Glossary

A

Active Server Pages (ASP) – A Microsoft Technology that helps in producing dynamic HTML Reponses based on the user query. ASP is essentially a program that runs inside the web server of Microsoft Operating systems listening to the Web requests. Based on the request, this program dynamically generates the content and returns the response to the user.

ADO – Microsoft ADO (ActiveX Data Objects) is a Component object model object for accessing data sources. It provides a layer between programming languages and databases, which allows a developer to write programs which access data, without knowing how the database is implemented. No knowledge of SQL is required to access a database when using ADO, although one can use ADO to execute arbitrary SQL commands. The disadvantage of this is that this introduces a dependency upon the database.

ASP.NET – Similar to Microsoft's ASP. ASP.NET is rewritten to fit into a larger .NET framework. Unlike ASP, ASP.NET supports code written in complied languages such as VB, C#, C++, and Perl.

Asynchronous Transfer Mode (ATM) – International standard for cell relay in which multiple service types (such as voice, video, or data) are conveyed in fixed-length (53-byte) cells. Fixed-length cells allow cell processing to occur in hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media such as E3, SONET, and T3.

ActiveX – A set of technologies that allows software components to interact with one another in a networked environment, regardless of the language in which the components were created.

Application Server – A server program in a computer within a distributed network that provides the business logic for an application program. The application server is frequently viewed as part of a three-tier application, consisting of a graphical user interface (GUI) server, an application (business logic) server, and a database and transaction server.

Authentication – The process for verifying an entity or object is who or what it claims to be. Examples include confirming the source and integrity of information, such as verifying a digital signature or verifying the identity of a user or computer.

B

Bandwidth – The data transfer capacity of a transmission medium. In digital communications, the transfer capacity expressed in bits per second (bps) or megabits per second (Mbps).

BEA WebLogic – A J2EE application server and also an HTTP Web server by BEA Systems of San Jose, California, for Unix, Linux, Solaris, Microsoft Windows, and other platforms. WebLogic supports Oracle, DB2, Microsoft SQL Server, and other JDBC-compliant databases. WebLogic Server supports WS-Security and is compliant with J2EE 1.3.

Browser – Software that interprets the markup of files in HTML, formats them into Web pages, and displays them to the end user. Some browsers also permit end users to send and receive e-mail, read newsgroups, and play sound or video files embedded in Web documents.

Business-to-Business (B2B) – Is also referred to as Business Automation or e-business. This term is applied to the electronic transaction taking place among the related partners and collaborators in an enterprise scenario.

Business-to-Customer (B2C) – Corresponds to the retailing part of electronic commerce that takes place on the Internet. In B2C, the interchange of services, products, or information takes place between the business and consumer directly.

C

Cable Modem – A device that enables hook up of a PC to a local cable TV line and receive data at about 1.5 Mbps. This data rate far exceeds that of the prevalent 28.8 and 56 Kbps telephone modems and the up to 128 Kbps of Integrated Services Digital Network (ISDN) and is about the same as the data rate available to subscribers of Digital Subscriber Line (DSL) telephone service. A cable modem can be added to or integrated with a set-top box that provides your TV set with channels for Internet access.

Cache – A special memory subsystem in which frequently used data values are duplicated for quick access.

Cascading Style Sheet (CSS) – Set of overlay rules that are read by your HTML browser, which uses these rules for displaying, layout, and formatting of the XML-generated HTML file(s). CSS allows for fast changes in look and feel without having to plunge into the HTML file(s).

Client – The requesting program or user in a client/server relationship. For example, the user of a Web browser is effectively making client requests for pages from servers all over the Web. The browser itself is a client in its relationship with the computer that is getting and returning the requested HTML file.

CLR – The type, metadata, and execution systems provided by the .NET Framework, which supply managed code and data with services such as cross-language integration, code access security, object lifetime management, and debugging and profiling support. By targeting the CLR, compilers and other tools can offer these services to developers.

Common Gateway Interface (CGI) – A standard way of extending Web server functionality by executing programs or scripts on a Web server in response to Web browser requests.

COM – Stands for Component Object Model. It is the component technology that works on Microsoft's operating system.

Connection Leak – Is a situation when connection from the pool was not closed explicitly.

Connection Pooling – A technique used for establishing a pool of resource connections that applications can share on an application server.

Cross Site Scripting – Often attackers will inject JavaScript, VBScript, ActiveX, HTML, or Flash into a vulnerable application to fool a user in order to gather data from users.

D

DataBase Management System (DBMS) – A set of computer programs for organizing the information in a database. A DBMS supports the structuring of the database in a standard format and provides tools for data input, verification, storage, retrieval, query, and manipulation.

DB2 – An RDBMS product suite from IBM. DB2 is available on almost all operating environments.

Deadlock – When two or more transactions conflict in such a way that each is waiting for the other before they proceed. For instance, Transaction A might have a lock on Record 1 while trying to write to Record 2, while Transaction B has a lock on

Record 2 while trying to write to Record 1. The two transactions will wait for each other forever unless the deadlock is somehow resolved.

DSL – Acronym for Digital Subscriber Line which is a family of digital telecommunications protocols designed to allow high speed data communication over the existing copper telephone lines between end-users and telephone companies. (From www.adaptivedigital.com/services/serv_definitions.htm).

E

E-Commerce – (Electronic commerce or EC) is the buying and selling of goods and services on the Internet, especially the World Wide Web. In practice, this term and a newer term, e-business, are often used interchangeably. For online retail selling, the term e-tailing is sometimes used.

Enterprise Java Beans (EJB) – A component as well as specification proposed by Sun Microsystems. These components are deployed on the business tier of application servers. They are responsible for business logic and they often execute the business logic in a secure, reliable, and transaction environment. There are three types of EJBs: Session Bean, Entity Bean, and Message Driven Beans.

Exception – Handling is a programming language mechanism designed to handle runtime errors or other problems (exceptions) inside a computer program.

F

Fat server – In a client/server architecture, a server that performs most of the processing, with the client performing little or no processing.

File Transfer Protocol (FTP) – An Internet tool/software utility which allows the transfering of files between two computers that are connected to the Internet. Anonymous FTP allows connection to remote computers and to transfer publicly available computer files or programs.

Firewall – A security feature in the intranet of a company that ensures a secure environment for the organization. A firewall forms an entry point for the requests coming from the outside environment. Likewise, a firewall acts as the exit point for the requests that are going out of the organization into intranet. A firewall system can be configured to provide security environment at one of these three levels via Packet Filtering, Circuit relay, or Application level Gateway. While packet filtering provides the basic screening of source and destination IP address and/or port along with the protocol, Application Gateway acts as a proxy that controls the requests and responses along with authentication, authorization as well as an access control mechanism.

G

Gateway – A dedicated device that routes network traffic and enables communication between different networking protocols.

GUI – Software designed to make applications easier to use by giving them all the same look and feel, usually involving a mouse to move a pointer on the computer screen, menus to select actions, and a variety of buttons or sliders which can be used to perform tasks or manipulate the screen.

H

HTML – Stands for Hyper Text Markup Language. It is used to design and develop Web pages.

HTTP – HyperText Transfer Protocol. A team led by Dr. Tim Berners-Lee at CERN designed this protocol. This protocol helps in the transport of hypertext across the networks in request-response behavior.

Hub – The master station through which all communications to, from, and between microterminals must flow. In the future, satellites with on-board processing will allow hubs to be eliminated, as MESH networks are able to connect all points in a network together.

Hypertext Preprocessor (PHP) – A scripting language that is available on the Linux systems. PHP helps in the creation of dynamic Web pages similar to Microsoft's ASP or Sun's JSP. The PHP files carry an extension of .php, .php3, or .phtml. When a user requests this page, the contents of the PHP pages are interpreted to generate the dynamic contents to produce the HTML content to the end user.

I

Inter Process Communication (IPC) – A capability supported by some operating systems that allows one process to communicate with another process. The processes can be running on the same computer or on different computers connected through a network.

Internet – Defined as the network of networks that spans the entire globe. No one owns it and controls it. However, it is useful to every individual as well as organizations. The Internet popularized the TCP/IP protocol, and TCP/IP has become the de facto business protocol among enterprise users. The Internet can be credited with the enormous success of B2C businesses. E-mail and IRC, the applications that work on the Internet, have shrunk communication time enormously. In fact, e-mail and IRC can be considered as new communication for individuals as well as businesses. The World Wide Web (WWW) is the most frequently and widely used part of the Internet.

Internet Mail Accessing Protocol (IMAP) – A protocol for retrieving e-mail messages. The latest version, IMAP4, is similar to POP3 but supports some additional features. For example, with IMAP4, users can search through e-mail messages for keywords while the messages are still on the mail server. Users can then choose which messages to download to their machines.

Internet Service Providers (ISP) – A business or organization that offers users access to the Internet and related services. Most telecommunications operators are ISPs. They provide services such as Internet transit, domain name registration and hosting, dialup access, leased line access, and collocation.

Intranet – A private network of various computers within an organization. An Intranet is used to share company information and computing resources among employees. An intranet uses regular Internet protocols and, in general, looks like a private version of the Internet.

IP Address – An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address. Within an isolated network, IP addresses can be assigned at random as long as each one is unique. However, connecting a private network to the Internet requires using registered IP addresses (called Internet addresses) to avoid duplicates.

ISDN – (Integrated Services Digital Network) is a set of CCITT/ITU standards for digital transmission over ordinary telephone copper wire as well as over other media. Home and business users who install an ISDN adapter (in place of a telephone modem) receive Web pages at up to 128 Kbps compared with the maximum 56 Kbps rate of a modem connection. ISDN requires adapters at both ends of the transmission, so the access provider also needs an ISDN adapter.

J

J2EE – A platform-independent, Java-centric environment from Sun for developing, building, and deploying Web-based enterprise applications online. The J2EE platform consists of a set of services, APIs, and protocols that provide the functionality for developing multitiered, Web-based applications.

Java – A simple, object oriented, multi-threaded, robust, secure, platform independent programming language created by Sun Microsystems. Java was initially called Oak. Dr. James Gosling created this language sometime in the middle of 1995. Over the years, Java has witnessed tremendous growth in terms of acceptance and applicability in the client/server, distributed and intranet, extranet, and Internet environments. Java is not only thriving on computer systems, but also driving devices such as PDA, mobile phones, set top boxes, buttons, cards, etc.

Java Beans – An object model being developed by SunSoft that is targeted to interoperate with a variety of other object models, including COM and CORBA.

JavaScript – A scripting language developed by Netscape to enable Web authors to design interactive sites. Although it shares many of the features and structures of the full Java language, it was developed independently. JavaScript can interact with HTML source code, enabling Web authors to spice up their sites with dynamic content. JavaScript is endorsed by a number of software companies and is an open language that anyone can use without purchasing a license. It is supported by recent browsers from Netscape and Microsoft, though Internet Explorer supports only a subset, which Microsoft calls Jscript.

Java Server Pages (JSP) – Popularly called JSP, are the presentation components on the Web tier. JSP technology, introduced by Sun Microsystems, allows encoding Java Programming language into the HTML pages. These JSP pages are identified by a .jsp extension.

JIT Complier – In computing, just-in-time compilation (JIT), also known as dynamic translation, is a technique for improving the performance of interpreted programs, by allowing parts of a program to be partially compiled. This represents a kind of hybrid approach between compiled and interpreted languages.

JVM – A crucial component of the Java platform. The availability of JVMs on almost all types of hardware and software platforms enables Java to function both as middleware and a platform in its own right.

K

Kernel – The fundamental part of an operating system. It is a piece of software responsible for providing secure access to the machine's hardware to various computer programs. Since there are many programs, and access to the hardware is limited, the kernel is also responsible for deciding when and how long a program should be able to make use of a piece of hardware, in a technique called multiplexing. Accessing the hardware directly could also be very complex.

L

Legacy Systems – Hardware and software applications in which a company has already invested considerable time and money. Legacy systems have typically performed critical operations in companies for many years even though they may no longer use state-of-the-art technology. Replacing legacy systems can be disruptive and therefore requires careful planning and appropriate migration support from the manufacturer.

Load Balancing – A technique with the help of which incoming request to a system can be evenly distributed among the several systems and system software so that the accessibility of the systems for the users is addressed properly. Load balance can

be implemented in software or hardware or a combination of the two. Web servers and application servers of enterprises that are exposed to Internet and intranet usually require load balancing.

Load Testing – The testing of a system that attempts to cause failures involving how the performance of a system varies under normal conditions of utilization (e.g., as the load increases and becomes heavy). Load testing can identify failures involving scalability requirements as well as distribution and load balancing mechanisms in distributed, scalable systems. Contrast with stress testing.

Local Area Network (LAN) – A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves.

M

M-Commerce (mobile commerce) – The buying and selling of goods and services through wireless handheld devices such as cellular telephones and personal digital assistants (PDAs). Known as next-generation e-commerce, m-commerce enables users to access the Internet without needing to find a place to plug in. The emerging technology behind m-commerce is based on the Wireless Application Protocol (WAP), (From http://searchmobilecomputing.techtarget.com/sDefinition/0,,sid40_gci214590,00.html).

Managed Code – Code that is executed by the CLR. Managed code provides information (i.e., metadata) to allow the CLR to locate methods encoded in assembly modules, store and retrieve security information, handle exceptions, and walk the program stack. Managed code can access both managed data and unmanaged data.

Memory pool – A private free store from which related memory allocations occur. Memory pools permit memory to be partitioned for different uses. Such partitioning improves locality, which, in turn, reduces swapping. The allocations from a given SmartHeap pool may be fixed size or variable size. SmartHeap permits controlling how much memory is retained in the private free store of a given pool and controlling when such free memory is returned to the operating system for others to use.

Modem – Short for modulator-demodulator device. Modems allow computers to transmit information to one another via an ordinary telephone line.

Multi-Processor – A Central Processing Unit (CPU) which has more than one processor.

Multimedia – Human-computer interaction involving text, graphics, voice, and video. Often also includes concepts from hypertext. This term has come to be almost synonymous with CD-ROM in the personal computer world because the large amounts of data involved are currently best supplied on CD-ROM.

Multithreading – Running several processes in rapid sequence within a single program, regardless of which logical method of multitasking is being used by the operating system.

N

Network Operating System (NOS) – Designed to pass information and communicate between more than one computer. Examples include AppleShare, Novell NetWare, and Windows NT Server.

O

Object Request Broker (ORB) – A component in the CORBA programming model that acts as the middleware between clients and servers. In the CORBA model, a client can request a service without knowing anything about what servers are attached to the network. The various ORBs receive the requests, forward them to the appropriate servers, and then hand the results back to the client.

ODBC – Open DataBase Connectivity, a standard database access method, was developed by the SQL Access group in 1992. The goal of ODBC is to make it possible to access any data from any application, regardless of which database management system (DBMS) is handling the data. ODBC manages this by inserting a middle layer, called a database driver, between an application and the DBMS. The purpose of this layer is to translate the application's data queries into commands that the DBMS understands.

Operating System (OS) – The most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

Oracle – A relational database management system (RDBMS) developed and copy-righted by the Oracle Corporation.

P

Performance Testing (PT) – In software engineering, performance testing is testing that is performed to determine how fast some aspect of a system performs under a particular workload.

Post Office Protocol (POP) – Used to retrieve e-mail from a mail server. Most e-mail applications (sometimes called an e-mail client) use the POP protocol, although some can use the newer IMAP (Internet Message Access Protocol).

Process – A program that is running. A process is the active element in a computer. Terminals, files, and other I/O devices communicate with each other through processes. Thus, network communications are interprocess communications (that is, communication between processes).

Processor – Also known as the CPU (central processing unit). The CPU is the brains of the computer because it performs most of the calculations to run programs and allows the performance work on the machine. In terms of computing power, the CPU is the most important element of a computer system.

Q

Quality – The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

Queue – A list that allows additions at one end and deletions at the opposite end. Items in a queue are usually processed on the first in, first out (FIFO) principle, in that the first item entered is the first item to be processed.

R

Redundant Array of Independent Disks (RAID) – A data storage method in which data, along with information used for error correction such as parity bits, is distributed among two or more hard disk drives to improve performance and reliability. The hard disk array is governed by array management software and a disk controller, which handles the error correction. RAID is generally used on network servers.

Regression Testing – The selective retesting of a software system that has been modified to ensure that any bugs have been fixed and that no other previously-working functions have failed as a result of the reparations and that newly added features have not created problems with previous versions of the software. Also referred to as verification testing, regression testing is initiated after a programmer has attempted to fix a recognized problem or has added source code to a program that may have inadvertently introduced errors.

Remote Procedural Call (RPC) – A mechanism to allow the execution of individual routines on remote computers across a network. Communication to these routines is via passing arguments so that, in contrast to using Sockets, the communication itself is hidden from the application. The programming model is that of the clients-servers.

Routers – A device that determines the next network point to which a data packet should be forwarded enroute toward its destination. The router is connected to at least two networks and determines which way to send each data packet based on its current understanding of the state of the networks it is connected to. Routers create or maintain a table of the available routes and use this information to determine the best route for a given data packet.

RAM – Random Access Memory is the most common computer memory which can be used by programs to perform necessary tasks while the computer is on. An integrated circuit memory chip allows information to be stored or accessed in any order, and all storage locations are equally accessible.

S

Secured Socket Layer (SSL) – A protocol developed by Netscape for transmitting private documents via the Internet. SSL works by using a private key to encrypt data that are transferred over the SSL connection. Both Netscape Navigator and Internet Explorer support SSL, and many Web sites use the protocol to obtain confidential user information such as credit card numbers.

Server – In the client/server programming model, a server is a program that awaits and fulfills requests from client programs in the same or other computers. A given application in a computer may function as a client with requests for services from other programs and also as a server of requests from other programs.

Servlet – Java programs that can be run dynamically from a Web server. Servlets are a server-side technology. A servlet is an intermediating layer between an HTTP request of a client and the Web server.

Simple Mail Transfer Protocol (SMTP) – A protocol for sending e-mail messages between servers. Most e-mail systems that send mail over the Internet use SMTP to send messages from one server to another; the messages can then be retrieved with an e-mail client using either POP or IMAP. In addition, SMTP is generally used to send messages from a mail client to a mail server. This is why the POP or IMAP server and the SMTP server need to be specified when users configure their e-mail applications.

Sniffer – An application or device that can read, monitor, and capture network data exchanges and read network packets. If the packets are not encrypted, a sniffer provides a full view of the data inside the packet.

Sniffing – Method of hacking using some scripting languages or technology.

Software Development Life Cycle – A process of developing a software system in an organized, controlled, and predictable way. The process starts at the conception of the project to its termination with the company, sometime called a cradle-to-grave process.

SQL injection – As the name suggests, an SQL injection attach "injects" or manipulates SQL code. By adding unexpected SQL to a query, it is possible to manipulate a database in many unanticipated ways.

Storage Area Network (SAN) – Collections of initiators, such as servers or individual "workstations," and storage devices, typically disk- or tape-based, that are connected over a specialized or private LAN.

Structured Query Language (SQL) – Pronounced as either see-kwell or as separate letters. SQL is a standardized query language for requesting information from a database. The original version called SEQUEL (structured English query language) was designed by an IBM research center in 1974 and 1975. SQL was first introduced as a commercial database system in 1979 by Oracle Corporation.

Subnet – A portion of a network, which may be a physically independent network, which shares a network address with other portions of the network and is distinguished by a subnet number. A subnet is to a network what a network is to an internet.

T

T-1 – A leased-line connection capable of carrying data at 1,544,000 bits-per-second. At maximum theoretical capacity, a T-1 line could move a megabyte in less than 10 seconds. That is still not fast enough for full-screen, full-motion video, for which at least 10,000,000 bits-per-second is needed. T-1 lines are commonly used to connect large LANs to the Internet.

TCP/IP (Transmission Control Protocol/Internet Protocol) – This is the suite of protocols that defines the Internet. Originally designed for the UNIX operating system, TCP/IP software is now included with every major kind of computer operating system. To be truly on the Internet, a computer must have TCP/IP software.

Test Bed – An execution environment configured for testing. May consist of specific hardware, OS, network topology, configuration of the product under test, other application or system software, etc. The Test Plan for a project should enumerate the test beds to be used.

Threads – Similar to processes, in that both represent a single sequence of instructions executed in parallel with other sequences, either by time slicing or multiprocessing. Threads are a way for a program to split itself into two or more simultaneously running tasks.

U

User Datagram Protocol (UDP) – Connectionless transport-layer protocol; part of the TCP/IP protocol stack. Exchanges datagrams/packets without guaranteed delivery or acknowledgments. Error processing and retransmission is handled by other protocols. Sometimes used in place of TCP where transaction-based application programs communicate; normally carries non-critical network information.

V

VBScript – Short for Visual Basic Scripting Edition, a scripting language developed by Microsoft and supported by Microsoft's Internet Explorer Web browser. VBScript is based on the Visual Basic programming language, but is much simpler. In many ways, it is similar to JavaScript. It enables Web authors to include interactive controls, such as buttons and scrollbars, on their Web pages

Virtual user – A software entity, internal to Web Performance Trainer and Trade, that simulates a real user by repeatedly performing a Business Case during a load test.

W

Web Application – A software program that uses Hypertext Transfer Protocol (HTTP) for its core communication protocol and that delivers Web-based information to the user in the Hypertext Markup Language (HTML) language.

Wide Area Network (WAN) – A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local-area networks (LANs).

X

XML – Short for Extensible Markup Language, a specification developed by the W3C. XML is a pared-down version of SGML, designed especially for Web documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation, and interpretation of data between applications and between organizations.