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle), a relational database management system (RDBMS) software product released by Oracle Corporation, has become a major factor in database computing.  Oracle9i Database Release 1: 9.0.1.0 — 9.0.1.5 (Latest current patchset as of December 2003) Oracle9i Database Release 2: 9.2.0.1 — 9.2.0.8 (Latest current patchset as of April 2007)	Retire	Oracle	<a href="http://en.wikipedia.org/wiki/Oracle_Database">http://en.wikipedia.org/wiki/Oracle_Database</a>
			Oracle RDBMS - Version 10g	The Oracle Database (commonly referred to as Oracle RDBMS or simply as Oracle), a relational database management system (RDBMS) software product released by Oracle Corporation, has become a major factor in database computing.  SOFTWARE VERSIONS: Oracle Database 10g Release 1: 10.1.0.2 — 10.1.0.5 (Latest current patchset as of February 2006) Oracle Database 10g Release 2: 10.2.0.1 — 10.2.0.3 (Latest current patchset as of November 2006)	Target	Oracle	<a href="http://www.oracle.com/technology/products/database/oracle10g/index.html">http://www.oracle.com/technology/products/database/oracle10g/index.html</a>
			Progress	Progress OpenEdge® is an integrated platform for the rapid development, deployment and management of business applications that are standards-based and service-oriented. OpenEdge provides a unified environment comprising development tools, application servers, application management tools, a relational database, and the capability to easily connect and integrate with other applications and data sources.	Retire	Progress Software Corporation	<a href="http://www.progress.com/openedge/index.ssp">http://www.progress.com/openedge/index.ssp</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			SQL Server 2000	Microsoft SQL Server is a relational database management system (RDBMS) produced by Microsoft. Its primary query language is Transact-SQL, an implementation of the ANSI/ISO standard Structured Query Language (SQL) used by both Microsoft and Sybase.  SQL Server 2000 was replaced by SQL Server 2003.	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Microsoft_SQL_Server">http://en.wikipedia.org/wiki/Microsoft_SQL_Server</a>
			SQL Server 2005	Data management server product developed by Microsoft.	Target	Microsoft	<a href="http://www.microsoft.com/sql/">http://www.microsoft.com/sql/</a>
			Sybase	Sybase became the number two database system behind Oracle, after making a deal with Microsoft to share the source code for Microsoft to remarket on the OS/2 platform as "SQL Server". At the time, Sybase called the database server "Sybase SQL Server". Until version 4.9, Sybase and Microsoft SQL server were virtually identical. Due to disagreements between the two companies over revenue sharing (or lack thereof), Sybase and Microsoft decided to split the code-lines and went their own way, although the shared heritage is very evident in the Transact-SQL (TSQL) procedural language as well as the basic process architecture. The big difference is that Sybase has a Unix heritage, while Microsoft was adapted and optimized only for the Microsoft Windows NT operating system. Sybase continues to offer versions for Windows, several varieties of Unix, and for Linux.  NETL has made a decision not to support this Technology.	Unsupported	Sybase	<a href="http://en.wikipedia.org/wiki/Sybase">http://en.wikipedia.org/wiki/Sybase</a>
	2.4.2	Storage		Storage devices are designed to provide shared storage access across a network. These devices provide extended storage capabilities to the network with reduced costs compared to traditional file servers.			
			Hard Disk Drive or HDD (Generic)	A hard disk drive (HDD), commonly referred to as a hard drive, hard disk or fixed disk drive, is a non-volatile storage device which stores digitally encoded data on rapidly rotating platters with magnetic surfaces. Strictly speaking, "drive" refers to a device distinct from its medium, such as a tape drive and its tape, or a floppy disk drive and its floppy disk. Early HDDs had removable media; however, an HDD today is typically a sealed unit with fixed media.	Target	Generic Technology	<a href="http://en.wikipedia.org/wiki/Hard_Disk">http://en.wikipedia.org/wiki/Hard_Disk</a>
			Network-Attached Storage (NAS)	A NAS device is a server that is dedicated to nothing more than file sharing.	TBD		
			Storage Area Network (SAN)	A SAN is a high-speed sub-network of shared storage devices. A storage device is a machine that contains nothing but a disk or disks for storing data.	TBD	Various	<a href="http://en.wikipedia.org/wiki/Storage_area_network">http://en.wikipedia.org/wiki/Storage_area_network</a>
			Unix	Unix (officially trademarked as UNIX®, sometimes also written as Unix or Unix® with small caps) is a computer operating system originally developed in 1969 by a group of AT&T employees at Bell Labs including Ken Thompson, Dennis Ritchie and Douglas McIlroy. Today's Unix systems are split into various branches, developed over time by AT&T as well as various commercial vendors and non-profit organizations.	Retire	Various	<a href="http://en.wikipedia.org/wiki/Unix">http://en.wikipedia.org/wiki/Unix</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
	<b>2.5 Hardware / Infrastructure</b>			Defines the physical devices, facilities and standards that provide the computing and networking within and between enterprises.			
	<b>2.5.1 Servers / Computers</b>			This refers to the various types of programmable machines which are capable of responding to sets of instructions and executing programs.			
			Enterprise Server - Dell	In information technology, a server is an application, or device that performs services for connected clients as part of a client-server architecture. Server computers are devices designed to run such an application or applications, often for extended periods of time with minimal human direction. Examples of d-class servers include web servers, e-mail servers, and file servers.  7/7/06: Distinguished HP and made "Target". Also added a second Dell category to "Retire".	Retire	Dell Computer	<a href="http://www.dell.com/content/products/category.aspx/servers?c=us&amp;cs=04&amp;l=en&amp;s=bsd&amp;-ck=mn">http://www.dell.com/content/products/category.aspx/servers?c=us&amp;cs=04&amp;l=en&amp;s=bsd&amp;-ck=mn</a>
			Enterprise Server - HP	In information technology, a server is an application, or device that performs services for connected clients as part of a client-server architecture. Server computers are devices designed to run such an application or applications, often for extended periods of time with minimal human direction. Examples of d-class servers include web servers, e-mail servers, and file servers.  7/7/06: Distinguished HP and made "Target". Also added a second Dell category to "Retire".	Target	HP (Hewlett Packard)	<a href="http://welcome.hp.com/country/us/en/prodserv/servers.html">http://welcome.hp.com/country/us/en/prodserv/servers.html</a>
			Mainframe Computer	Mainframes (often colloquially referred to as Big Iron) are computers used mainly by large organizations for critical applications, typically bulk data processing such as census, industry and consumer statistics, ERP, and financial transaction processing. Today in practice, the term usually refers to computers compatible with the IBM System/360 line, first introduced in 1965.  7/7/06: IT Architecture Board changed from "TBD" to "Unsupported".	Unsupported	N/A (various)	<a href="http://en.wikipedia.org/wiki/Mainframe_computer">http://en.wikipedia.org/wiki/Mainframe_computer</a>
	<b>2.5.2 Embedded Technology Devices</b>			This refers to the various devices and parts that make up a Server or Computer as well as devices that perform specific functionality outside of a Server or Computer.			
			IDE or Integrated Drive Electronics (HDD)	A HDD that uses an early version of the Advanced Technology Attachment (ATA) specification that was conceived by Western Digital in 1986; known as Integrated Drive Electronics (IDE) due to the drive controller on the drive itself as opposed to a separate controller connected to the motherboard.  This technology was replaced with Serial Advanced Technology Attachment (SATA) drives.	Retire	N/A (Various)	<a href="http://en.wikipedia.org/wiki/Integrated_Drive_Electronics#History">http://en.wikipedia.org/wiki/Integrated_Drive_Electronics#History</a>
			Microprocessor: AMD	7/7/06: Divided into Intel (target) and AMD (TBD) by IT Architecture Board. Original: A silicon chip that contains a CPU. In the world of personal computers, the terms microprocessor and CPU are used interchangeably. At the heart of all personal computers and most workstations sits a microprocessor.	TBD		

<i>Area</i>	<i>Category</i>	<i>Standard</i>	<i>Technology</i>	<i>Description</i>	<i>State</i>	<i>Vendor</i>	<i>Website</i>
			Microprocessor: Intel	<p>A microprocessor incorporates the functions of a central processing unit (CPU) on a single integrated circuit (IC). One or more microprocessors typically serve as the processing elements of a computer system, embedded system, or handheld device.</p> <p>Intel Corporation is the world's largest semiconductor company and the inventor of the x86 series of microprocessors, the processors found in most personal computers.</p> <p>7/7/06: Divided into Intel (Target) and AMD (TBD) by IT Architecture Board.</p>	Target	Intel Corporation	<a href="http://en.wikipedia.org/wiki/Microprocessor">http://en.wikipedia.org/wiki/Microprocessor</a>
			RAID: Level 1	<p>7/7/06: This technology was designated as "Target" by IT Architecture Board.</p> <p>Redundant Arrays of Inexpensive Disks, as named by the inventors and commonly referred to as RAID, is a technology that supports the integrated use of two or more hard-drives in various configurations for the purposes of achieving greater performance, reliability through redundancy, and larger disk volume sizes through aggregation. RAID is also sometimes referred to as "Redundant Arrays of Inexpensive Drives" or "Redundant Arrays of Independent Disks/Drives". RAID is an umbrella term for computer data storage schemes that divide and replicate data among multiple hard disk drives. RAID's various designs balance or accentuate two key design goals: increased data reliability and increased I/O (input/output) performance.</p> <p>A number of standard schemes have evolved which are referred to as levels. There were five RAID levels originally conceived, but many more variations have evolved, notably several nested levels and many non-standard levels (mostly proprietary).</p> <p>RAID Level 1: Mirrored set without parity. Provides fault tolerance from disk errors and single disk failure. Increased read performance occurs when using a multi-threaded operating system that supports split seeks, very small performance reduction when writing. Array continues to operate so long as at least one drive is functioning.</p>	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/RAID">http://en.wikipedia.org/wiki/RAID</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			RAID: Level 5	<p>Redundant Arrays of Inexpensive Disks, as named by the inventors and commonly referred to as RAID, is a technology that supports the integrated use of two or more hard-drives in various configurations for the purposes of achieving greater performance, reliability through redundancy, and larger disk volume sizes through aggregation. RAID is also sometimes referred to as "Redundant Arrays of Inexpensive Drives" or "Redundant Arrays of Independent Disks/Drives". RAID is an umbrella term for computer data storage schemes that divide and replicate data among multiple hard disk drives. RAID's various designs balance or accentuate two key design goals: increased data reliability and increased I/O (input/output) performance.</p> <p>A number of standard schemes have evolved which are referred to as levels. There were five RAID levels originally conceived, but many more variations have evolved, notably several nested levels and many non-standard levels (mostly proprietary).</p> <p>RAID Level 5: Striped set with distributed parity. Distributed parity requires all but one drive to be present to operate; drive failure requires replacement, but the array is not destroyed by a single drive failure. Upon drive failure, any subsequent reads can be calculated from the distributed parity such that the drive failure is masked from the end user. The array will have data loss in the event of a second drive failure and is vulnerable until the data that was on the failed drive is rebuilt onto a replacement drive.</p> <p>7/7/06: This technology was designated as "Target" by IT Architecture Board.</p>	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/RAID">http://en.wikipedia.org/wiki/RAID</a>
			Random Access Memory (RAM): DDR	<p>Random access memory (usually known by its acronym, RAM) is a type of computer data storage. It today takes the form of integrated circuits that allow the stored data to be accessed in any order, i.e. at random. The word random thus refers to the fact that any piece of data can be returned in a constant time, regardless of its physical location and whether or not it is related to the previous piece of data.</p> <p>7/7/06: Added DDR as type and made "Target" from "TBD" by IT Architecture Board.</p>	Target	N/A (various)	7/7/06: Added DDR as type and made "Target" from "TBD" by IT Architecture Board.
			SATA or Serial Advanced Technology Attachment (HDD)	<p>A hard disk drive (HDD) that uses a Serial Advanced Technology Attachment (SATA) interface. The SATA interface is a computer bus primarily designed for transfer of data between a computer and mass storage devices such as hard disk drives and optical drives.</p>	Target	N/A (various)	<a href="http://en.wikipedia.org/wiki/SATA">http://en.wikipedia.org/wiki/SATA</a>
			SCSI or Small Computer System Interface (HDD)	<p>A Hard Disk Drive (HDD) that utilizes a SCSI (Small Computer System Interface) interface. SCSI is a set of standards for physically connecting and transferring data between computers and peripheral devices. The SCSI standards define commands, protocols, and electrical and optical interfaces.</p>	Target	N/A (various)	<a href="http://en.wikipedia.org/wiki/SCSI">http://en.wikipedia.org/wiki/SCSI</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		2.5.3	Peripherals	Computer devices that are not part of the essential computer (i.e. the memory and microprocessor). Peripheral devices can be external and internal.			
	Printer - Color HP (Hewlett Packard)			Devices that print text or illustrations on paper. There are many different types of printers.  7/7/06: Added types: Color HP ("Target") by IT Architecture Board.	Target	Hewlett Packard	<a href="http://www.hp.com/united-states/consumer/gateway/printing_multifunction.html">http://www.hp.com/united-states/consumer/gateway/printing_multifunction.html</a>
	Printer - Monochrome			Devices that print text or illustrations on paper. There are many different types of printers.  7/7/06: Added types: Monochrome ("TBD") by IT Architecture Board.	TBD	N/A (various)	
	Printer - Xerox			Devices that print text or illustrations on paper. There are many different types of printers.  7/7/06: Added type: Xerox ("Retire") by IT Architecture Board.	Target	Xerox Corporation	<a href="http://www.office.xerox.com/index/enus.html">http://www.office.xerox.com/index/enus.html</a>
	Scanner: Canon			Devices that can read text or illustrations printed on paper and translate the information into a form the computer can use. A scanner works by digitizing an image -- dividing it into a grid of boxes and representing each box with either a zero or a one, depending on whether the box is filled in.  7/7/06: IT Architecture Board added types: Xerox (target), Canon (target), Ricoh (target). May add more - need more information for multifunctioning scanners.	Target	Canon	<a href="http://www.ricoh-usa.com/products/category_main.asp?pCategoryId=16&amp;pCatName=Scanners&amp;tsn=Ricoh-USA">http://www.ricoh-usa.com/products/category_main.asp?pCategoryId=16&amp;pCatName=Scanners&amp;tsn=Ricoh-USA</a>
	Scanner: Ricoh			Devices that can read text or illustrations printed on paper and translate the information into a form the computer can use. A scanner works by digitizing an image -- dividing it into a grid of boxes and representing each box with either a zero or a one, depending on whether the box is filled in.  7/7/06: IT Architecture Board added types: Xerox (target), Canon (target), Ricoh (target). May add more - need more information for multifunctioning scanners.	Target		
	Scanner: Xerox			Devices that can read text or illustrations printed on paper and translate the information into a form the computer can use. A scanner works by digitizing an image -- dividing it into a grid of boxes and representing each box with either a zero or a one, depending on whether the box is filled in.  7/7/06: IT Architecture Board added types: Xerox (target), Canon (target), Ricoh (target). May add more - need more information for multifunctioning scanners.	Target	Xerox Corporation	<a href="http://www.xeroxscanners.com/en/">http://www.xeroxscanners.com/en/</a>
		2.5.4	Wide Area Network (WAN)	A data network typically extending a LAN outside a building or beyond a campus is known as a WAN. This is typically created by using bridges or routers to connect geographically separated LANs. WANs include commercial or educational dialup networks such as CompuServe, InterNet and BITNET.			

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Asynchronous Transfer Mode (ATM)	A high bandwidth, high speed, controlled-delay, fixed-size packet switching and transmission system integrating multiple data types (voice, video, and data). Uses fixed-size packets also known as "cells" (ATM is often referred to as "cell relay").	Retire	International Telecommunications Union [ITU 2004]	<a href="http://en.wikipedia.org/wiki/Asynchronous_Transfer_Mode">http://en.wikipedia.org/wiki/Asynchronous_Transfer_Mode</a>
				7/7/06: IT Architecture Board changed from "TBD" to "Retire".			
			Frame Relay	Frame Relay consists of an efficient data transmission technique used to send digital information quickly and cheaply in a relay of frames to one or many destinations from one or many end-points. Network providers commonly implement frame relay for voice and data as an encapsulation technique, used between local area networks (LANs) over a wide area network (WAN). Each end-user gets a private line (or leased line) to a frame-relay node. The frame-relay network handles the transmission over a frequently-changing path transparent to all end-users.	Retire	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Frame_Relay">http://en.wikipedia.org/wiki/Frame_Relay</a>
				7/7/06: IT Architecture Board changed from "TBD" to "Retire".			
			MPLS (Multi Protocol Label Switching)	In computer networking and telecommunications, Multi Protocol Label Switching (MPLS) is a data-carrying mechanism that belongs to the family of packet-switched networks. MPLS operates at an OSI Model layer that is generally considered to lie between traditional definitions of Layer 2 (data link layer) and Layer 3 (network layer), and thus is often referred to as a "Layer 2.5" protocol. It was designed to provide a unified data-carrying service for both circuit-based clients and packet-switching clients which provide a datagram service model. It can be used to carry many different kinds of traffic, including IP packets, as well as native ATM, SONET, and Ethernet frames.	TBD	N/A (various)	<a href="http://en.wikipedia.org/wiki/MPLS">http://en.wikipedia.org/wiki/MPLS</a>
				7/7/06: Added by IT Architecture Board as TBD			
			2.5.5 Local Area Network (LAN)	A network that interconnects devices over a geographically small area, typically in one building or a part of a building. The most popular LAN type is Ethernet. LANs allow the sharing of resources and the exchange of both video and data.			
			Ethernet	Local-area network (LAN) architecture that uses a bus or star topology and supports data transfer rates of 10 Mbps, 100 Mbps (Fast Ethernet) or 1 Gbps (gigabit Ethernet). The Ethernet specification served as the basis for the IEEE 802.3 standard, which specifies the physical and lower software layers. Ethernet uses the CSMA/CD access method to handle simultaneous demands. It is one of the most widely implemented LAN standards.	Target	IEEE (Institute of Electrical and Electronics Eng)	<a href="http://en.wikipedia.org/wiki/Ethernet">http://en.wikipedia.org/wiki/Ethernet</a>
				7/7/06: Changed by IT Architecture board from "Retire" to "Target".			
			Token Ring	7/7/06: Changed from TBD to Unsupported by IT Architecture Board. Original: A type of computer network in which all the computers are arranged (schematically) in a circle. A token, which is a special bit pattern, travels around the circle. To send a message, a computer catches the token, attaches a message to it, and then lets it continue to travel around the network. <a href="http://www.8025.org/">http://www.8025.org/</a> .	Unsupported	None (Generic Technology)	<a href="http://en.wikipedia.org/wiki/Token_Ring">http://en.wikipedia.org/wiki/Token_Ring</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Virtual LAN (VLAN)	7/7/06: Changed from TBD to Target by IT Architecture Board. Original: Short for virtual LAN, a network of computers that behave as if they are connected to the same wire even though they may actually be physically located on different segments of a LAN. VLANs are configured through software rather than hardware, which make them extremely flexible. One of the biggest advantages of VLANs is that when a computer is physically moved to another location, it can stay on the same VLAN without any hardware reconfiguration. <a href="http://www.ieee802.org/1/pages/802.1Q.html">http://www.ieee802.org/1/pages/802.1Q.html</a>	Target		
			WLAN (Wireless LAN)	7/7/06: Added as TBD by IT architecture board.	TBD		
	2.5.6	Network Devices / Standards		A group of stations (computers, telephones, or other devices) connected by communications facilities for exchanging information. Connection can be permanent, via cable, or temporary, through telephone or other communications links. The transmission medium can be physical (i.e. fiber optic cable) or wireless (i.e. satellite).			
			Cooperative Protection Program (CPP) Sensor Suite	The Cooperative Protection Program (CPP) supports the goal of protecting the U.S. Department of Energy's (DOE) information assets and is a joint effort between the Office of Chief Information Officer (OCIO) and the Counterintelligence Directorate of the Office of Intelligence and Counterintelligence (formerly know as Office of Counterintelligence (OCI)). The main objective of the CPP is to detect and deter hostile activities directed at the DOE's information resources. The associated systems are funded and deployed by the CPP and are subsequently referred to as the "CPP sensor suite."	Target	Various Software on Windows PC	<a href="http://www.ig.energy.gov/documents/IG-0787.pdf">http://www.ig.energy.gov/documents/IG-0787.pdf</a>
			DSL (Digital Subscriber Line)	DSL or xDSL, is a family of technologies that provide digital data transmission over the wires of a local telephone network. DSL originally stood for digital subscriber loop, although in recent years, many[attribution needed] have adopted digital subscriber line as a more marketing-friendly term for the most popular version of consumer-ready DSL, ADSL. DSL uses high frequency, regular telephone uses low frequency.	TBD	ITU-T (ITU Telecomm. Standardization Sector)	<a href="http://www.faqs.org/faqs/datacomm/xdsl-faq/">http://www.faqs.org/faqs/datacomm/xdsl-faq/</a>
			Firewall	This refers to the network device that is designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. There are several types of firewall techniques and firewalls may implement one or more simultaneously. Packet filtering inspects inbound and outbound packets, validating against defined business rules. Application gateways apply security rules against applications. Circuit-level gateways apply security rules against physical connection attempts to and from the network. Proxy servers mask the internal requestor by inspecting and augmenting the packet header. Four common architectures of firewalls include the packet filtering router, the screened host firewall system, the dual homed host firewall, and the screened subnet firewall (with a DMZ), which is one of the most secure implementations.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Firewall">http://en.wikipedia.org/wiki/Firewall</a>
			Gateway (networking)	A computer network gateway is a node that serves as an entrance to another network, and vice-versa. Gateways are most commonly used to transfer data between private networks and the Internet.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Gateway_%28computer_networking%29">http://en.wikipedia.org/wiki/Gateway_%28computer_networking%29</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Hub (Network)	<p>A network hub or concentrator is a device for connecting multiple twisted pair or fiber optic Ethernet devices together, making them act as a single network segment. Hubs work at the physical layer (layer 1) of the OSI model, and the term layer 1 switch is often used interchangeably with hub. The device is thus a form of multiport repeater. Network hubs are also responsible for forwarding a jam signal to all ports if it detects a collision.</p> <p>Network hubs have been replaced by low-cost Network Switches that provide smarter data routing and better performance.</p>	Retire	N/A (various)	<a href="http://en.wikipedia.org/wiki/Network_hub">http://en.wikipedia.org/wiki/Network_hub</a>
			ISDN (Integrated Services Digital Network)	<p>Integrated Services Digital Network (ISDN), originally "Integriertes Sprach- und Datennetz" (German for "Integrated Speech and Data Net"), is a circuit-switched telephone network system, designed to allow digital transmission of voice and data over ordinary telephone copper wires, resulting in better voice quality than an analog phone. It offers circuit-switched connections (for either voice or data) in increments of 64 kbit/s. One of the major use cases is Internet access, where ISDN typically provides a maximum of 128 kbit/s (which cannot be considered to be a broadband speed). More broadly, ISDN is a set of protocols for establishing and breaking circuit switched connections, and for advanced call features for the user.</p>	TBD	ITU-T (industry standard)	<a href="http://www.eff.org/Infra/ISDN/">http://www.eff.org/Infra/ISDN/</a>
			Network Interface Card / Controller (NIC)	<p>Often abbreviated as NIC, an expansion board you insert into a computer so the computer can be connected to a network. Most NICs are designed for a particular type of network, protocol, and media, although some can serve multiple networks.</p>	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Network_Interface_Controller">http://en.wikipedia.org/wiki/Network_Interface_Controller</a>
			Router	<p>A router is a computer whose software and hardware are usually tailored to the tasks of routing and forwarding, generally containing a specialized operating system (e.g. Cisco's IOS or Juniper Networks JUNOS and JUNOSe or Extreme Networks XOS), RAM, NVRAM, flash memory, and one or more processors. High-end routers contain many processors and specialized Application-specific integrated circuits (ASIC) and do a great deal of parallel processing.</p> <p>Routers connect with two or more logical subnets, which do not necessarily map one-to-one to the physical interfaces of the router. The term layer 3 switch often is used interchangeably with router, but switch is really a marketing term without a rigorous technical definition. In marketing usage, it is generally optimized for Ethernet LAN interfaces and may not have other physical interface types.</p>	TBD	Various	<a href="http://en.wikipedia.org/wiki/Router">http://en.wikipedia.org/wiki/Router</a>
			Switch: Cisco	<p>7/7/06: Changed from "TBD" to "Target" by IT Architecture Board. Original: In networks, a device that filters and forwards packets between LAN segments. Switches operate at the data link layer (layer 2) and sometimes the network layer (layer 3) of the OSI Reference Model and therefore support any packet protocol. LANs that use switches to join segments are called switched LANs or, in the case of Ethernet networks, switched Ethernet LANs.</p>	Target	Cisco Systems	<a href="http://en.wikipedia.org/wiki/Network_switch">http://en.wikipedia.org/wiki/Network_switch</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			T1/T3 (Signaling Scheme)	7/7/06: changed from TBD to Target by IT Architecture Board. Original: T1 service delivers 1.544 Mbps. Typically channelized into 24 DS0s, each capable of carrying a single voice conversation or data stream. The European T1 or E1 transmission rate is 2.048 million bits per second. A T3 circuit communicates at 45 Mbps, or 28 T1 lines.	Target	Various (communications standard)	<a href="http://en.wikipedia.org/wiki/Digital_Signal_1">http://en.wikipedia.org/wiki/Digital_Signal_1</a>
			Transceivers	7/7/06: Changed from "TBD" to "Retire" by IT Architecture Board.  Original: Short for transmitter-receiver, a device that both transmits and receives analog or digital signals. The term is used most frequently to describe the component in local-area networks (LANs) that actually applies signals onto the network wire and detects signals passing through the wire. For many LANs, the transceiver is built into the network interface card (NIC). Some types of networks, however, require an external transceiver.	Retire	None (General Concept)	<a href="http://en.wikipedia.org/wiki/Transceiver">http://en.wikipedia.org/wiki/Transceiver</a>
		2.5.7	Video Conferencing	Communication across long distances with video and audio contact that may also include graphics and data exchange. Digital video transmission systems typically consist of camera, codec (coder decoder), network access equipment, network, and audio system.			
			Bridge - H.320	A bridge connects three or more conference sites so that they can simultaneously pass data, voice, or video. Videoconferencing bridges are often called MCUs (multipoint conferencing units). H.320 is an umbrella recommendation by the ITU-T for running Multimedia (Audio/Video/Data) over ISDN based networks.  7/7/06: Changed from "TBD" to "Target" per IT Architecture Board Meeting.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/Network_bridge">http://en.wikipedia.org/wiki/Network_bridge</a>
			CODEC - H320	H.320 is an umbrella recommendation by the ITU-T for running Multimedia (Audio/Video/Data) over ISDN based networks. The main protocols in this suite are H.221, H.230, H.242, audio codecs such as G.711 and G.723, and video codecs such as H.261 and H.263.  A codec is a device or program capable of performing encoding and decoding on a digital data stream or signal. The word codec may be a combination of any of the following: 'compressor-decompressor', 'coder-decoder', or 'compression/decompression algorithm'.  7/7/06: Changed from TBD to Target Per IT Architecture Board Meeting.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Codec">http://en.wikipedia.org/wiki/Codec</a>
			Receiver - H320	An electronic device which enables a particular videoconference signal to be separated from all others being received by an earth station, and converts the signal format into a format for video, voice or data.  7/7/06: Changed from "TBD" to "Target" Per IT Architecture Board Meeting.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/H.320">http://en.wikipedia.org/wiki/H.320</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
<b>3 Component Framework</b>				Refers to the underlying foundation, technologies, standards, and specifications by which Service Components are built, exchanged, and deployed across Component-Based, Distributed, or Service-Orientated Architectures.			
<b>3.1 Security</b>				Security defines the methods of protecting information and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction in order to provide integrity, confidentiality and availability. Biometrics, two factor identification, encryption, and technologies based on the NIST FIPS140 standards are evolving areas of focus. See: <a href="http://csrc.nist.gov/cryptval/">http://csrc.nist.gov/cryptval/</a>			
<b>3.1.1 Certificates / Digital Signature</b>				Software used by a certification authority (CA) to issue digital certificates and secure access to information. The evolution of Public Key Infrastructure (PKI) is based on the verification and authentication of the parties involved in information exchange.			
	Digital Certificate Authentication - Entrust			7/7/06: Changed from TBD to Target Per IT Architecture Board Meeting. Original: Authentication implementation for controlling access to network and internet resources through managing user identification. An electronic document, digital certificate, is issued and used to prove identity and public key ownership over the network or internet.	Target		
	Entrust (version 7)			Utilizes a layered security approach to address growing risks, Entrust solutions help secure the most common digital identity and information protection pain points in an organization. These include SSL, authentication, fraud detection, shared data protection and e-mail security. Entrust supports the NIST FIPS 140-1 cryptography standard.	Target	Entrust	<a href="http://www.entrust.com">http://www.entrust.com</a>
	Entrust Entelligence Security Provider			X500 directory at HQ. Interacts with other desktop applications for functionality / secure encryption and digital signature. 3/29/06: This is a component that is used by Federal employees (~200) to encrypt sensitive files. Entrust Entelligence Security Provider for Windows is a security and policy management client for the Entrust Authority Security Manager Certification Authority. Installed at the user's desktop, Security Provider for Windows delivers a managed Entrust digital ID to the native desktop security architecture. Entelligence Security Provider's tight integration into the Microsoft desktop applications and operating system leverages the native digital signature; encryption and authentication security capabilities built into a wide range of PKI-aware Microsoft and 3rd party applications while delivering all the functional and cost benefits of deploying managed Entrust digital IDs. Entrust Entelligence provides additional support for the NIST FIPS 140-2 cryptography standard.	TBD	Entrust	<a href="http://www.entrust.com/">http://www.entrust.com/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		FIPS 140-2		The Federal Information Processing Standard (FIPS) Publication 140-2, FIPS PUB 140-2, is a U.S. government computer security standard used to accredit cryptographic modules.  The National Institute of Standards and Technology (NIST) issued the FIPS 140 Publication Series to coordinate the requirements and standards for cryptography modules which include both hardware and software components. Federal agencies and departments can validate that the module in use is covered by an existing FIPS 140-1 and FIPS 140-2 certificates which specifies the exact module name, hardware, software, firmware, and/or applet version numbers. The cryptographic modules are produced by the private sector or open source communities for use by the U.S. government and other regulated industries (such as financial and health-care institutions) that collect, store, transfer, share and disseminate "sensitive, but un-classified (SBU)" information.	Target	Government Standard (NIST)	<a href="http://en.wikipedia.org/wiki/FIPS_140-2">http://en.wikipedia.org/wiki/FIPS_140-2</a>
		FIPS 186		The DSS standard specifies a digital signature algorithm (DSA) appropriate for applications requiring a digital, rather than written, signature. The DSA authenticates the integrity of the signed data and the identity of the signatory. The DSA may also be used to prove that data was actually signed by the generator of the signature.	TBD	NIST (National Institute of Standards and Tech.)	<a href="http://www.itl.nist.gov/fipspubs/fip186.htm">http://www.itl.nist.gov/fipspubs/fip186.htm</a>
		Secure Sockets Layer (SSL)		An open, non-proprietary protocol for securing data communications across computer networks. SSL is sandwiched between the application protocol (such as HTTP, Telnet, FTP, and NNTP) and the connection protocol (such as TCP/IP, UDP). SSL provides server authentication, message integrity, data encryption, and optional client authentication for TCP/IP connections.	Target		<a href="http://www.webopedia.com/TERM/S/SSL.html">http://www.webopedia.com/TERM/S/SSL.html</a>
		<b>3.1.2 Supporting Security Services</b>		These consist of the different protocols and components to be used in addition to certificates and digital signatures.			
		Pointsec Encryption		Pointsec delivers a solution for automatic data encryption on mobile devices. Check Point Software is the only information security vendor in the world with a focus on Pure Security.	Target	Check Point Software Technologies Ltd	<a href="http://www.checkpoint.com/poointsec/">http://www.checkpoint.com/poointsec/</a>
		Secure Multipurpose Internet Mail Extensions (S/MIME)		Provides a consistent way to send and receive secure MIME data. Based on the Internet MIME standard, S/MIME provides cryptographic security services for electronic messaging applications: authentication, message integrity and non-repudiation of origin (using digital signatures) and data confidentiality (using encryption). S/MIME is not restricted to mail; it can be used with any transport mechanism that transports MIME data, such as HTTP.  7/7/06: Added to Parking Lot at IT Architecture Board Meeting.	Target	N/A (IETF industry standard)	<a href="http://en.wikipedia.org/wiki/S/MIME">http://en.wikipedia.org/wiki/S/MIME</a>
		Secure Shell (SSH) - V1		7/7/2006: added V1 and marked as Retire per IT Architecture Board Meeting. Original: A strong method of performing client authentication. Because it supports authentication, compression, confidentiality and integrity, SSH is used frequently on the Internet. SSH has two important components, RSA certificate exchange for authentication and Triple DES for session encryption. <a href="http://www.ietf.org/internet-drafts/draft-ietf-secsh-architecture-13.txt">http://www.ietf.org/internet-drafts/draft-ietf-secsh-architecture-13.txt</a> <a href="http://www.ietf.org/internet-drafts/draft-ietf-secsh-auth-kbdinteract-05.txt">http://www.ietf.org/internet-drafts/draft-ietf-secsh-auth-kbdinteract-05.txt</a>	Retire		

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Secure Shell (SSH-2)	<p>Secure Shell or SSH is a network protocol that allows data to be exchanged over a secure channel between two computers. Encryption provides confidentiality and integrity of data. SSH uses public-key cryptography to authenticate the remote computer and allow the remote computer to authenticate the user, if necessary.</p> <p>SSH is typically used to log into a remote machine and execute commands, but it also supports tunneling, forwarding arbitrary TCP ports and X11 connections; it can transfer files using the associated SFTP or SCP protocols.</p> <p>In 1996, a revised version of the protocol, SSH-2, was designed, incompatible with SSH-1. SSH-2 features both security and feature improvements over SSH-1. Better security, for example, comes through Diffie-Hellman key exchange and strong integrity checking via message authentication codes. New features of SSH-2 include the ability to run any number of shell sessions over a single SSH connection.</p> <p>7/7/2006: added V2 per IT Architecture Board Meeting.</p>	Target	N/A (IETF industry standard)	<a href="http://en.wikipedia.org/wiki/SSH">http://en.wikipedia.org/wiki/SSH</a>
			Security Assertion Markup Language (SAML)	<p>Security Assertion Markup Language (SAML) is an XML standard for exchanging authentication and authorization data between security domains, that is, between an identity provider (a producer of assertions) and a service provider (a consumer of assertions). SAML is a product of the OASIS Security Services Technical Committee.</p> <p>The single most important problem that SAML is trying to solve is the Web Browser Single Sign-On (SSO) problem. Single sign-on solutions are abundant at the intranet level (using cookies, for example) but extending these solutions beyond the intranet has been problematic and has led to the proliferation of non-interoperable proprietary technologies. SAML has become the definitive standard underlying many web Single Sign-On solutions in the enterprise identity management problem space.</p>	Target	N/A (Industry Standard)	<a href="http://en.wikipedia.org/wiki/SAML">http://en.wikipedia.org/wiki/SAML</a>
			Simple Key Management Protocol (SKIP)	<p>A protocol developed by Sun Microsystems to handle key management across IP networks and VPNs.</p> <p>SKIP is a protocol developed by the IETF Security Working Group for the sharing of encryption keys. Skip is hybrid Key distribution protocol Simple Key Management for Internet Protocols (SKIP) is similar to SSL, except that it requires no prior communication in order to establish or exchange keys on a session-by-session basis. Therefore, no connection setup overhead exists and new keys values are not continually generated.</p>	Target	N/A (Industry Standard)	<a href="http://www.networksorcery.com/enp/rfc/rfc2356.txt">http://www.networksorcery.com/enp/rfc/rfc2356.txt</a>
			Transport Layer Security (TLS)	<p>Standard for the next generation SSL. TLS provides communications privacy over the Internet. The protocol allows client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, or message forgery.</p>	TBD		<a href="http://www.ietf.org/html.charters/tls-charter.html">http://www.ietf.org/html.charters/tls-charter.html</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Web Services Security (WS-Security)	Describes enhancements to SOAP messaging to provide message integrity, message confidentiality, and single message authentication. These mechanisms can be used to accommodate a wide variety of security models and encryption technologies including X.509, Kerberos, and SAML.	Target		<a href="http://www.oasis-open.org/committees/wss/">http://www.oasis-open.org/committees/wss/</a>  <a href="http://www-106.ibm.com/developerworks/library/ws-secure/">http://www-106.ibm.com/developerworks/library/ws-secure/</a>
<b>3.2 Presentation / Interface</b>			This defines the connection between the user and the software, consisting of the presentation that is physically represented on the screen.				
3.2.1 Static Display			This consists of the software protocols that are used to create a predefined, unchanging graphical interface between the user and the software.				
			Hyper Text Markup Language (HTML)	The language used to create Web documents and a subset of Standard Generalized Markup Language (SGML) <a href="http://www.w3.org/MarkUp/">http://www.w3.org/MarkUp/</a>	Target		
3.2.2 Dynamic / Server-Side Display			This consists of the software that is used to create graphical user interfaces with the ability to change while the program is running.				
			Active Server Pages (ASP)	Active Server Pages (ASP) is Microsoft's first server-side script engine for dynamically-generated web pages. It was initially marketed as an add-on to Internet Information Services (IIS) via the Windows NT 4.0 Option Pack, but has been included as a free component of Windows Server since the initial release of Windows 2000 Server. Programming ASP websites is made easier by various built-in objects. Each object corresponds to a group of frequently-used functionality useful for creating dynamic web pages.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Active_Server_Pages">http://en.wikipedia.org/wiki/Active_Server_Pages</a>
			Active Server Pages .Net (ASP.Net)	ASP.NET is a web application framework marketed by Microsoft that programmers can use to build dynamic web sites, web applications and web services. It is part of Microsoft's .NET platform and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime, allowing programmers to write ASP.NET code using any Microsoft .NET language.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/ASP.NET">http://en.wikipedia.org/wiki/ASP.NET</a>
			Java Server Pages (JSP)	JavaServer Pages (JSP) is a Java technology that allows software developers to dynamically generate HTML, XML or other types of documents in response to a Web client request. The technology allows Java code and certain pre-defined actions to be embedded into static content.  At NETL, this technology has been replaced with Microsoft .NET technology.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/JavaServer_Pages">http://en.wikipedia.org/wiki/JavaServer_Pages</a>
3.2.3 Wireless / Mobile / Voice			This consists of the software and protocols used for wireless and voice enabled presentation devices.				
			Binary XML	Binary XML, or Binary Extensible Markup Language, refers to any specification which attempts to encode an XML document in a binary data format, rather than plain text. Using a binary XML format generally reduces the verbosity of XML documents and cost of parsing, while hindering the use of ordinary text editors to view and edit the document. Other advantages include enabling random access and indexing of XML documents.	TBD	World Wide Web Consortium (W3C)	<a href="http://en.wikipedia.org/wiki/Binary_XML">http://en.wikipedia.org/wiki/Binary_XML</a>
			Voice XML (VXML)	VXML is an XML vocabulary for specifying IVR(Integrated Voice Response) Systems <a href="http://www.w3c.org/Voice/">http://www.w3c.org/Voice/</a>	TBD		<a href="http://www.voicexml.org/">http://www.voicexml.org/</a>
			Wireless Markup Language (WML)	An XML-based protocol designed for Wireless devices.	Target		<a href="http://www.oasis-open.org/cover/wap-wml.html">http://www.oasis-open.org/cover/wap-wml.html</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			XHTML Mobile Profile (XHTMLMP)	XHTMLMP is designed for resource-constrained Web clients that do not support the full set of XHTML features, such as mobile phones, PDAs, pagers and set-top boxes. It extends XHTML Basic with modules, elements and attributes to provide a richer authoring language. XHTML replaces the Wireless Markup Language (WML).	TBD		<a href="http://www.wapforum.org/what/technical.htm">http://www.wapforum.org/what/technical.htm</a>
		3.2.4	Content Rendering	This defines the software and protocols used for transforming data for presentation in a graphical user interface.			
			Acrobat 5.05	This software is the simple way to create and share more secure and reliable Adobe PDF documents. Generate Adobe PDF files that accurately represent the original document, and take advantage of robust tools for sharing information and commenting on electronic files.  This version of Adobe Acrobat was replaced with a more recently NETL approved version of Acrobat.	Retire	Adobe Systems	<a href="http://en.wikipedia.org/wiki/Adobe_Acrobat">http://en.wikipedia.org/wiki/Adobe_Acrobat</a>
			Acrobat 7.0	Adobe Acrobat is a family of computer programs developed by Adobe Systems, designed to view, create, manipulate and manage files in Adobe's Portable Document Format (PDF). Some software in the family is commercial, and some free of charge. Adobe Reader (formerly Acrobat Reader) is available as a no-charge download from Adobe's web site, and allows the viewing and printing of PDF files. Acrobat and Reader are widely used as a way to present information with a fixed layout similar to a paper publication.	Target	Adobe Systems	<a href="http://en.wikipedia.org/wiki/Adobe_Acrobat">http://en.wikipedia.org/wiki/Adobe_Acrobat</a>
			Cascading Style Sheets (CSS)	CSS is a stylesheet language used to describe the presentation of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document, including SVG and XUL.  CSS is used to help readers of web pages to define colors, fonts, layout, and other aspects of document presentation. It is designed primarily to enable the separation of document content (written in HTML or a similar markup language) from document presentation (written in CSS). This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, and reduce complexity and repetition in the structural content. CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/Cascading_style_sheets">http://en.wikipedia.org/wiki/Cascading_style_sheets</a>
			DHTML (Dynamic HTML)	Dynamic HTML or DHTML is a collection of technologies used together to create interactive and animated web sites by using a combination of a static markup language (such as HTML), a client-side scripting language (such as JavaScript), a presentation definition language (Cascading Style Sheets, CSS), and the Document Object Model.	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/DHTML">http://en.wikipedia.org/wiki/DHTML</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			SnagIt	SnagIt is a screencasting program that operates under the Windows operating system. SnagIt replaces the native Print Screen function with additional features. It is powerful tool with easy-to-use interface, which contains most features needed by technical writers (e.g., scrolling page screenshots and automatic 'trim edges' function).	Target	Techsmith	<a href="http://en.wikipedia.org/wiki/SnagIt">http://en.wikipedia.org/wiki/SnagIt</a>
			eXtensible HTML (XHTML)	The W3C's recommendation for the next generation of HTML leveraging XML	TBD		<a href="http://www.w3.org/TR/2001/REC-xhtml11-20010531/">http://www.w3.org/TR/2001/REC-xhtml11-20010531/</a>
<b>3.3 Business Logic</b>			Defines the software, protocol or method in which business rules are enforced within applications.				
3.3.1 Platform Independent			Consists of all software languages that are able to execute and run on any type of operating system or platform.				
			C, C++ Programming Language	The "C" programming language is a general-purpose, block structured, procedural, imperative computer programming language developed in 1972 by Dennis Ritchie at the Bell Telephone Laboratories for use with the Unix operating system. It has since spread to many other platforms. Although C was designed as a system implementation language, it is also widely used for applications. C has also greatly influenced many other popular languages, especially C++, which was originally designed as an extension to C.  The C and C++ programming language has been replaced by the C# language.	Retire	N/A (various)	<a href="http://en.wikipedia.org/wiki/C_Language">http://en.wikipedia.org/wiki/C_Language</a>
			EJB (Enterprise Java Beans)	The EJB specification is one of the several Java APIs in the Java Platform, Enterprise Edition. EJB is a server-side component that encapsulates the business logic of an application. The EJB specification was originally developed in 1997 by IBM and later adopted by Sun Microsystems (EJB 1.0 and 1.1) and enhanced under the Java Community Process as JSR 19 (EJB 2.0), JSR 153 (EJB 2.1) and JSR 220(EJB 3.0).  The EJB specification intends to provide a standard way to implement the back-end 'business' code typically found in enterprise applications (as opposed to 'front-end' user-interface code). Such code was frequently found to reproduce the same types of problems, and it was found that solutions to these problems are often repeatedly re-implemented by programmers. Enterprise Java Beans were intended to handle such common concerns as persistence, transactional integrity, and security in a standard way, leaving programmers free to concentrate on the particular problem at hand.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/EJB">http://en.wikipedia.org/wiki/EJB</a>
			Java Portlet API (JSR 168)	The Java Portlet Specification defines a contract between the portlet container and portlets and provides a convenient programming model for portlet developers. The Java Portlet Specification V1.0 was developed under the Java Community Process as Java Specification Request (JSR) 168.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/JSR_168">http://en.wikipedia.org/wiki/JSR_168</a>
			Java Servlet (JSR 53)	The Java Servlet API allows a software developer to add dynamic content to a Web server using the Java platform. The generated content is commonly HTML, but may be other data such as XML. Servlets are the Java counterpart to non-Java dynamic Web content technologies such as PHP, CGI and ASP.NET. Servlets can maintain state across many server transactions by using HTTP cookies, session variables or URL rewriting.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/JavaServlet">http://en.wikipedia.org/wiki/JavaServlet</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			JavaScript	JavaScript is a scripting language most often used for client-side web development. Javascript is a dynamic, weakly typed, prototype-based language with first-class functions.	Target	Mozilla	<a href="http://en.wikipedia.org/wiki/JavaScript">http://en.wikipedia.org/wiki/JavaScript</a>
			Web Services for Remote Portals (WSRP)	WSRP defines an XML and Web services standard that will allow the plug-n-play of visual, user-facing Web services with portals or other intermediary Web applications.	TBD		<a href="http://www.oasis-open.org/committees/wsrp">http://www.oasis-open.org/committees/wsrp</a>
		3.3.2	Platform Dependent	Consists of the programming languages and methods for developing software on a specific operating system or platform.			
			C# (C-Sharp)	C# is an object-oriented programming language developed by Microsoft as part of the .NET initiative and later approved as a standard by ECMA (ECMA-334) and ISO (ISO/IEC 23270). The C# language, which has a procedural, object-oriented syntax based on C++ and includes influences from aspects of several other programming languages (most notably Delphi and Java) with a particular emphasis on simplification.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/C_Sharp_28programming_language%29">http://en.wikipedia.org/wiki/C_Sharp_28programming_language%29</a>
			Fat Client Application	A fat client is a computer (client) in client-server architecture networks which typically provides rich functionality independently of the central server. Originally just a "client", or "thick-client" in the early days of PC based computing, the word "fat" is in opposition to the "thin" within thin-client, however it typically means that the size of the application which resides on the client machine is large (although browsers such as Internet Explorer, within thin-clients, are often far bigger).	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Fat_client">http://en.wikipedia.org/wiki/Fat_client</a>
			Gupta / Centura / Team Developer	A data-centric 4GL software development environment for building business applications. The Gupta / Centura / Team Developer product name has changed as the company was acquired by various companies.	Retire	Unify Corporation	<a href="http://www.unify.com">http://www.unify.com</a>
			VB Script	A scripting language from Microsoft. A subset of Visual Basic, VBScript is widely used on the Web for both client processing within a Web page and server-side processing in Active Server Pages (ASPs).	Retire	Microsoft	<a href="http://en.wikipedia.org/wiki/Vbscript">http://en.wikipedia.org/wiki/Vbscript</a>
			VB.Net (Visual Basic .Net)	A version of the BASIC programming language from Microsoft specialized for developing Windows applications that is used within Microsoft's .NET environment.  NETL has made a decision not to support this Technology.	Target		<a href="http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000520">http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000520</a>
			Visual Basic (not VB.Net)	A version of the BASIC programming language from Microsoft specialized for developing Windows applications.	Retire	Microsoft	<a href="http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000520">http://msdn.microsoft.com/library/default.asp?url=/nhp/Default.asp?contentid=28000520</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
<b>3.4 Data Interchange</b>				Define the methods in which data is transferred and represented in and between software applications.			
	3.4.1 Data Exchange			Data Exchange is concerned with the sending of data over a communications network and the definition of data communicated from one application to another. Data Exchange provides the communications common denominator between disparate systems.			
	Database Link Interface			In telecommunication a data link is the means of connecting one location to another for the purpose of transmitting and receiving data. It can also be an assembly, consisting of parts of two data terminal equipments (DTEs) and the interconnecting data circuit, that is controlled by a link protocol enabling data to be transferred from a data source to a data sink.  7/7/06: This was added while documenting existing systems to designate that a database link existed between the system's database and another NETL database.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Data_link">http://en.wikipedia.org/wiki/Data_link</a>
	Object Linking and Embedding/Database (OLE/DB)			Object Linking and Embedding (OLE) is a technology that allows embedding and linking to documents and other objects, developed by Microsoft. It is found on the Component Object Model. For developers, it brought OLE custom controls (OCX), a way to develop and use custom user interface elements. On a technical level, an OLE object is any object that implements the IOleObject interface, possibly along with a wide range of other interfaces, depending on the object's needs.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Object_Linking_and_Embedding">http://en.wikipedia.org/wiki/Object_Linking_and_Embedding</a>
	Resource Description Framework (RDF)			RDF provides a lightweight ontology system to support the exchange of knowledge on the Web. It integrates a variety of web-based metadata activities including sitemaps, content ratings, stream channel definitions, search engine data collection (web crawling), digital library collections, and distributed authoring, using XML as interchange syntax. RDF is the foundation for the Semantic Web envisioned by Tim Berners-Lee - an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation.	TBD	N/A (industry standards)	<a href="http://www.w3.org/RDF/">http://www.w3.org/RDF/</a>
	Simple Object Access Protocol (SOAP)			SOAP stands for 'Simple Object Access Protocol'. The acronym is sometimes confused with SOA, or Service-oriented architecture; however SOAP is quite different from SOA. SOAP was originally designed as an object-access protocol. The SOAP specification is currently maintained by the XML Protocol Working Group of the World Wide Web Consortium (W3C).	Target	None (W3C industry standard)	<a href="http://en.wikipedia.org/wiki/SOAP">http://en.wikipedia.org/wiki/SOAP</a>
	Web Services User Interface (WSUI)			WSUI uses a simple schema for describing a WSUI "component" that can be used in a portal to call backend SOAP and XML services. WSUI uses XSLT stylesheets to construct user-facing views to enable users to interact with the services.	Target		<a href="http://www.wsui.org/">http://www.wsui.org/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			XMI (XML Metadata Interchange)	7/7/06: Added to IT Architecture Board Parking Lot - want to understand the history. Original: Enables easy interchange of metadata between modeling tools (based on the OMG UML) and metadata repositories (OMG MOF based) in distributed heterogeneous environments. XMI integrates three key industry standards: XML, UML, and MOF. The integration of these three standards into XMI marries the best of OMG and W3C metadata and modeling technologies, allowing developers of distributed systems to share object models and other metadata over the Internet.  NETL has made a decision not to support this Technology.	Unsupported		<a href="http://www.omg.org/technology/documents/formal/xmi.htm">http://www.omg.org/technology/documents/formal/xmi.htm</a>
			Xquery	A language used for processing and evaluating XML data. The XQuery language provides results of expressions allowing the use of evaluations to the implementation of XQuery.	Target		<a href="http://www.w3.org/XML/Query">http://www.w3.org/XML/Query</a>
			ebXML (Electronic Business using XML)	Electronic Business using eXtensible Markup Language, commonly known as e-business XML, or ebXML as it is typically referred to as, is a family of XML based standards sponsored by OASIS and UN/CEFACT whose mission is to provide an open, XML-based infrastructure that enables the global use of electronic business information in an interoperable, secure, and consistent manner by all trading partners.	Target	UN/CEFACT and OASIS	<a href="http://en.wikipedia.org/wiki/EbXML">http://en.wikipedia.org/wiki/EbXML</a>
<b>3.5 Data Management</b>				Data management is the management of all data/information in an organization. It includes data administration, the standards for defining data and the way in which people perceive and use it.			
<b>3.5.1 Database Connectivity</b>				Defines the protocol or method in which an application connects to a data store or data base.			
			Active Data Objects (ADO)	Microsoft ActiveX Data Objects (ADO) is a set of Component Object Model objects for accessing data sources. It provides a layer between programming languages and OLE DB (a means of accessing data stores, whether they be databases or otherwise, in a uniform manner), which allows a developer to write programs which access data, without knowing how the database is implemented. You must be aware of your database for connection only. The use of ADO.NET is preferred over ADO.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/ActiveX_Data_Objects">http://en.wikipedia.org/wiki/ActiveX_Data_Objects</a>
			Active Data Objects .Net (ADO.Net)	ADO.NET is a set of computer software components that can be used by programmers to access data and data services. It is a part of the base class library that is included with the Microsoft .NET Framework. It is commonly used by programmers to access and modify data stored in relational database systems, though it can also be used to access data in non-relational sources.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/ADO.NET">http://en.wikipedia.org/wiki/ADO.NET</a>
			DAO (Data Access Objects)	Data Access Objects is a general programming interface for database access on Microsoft Windows systems and should not be confused with the Data Access Object design pattern used in object-oriented software design	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Data_Access_Objects">http://en.wikipedia.org/wiki/Data_Access_Objects</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			DB2 Connector (IBM)	An IBM connectivity API to access DB2 sources. An IBM connectivity API to access DB2 sources. It connects desktop and palm-top applications to your company's mainframe and minicomputer host databases for access to your enterprise information no matter where it is. DB2 Connect provides the application enablement and robust, highly scalable communication infrastructure for connecting Web, Windows, UNIX, Linux and mobile applications to z/OS and AS/400 data. DB2 Connect is included in many of the DB2 products.	Retire	IBM	<a href="http://www-306.ibm.com/software/data/db2/">http://www-306.ibm.com/software/data/db2/</a>
			Data Encryption for Oracle transfer: Oracle Advance Security	Oracle Advanced Security—an option to Oracle Database 11g Enterprise Edition—provides extensive data protection to secure data at rest and in transit. It combines network encryption, transparent data encryption at the column and tablespace level, as well as strong authentication to help customers address data privacy and compliance requirements.	Target	Oracle	<a href="http://www.oracle.com/databases/advanced-security.html">http://www.oracle.com/databases/advanced-security.html</a>
			Java Database Connectivity (JDBC)	JDBC (Java database connectivity) is an API for the Java programming language that defines how a client may access a database. It provides methods for querying and updating data in a database. JDBC is oriented towards relational databases.  The Java Platform, Standard Edition includes the JDBC API together with an ODBC implementation of the API enabling connections to any relational database that supports ODBC. This driver is native code and not Java, and is closed source.	Retire	Sun Microsystems	<a href="http://en.wikipedia.org/wiki/JDBC">http://en.wikipedia.org/wiki/JDBC</a>
			Open Database Connectivity (ODBC)	In computing, Open Database Connectivity (ODBC) provides a standard software API method for using database management systems (DBMS). The designers of ODBC aimed to make it independent of programming languages, database systems, and operating systems.	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/ODBC">http://en.wikipedia.org/wiki/ODBC</a>
			<b>3.5.2 Reporting and Analysis</b>	Consist of the tools, languages and protocols used to extract data from a data store and process it into useful information.			
			Cognos 8 OLAP Platform	Cognos 8 Business Intelligence (BI) provides a complete range of BI capabilities on a single, service-oriented architecture (SOA). Author, share, and use reports that draw on data across all enterprise sources for better business decisions. Cognos is considered an On-Line Analytical Processing (OLAP) tool used for Data Warehouse, Decision Support, Data Mining and Business Intelligence functions.	Target	Cognos	<a href="http://www.cognos.com/products/cognos8businessintelligence/index.html">http://www.cognos.com/products/cognos8businessintelligence/index.html</a>
			Crystal Reports v7.0	Crystal Reports is a business intelligence application used to design and generate reports from a wide range of data sources. Several other applications bundle an OEM version of Crystal Reports as a general purpose reporting tool.	Retire	Business Objects	<a href="http://en.wikipedia.org/wiki/Crystal_Reports">http://en.wikipedia.org/wiki/Crystal_Reports</a>
			Java Online Analytical Processing (JOLAP)	JOLAP is a Java API for the J2EE environment that supports the creation and maintenance of OLAP data and metadata, in a vendor-independent manner. <a href="http://www.jcp.org/jsr/detail/69.jsp">http://www.jcp.org/jsr/detail/69.jsp</a> .	Retire	jcp.org	<a href="http://jcp.org/en/jsr/detail?id=69">http://jcp.org/en/jsr/detail?id=69</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Online Analytical Processing (OLAP)	<p>Online Analytical Processing, or OLAP, is an approach to quickly provide answers to analytical queries that are multidimensional in nature. OLAP is part of the broader category business intelligence, which also includes Extract transform load (ETL), relational reporting and data mining. The typical applications of OLAP are in business reporting for sales, marketing, management reporting, business process management (BPM), budgeting and forecasting, financial reporting and similar areas. The term OLAP was created as a slight modification of the traditional database term OLTP (Online Transaction Processing).</p> <p>Databases configured for OLAP employ a multidimensional data model, allowing for complex analytical and ad-hoc queries with a rapid execution time. They borrow aspects of navigational databases and hierarchical databases that are speedier than their relational kin.</p>	TBD	N/A (various)	<a href="http://en.wikipedia.org/wiki/OLAP">http://en.wikipedia.org/wiki/OLAP</a>
			SQL Server Reporting Services 2005 (Microsoft)	<p>SQL Server Reporting Services (SSRS) is a server based report generation environment developed by Microsoft. It can be used to deliver a variety of interactive and printed reports. It is administered via a web interface. Reporting services features a web services interface to support the development of custom reporting applications.</p> <p>SSRS is a competitor of Crystal Reports and other Business intelligence tools, and is included in Express, Workgroup, Standard, and Enterprise editions of Microsoft SQL Server as an install option. Reporting Services was first released in 2004 as an add-on to SQL Server 2000. The current version was released as a part of SQL Server 2005 in November 2005.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/SQL_Server_Reporting_Services">http://en.wikipedia.org/wiki/SQL_Server_Reporting_Services</a>
			Team Foundation Server	<p>Team Foundation Server (commonly abbreviated TFS) is a Microsoft offering for source control, data collection, reporting, and project tracking, and is intended for collaborative software development projects. It is available either as stand-alone software, or as the server side back end platform for Visual Studio Team System (VSTS).</p>	Target	Microsoft	<a href="http://en.wikipedia.org/wiki/Team_Foundation_Server">http://en.wikipedia.org/wiki/Team_Foundation_Server</a>
			XML for Analysis	<p>XML for Analysis uses the Simple Object Access Protocol (SOAP) to let Web browser-based programs access back-end data sources for data analysis. The specification allows companies to build online analytical processing (OLAP) and data mining applications that work over the Web.</p>	TBD	Microsoft	<a href="http://www.microsoft.com/data/xml/XMLAnalysis.htm">http://www.microsoft.com/data/xml/XMLAnalysis.htm</a>
			eXtensible Business Reporting Language (XBRL)	<p>Extensible Business Reporting Language (XBRL is an open specification which uses XML-based data tags to describe financial statements for both public and private companies.</p>	TBD		<a href="http://www.xbrl.org/">http://www.xbrl.org/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
4	Service Interface and Integration			Refers to the collection of technologies, methodologies, standards, and specifications that govern how agencies will interface (both internally and externally) with a Service Component. This area also defines the methods by which components will interface and integrate with back office / legacy assets.			
4.1	Integration			Integration defines the software services enabling elements of distributed business applications to interoperate. These elements can share function, content, and communications across heterogeneous computing environments. In particular, service integration offers a set of architecture services such as platform and service location transparency, transaction management, basic messaging between two points, and guaranteed message delivery.			
4.1.1	Middleware			Middleware increases the flexibility, interoperability, and portability of existing infrastructure by linking or "gluing" two otherwise separate applications.			
		ANSI SQL:1999 (Database Access)		SQL is the information processing industry standard language of relational database management systems (RDMS).  SQL:1999 added regular expression matching, recursive queries, triggers, support for procedural and control-of-flow statements, non-scalar types, and some object-oriented features.	Target	N/A (industry standard)	N/A (industry standard)
		ANSI SQL:2003 (Database Access)		SQL is the information processing industry standard language of relational database management systems (RDMS).  SQL:2003 introduced XML-related features, window functions, standardized sequences, and columns with auto-generated values (including identity-columns).	Target	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/SQL">http://en.wikipedia.org/wiki/SQL</a>
		ISQL/w (Database Access)		ISQL/w is a simple interactive Windows utility that allows one to enter and execute Transact-SQL statements, system procedures, and script files on a Microsoft SQL Server database using a Graphical User Interface (GUI). ISQL/W is a utility provided with Microsoft SQL Server databases.  This utility was replaced by the Query Analyzer utility included in MS SQL Server 7.X onward.	Retire	Microsoft Corporation	<a href="http://www.thescripts.com/forum/thread143675.html">http://www.thescripts.com/forum/thread143675.html</a>
		Message-Oriented Middleware (MOM): IBM Websphere MQ		IBM WebSphere MQ is a network communication software launched by IBM in March 1992. It was previously known as MQSeries, which is a trademark that was rebranded by IBM in 2002 to join the suite of WebSphere products. WebSphere MQ is IBM's Message Oriented Middleware offering. It allows independent and potentially non-concurrent applications on a distributed system to communicate with each other.  NETL has made a decision not to support this Technology.	Unsupported	IBM Corporation	<a href="http://en.wikipedia.org/wiki/MQ_Series">http://en.wikipedia.org/wiki/MQ_Series</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Message-Oriented Middleware (MOM): Microsoft Message Queue (MSMQ)	<p>Microsoft Message Queuing or MSMQ is a Message Queue implementation developed by Microsoft and deployed in its Windows Server operating systems since Windows NT 4 and Windows 95. In addition to its mainstream server platform support, MSMQ has been incorporated into Microsoft Embedded platforms since 1999 and the release of Windows CE 3.0.</p> <p>MSMQ is essentially a messaging protocol that allows applications running on disparate servers to communicate in a failsafe manner. A queue is a temporary storage location from which messages can be sent when conditions permit. This enables communication across heterogeneous networks and between computers which may not always be connected. By contrast sockets and other network protocols assume that direct connections always exist.</p>	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/MSMQ">http://en.wikipedia.org/wiki/MSMQ</a>
			NET8 (Database Access)	<p>NET8 (called SQL*NET prior to Oracle8) is Oracle's client/server middleware product that offers transparent connection from client tools to the database, or from one database to another. SQL*Net/ Net8 works across multiple network protocols and operating systems. Previous versions referred to as SQL*Net.</p> <p>7/7/06: changed from Unsupported to Retire per IT Architecture Board Meeting.</p>	Retire	Oracle Corporation	<a href="http://download.oracle.com/docs/cd/A58617_01/network.804/a58230/ch1.htm#429626">http://download.oracle.com/docs/cd/A58617_01/network.804/a58230/ch1.htm#429626</a>
			OPEN ANSI SQL/92 (Database Access)	<p>SQL is the information processing industry standard language of relational database management systems (RDMS). ANSI X3.135-1992 (also referred to as SQL-92 and ANSI SQL) is the industry standard for Database Language SQL. This standard promotes the portability and interoperability of database application programs and facilitates maintenance of database systems across heterogeneous data processing environments. SQL-92 provides a standardized way for embedding SQL statements into application development languages.</p>	Retire	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/SQL-92">http://en.wikipedia.org/wiki/SQL-92</a>
			Object Request Broker (ORB): Common Object Request Broker Architecture (CORBA)	<p>The Common Object Request Broker Architecture (CORBA) is a standard defined by the Object Management Group (OMG) that enables software components written in multiple computer languages and running on multiple computers to work together.</p> <p>NETL has made a decision not to support this Technology.</p>	Unsupported	Object Management Group (OMG)	<a href="http://en.wikipedia.org/wiki/CORBA">http://en.wikipedia.org/wiki/CORBA</a>
			Object Request Broker (ORB): Component Object Model (COM)	<p>Component Object Model (COM) is a platform for software componentry introduced by Microsoft in 1993. It is used to enable interprocess communication and dynamic object creation in any programming language that supports the technology. The term COM is often used in the software development world as an umbrella term that encompasses the OLE, OLE Automation, ActiveX, COM+ and DCOM technologies.</p> <p>NETL has made a decision not to support this Technology.</p>	Unsupported	N/A (Microsoft standard)	<a href="http://en.wikipedia.org/wiki/Component_object_model">http://en.wikipedia.org/wiki/Component_object_model</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Object Request Broker (ORB): Component Object Model + (COM+)	<p>In order to provide developers with support for distributed transactions, resource pooling, disconnected applications, event publication and subscription, better memory and processor (threads) management, as well as to position Windows as an alternative to other enterprise-level operating systems, Microsoft introduced a technology called Microsoft Transaction Server on Windows NT Service Pack 4.</p> <p>With Windows 2000, that significant extension to COM was incorporated into the operating system (as opposed to the series of external tools provided by MTS) and renamed COM+. At the same time, Microsoft deemphasized DCOM as a separate entity. Transactional COM components were then handled more directly by the added layer of COM+. COM+ components were then added through the Component Services application interface.</p> <p>NETL has made a decision not to support this Technology.</p>	Retire	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/Component_object_model">http://en.wikipedia.org/wiki/Component_object_model</a>
			Object Request Broker (ORB): Distributed Component Object Model (DCOM)	<p>Distributed Component Object Model (DCOM) is a proprietary Microsoft technology for communication among software components distributed across networked computers. DCOM, which originally was called "Network OLE", extends Microsoft's COM, and provides the communication substrate under Microsoft's COM+ application server infrastructure. It has been deprecated in favor of Microsoft .NET.</p> <p>NETL has made a decision to retire this technology and replace it with .NET.</p>	Retire	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Distributed_Component_Object_Model">http://en.wikipedia.org/wiki/Distributed_Component_Object_Model</a>
			PL/SQL (Database Access)	<p>Oracle's procedural extension to industry-standard SQL. This procedural database language is used to create standard routines (a.k.a. stored procedures) that are routinely executed within an Oracle database. This language has been highly optimized to execute efficiently only in an Oracle database.</p>	Target	Oracle Corporation	<a href="http://www.oracle.com/technology/tech/pl_sql/index.html">http://www.oracle.com/technology/tech/pl_sql/index.html</a>
			RPC (Remote Procedure Call)	<p>Remote procedure call (RPC) is a technology that allows a computer program to cause a subroutine or procedure to execute in another address space (commonly on another computer on a shared network) without the programmer explicitly coding the details for this remote interaction. That is, the programmer would write essentially the same code whether the subroutine is local to the executing program, or remote. When the software in question is written using object-oriented principles, RPC may be referred to as remote invocation or remote method invocation.</p> <p>NETL has made a decision not to support this Technology.</p>	Unsupported	N/A (standard protocol)	<a href="http://en.wikipedia.org/wiki/Remote_Procedure_Call">http://en.wikipedia.org/wiki/Remote_Procedure_Call</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
		SQL:2006 (Database Access)		SQL is the information processing industry standard language of relational database management systems (RDMS).  SQL:2006 ISO/IEC 9075-14:2006 defines ways in which SQL can be used in conjunction with XML. It defines ways of importing and storing XML data in an SQL database, manipulating it within the database and publishing both XML and conventional SQL-data in XML form. In addition, it provides facilities that permit applications to integrate into their SQL code the use of XQuery, the XML Query Language published by the World Wide Web Consortium (W3C), to concurrently access ordinary SQL-data and XML documents.	TBD	N/A (industry standard)	<a href="http://en.wikipedia.org/wiki/SQL">http://en.wikipedia.org/wiki/SQL</a>
		Toplink v9.0.3		A Java Data Objects (JDO) middleware product. TopLink is an object-relational mapping package for Java developers. It provides a powerful and flexible framework for storing Java objects in a relational database or for converting Java objects to XML documents.	Retire	Oracle	<a href="http://www.oracle.com">www.oracle.com</a>
		Transact-SQL (Database Access)		Sometimes abbreviated T-SQL, Transact-SQL is Microsoft's and Sybase's proprietary extension to the SQL language. Microsoft's implementation ships in the Microsoft SQL Server product. Sybase uses the language in its Adaptive Server Enterprise, the successor to Sybase SQL Server. This procedural database language has been highly optimized to run only within Microsoft SQL server or Sybase databases. Certain functions run in both Microsoft and Sybase database, whereas, some functions run in a particular vendor's database - depending on the T-SQL version.	Target	Microsoft Corporation	<a href="http://en.wikipedia.org/wiki/Transact_SQL">http://en.wikipedia.org/wiki/Transact_SQL</a>
		Transaction Processing Monitor		Software providing synchronous messaging and queuing along with other transaction management services designed to support the efficient processing of high volumes of transactions. Core services include load balancing, rollback/commit, and recovery. Transaction Processing provides cost-effective scalability to applications and database systems by managing and throttling transactions on behalf of the database system	TBD		
		<i>4.1.2 Enterprise Application Integration</i>		Refers to the processes and tools specializing in updating and consolidating applications and data within an enterprise. EAI focuses on leveraging existing legacy applications and data sources so that enterprises can add and migrate to current technologies.			
		Application Connectivity (Concept)		Connectivity is a perception related to using computer networks to link to people and resources. You can link or connect to large computers and the Internet providing access to world-wide information resources just by sitting in front of and clicking on your computer. On a larger, collective scale connectivity may refer to the internet bandwidth coming into and going out of a country, and the quality of the infrastructure within the country for linking to the internet.  7/7/06: This item is "TBD" as a process of integrating with COTS and other applications is required here. This may include integration with ODS. Additional research is necessary.	TBD	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Connectivity_%28computer_science%29">http://en.wikipedia.org/wiki/Connectivity_%28computer_science%29</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			Business Process Management (BPM)	Business process management (BPM) is a method of efficiently aligning an organization with the wants and needs of clients. It is a holistic management approach that promotes business effectiveness and efficiency while striving for innovation, flexibility and integration with technology. As organizations strive for attainment of their objectives, BPM attempts to continuously improve processes - the process to define, measure and improve your processes – a "process optimization" process.  7/7/06: Designated as "Target" by the NETL IT Architecture Board	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Business_Process_Management">http://en.wikipedia.org/wiki/Business_Process_Management</a>
			Transformation and Formatting	This process is responsible for the conversion of data, message content, information structure, and syntax to reconcile differences in data amongst multiple systems and data sources.	TBD	None (Generic Concept)	<a href="http://en.wikipedia.org/wiki/Data_transformation">http://en.wikipedia.org/wiki/Data_transformation</a>
<b>4.2 Interoperability</b>			Interoperability defines the capabilities of discovering and sharing data and services across disparate systems and vendors.				
4.2.1 Data Format / Classification			Defines the structure of a file. There are hundreds of formats, and every application has many different variations (database, word processing, graphics, executable program, etc.). Each format defines its own layout of the data. The file format for text is the simplest.				
			EDI (Electronic Data Interchange)	An inter-company, application-to-application communication of data in standard format for business transactions. Electronic Data Interchange (EDI) is a set of standards for structuring information that is to be electronically exchanged between and within businesses, organizations, government entities and other groups. The standards describe structures that emulate documents, for example purchase orders to automate purchasing. The term EDI is also used to refer to the implementation and operation of systems and processes for creating, transmitting, and receiving EDI documents.  Electronic Data Interchange (EDI) can be formally defined as 'The transfer of structured data, by agreed message standards, from one computer system to another without human intervention'. Most other definitions used are variations on this theme.  NETL has made a decision not to support this Technology.	Unsupported	IETF (Internet Engineering Task Force)	<a href="http://en.wikipedia.org/wiki/Electronic_Data_Interchange">http://en.wikipedia.org/wiki/Electronic_Data_Interchange</a>
			Namespaces	In general, a namespace is an abstract container providing context for the items (names, or technical terms, or words) it holds and allowing disambiguation of items having the same name (residing in different namespaces). NameSpaces are commonly used at NETL in the various contexts including Database NameSpace, .NET NameSpace and XML Namespace.  2/4/2008: Namespaces are integral to various technologies in use at NETL (databases, object oriented programming and XML) and should therefore be designated as "Target" as long as those technologies are in use.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Namespaces">http://en.wikipedia.org/wiki/Namespaces</a>
			XML Linking Language (XLINK)	7/7/06: Added to IT Architecture Board Parking Lot. Original: A language used to modify XML documents to include links, similar to hyperlinks, between resources. XLINK provides richer XML content through advanced linking integration with information resources.	Unsupported		<a href="http://www.w3.org/TR/xlink/">http://www.w3.org/TR/xlink/</a>

Area	Category	Standard	Technology	Description	State	Vendor	Website
			eXtensible Markup Language (XML)	XML has emerged as the standard format for web data, and is beginning to be used as a common data format at all levels of the architecture. Many specialized vocabularies of XML are being developed to support specific Government and Industry functions.	Target	Industry Standard	<a href="http://www.w3.org/XML/">http://www.w3.org/XML/</a>
			<b>4.2.2 Data Types / Validation</b>		Refers to standards used in identifying and affirming common structures and processing rules. This technique is referenced and abstracted from the content document or source data.		
			Document Type Definition (DTD)	DTD is used to restrict and maintain the conformance of an XML, HTML, or SGML document. The DTD provides definitions for all tags and attributes within the document and the rules for their usage. Alterations to the document are validated with the referenced DTD.	Target		<a href="http://www.w3.org/TR/REC-html40/sgml/dtd.html">http://www.w3.org/TR/REC-html40/sgml/dtd.html</a>
			XML Schema	XML Schemas define the structure, content, rules and vocabulary of an XML document. XML Schemas are useful in automation through embedding processing rules.	Target		<a href="http://www.w3.org/XML/Schem a">http://www.w3.org/XML/Schem a</a>
			<b>4.2.3 Data Transformation</b>		Data Transformation consists of the protocols and languages that change the presentation of data within a graphical user interface or application.		
			eXtensible Stylesheet Language Transform (XSLT)	Transforms XML document from one schema into another. Used for data transformation between systems using different XML schema, or mapping XML to different output devices.	Target		<a href="http://www.w3.org/Style/XSL/">http://www.w3.org/Style/XSL/</a>
			<b>4.3 Interface</b>		Interface defines the capabilities of communicating, transporting and exchanging information through a common dialog or method. Delivery Channels provide the information to reach the intended destination, whereas Interfaces allow the interaction to occur based on a predetermined framework.		
			<b>4.3.1 Service Discovery</b>		Defines the method in which applications, systems or web services are registered and discovered.		
			Universal Description Discovery and Integration (UDDI)	UDDI provides a searchable registry of XML Web Services and their associated URLs and WSDL pages.	Target	Various	<a href="http://www.uddi.org/about.html">http://www.uddi.org/about.html</a>
			<b>4.3.2 Service Description / Interface</b>		Defines the method for publishing the way in which web services or applications can be used.		
			API (Application Program Interface) / Protocol	An application programming interface (API) is a source code interface that an operating system or library provides to support requests for services to be made of it by computer programs. Advanced programming interface is a near synonym with wider application that predates the current common usage. In the original term the concept is meant to represent any well defined interface between two separate programs. The main difference is that this older term does not inculcate a parent-child relationship and can therefore be applied to peer-to-peer situations more logically, e.g. internal kernel services which can present themselves as separate programs.	Target	N/A (concept)	<a href="http://en.wikipedia.org/wiki/Application_programming_interface">http://en.wikipedia.org/wiki/Application_programming_interface</a>
			Web Services Description Language (WSDL)	WSDL is an XML based Interface Description Language for describing XML Web Services and how to use them.	Target		<a href="http://www.w3.org/TR/wsdl">http://www.w3.org/TR/wsdl</a>