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Programming				
XP1	J2EE	Java™ 2 Platform, Enterprise Edition (J2EE)	http://java.sun.com/j2ee/overview.html	The Java™ 2 Platform, Enterprise Edition (J2EE) defines the standard for developing multitier enterprise applications. J2EE simplifies enterprise applications by basing them on standardized, modular components, by providing a complete set of services to those components, and by handling many details of application behavior automatically, without complex programming.
Data Interchange				
XD1	W3C REC-xsl-20011015	Extensible Stylesheet Language (XSL) Version 1.0	http://www.w3.org/TR/xsl/	This specification defines the features and syntax for the Extensible Stylesheet Language (XSL), a language for expressing stylesheets. It consists of two parts: a language for transforming XML documents, and an XML vocabulary for specifying formatting semantics. An XSL stylesheet specifies the presentation of a class of XML documents by describing how an instance of the class is transformed into an XML document that uses the formatting vocabulary.
XD2	W3C REC-xpath-19991116	XML Path Language (XPath) Version 1.0	http://www.w3.org/TR/xpath	XPath is a language for addressing parts of an XML document, designed to be used by both XSLT and XPointer.
XD3	W3C REC-xslt-19991116	XSL Transformations (XSLT) Version 1.0	http://www.w3.org/TR/xslt	This specification defines the syntax and semantics of XSLT, which is a language for transforming XML documents into other XML documents. XSLT is designed for use as part of XSL, which is a stylesheet language for XML. In addition to XSLT, XSL includes an XML vocabulary for specifying formatting. XSL specifies the styling of an XML document by using XSLT to describe how the document is transformed into another XML document that uses the formatting vocabulary. XSLT is also designed to be used independently of XSL. However, XSLT is not intended as a completely general-purpose XML transformation

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				language. Rather it is designed primarily for the kinds of transformations that are needed when XSLT is used as part of XSL.
XD4	W3C REC-DOM-Level-2-Core-20001113	Document Object Model (DOM) Level 2 Core Specification, v. 1.0 Views Specification, V.1.0 Events Specification, V.1.0 Style Specification, V.1.0 Traversal and Range Specification, V.1.0	http://www.w3.org/TR/2000/REC-DOM-Level-2-Core-20001113/	Building upon the Document Object Model (DOM), Level 1 specifications, Level 2 specifications off a platform and language-neutral: core set of interfaces to create and manipulate the structure and content of a document; interfaces that allow programs and scripts to dynamically access and update the content of a representation of a document and update the content of style sheets documents; a generic event system to support programs and scripts; interfaces that allow programs and scripts to dynamically traverse and identify a range of content in a document.
XD5	ISO/IEC 10646-1:2000 ISO/IEC 10646-2:2001	Universal Multiple-Octet Coded Character Set (UCS) -- Part 1: Architecture and Basic Multilingual Plane Part 2: Supplementary Planes	http://www.iso.org/	Provides the standardized universal character set that represents all the world's major languages, as well as the mechanisms to support the electronic communication of these character sets. Provides interoperability, internationalization, and support for major web-languages, such as XML, HTML, and JAVA. The Access Board Telecommunications Recommendation specifies that default character sets shall conform to this standard to support text telephones for the deaf and hard-of-hearing.
XD6	ebXML	ebXML Technical Architecture Specification v1.0.4 February 16, 2001	http://www.ebxml.org/specs/Toc506692248	The ebXML specifications provide a framework in which EDI's substantial investments in Business Processes can be preserved in an architecture that exploits XML's new technical capabilities. EbXML is an international initiative by United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and the Organization for the Advancement of Structured Information Standards (OASIS).

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XD7	W3C REC xmldata- 200110502	XML Schema Part 0: Primer, 2001 Part 1: Structures, 2001 Part 2: Data Types, 2001	http://www.w3.org/XML/Schema#dev	XML Schema was approved as a W3C Recommendation on 2 May 2001. XML Schemas express shared vocabularies and allow machines to carry out rules made by people. They provide a means for defining the structure, content and semantics of XML documents.
XD8	UDDI 2.0 De Facto	Universal Description, Discovery, and Integration (UDDI) Version 2.0: 2002	http://uddi.org/	The UDDI protocol creates a platform-independent, open framework and enables businesses to quickly, easily and dynamically find and transact with one another using their preferred applications. UDDI consists of two parts: an open, standards-based (XML and SOAP) specification for service description and discovery; and a shared web-based business registry. Specifications include: Programmer's API, Data Structure, XML Schema, Replication, XML Replication Schema, XML Custody Schema, and Operator's Specification. Over 220 companies are members of the UDDI community. In time, the UDDI project will be turned over to a standards organization with the continued commitment of the cross-industry design teams that initiated UDDI.
Data – Images/Graphics				
XD9	REC- png.html:1996	PNG (Portable Network Graphics) Specification Version 1.0	http://www.w3.org/TR/REC-png.html	PNG (Portable Network Graphics) is an extensible file format for the lossless, portable, well-compressed storage of raster images. PNG provides a patent-free replacement for GIF and can also replace many common uses of TIFF. Indexed-color, grayscale, and truecolor images are supported, plus an optional alpha channel. Sample depths range from 1 to 16 bits. PNG is designed to work well in online viewing applications, such as the World Wide Web, so it is fully streamable with a progressive display option. PNG is robust, providing both full file integrity checking and simple detection of common transmission errors. Also, PNG can store gamma

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				<p>and chromaticity data for improved color matching on heterogeneous platforms.</p> <p>This specification defines a proposed Internet Media Type (image/png).</p>
Network -- Transport				
XN1	IEEE 802	<p>Ethernet (Family of Standards)</p> <p>DOE margin note:</p> <p>The majority of DOE Local Area Networks are based on Ethernet standards.</p>	http://standards.ieee.org/getieee802/	<p>Ethernet is the most widely used specification for local area networks (LANs), and it is used throughout the Department of Energy. It is based on the Carrier Sense Multiple Access With Collision Detection (CSMA/CD) protocol, and it is implemented at the Physical Layer in the ISO Open Systems Interconnection Reference Model. Originally, Ethernet supported a data transmission rate of 10-Mbps. Ethernet evolved into Fast Ethernet, with a data rate of 100-Mbps, and a Gigabit Ethernet, with a data rate of 1-Gbs. Ethernet LANS may employ twisted-pair wiring (in a number of grades), coaxial cable, or fiber optic cable. Ethernet also supports wireless LANs. Ethernet topologies include "bus" and "star" schemes. IEEE, via its Get IEE 802 Program, makes IEEE 802 standards available at no charge http://standards.ieee.org/getieee802/.</p>
XN2	ATM	<p>Asynchronous Transfer Mode (ATM) (Family of Standards)</p> <p>DOE margin note:</p> <p>The ATM-based DOEnet provides wide-area network connectivity service to 40 DOE sites supporting the Department's corporate business applications. It has upgraded and</p>	http://www.atmforum.com/techspecs1.html	<p>The standardization of ATM started in ITU-T about 10 years ago during the study period from 1984-1988, and resulted in the I.121 recommendation on Broadband Aspects of ISDN. Since then, ATM standards have rapidly evolved and are defined in numerous recommendations that describe the major characteristics of the technology.</p> <p>The ATM Forum is accelerating the availability of ATM specifications in close cooperation with other forums/standards bodies such as the International Telecommunications Union (ITU), ETSI (European Telecommunications Standards Institute, IETF (Internet Engineering Task Force), DSL Forum</p>

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		modernized the network infrastructure to respond to growing customer requirements. ATM technology allows the eventual integration of data, voice, and video traffic on the same network, thereby reducing costs. This growth will demand that the network services provided to our customers support multiple technologies and achieve scalability at the same time.		(Digital Subscriber Line), OIF (Optical Interworking Forum) and more.
XN3	ISO/IEC 9314-	Fiber Distributed Data Interface (FDDI) Family of Standards	http://web.ansi.org/public/std_info.html	Fiber Distributed Data Interface (FDDI) is a 100 Mbit/s international standard LAN architecture, defined in the ISO/IEC 9314 family of standards. The underlying medium is optical fiber (though it can be copper cable, in which case it may be called CDDI) and the topology is a dual-attached, counter-rotating token ring.
XN4	ANSI T1.105 (Family of Standards)	Synchronous Optical Network (SONET) DOE margin note: DOE's ESNet, as well as OC-3 connections at labs, are based on SONET standards.	http://www.ansi.org/	This series of standards, identified by the T1.105 prefix, defines a modular family of rates and formats available for use in interfaces generally referred to as SONET. It describes a base rate and format along with a multiplexing scheme. Other characteristics described in this standard are: layering of overhead, definitions of function and position of overhead, frequency justification, scrambling, conditions for setting overhead values, a standardized set of payload carrying envelopes.
Hardware Platform -- Interfaces				
XH1	USB 1.1 USB-2.0	Universal Serial Bus	http://www.usb.org/	USB 1.1 is currently in use throughout DOE, but its use is waning as more products employ the USB

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				<p>2.0 specification to boost functionality.</p> <p>USB 1.1 meets Microsoft's Plug and Play (PnP) specification, allowing users to install and hot-swap devices without tedious installation procedures or reboots. USB allows 127 devices to run at the same time on the bus. USB 1.1 provides high-speed and low-speed data transfer. In high-speed mode, a USB device achieves a data transfer rate of 12Mbps; in low speed mode the data transfer rate is 1.5Mbps.</p> <p>USB Specification version 2.0 will increase device data throughout up to 480Mbps, 40 times faster than USB 1.1 devices. With the increased speed, more high performance peripherals will be available. Even with multiple high-speed peripherals connected to a USB 2 bus, bandwidth bottleneck will not be problematic. The new specification inherits USB 1.1's Plug and Play and hot-swapping capability. USB 2.0 has backward compatibility for USB 1.1 hardware.</p>
Accessibility				
<p>Section 508 of the Rehabilitation Act requires access to electronic and information technology (EIT) procured by Federal agencies in a manner that enables full participation in society by people with disabilities (Public Law 105-220, Section 508). The U.S. Architectural and Transportation Barriers Compliance Board (Access Board) developed accessibility standards for the various technologies covered by the law. These standards have been folded into the Federal government's procurement regulations. These standards are designed to allow individuals and organizations to understand how to design, develop, and procure EIT to meet the compliance requirements to ensure the accessible use of Federal EIT. Additional information is available from the Access Board (http://www.access-board.gov/sec508/guide/index.htm).</p>				
XA1	Section 508: Part 1194.21: June 21, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Software Applications and	http://www.access-board.gov/sec508/guide/1194.21.htm	These provisions are applicable for both software applications and operating systems. They address program features that must be contained in software for the product to meet the standards. Because there are many programming languages from which a software producer may select, it is

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		Operating Systems		impossible to give specific coding techniques. In some cases it is possible that a particular programming language may not possess the features necessary to fulfill these requirements. In those instances, another language for creating the program would most likely have to be considered for the product to meet the standards.
XA2	Section 508: Part 1194.22: June 21, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Web-based Intranet and Internet Information and Applications	http://www.access-board.gov/sec508/guide/1194.22.htm	These provisions of the standards provide the requirements that must be followed by Federal agencies when producing web pages. These provisions apply unless doing so would impose an undue burden. A web site will be in compliance with the 508 standards if it meets paragraphs (a) through (p) of Section 1194.22. The tips and techniques discussed in the document for complying with particular sections are not necessarily the only ways of providing compliance with 508. In many cases, they are techniques developed by the Board, the Department of Education, and the Department of Justice that have been tested by users with a wide variety of screen reader software. With the evolution of technology, other techniques may become available or even preferable.
XA3	Section 508: Part 1194.23: June 21, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Telecommunications Products	http://www.access-board.gov/sec508/guide/1194.23.htm	Section 255 of the Telecommunications Act of 1996 requires phone manufacturers and telecommunications service providers to make their products accessible when readily achievable to do so. A TTY (Teletypewriter), for example, is considered customer premises equipment, subject to section 255 provisions. The Access Board wrote guidelines for section 255 known as the Telecommunications Act Accessibility Guidelines (36 CFR, Part 1193). The FCC (Federal Communications Commission) used the guidelines as a basis for developing a report and order under section 255 . The Access Board also

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				incorporated the guideline's language in the 508 standard. Using consistent language in both documents enables companies to develop products that satisfy manufacture's design requirements as well as Federal agencies' procurement requirements.
XA4	Section 508: Part 1194.24: June 21, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Video and Multimedia Products	http://www.access-board.gov/sec508/guide/1194.24.htm	Provides guidance on implementing displays, caption decoder circuitry, video and multimedia productions, audio circuitry, and user-select features.
XA5	Section 508: Part 1194.25: August 1, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Self Contained, Closed Products	http://www.access-board.gov/sec508/guide/1194.25.htm	Provides guidance on products that address: usability, touch screens and controls, auditory output, color coding, screen flicker, timed responses, biometric forms of user identification, volume control, color and contrast settings, and operable controls.
XA6	Section 508: Part 1194.26: August 1, 2001	Guide to the Section 508 Standards for Electronic and Information Technology: Desktop and Portable Computers	http://www.access-board.gov/sec508/guide/1194.26.htm	Provides guidance on controls and keys, biometric user identification, touch screens and controls, and connection points for desktop and portable computers.