

Novell Developer Kit

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GLOSSARY

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About This Glossary

This documentation provides definitions for terms and acronyms used in NetWare development.

Revision History

1

The following table lists the changes made to this documentation in reverse chronological order.

| Release | Changes |
|------------------|--|
| October 11, 2006 | Updated the description of “absolute path” on page 11 . Removed link in “ActiveX control” on page 12 section because these controls are now Unsupported. |
| March 1, 2006 | Updated to revised Novell® documentation standards. |
| June 2003 | Converted to Glossary format. Removed 1 obsolete entry. Added entries for SOAP (page 85) , SSI (page 86) , UDDI (page 93) , and XForms (page 99) . Added links to several open source entries. |
| June 2001 | Updated documentation to improve document accessibility. |
| September 2000 | Revised many entries. Added dozens of new entries. Deleted 22 obsolete or unnecessary entries. |
| July 1998 | Component added to the NDK. |

AAA

abend

Abnormal end. A serious software failure that halts (brings down) the server.

absolute path

In NetWare, a path specification that is complete, starting with a NetWare volume or DOS drive letter. The syntax of a NetWare path is volume:\directory\ . . . \directory\filename. For example:

SYS:\

SYS:\PUBLIC\FILER.EXE

C:\WINDOWS\SYSTEM\WINSOCK.DLL

In general, an absolute path is a path specification that begins with the root directory.

access control list

ACL. In NDS, an optional, multivalued property of every object. The ACL lists the objects (trustees) that can access the object, along with their explicit rights assignments. Each value contains a complete object (trustee) name, an indication of the type of rights held by the trustee, the specific rights settings, and an indication of whether the rights are inheritable. Any inherited rights filters that have been set on this object are also included.

access mask

A binary value that specifies a combination of rights in the NetWare file system. When a trustee has no assigned rights to a file or directory, the trustee inherits rights from a superior directory for which rights are assigned. The access mask can be used to modify those inherited rights. If the access mask is 0, the trustee inherits all rights from the superior directory. Also known as the inherited rights mask.

account

An administrative entity that gives a user access to a system upon login.

account balance

A value assigned by a NetWare network administrator, after installing Accounting services, to limit the amount of network services a user can use.

accounting

A NetWare option that allows a network administrator to charge users for network resources and services by assigning each user an account balance. The account balance diminishes as the user uses the network. Five network resources or services can be controlled through Accounting: blocks read from server hard disks, blocks written to server hard disks, amount of time the user is logged in to the server, amount of data stored on server hard disks, and number of requests serviced by the server.

acknowledgment

In telecommunications, a code sent by the destination station to the origination station, to indicate that it is ready to accept data, or to acknowledge error-free receipt of data. In

certain network protocols, ACK is the name of the field, frame, or packet that contains such a code. ACK is the mnemonic for the ACKnowledge character, ASCII code 6.

ACL

access control list. In NDS, an optional, multivalued property of every object. The ACL lists the objects (trustees) that can access the object, along with their explicit rights assignments. Each value contains a complete object (trustee) name, an indication of the type of rights held by the trustee, the specific rights settings, and an indication of whether the rights are inheritable. Any inherited rights filters that have been set on this object are also included.

Active Directory

Microsoft's Directory service, introduced with Windows 2000. Active Directory is LDAP compliant and based on the DNS naming system. Workgroups are given domain names like web sites and are available to LDAP-compliant clients. See also ["NDS" on page 63](#).

Active Directory Services Interface

ADSI. A programming interface between Microsoft's Active Directory and other directories. ADSI is based on COM and can be used with Visual Basic and other programming languages.

ActiveX control

A software module based on the Microsoft COM (Component Object Model) architecture. ActiveX controls allow developers to quickly add functionality to programs, such as toolbars, calculators, and spreadsheets. On the Internet, ActiveX controls can be linked to a web page so that it is launched as an application. Novell provides ActiveX controls that provide an interface to network and NDS functionality.

ActiveX controls were formerly known as "OLE controls" or "OCXs."

adaptive mutex

In symmetric multiprocessing, a mutual exclusion lock that combines elements of both spin locks and mutex sleep locks. An example of an adaptive lock is a lock which begins as a spin lock, then converts into a mutex sleep lock after a given number of spin attempts to acquire the lock. See also ["mutex" on page 62](#).

address

A value that uniquely identifies and specifies the location of an element in a computer or computer network, for example: a location in memory or disk storage, a network or portion of a network, a station or other device on a network, and so forth.

address

Short for "e-mail address." In GroupWise, a unique identifier that specifies the e-mail location of a user, resource, group, or distribution list, in order to facilitate the delivery of electronic messages. Address components include the Internet domain if one has been assigned, and the GroupWise domain, post office, and user ID.

address space

In symmetric multiprocessing, the range of memory addresses available to a task in a multiprocessing environment. This set of addresses uniquely identifies threads that compose a task of executable work.

administrator

The person who sets up a server, creates user login accounts and passwords, creates groups, sets security, and maintains the server.

ADSI

Active Directory Services Interface. A programming interface between Microsoft's Active Directory and other directories. ADSI is based on COM and can be used with Visual Basic and other programming languages.

AES

Asynchronous Event Scheduler.

AFO

audit file object.

AFP

AppleTalk* Filing Protocol. An AppleTalk protocol that provides the rules for communication and data transmission between servers and clients in an AppleShare* network.

AIO

asynchronous I/O. An I/O model in which processing overlaps input and output. This data transmission method uses start bits and stop bits to coordinate the flow of data so that the time intervals between individual characters do not need to be equal. Parity can be enabled to check the accuracy of the transmission.

alert

A message that notifies the user of a software or hardware problem.

algorithm

A procedure for solving a problem in a finite number of steps, frequently involving repetition of an operation, as by a computer. Data compression and creating lists of random numbers are uses of algorithms.

alias

An alternative name assigned to a system, to a program, to an electronic mail address, or to another object.

allocate

To set apart; to designate. For example, "to set apart a range of the available memory in a computer."

ALO

at least once.

alpha test

A test of the code-complete product by a select group of users, usually internal to the developer's company. Alpha testing follows integration and system testing.

ANSI

American National Standards Institute. The organization that sets the standards for many technical fields and provides the most common standard for computer terminals.

API

application programming interface. A set of functions, procedures, values, or other defined interface standards that an application uses to request and carry out services performed by another program or by an operating system. A single API typically specifies how input should be requested and obtained, and how output should be done.

append

To add to the end.

applet

Short for Java applet. Small Java programs that are application oriented rather than server oriented. Java applets can be embedded in an HTML page and executed by a browser without waiting for server processing. This means that Java applets are particularly useful for processing intensive or time-sensitive elements of a Web page, such as multimedia, animation, or user-interactive forms.

AppleTalk

Apple* Computer's suite of protocols that make up a complete network architecture. AppleTalk is a set of protocols that specify communications, ranging from application interfaces to media access. AppleTalk enables the hardware and software on a network to interact and to route data so that users can share files, access printers, and communicate with one another.

application

A program (or set of programs) that makes calls to the OS and manipulates data files, allowing a user to perform a specific job (such as accounting, networking, or word processing).

application layer

In the OSI and TCP/IP network architecture reference models, the topmost network layer, responsible for giving applications access to the network.

application programming interface

API. A set of functions, procedures, values, or other defined interface standards that an application uses to request and carry out services performed by another program or by an operating system. A single API typically specifies how input should be requested and obtained, and how output should be done.

architecture

The logical structure of a system. For example, a communication system's architecture is composed of protocols, formats, sequences of operations, and functional specifications.

archive

To copy files to a storage device (such as a diskette, magnetic tape, or optical disc) for long-term storage or backup purposes.

ARCnet

Attached Resource Computer Network. A LAN topology that combines the token-passing element of token ring with star, bus, and tree topologies. ARCnet is assigned the ANSI standard number 878.1. ARCnet is relatively fast (2.5 Mbps), reliable, and supports coaxial, twisted pair, and fiber-optic implementations.

array

A named, ordered collection of data elements that have identical attributes; or an ordered collection of identical structures.

ASCII

American Standard Code for Information Interchange. The standard adopted by ANSI for compatible data transfer between data systems and associated equipment. The 8-bit code consists of 7 character bits with the 8th bit for parity check. The full ASCII character set consists of 128 characters.

The ASCII character set consists of 128 characters. These characters are the same as the first 128 characters of the ANSI character set. The extended ASCII character set consists of a second set of 128 characters, whose elements vary with different computer manufacturers and with different languages.

ASCIIZ string

A NULL-terminated ASCII string.

Asynchronous Event Scheduler

AES.

ASMP

asymmetric multiprocessing. A technique used to improve processing performance by dividing operations among two or more processors. For example, when NetWare SFT III is running on a dual-CPU machine, one processor performs all hardware-related I/O, while the other processor performs file service, NCP service, and other processing not directly related to the server hardware.

assembly language

A low-level computer language that closely approximates machine code. Assembly language is often used to create high-speed programs.

asymmetric multiprocessing

ASMP. A technique used to improve processing performance by dividing operations among two or more processors. For example, when NetWare SFT III is running on a dual-CPU machine, one processor performs all hardware-related I/O, while the other processor performs file service, NCP service, and other processing not directly related to the server hardware.

asynchronous I/O

AIO. An I/O model in which processing overlaps input and output. This data transmission method uses start bits and stop bits to coordinate the flow of data so that the time intervals between individual characters do not need to be equal. Parity can be enabled to check the accuracy of the transmission.

asynchronous execution

In symmetric multiprocessing (SMP), the mechanism of controlling the execution of two or more processes (threads) by sharing event status information, but without using specific common events (such as common clock or timing signals). The SMP synchronization functions are based on asynchronous mechanisms.

Asynchronous Transfer Mode

ATM. A packet-switching technology that is similar to a high-speed telephone switch. This very high-speed method of transmission uses fixed-size "cells" of 53 bytes to transmit information over fiber. Because of this it is also known as "cell relay." ATM is well suited to backbone implementation requiring scalability and seamless integration with WANs.

ATM

Asynchronous Transfer Mode. A packet-switching technology that is similar to a high-speed telephone switch. This very high-speed method of transmission uses fixed-size "cells" of 53 bytes to transmit information over fiber. Because of this it is also known as "cell relay." ATM is well suited to backbone implementation requiring scalability and seamless integration with WANs.

atomic

In computer processing, being indivisible. For example, an atomic action is an action that has no intermediate condition between initiation and completion.

attach

To establish a connection between a workstation and a NetWare server. The server assigns each client a connection number and attaches each to the server's login directory. For Macintosh clients, this restricts the user to viewing server resources without connecting to the server.

attribute

In NDS, a property belonging to a class. An attribute consists of a type identifier together with one or more values. Also known as a property.

attribute

In the NetWare file system, any of the characteristics assigned to directories and files that dictate what can be done with the directories or files. Attributes include:

Archive Needed (A)

Can't Compress (Cc)

Compressed (Co)

Copy Inhibit (Ci)

Delete Inhibit (Di)

Don't Compress (Dc)

Don't Migrate (Dm)

Don't Suballocate (Ds)

Execute Only (X)

Hidden (H)

Immediate Compress (Ic)

Indexed (I)

Migrated (M)

Normal (N)

Purge (P)

Read Only (Ro)

Read Write (Rw)

Rename Inhibit (R)

Shareable (Sh)

System (Sy)

Transactional (T)

attribute type

In NDS, a letter or letters that distinguish the type of object name, such as O or OU (same as name type) or CN.

audit file

A system log created when auditing is enabled at the volume or NDS container level. At the volume level it stores a record of all audited transactions; at the NDS level it also stores all activities performed by the auditor. Also called "audit data file."

audit history file

A system log, created when auditing is enabled at the volume container level, which stores a record of all activities carried out by the auditor.

auditing

In NetWare, the collecting and examining of records to make sure that the server's resources are protected by the server Trusted Computing Base (TCB).

auditor

An individual authorized by an organization to use the NetWare network's auditing mechanisms to identify attempted or successful access by users to unauthorized information.

authentication

A means of verifying that an NDS object (user or otherwise) is authorized to use the network. This process provides network security.

authentication method

The means used for authentication. In most cases, NDS is used as the authentication method. However, third parties can create their own authentication methods using NMA.

Authentication Store

The NDS class attributes in which secret authentication information is stored. The store can be class attributes of the Login Method Object or User objects.

autochanger

A storage media system that automatically exchanges the storage device (such as tape or CD-ROM) in a drive. An autochanger allows many storage devices to be available at once.

autoload

To load automatically. For example, an NLM might autoload another NLM that provides a service, such as an API.

BBB

back up

To copy data (file, directory, or volume) to storage media such as floppy disks, cartridge tapes, hard disks, or other media. Data that is backed up can be restored if the original is corrupted or destroyed.

backbone

The central part of a network, which carries the heaviest traffic, transmits at the fastest rate, and connects smaller networks that have lower data-transfer rates.

background

See [“background processing” on page 19](#).

background processing

Computer processing that occurs without interaction with the user.

backout

In TTS, the process of halting an incomplete transaction and leaving the database in its original condition.

backup

A duplicate of data (file, directory, volume), copied to a storage device (floppy diskette, cartridge tape, hard disk). A backup can be retrieved and restored if the original is corrupted or destroyed.

backward compatibility

In programming, the ability of a function to behave in the same way as it did in previous versions of a software product.

In application software, the ability of a version of a software product to accept and manipulate user files created in earlier versions of that product.

bandwidth

The carrying capacity of a circuit, usually measured in bits per second (bps) for digital circuits, or hertz (Hz) for analog circuits.

banner page

The first page of a print job that supplies information about a print job, such as the name of the user who initiated the job, and the time and date of printing.

barrier

In symmetric multiprocessing, a synchronization mechanism that guarantees that all participating threads have reached a specified point in their execution before any of the threads are allowed to proceed.

base class

In NDS, the class used in the creation of an object in the Directory tree.

base schema

The standard set of NDS object classes and properties defined by Novell. The schema can be extended by custom applications.

batch file

An executable file containing a sequence of several commands that are carried out in turn when the file is run. A DOS batch file has a .bat extension.

beta test

A test of a finished product by a select group of users, both internal and external to the developer's company. Beta testing follows alpha testing.

binary

Describing a numbering system with a radix of 2 that uses only the digits 0 and 1, or a signalling system that uses only two states, OFF (0) and ON (1). Binary numbering can be used to encode data.

bindery

A flat (nonhierarchical) network database used by NetWare® versions before 4.0 that contains definitions for objects such as users, print queues, servers, and so on.

bindery context

The container object in the Directory tree that enables NDS servers to provide network information to servers and programs that depend on using the NetWare bindery.

bindery object

An entry in a bindery.

biometrics

The identification of a person through biological characteristics, such as fingerprints, voiceprints, iris or retinal structure, or hand-written signatures. Biometric identification is more trustworthy than using passwords or smart cards, which can be stolen.

BIOS

A set of programs, usually in firmware, that enables each computer's CPU to communicate with printers, disks, keyboards, consoles, and other attached input and output devices.

bit

A contraction of the term "binary digit." A bit (1 or 0) is the smallest unit of information a computer can process.

bit rate

The rate at which bits (binary digits) are transmitted over a communications line. Bit rate is usually expressed in bits per second (bps).

bitmap

A set of bits that define attributes of an object, or the options of a function.

block

The smallest amount of disk space that the server reads or writes at a time. All disk accesses are measured in blocks. The block size for a volume is defined at installation, and is usually between 4 KB and 64 KB.

blocked thread

A thread (process) that has suspended operation and is waiting for some event to occur before it can continue execution. For example, a thread might block (or sleep) while waiting to complete a device read or to acquire a lock or resource, allowing other threads to run in the meantime.

blocking

In NLM™ programming, the temporary suspension of the operation of a thread, which is retained in memory without terminating. Blocking allows other threads to run. A blocked thread is also described as sleeping.

blocking function

In NLM programming, a function that relinquishes control of the CPU. Some functions block while waiting for a given event to occur (for example, a device read). Some functions block to allow other threads to run.

boot

To start or restart a computer and ready it for use. A "cold" boot is done by turning on the power switch. A "warm" boot resets the computer without turning off the power source.

BOOTP

Bootstrap Protocol. A TCP/IP protocol that enables an internet node (for example, a diskless workstation) to discover certain start-up information, such as its IP address.

border

The boundaries of a window or dialog box.

bps

bits per second. The number of bits transmitted or received in one second.

breakpoint

A location in a program that brings up the debugger.

bridge

A device that connects two or more physical networks, forwarding frames between networks based on information in the data-link header. Because it operates at the data-link layer, it is transparent to the network-layer protocols. See also ["router" on page 79](#).

bring down

To halt a the operation of, as in "to bring down the server."

bring up

To start a the operation of, as in "to bring up the server."

broadcast

To send a message to all connected nodes on a data communications network (as opposed to sending a message to a single node).

brouter

bridging router. A device that routes some protocols and bridges others.

browse

To scan a collection of items, such as a database, a file manager view, a list box, Web pages, or text files, for a particular item or for items of interest. To browse implies observing rather than changing information.

browser

A utility that combines viewing with the ability to perform other actions, depending on rights or other dependencies. For example, a Web browser allows a user to access pages on the World Wide Web; a NetWare Administrator browser window allows a user to access the NDS tree.

BSD

Berkeley Software Distribution. A socket interface in UNIX first introduced in BSD UNIX.

buffer

A temporary storage location in memory where data can be held for processing.

A buffer can be used to hold data in an area where it can be easily accessed. It is often used to compensate for differences in data-flow rates (for example, between a terminal and its transmission line). A buffer can also be used as a backup mechanism, holding data that can then be retransmitted if an error is detected during transmission.

bug

An error in a program.

bus

A common pathway, usually hardware, between multiple devices. All devices on the bus receive the same data, but only those to which the data is addressed will use the data.

bus network

A network in which all workstations and the NetWare server are connected to a central cable (called a trunk or bus). A common example is Ethernet.

byte

A group of consecutive binary digits (bits) that a computer recognizes as one unit. In almost all computers, a byte consists of eight bits equivalent to a single character, such as the letter A. Earlier computers, however, have used 16-bit or 32-bit bytes.

CCC

C

A popular high-level programming language that is able to manipulate the computer at a low level. Compilers for C are available for nearly all computer platforms. C was developed at Bell Labs and standardized by ANSI and ISO in 1989.

C++

An object-oriented programming language based on C.

C3PO

Custom 3rd Party Object. An API that allows the developer to add menu and toolbar items to GroupWise that trigger custom applications.

cache

A quickly-accessible area of RAM or a directory or a disk that stores frequently-used information.

cache memory

Available RAM that NetWare uses to improve NetWare server access time. Cache memory allocates memory for the hash table, the FAT, the Turbo FAT, suballocation tables, the directory cache, a temporary data storage area for files and NLM programs, and available memory for other functions.

call support layer

CSL. The software module that provides a general-purpose interface for controlling WAN calls. Call control refers to a set of actions taken to establish, maintain, and disconnect a WAN connection.

callback

A routine that runs when a specified event occurs.

canonicalize

To expand a partial or abbreviated NDS name to its canonical form (which includes a full naming path with a type specification for each naming component). A canonical name is made by adding the name context to the name.

case-insensitive

Describes an application or feature that does not distinguish between uppercase and lowercase letters (for example, DOS).

case-sensitive

Describes an application or feature that distinguishes between uppercase and lowercase letters.

CDM

custom device module. The driver component in the NWPA used to drive specific storage devices attached to the host adapter.

CD-ROM

compact disk read-only memory. A means of data storage using optical storage technology. A single CD-ROM disk can hold more than 650 megabytes of information, or half a billion characters of text. Unlike floppy disks, CD-ROM disks can be read from but not written to.

central processing unit

CPU. The integrated circuit that processes data in a computer.

certificate

In public-key cryptography, a digital document attesting to the binding of a public key to an owner (such as an individual or a Web server). A certificate verifies claims that a given public key does in fact belong to a given individual. It is used to prevent unauthorized users from using phony keys to impersonate legitimate users. Certificates contain, at a minimum, a public key and a name. Normally they also contain the expiration date of the key, the name of the certifying authority that issued the certificate, and the serial number of the certificate. They can also contain the digital signature of the certificate issuer.

Also called "digital certificate," "digital ID," "digital passport," and "public key certificate."

certificate authority

An entity that issues the digital certificates used in public-key cryptography and attests to the identity of the person or organization to whom it issues the digital certificates. For example, a company may issue certificates to its employees, a university to its students, or a town to its citizens. Also called "certification authority" or "certifying authority."

CGI

Common Gateway Interface. A standard for how a Web server communicates with external programs. CGI specifies how to pass arguments to the executing program as part of the HTTP request and defines a set of environment variables. Commonly, the program generates some HTML that is passed back to the browser, but it can also request redirection to a different URL.

This interface allows for interactive sites instead of just static text and images.

channel

A path that allows the transmission of electromagnetic signals between a computer and a device; the path can consist of cables and storage devices and can include a host bus adapter.

character

1. Group of eight binary digits operated on as a unit; in this sense may also be called a byte or octet.
2. Any letter, number or symbol used in a language's system.
3. In computer usage, the letters, numbers, punctuation marks, and symbols found on the standard keyboard. An "extended character" can be displayed and printed but is accessed by using combinations of keystrokes or commands.

character string

An array of zero or more adjacent characters (of type char) followed by a NULL character which marks the end of the string.

checksum

The numeric computation that combines the bits of a transmitted message; also the resulting value. The value is transmitted with the message; the receiver recalculates the checksum and compares it to the received value to detect transmission errors.

cipher

An algorithm used in encryption. Some ciphers are stronger—that is, more resistant to cracking—than others. During an SSL connection, the client and the server agree to use the strongest cipher that they can both communicate with.

ciphertext

Text that has been encrypted.

class

1. In NDS, the type of an object in the Directory tree, such as User, Volume, or Group.
2. In object oriented programming, a user-defined data type that defines a collection of objects that share the same characteristics. An object, or class member, is one instance of the class. Concrete classes are instantiated, whereas abstract classes pass on characteristics through inheritance.

cleartext

Text that has not been encrypted and is readable by text editors and word processors. Also called "plaintext."

CLIB

C-Library. The dynamically loaded Runtime NetWare C library that provides an interface to the NetWare OS.

CLIB_OPT

An option that specifies runtime parameters for the NetWare API.

It can also be used as a work around when `sopen` is called multiple times by the same thread. See [*sopen \(NDK: Single and Intra-File Services\)*](#).

client

A system or software application that requests services from another application, usually across a network.

client/server or client-server

Describes software that includes both a component that runs on client workstations and a component that runs on a server.

client-server model

A data communication model that relies on distributed, intelligent interaction between network servers and individual (client) workstations. The client software requests services from servers. The server software continually accepts requests from and returns responses to clients.

coarse-grained multiprocessing

A form of multiprocessing in which a large number (typically tens of thousands) of instructions are executed between synchronization points. See also [“fine-grained multiprocessing” on page 42](#).

code

In programming, a sequence of commands to a computer or peripheral device to perform a task.

code page

CP. A table that lists the possible combinations for a character set used by a computer. For example, a DOS code page that defines the extended ASCII character set consists of 256 character combinations, using an 8-bit code. Unicode, using a 16-bit code, allows up to 65,536 unique characters. Separate code pages apply to different languages.

COM

Component Object Model. A component software architecture from Microsoft that provides a structure for building objects that can be called up and executed in a Windows environment. The COM architecture includes COM objects, OLE automation, controls (OLE and ActiveX controls), and compound or ActiveX documents.

COM port

communications port. A connection device between a computer and another component, such as a printer or modem. A COM port is a serial port, meaning that information is transmitted through it one bit at a time.

command

A verbal or typed instruction given to a computer system.

command history buffer

A part of memory that saves strings entered from the keyboard. (String oriented functions support this feature.)

command line

The place a user enters a command, such as after a DOS prompt.

Common Gateway Interface

CGI. A standard for how a Web server communicates with external programs. CGI specifies how to pass arguments to the executing program as part of the HTTP request and defines a set of environment variables. Commonly, the program generates some HTML that is passed back to the browser, but it can also request redirection to a different URL.

This interface allows for interactive sites instead of just static text and images.

Common Object Request Broker Architecture

CORBA. The communications component of the OMA, a standard from the Object Management Group (OMG). CORBA provides rules for communication between distributed objects (self-contained software modules), allowing them to be executed anywhere on the network without regard to what language they were written in or what platform they run on. CORBA is often described as a "software bus" or "object bus."

communication protocol

A convention or set of rules used by a program or OS to communicate between two or more endpoints. Although many communication protocols are used, they all allow information to be packaged, sent from a source, and delivered to a destination system. Also known as "transport protocol."

compiler

A program that translates source code into machine language object code modules which can then be linked into executable programs.

Component Object Model.

See "COM" on page 26.

compression

The process of compacting information for more efficient transmission or storage. The information must then be decompressed before it is used.

condition variable

In symmetric multiprocessing, a synchronization mechanism that is used to communicate information between cooperating threads. Threads sleep (suspend execution) to wait on a condition (or event) variable until a predicate based on shared variables is satisfied. Sleeping threads can then resume execution through the operations of signal or broadcast condition variables.

connection number

A unique number assigned to any process, print server, application, workstation, or other entity that attaches to a NetWare server. The number can be different each time an attachment is made. Connection numbers are used in implementing network security and for network accounting. They reflect the object's place in the server's connection table. Additionally, they provide an easy way to identify and obtain information about the objects logged in on the network.

connectionless communication

A communication method in which packets are sent and received independently of one another, such as in datagram delivery.

console

The monitor and keyboard where a user views and controls NetWare server or host activity.

console command

An instruction issued at the NetWare server console prompt to control the network server.

console operator

A user or member of a group who has been assigned rights to manage the NetWare server.

container

Short for "container object."

container object

In NDS, an NDS object that can hold, or contain, other objects. Container objects are used to logically group related objects in the Directory tree to provide those objects with rights

and services. The three types of container objects are Country, Organization, and Organizational Unit.

context

The environment of a function or object. For example, NDS functions require context information that describes a location within the Directory tree. CLIB context contains information required by NLM applications, such as current thread.

context-sensitive help

Help information about the specific choice that the cursor or pointer is on. Context-sensitive help can also be online information in Help that is relevant to what the user is doing within an application. Sometimes pressing F1 is referred to as "context-sensitive help" because the choice of help topic is based on the user's context.

control-character checking

If the DONT_CHECK_CTRL_CHARS attribute is set, control characters (Ctrl+C, Ctrl+S, and Tab) are not checked for. Ctrl+C terminates an NLM abnormally (via the abort function), and Ctrl+S pauses output (output can be resumed by pressing any key). Tab stops are eight columns apart.

controlled access printer

An NDPS printer that has been added to the NDS tree as an NDS object. Access is available only to users who have been granted rights to it.

convergence

In NDS, the synchronization process that makes a partition and all of its replicas match after changes in NDS configuration.

CORBA

Common Object Request Broker Architecture. The communications component of the OMA, a standard from the Object Management Group (OMG). CORBA provides rules for communication between distributed objects (self-contained software modules), allowing them to be executed anywhere on the network without regard to what language they were written in or what platform they run on. CORBA is often described as a "software bus" or "object bus."

core dump

A file generated under certain conditions when an error terminates a program. The file is a snapshot of the program state at the moment of termination.

corrupt

Describes a file or disk that has been rendered unusable by an error in a program.

CPU

central processing unit. The integrated circuit that processes data in a computer.

CRC

cyclic redundancy check. A sophisticated checksum algorithm used to detect packet transmission errors. The CRC is built into each Ethernet frame as an error checking value to ensure data integrity.

critical section

A block of code for a thread that does not permit other code (for other threads) to run concurrently. For example, a section of code might manipulate shared data, requiring exclusive access to that data to prevent data corruption.

cryptography

The conversion of data into a secret code for transmission over a public network. The original text, or plaintext, is converted into a coded equivalent called ciphertext via an encryption algorithm. The ciphertext is decoded (decrypted) at the receiving end and turned back into plaintext.

CSL

call support layer. The software module that provides a general-purpose interface for controlling WAN calls. Call control refers to a set of actions taken to establish, maintain, and disconnect a WAN connection.

current working directory

CWD. The directory where a user is currently working. This is the directory at the end of the current path (displayed at the DOS prompt if the \$p\$g command is in force); it is where files are stored if no path is specified; and it is the directory searched first for a requested file.

cursor

A symbol (such as a blinking line or block) on the screen that indicates where your next keystroke will appear or have effect. Cursor keys move the cursor around the screen.

cursor coupling

The combining of input and output cursors into one cursor.

custom device module

CDM. The driver component in the NWPA used to drive specific storage devices attached to the host adapter.

CWD

current working directory. The directory where a user is currently working. This is the directory at the end of the current path (displayed at the DOS prompt if the \$p\$g command is in force); it is where files are stored if no path is specified; and it is the directory searched first for a requested file.

cyclic redundancy check

CRC. A sophisticated checksum algorithm used to detect packet transmission errors. The CRC is built into each Ethernet frame as an error checking value to ensure data integrity.

DDD

DAB

dynamic array block. A data structure used to manage dynamic arrays.

DAT

digital audio tape.

data

Numbers, characters, images, or other method of recording, in a form which can be input into a computer, stored and processed there, or transmitted on some digital channel.

data fork

The part of a Macintosh file that contains information (data) specified by the user. A Macintosh file contains two parts, the data fork and the resource fork.

data-link layer

The second of seven layers of the OSI reference model. The data-link layer is involved in packaging and addressing information, and controlling the flow of separate transmissions over communication lines.

data migration

The transfer of inactive data from a NetWare volume to tape, optical disk, or other near-line or offline storage media. Data migration lets an administrator move data to a storage device, while NetWare still sees the data as residing on the volume.

database

A set of files or records containing logically related information. The database is managed by a database application, which provides organization for and access to the files or records.

datagram

A data transmission packet used in connectionless mode communication. Datagrams are independent of each other in that the receiver is able to reconstruct a message without any dependency on the order in which packets are received. In general, datagrams are not acknowledged.

DBCS

double-byte character set. A character set that uses two bytes to represent a single character (unlike ASCII, which uses one byte per character). DBCS's are used for non-Roman alphabets such as Japanese, Chinese, and Korean.

DDE

Dynamic Data Exchange. The message protocol in Microsoft Windows that allows applications to request and exchange data.

deadlock

1. A situation that occurs when two or more nodes are waiting for messages from each other and cannot continue processing verbs; when two or more applications attempt to lock the same files.
2. A condition that occurs when two tasks are retrying operations on files, pages, or records that one has already locked.

debug

To remove errors from a program.

debug screen

A screen that displays information useful in debugging programs. This screen can be accessed from within an assembly or C program or by means of a special key sequence. This screen is hidden unless the server is at a breakpoint.

debugger

A tool used by developers to identify errors in a program in order to facilitate their removal.

decryption

The unscrambling or decoding of encrypted data.

default

A preset option or value used by the computer until it is specifically changed by a user.

definition file

A file containing standard linking information about an NLM, such as the names of the object files to link and the name of the executable to create. It also includes a list of functions that the NLM wants to import or export. The definition file consists of keywords which direct the NetWare linker in creating the executable.

Delphi

An object-oriented application development system for Windows based on Object Pascal. Delphi includes visual programming tools and creates .exe files.

DET

directory entry table. A table on every network volume that contains directory entries for each file on the volume. The table, stored in the server's memory, enables quick access to the location of every file.

developer

A person who creates software, either for internal use or for commercial sale.

device

A mechanical, electrical, or electronic peripheral with a specific purpose. For example, a printer or mouse, or, in AS/400, a synonym for logical unit (LU).

device driver

The software or firmware that translates OS requests (such as I/O requests) into a format that is recognizable by specific hardware, such as adapters, hard disks, or network boards.

DFS

direct file system. An interface that enables developers to access the file system at a low level. This interface is useful for such applications as databases and backup utilities.

DIB

Directory Information Base. The database, prior to NetWare 4.11, that was used for storing NDS configuration information. With NetWare 4.11 this database was called "Directory database." With NetWare 5 it was changed to "NDS database."

digital video disk

DVD. A high-capacity disk format that is the same size as a CD-ROM (5 inches in diameter), but is capable of holding between 4.7 and 17 gigabytes (compared to about 650 megabytes for a CD-ROM). The capacity of a DVD is determined by whether one or two substrates are used, and by whether information is recorded on one or two sides of the disk.

A recordable digital video disk (DVD-R) can store 3.8 gigabytes per side.

direct file system

DFS. An interface that enables developers to access the file system at a low level. This interface is useful for such applications as databases and backup utilities.

direct memory access

DMA. A circuit that assists the transfer of information between a device and system memory. It is managed by a special processor.

directory

A collection of files and other subdirectories. Directories are information containers, like files. However, instead of text or other data, directories contain files and other directories. In addition, directories are hierarchically organized; that is, a directory has a parent directory "above" and may also have subdirectories "below." Similarly, each subdirectory can contain other files and also can have more subdirectories. Because they are hierarchically organized, directories provide a logical way to organize files.

directory cache

The area of server memory where the most often requested directory entries are copied from disk directory tables. The file cache reduces the time it takes to determine a file's location on the disk.

directory entry

Information in a server's DET that pertains to a single file or directory, including the name, owner, date and time of last update, first six trustee assignments, and location of the first data block.

directory entry table

DET. A table on every network volume that contains directory entries for each file on the volume. The table, stored in the server's memory, enables quick access to the location of every file.

Directory Information Base

DIB. The database, prior to NetWare 4.11, that was used for storing NDS configuration information. With NetWare 4.11 this database was called "Directory database." With NetWare 5 it was changed to "NDS database."

directory node

An addressable entity on a network that contains information about a directory. It is a 128-byte entry found in the DET maintained by a server.

Contains information about a directory: directory name, attributes, inherited rights mask, creation date and time, creator's object ID, a link to the parent directory, and a link to a trustee node (if one exists). It also includes a name space indicator, last archived date and time, last modification date and time, up to 8 trustee object IDs, up to 8 trustee rights masks. See also "[file node](#)" on [page 41](#) and *trustee node*.

directory path

The full specification that includes server name, volume name, and name of each directory leading to the file system directory you need to access. The position of a file within the file system is its directory path.

Directory Services

See "[NDS](#)" on [page 63](#).

directory table

A table that contains basic information about files, directories, directory trustees, or other entities on the volume.

Directory tree

In NDS, the hierarchical structure of objects in the NDS database, called the NDS tree. The NDS tree includes container objects that are used to organize the network and leaf objects that represent resources.

dirty cache buffers

File blocks in memory waiting to be written to disk.

DirXML

The technology that allows an application-specific database to share selected data with NDS eDirectory and to keep modifications to that data synchronized with both NDS and the database.

disk allocation block

A data storage unit used by a volume. Disk allocation blocks come in five sizes: 4 KB, 8 KB, 16 KB, 32 KB, and 64 KB. Disk allocation block sizes can vary from volume to volume; however, one volume can have only one block size. A disk allocation block represents the smallest file size for that volume.

disk cache

An area of RAM used to store data accessed frequently from disk. Caches are very useful for increasing the performance of applications that have to access a lot of data from disk, like databases and spreadsheets.

display

To present on the monitor screen.

distinguished name

DN. The complete name, or path, from an object to the [Root] of the Directory tree.

DLL

dynamic link library. A set of related program routines and data that is used by applications at run-time that can be used as a common resource by many programs.

DMA

direct memory access. A circuit that assists the transfer of information between a device and system memory. It is managed by a special processor.

DN

distinguished name. The complete name, or path, from an object to the [Root] of the Directory tree.

DNS

Domain Name System. A distributed database system that provides name-to-IP address mapping for computers on an internetwork or on the Internet.

DOM

distributed object management. An object-oriented network management design.

Domain Name System

DNS. A distributed database system that provides name-to-IP address mapping for computers on an internetwork or on the Internet.

DOS

Software that oversees disk I/O, video support, keyboard control, and internal commands. A computer needs a disk operating system to function.

drive

Short for "physical drive." A storage device that data is written to and read from, such as a disk drive or tape drive. A drive that is physically contained in or attached to a workstation is called a local drive.

drive

Short for "logical drive." An identification for a specific directory located on a disk drive. For example, network drives point to a directory on the network rather than to a local disk.

drive duplexing

In SFT III, the treatment of disk drives on separate, mirrored servers, as duplexed partitions on a single server. If one server goes down, the remaining server is able to continue fulfilling requests from clients. When the server is brought up again, the drives are remirrored in the background.

driver

A software module that manages the operation of a specific device or protocol and provides services to modules running above it. Drivers allow higher-level modules, such as

applications, to be device- and protocol-independent (able to run on any device or protocol for which a driver is available).

DVD

digital video disk. A high-capacity disk format that is the same size as a CD-ROM (5 inches in diameter), but is capable of holding between 4.7 and 17 gigabytes (compared to about 650 megabytes for a CD-ROM). The capacity of a DVD is determined by whether one or two substrates are used, and by whether information is recorded on one or two sides of the disk.

A recordable digital video disk (DVD-R) can store 3.8 gigabytes per side.

dynamic array

An array that can grow as a program runs. A dynamic array has no fixed size.

dynamic array block

DAB. A data structure used to manage dynamic arrays.

Dynamic Data Exchange

DDE. The message protocol in Microsoft Windows that allows applications to request and exchange data.

dynamic link library

DLL. A set of related program routines and data that is used by applications at run-time that can be used as a common resource by many programs.

dynamic object

A bindery object that is created and deleted frequently, for example, objects placed in the bindery by SAP. Dynamic objects disappear from the bindery when the server is restarted. See also [“bindery” on page 20](#) and [“static object” on page 86](#).

EEE

EA

extended attribute. Special-purpose data associated with a file. Contrast with extended file attribute.

EBCDIC

Extended Binary-Coded Decimal Interchange Code. One of two coding schemes (standard formats) used by IBM mainframes and minicomputers for representing characters with numbers. The other standard is ASCII.

eBusiness

The process of doing business over the Internet.

ECB

event control block. A structure that controls events related to the transmission and reception of IPX™ and SPX™ packets. ECBs also control the establishment and termination of SPX sessions.

effective class

An NDS class that can be used to create an object in the Directory tree. See also [“noneffective class” on page 67](#).

effective privileges

See [“effective rights” on page 37](#).

effective rights

The rights that an object can exercise to see or modify a particular directory, file, or object. Effective rights are a combination of inherited rights, explicitly granted right, and security equivalences. An object's effective rights to a directory, file, or object are calculated by the system each time that object attempts an action.

EISA

Extended Industry Standard Architecture. A bus standard, compatible with the earlier ISA, developed by a consortium of nine computer-industry companies.

element

A generic term for any entity that can be considered a standalone item in a broader context, such as an item in a list or a control in a window.

e-mail

A communications service for computer users by which they can send messages and files to each other on network or telephone lines.

enabling

See [“internationalization” on page 50](#).

encrypt

To translate data into a secret code to prevent an intruder from viewing or copying it.

encryption

The scrambling of data into a secret code that prevents an intruder from viewing or copying it.

EOF

end of file.

Ethernet

A high-speed LAN hardware standard that consists of a cable technology and a series of communication protocols. Ethernet uses a bus topology (configuration) and relies on the CSMA/CD access method. It is the primary communications circuitry used in many mainframe, PC, and UNIX networks.

event

A signal that a specific process is about to occur or has occurred. For example, the `EVENT_DOWN_SERVER` is generated when the server is brought down. Callback routines can be written to run when this event occurs (before the server shuts down).

event control block

ECB. A structure that controls events related to the transmission and reception of IPX and SPX packets. ECBs also control the establishment and termination of SPX sessions.

exactly-once transaction

XO transaction. A transaction method that ensures that a request is implemented only once.

executable

A program that can be run by a computer. Executable programs can have extensions such as `.exe`, `.com`, or `.nlm`.

execution thread

See [“thread” on page 89](#).

expanded memory

Memory that lies outside the normal DOS address space but that can be made addressable in 16 KB units, called pages, through an area called a page frame. Expanded memory is available for 8086, 8088, and 80286 systems through expanded memory specification (EMS) compliant memory boards, or for 80386 and 80486 systems through EMS emulators. Expanded memory is mainly designed to store data and certain numbers.

explicit transaction tracking

A feature that requires applications to make TTS™ calls, and allows applications to neatly bracket file update sequences with locking and TTS calls. Explicit transaction tracking allows applications to determine precisely when updates within the transaction are written to disk. See also [“implicit transaction tracking” on page 49](#).

export

To make a symbol (function) in one program available to other programs.

extended attribute

EA. Special-purpose data associated with a file. Contrast with *extended file attribute*.

extended file attribute

One of additional attributes defined for files in NetWare versions 3.x and above. An example of an extended file attribute is the transaction bit (used by TTS). See also [File Attributes](#) and [Extended File Attributes \(NDK: Multiple and Inter-File Services\)](#). Contrast with “[extended attribute](#)” on page 38.

Extensible Markup Language

XML. A metalanguage containing a set of rules for construction other markup languages. See also [W3C's XML page \(http://www.w3.org/XML/\)](http://www.w3.org/XML/).

FFF

FAT

file allocation table. An index table that points to the disk areas where a file is located. Every volume contains a FAT.

fault tolerance

A means of protecting from hazards such as power outages or disk failures, by providing data duplication on multiple storage devices, or by distributing the NDS database among several servers.

FDN

fully distinguished name.

file allocation table

FAT. An index table that points to the disk areas where a file is located. Every volume contains a FAT.

file attributes

Fourteen properties containing information about files that can be used for security.

file cache

An area of server RAM where the hash table, FAT, Turbo FAT, directory cache, and temporary data storage for files are located.

file handle

A number used to refer to or identify a file.

file locking

The means of ensuring that a file is updated correctly before another user, application, or process can access the file.

file node

An addressable entity on a network that contains information about a file: file name, attributes, file size, creation date and time, deleted date and time, deleter's object ID, owner's object ID, object IDs of up to 6 trustees, trustee rights mask for up to 6 trustees, inherited rights mask, last-accessed date, last-updated date and time, and a link to a directory. See also "[directory node](#)" on page 34 and trustee node.

file rights

A NetWare file system property that controls what a trustee can do with a file or directory. File and Directory rights are:

Supervisor

Read

Write

Create

Erase

Modify

File Scan

Access Control

file server

See [“server” on page 83](#).

file system

The organization the NetWare server uses to store data on its hard disks. Each file is given a filename and stored at a specific location in a hierarchical filing system so that files can be located quickly.

Formerly called "directory structure."

File Transfer, Access, and Management

FTAM. The Open System Interconnection (OSI) remote file service and protocol.

filename

The name assigned to a file.

filename extension

The letters appearing after the period at the end of a filename.

fine-grained multiprocessing

A form of multiprocessing where a relatively small number (typically hundreds) of instructions are executed between synchronization points. Parallel execution of loops is a common example. See also [“coarse-grained multiprocessing” on page 26](#).

firewall

A control mechanism, made up of hardware and software, that controls access to a computer system and the data on it. In effect, a firewall creates a boundary that can only be crossed or entered by users who are assigned the rights to do so.

Firewalls are commonly used to prevent hostile attacks from outside a company, such as the spreading of viruses or theft of sensitive information. Firewalls may also be used to restrict or prevent users of a computer system from going outside the system (for example, to browse the Internet), or to isolate and cordon off sensitive data while other data remains accessible.

first-level files

Files opened at the operating system level (with the open, sopen, and creat functions). See also [“second-level files” on page 82](#).

fragmentation

The process in which a packet is broken into smaller pieces to fit the size requirements of the physical network it is transmitted across.

frame

In a network OS, a data block that can contain data bits, source and destination addresses, and error checking. Each frame uses a given format or protocol for a specific medium.

Some media support multiple frames, such as Ethernet 802.2, Ethernet 802.3, Ethernet II, Ethernet SNAP, Token Ring, or Token Ring SNAP.

freeware

Software distributed without cost.

FTAM

File Transfer, Access, and Management. The Open System Interconnection (OSI) remote file service and protocol.

funneling

In a multiprocessing environment, a process by which an MP unsafe function is wrapped, migrated to Processor 0, allowed to run, and migrated back to the processor from which it was called.

GGG

GA

graded authentication. The control of access to information according to a network policy that assigns grades to connections based on properties of the requestor, such as authorization protocols and methods used, workstation characteristics, requested capabilities, and so on.

gang scheduling

In symmetric multiprocessing, scheduling a set (gang) of related activities to run concurrently on different processors.

garbage collection

The OS process of reclaiming used memory blocks. The OS deallocates blocks of memory that were once allocated but are no longer in use. It also gathers scattered blocks of free memory into larger contiguous free blocks.

general service queries

Queries that seek a response from every qualified server. The query can specify all servers of a particular type or all servers of any type whatsoever. Every server on the network that matches the indicated type will respond with an identification packet. See also “[nearest service query](#)” on page 63.

graphical user interface

GUI. A graphical front-end to an OS or application. A GUI is an interface that facilitates the interaction between the user and the OS or application. It consists of icons, windows, dialog boxes, and so on. Rather than requiring the user to enter all commands by typing at a prompt, the graphical elements can be moved using a mouse. The Macintosh and Windows desktops are examples of GUIs.

GroupWise

Workgroup productivity software featuring a fully-integrated messaging system that combines e-mail, personal calendaring, group scheduling, task management, rules-based message management, and workflow routing into a single application.

GUI

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HHH

HACB

host adapter command block.

HAM

host adapter module. A driver component used to drive specific host adapter hardware in the NetWare® Peripheral Architecture (NPA). This component is part of the host adapter interface (HAI), which is standard for tape drives.

handle

A pointer used by a computer to identify a resource or feature. For example, a directory handle identifies a volume and a directory, such as sys:public.

Hardware Specific Module

HSM. The part of the MLID that a developer writes for specific LAN boards.

hashing

The process of using the hash algorithm in order to access a file on a large volume. The algorithm calculates a file's address both in cache memory and on the hard disk and predicts the address on a hash table, which is much more efficient than searching for the file sequentially.

HCSS

High Capacity Storage System. A data storage system that extends the storage capacity of a NetWare server by integrating an optical disk library, or jukebox, into the NetWare file system. HCSS moves files between faster low-capacity storage devices (the server's hard disk) and slower high-capacity storage devices (such as optical discs in a jukebox).

hexadecimal

Describes something that uses a hexadecimal numbering system (a base-16 numeric notation system using digits 0 through 9 and A through F).

High Capacity Storage System

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host adapter module

HAM. A driver component used to drive specific host adapter hardware in the NetWare® Peripheral Architecture (NPA). This component is part of the host adapter interface (HAI), which is standard for tape drives.

Hot Fix™

A method NetWare uses to ensure that data is stored safely. Data blocks are redirected from faulty blocks on the server disk to a small portion of disk space set aside as the Hot Fix Redirection Area.

hot spot

In symmetric multiprocessing, a memory contention caused by concurrent requests to a shared variable by many processors in a shared memory architecture.

HSM

Hardware Specific Module. The part of the MLID that a developer writes for specific LAN boards.

HTML

HyperText Markup Language. The language typically used to create pages on the World Wide Web. Because HTML uses ASCII text character combinations to code or tag various options, it can be used on a variety of platforms. HTML coding can be used to format text, create lists, insert multimedia, create forms for collecting user input, and create links to other Web locations. See also [W3C's site \(http://www.w3.org/MarkUp/\)](http://www.w3.org/MarkUp/).

HTTP

Hypertext Transfer Protocol. The protocol that Web servers and Web browsers use to communicate with each other on the World Wide Web. Web browsers submit HTTP requests; Web servers use HTTP to respond with the requested document. See also [W3C's site \(http://www.w3.org/Protocols/\)](http://www.w3.org/Protocols/).

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**icon**

A small graphic representing an application, option, pop-up menu object, or command. You can activate an icon to bring about an action.

IDE

integrated development environment. A set of programs that work together to facilitate programming of applications. For example, an IDE can include a text editor, a compiler, and a debugger, all of which function from a single interface.

IDL

interface definition language. A language that describes the rules for communicating with a function or program module. For example, an object in a CORBA environment are defined by an IDL, which describes inputs and outputs for the object.

IIOp

Internet Inter-ORB Protocol. The CORBA protocol used on TCP/IP networks. IIOp provides an interface between TCP/IP and GIOP, the protocol used by ORBs (Object Request Brokers).

implicit transaction tracking

A NetWare feature that requires no coding on the part of an application developer. If TTS™ is enabled on a server, TTS tracks all transactions to all transactional files (including transactions made by the NetWare® OS to bindery files). Implicit transaction tracking is designed to work transparently with existing multiuser software that uses record locking (physical or logical). See also [“explicit transaction tracking” on page 38](#).

inherited rights filter

IRF. An entry in an object's ACL that specifies which rights can and cannot flow down to the object and its subordinates.

Only inherited rights can be filtered. Rights granted at the current level, either by explicit assignment or by security equivalence, cannot be blocked.

The Supervisor right can be blocked to an object but not to a file or directory. Object rights and property rights are inherited and filtered separately; therefore, object and property rights can be blocked individually without affecting each other.

inherited rights mask

A binary value that specifies a combination of rights in the NetWare file system. When a trustee has no assigned rights to a file or directory, the trustee inherits rights from a superior directory for which rights are assigned. The inherited rights mask can be used to modify those inherited rights. If the inherited rights mask is 0, the trustee inherits all rights from the superior directory. In NetWare 4 this term was rendered obsolete by the inherited rights filter.

input cursor

One of two cursors on an NLM screen. The input cursor indicates the starting column/row position on the screen where the blinking cursor will be located when a function that takes input from the keyboard is called.

integrated development environment

IDE. A set of programs that work together to facilitate programming of applications. For example, an IDE can include a text editor, a compiler, and a debugger, all of which function from a single interface.

interface definition language

IDL. A language that describes the rules for communicating with a function or program module. For example, an object in a CORBA environment are defined by an IDL, which describes inputs and outputs for the object.

internationalization

The process of adapting software for use with multiple languages.

Internet

International Network. A world-wide, cooperative, virtual network of computers. It is a collection of networks and routers (ARPANET, MILNET, NFSnet, and so on) that uses TCP/IP protocol suite.

Internet address

IP address. A unique, 32-bit, software address assigned to all hosts on an IP internet. It is divided into two parts: a network and a node address. For every computer, the network portion of its address must coincide with every other computer on the network. The node, or host, portion, however, must be unique.

Internet Inter-ORB Protocol

IIOB. The CORBA protocol used on TCP/IP networks. IIOB provides an interface between TCP/IP and GIOP, the protocol used by ORBs (Object Request Brokers).

Internet Protocol

IP. The network layer protocol of TCP/IP. IP enables dissimilar nodes in a heterogeneous environment to communicate with one another. IP defines the form that packets must take and the ways to handle packets when they are transmitted or received.

internetwork

Two or more networks connected by a router, bridge, or gateway. Users on an internetwork can use the resources (files, printers, and so forth) of all connected networks if they have security clearance.

Internetwork Packet Exchange

IPX. A Novell® protocol that provides connectionless, datagram delivery of messages. IPX is based on Xerox* Corporation's internetwork packet protocol, XNS.

I/O symmetry

In symmetric multiprocessing, an architecture in which all interrupts can be handled by any processor and all I/O devices in the system can be directly accessed by every processor.

IP

Internet Protocol. The network layer protocol of TCP/IP. IP enables dissimilar nodes in a heterogeneous environment to communicate with one another. IP defines the form that packets must take and the ways to handle packets when they are transmitted or received.

IP address

A unique, 32-bit address assigned to hosts on an IP internet. Consisting of network and node portions, the address is represented in standard decimal notation (for example, 123.45.6.7).

IPX

Internetwork Packet Exchange. A Novell protocol that provides connectionless, datagram delivery of messages. IPX is based on Xerox* Corporation's internetwork packet protocol, XNS.

IPX address

An address made up of a 4-byte network number, a 6-byte node number, and a 2-byte socket number. The network number is assigned to each LAN segment, server, or router. The node number identifies a specific system and is typically the number assigned by the manufacturer or the network interface device. The socket number distinguishes processes within the same computer.

IRF

inherited rights filter. An entry in an object's ACL that specifies which rights can and cannot flow down to the object and its subordinates.

Only inherited rights can be filtered. Rights granted at the current level, either by explicit assignment or by security equivalence, cannot be blocked.

The Supervisor right can be blocked to an object but not to a file or directory. Object rights and property rights are inherited and filtered separately; therefore, object and property rights can be blocked individually without affecting each other.

ISA

Industry Standard Architecture. A commonly accepted industry standard for the bus design used on the IBM* PC/XT, which makes use of plug-in boards and expansion slots.

ISDN

Integrated Services Digital Network. An evolving set of standards for a digital network that carries both voice and data communication.

ITEM property

A bindery property that contains a single bindery object. See also bindery ["bindery"](#) on [page 20](#) and ["SET property"](#) on [page 84](#).

JJJ

jar file

Java™ archive file. A file format for distributing Java applications or JavaBeans. The jar file contains everything needed to install and run a Java program.

Java

A general-purpose, object-oriented, platform-independent interpreted programming language developed by Sun Microsystems*. Java programs are interpreted by a JVM.

Java Database Connectivity

JDBC. An programming interface that allows Java applications to access a database through SQL. JDBC is the Java counterpart of ODBC.

Java Development Kit

JDK. The Java software development environment from Sun Microsystems. The kit includes the Java API, JVM, compiler, debugger, and other tools.

Java Naming and Directory Interface

JNDI. A Java API that allows Java programs to access naming and directory services such as NDS, DNS, and LDAP.

Java Runtime Environment

JRE. The environment required to run a Java application. The JRE includes the JVM, core classes, and supporting files.

Java Virtual Machine

JVM. A Java interpreter that converts Java bytecode into machine language one line at a time just before it executes. JVMs are available from many vendors for many platforms, and are included in many Web browsers.

JavaBean

A platform-independent program module written in Java.

JavaScript

A scripting language that allows dynamic behavior to be specified within HTML documents and is supported by a wide variety of browsers and Web tools. JavaScript was based on Netscape's LiveScript.

JavaServer Page

JSP. An HTML page with embedded Java source code that is run on the Web server. The Java source code is converted to bytecode when it is first encountered by the server. The HTML provides a template for the Java application's output, which is then returned to the Web browser. JSPs are the counterpart of Microsoft ASPs (Active Server Pages).

Jaz

A high-capacity removable hard disk system from Iomega. See also ["Zip" on page 101](#).

JDBC

Java Database Connectivity. An programming interface that allows Java applications to access a database through SQL. JDBC is the Java counterpart of ODBC.

JDK

Java Development Kit. The Java software development environment from Sun Microsystems. The kit includes the Java API, JVM, compiler, debugger, and other tools.

JIT compiler

just-in-time compiler. A compiler that converts all of the source code for a program into machine code just before the program is run. In the case of Java, a JIT compiler converts Java bytecode to machine code.

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KKK

kernel

The core of a network OS. The kernel provides fundamental OS services, such as handling interrupts and the I/O system, managing threads and processes, and allocating and scheduling processor resources.

The NetWare 5 multiprocessing kernel (MPK) is integrated to run on both multiprocessor and uniprocessor systems; it is completely multithreaded, and it provides support for preemptible applications.

key

In cryptography, a numeric code used to process data either to encrypt or decrypt it.

keyboard input

Only one thread can wait on keyboard input from a given screen at a time. Any other thread which attempts input is blocked until the keyboard is free.

LLL

LAN

Local Area Network. A network located within a small area or common environment, such as in a building or a building complex.

LAN board

A circuit board installed on each network station to allow workstations to communicate with each other and with servers.

LAN driver

A device driver that transmits and receives data from the LAN. It serves as a link between a workstation's OS and the physical network.

LDAP

Lightweight Directory Access Protocol. An X.500-related OSI protocol that clients can use to read and write Directory information. LDAP is used to publish Directory information such as telephone numbers and e-mail addresses. The Directory features available to LDAP clients are dependent upon the features built into the LDAP server and the LDAP client; some clients have the ability to read and write data, others can only read Directory data.

Leaf Object

An NDS objects, located at the end of a branch in the NDS tree, that doesn't contain any other objects. Examples include User, Group, and NetWare Server objects.

library NLM

An NLM that exports functions to be called by other NLM applications.

License Service Provider

LSP. An NLM that responds to requests from NetWare Licensing Services (NLS) clients and licensing service managers for licensing information or license units.

Lightweight Directory Access Protocol

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limbo space

In data migration, space on migration media used by files that have been restored to the local file system but not removed from the migration media.

Link Support Layer™

LSL. An implementation of the ODI specification that serves as an intermediary between the NetWare server or router LAN drivers and communication protocols, such as IPX, AFP, TCP/IP, and AppleTalk.

Linux

An open source version of UNIX. Because it is very stable, Linux is popular among ISPs as the OS for hosting web servers.

Local Area Network

LAN. A network located within a small area or common environment, such as in a building or a building complex.

local semaphore

A signal between NLM applications that controls resources, synchronizes thread execution, and queues threads.

localization

The process of converting a product from a source language, frequently US English, to another language in which the product will be delivered. Localization includes the translation of documentation, software, packaging, and collateral materials.

log in

To supply a user name, and if necessary a password, to gain access to a system or desktop session.

log out

To relinquish a session and sign off a computer system or online information service by entering a terminating command.

loosely coupled

A multiprocessing system in which each processor has its own memory. A loosely coupled system is the opposite of a tightly coupled system, in which all the processors in the system share the same memory.

LRU

least recently used. An algorithm that calculates the longest period of time that a file, page, or other entity has not been accessed.

LSL™

Link Support Layer. An implementation of the ODI specification that serves as an intermediary between the NetWare server or router LAN drivers and communication protocols, such as IPX, AFP, TCP/IP, and AppleTalk.

LSP

License Service Provider. An NLM that responds to requests from NetWare Licensing Services (NLS) clients and licensing service managers for licensing information or license units.

MMM

main function

A developer-written function where program execution begins. It executes as the initial thread of the NLM.

MAPI

Mail API. A Microsoft API that enables an application to exchange mail with Exchange Server or an MS Mail messaging system. Simple MAPI is based on the Common Messaging Calls (CMC) X.400 standard.

marshaling

Code by which a function in user or protected memory space(s) can gain access to services provided by functions in the OS memory space. Sometimes "marshaling" has been used to describe a multiprocessing concept of forcing a function to run on Processor 0, more accurate called "funneling."

mask

See *bitmask*.

master replica

A writable replica that contains all object information for a partition. All partition operations (create, merge, move, create replica, delete replica, repair) occur in relation to the master replica of the given partition. Only one master replica at a time can exist for any partition.

MCA

Micro Channel Architecture. IBM's 32-bit bus for PS/2* computers. Like ISA and EISA, the speed of the MCA bus is limited to 8 or 10 MHz.

Media Manager

A database built into NetWare® that keeps track of all peripheral storage devices and media attached to NetWare servers, and allows applications to gain access and get information.

medium-grained multiprocessing

A form of multiprocessing in which a moderate number (typically thousands of instructions) are executed between synchronization points. See also "coarse-grained multiprocessing" on page 26, "fine-grained multiprocessing" on page 42.

memory

The internal dynamic storage of a computer that can be addressed by the computer's OS, referred to frequently as RAM. Memory accepts and holds binary data. To be effective, a computer must store the data that is operated on, as well as the program that directs the operations to be performed.

memory allocation

The process of reserving specific memory locations in RAM for processes, instructions, and data.

When a computer system is installed, the installer may allocate memory for items such as disk caches, RAM disks, extended memory, and expanded memory. OSs and application programs allocate memory to meet their requirements, but they can use only that memory actually available to them. Memory can be reallocated between resources to optimize performance. The proper memory allocation mix depends on the applications that are run.

memory protection

The structuring of memory resources in NetWare 4.x and 5.x that guards server memory from corruption by ill-behaved NLM™ applications.

menu

A selectable list of user options presented on the screen by an application. Part of the user interface of an application.

message

1. In communications, data that is transmitted over a network.
2. In object-oriented programming, a communication between program modules (objects).

message digest

A compressed or condensed form of a document, or an abstract from a document, that functions as a "digital fingerprint" of the larger document. A message digest is used to create a digital signature that is unique to a particular document.

A message digest can be made public without revealing the contents of the document from which it is derived. This is important in digital time-stamping, where, using hash functions, one can get a document time-stamped without revealing its contents to the time-stamping service.

Message Transfer Agent

MTA. The GroupWise program that routes messages between post offices, domains, and gateways; updates domain databases; replicates updates throughout the GroupWise system; synchronizes user information with NDS; and performs other domain-related tasks.

method

In object-oriented programming, the processing that an object performs.

Micro Channel Architecture

MCA. IBM's 32-bit bus for PS/2* computers. Like ISA and EISA, the speed of the MCA bus is limited to 8 or 10 MHz.

migration

The moving of data files and directories from one system to another, usually when either a system is upgraded or a different system is installed.

migration

In symmetric multiprocessing, the movement of sleeping threads back and forth from multiprocessing to uniprocessing OS environments without data conversion.

Mirrored Server Link

MSL. A dedicated, high-speed connection between SFT III™ primary and secondary servers.

mirroring

Disk mirroring. Duplicating data on two separate hard disks using the same disk channel. If the original disk fails, the duplicate disks takes over automatically, without loss of data. If the disk channel fails, however, neither disk is accessible.

MLID

Multiple Link Interface Driver™. A device driver written to the ODI™ specification that handles the sending and receiving of packets to and from a physical or logical LAN medium.

modem

modulator/demodulator. A device that transmits and receives digital computer data over telephone lines.

MPK

multiprocessing kernel. The core of the NetWare 5 OS. The NetWare 5 kernel is integrated to run on both multiprocessor and uniprocessor systems; it is completely multithreaded, and it provides support for preemptible applications. MPK provides fundamental OS services, such as handling interrupts and the I/O system, managing threads and processes, and allocating and scheduling processor resources.

MSL

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multi-byte character

See [“multiple-byte character” on page 61](#).

Multiple Link Interface Driver

MLID. A device driver written to the ODI™ specification that handles the sending and receiving of packets to and from a physical or logical LAN medium.

multiple-byte character

A single character made up of more than one byte. One byte allows 256 different characters. Since the number of ASCII characters equals 256, a computer can handle each ASCII character with one byte. Asian character sets, however, include more than 256 characters; in this case, a computer must use two bytes for each character.

multiprocessor

Describes a computer that has two or more CPUs.

multitasking

The execution of more than one application or thread at a time in order for a computer to perform simultaneous tasks.

multithreaded

Having or running more than one thread.

In symmetric multiprocessing, this term describes code paths written to preclude corruption of shared data by multiple processors executing in parallel through the same code path. Using a multithreaded code sequence or algorithm, different processors may independently and concurrently execute the same code sequence operating on shared data.

mutex

mutual exclusion. An atomic lock variable that prevents multiple threads from accessing shared data at the same time. Types of mutexes include spin, sleep, and barrier.

mutual exclusion

See [“mutex” on page 62](#).

NNN

name space

The file system naming system of a specific OS. Name spaces other than DOS are provided by NLM applications on a NetWare server. The NetWare® OS supports the following name spaces:

DOS

Mac OS

NFS

FTAM

LONG (used by OS/2, Windows 95, and Windows 98)

Windows NT

NCP

NetWare Core Protocol™. A packet-based protocol that allows a client to send requests to and receive replies from a server.

NDPS

Novell Distributed Print Services. Print services software that allows network administrators to manage network printing from within NDS. Features include bi-directional feedback, configurable event notification, automatic printer driver download function, protocol independence, and backward compatibility.

NDS

A global, distributed, replicated naming service that maintains information about, and provides access to, every resource on the network.

NDS database

The database used by NDS, Novell's directory services software. It contains information about every resource on the network, including users, groups, printers, volumes, and computers.

NE2000

Ethernet Network Interface Card (NIC).

nearest service query

A SAP Services query that seeks the nearest server of a particular type. In this context, nearest refers to the server that is able to respond most quickly. Contrast *general service query*.

NESL

NetWare Event Service Layer.

NetBasic

A fourth-generation scripting language designed by High Technology Software* for use in the NetWare environment. NetBasic includes support for BASIC, Web-page creation, and database-access functions.

NetBIOS

Network Basic I/O System. An API that is typically used on LANs comprising IBM and compatible microcomputers. NetBIOS separates application programs from the networking subsystem, so that application program implementers can support multiple network designs, and so that a network system can support independently developed applications.

NetWare

An OS for LANs developed by Novell®, Inc.

NetWare Core Protocol

NCP. A packet-based protocol that allows a client to send requests to and receive replies from a server.

NetWare Directory

See [“NDS” on page 63](#).

NetWare Directory Services

The former name of NDS.

NetWare Loadable Module

NLM. A program that runs on the NetWare OS. Once loaded, an NLM becomes part of the network OS. An NLM can be dynamically loaded and unloaded. Types of NLM programs include disk drivers (.dsk extension), LAN drivers (.lan extension), management utilities and server applications modules (.nlm extension), and name space support (.nam extension).

NetWare partition

A partition created on each network hard disk, from which NetWare volumes are created.

Note that NetWare disk partitions are not related to NDS partitions. Disk partitions are subdivisions of a hard disk. An NDS partition is a subtree within the NDS tree.

NetWare Peripheral Architecture

NWPA (a.k.a NPA). An extension of Media Manager (a database built into NetWare for managing storage devices and media). NWPA separates NetWare driver support into two components; a HAM and a CDM. The HAM drives the host adapter hardware. The CDM drives storage devices or autochangers attached to a host adapter bus.

NetWare Requester™

Software that allows clients to communicate with NetWare servers.

NetWare server

A computer that runs NetWare OS software.

NetWire™

A Novell information service on the Internet, CompuServe*, and the Microsoft Network* (MSN) that provides 24-hour online access to technical, corporate, and product

information, and connects users with others who use Novell products. The service is updated daily and features downloadable files, patches and drivers, Technical Information Documents (TIDs), message boards, product lists, press releases, and a calendar of events.

network

A system of interconnected, individually controlled computers and peripherals, and the hardware and software used to connect them.

network administrator

See [“administrator” on page 13](#).

Network File System

NFS. A distributed file system developed by Sun Microsystems* that allows a set of computers to access each other's files cooperatively in a transparent manner.

Network Interface Card

NIC. A circuit board that provides the interface between software and hardware in order to facilitate network communication. For example, it allows workstations to communicate with each other or with the server, or allows a printer to communicate with the server.

network management

The process of ensuring reliability and availability of a network, as well as timely transmission and routing of data. Network management can be performed by dedicated devices or programmed general-purpose devices.

Network News Transfer Protocol

NNTP. The basic Internet protocol used to exchange network news articles between multiple news servers and between news servers and newsreaders.

network number

In a TCP/IP network, the number of the network. The network number can be specified with or without trailing zeros. For example, the addresses 130.57 and 130.57.0.0 denote the same IP network.

network number

In an IPX network, a number that uniquely identifies a network cable segment; usually referred to as the IPX external network number.

network queue

A group of jobs waiting to be processed. A job contains data that is only interpreted by the job creator and the job server.

NFS

Network File System. A distributed file system developed by Sun Microsystems* that allows a set of computers to access each other's files cooperatively in a transparent manner.

NIC

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to communicate with each other or with the server, or allows a printer to communicate with the server.

NICI

Novell International Cryptographic Infrastructure.

NLM

NetWare Loadable Module. A program that runs on the NetWare OS. Once loaded, an NLM becomes part of the network OS. An NLM can be dynamically loaded and unloaded. Types of NLM programs include disk drivers (.dsk extension), LAN drivers (.lan extension), management utilities and server applications modules (.nlm extension), and name space support (.nam extension).

NLM global data items

Data items that have only one value for the entire NLM. The data items are global to all the thread groups and threads in the NLM. Any changes made to the values of NLM global data items affect all the thread groups and threads in the NLM.

NLS

Novell Licensing Services. A distributed, enterprise network service that enables administrators to monitor and control the use of licensed applications on the network. NLS also provides a basic license metering tools and libraries that export licensing service functionality to developers of other licensing systems.

NMAS

Novell Modular Authentication Service. A flexible and expandable login and authentication framework that provides developers the means to integrate multiple authentication services into NDS systems.

NNTP

Network News Transfer Protocol. The basic Internet protocol used to exchange network news articles between multiple news servers and between news servers and newsreaders.

node

An addressable entity on a network. This term sometimes refers to a device itself. Some examples of nodes are computers, printers, and servers.

node address

A number that uniquely identifies a network board. The number is acquired dynamically by each node when it comes up on a network. A node address is often referred to as a node number, but some node numbers are factory set rather than being dynamic.

node number

A number that uniquely identifies a network board, also known as the station address, physical node address, and node address.

Every node must have at least one network board, by which the node is connected to the network. Each network board must have a unique node number to distinguish it from all other network boards on that network.

Node numbers are assigned in several ways, depending on the network board type. For example, Ethernet and token ring boards are factory-set (with no two Ethernet boards

having the same number), while ARCnet board numbers are set with jumpers or switches. Node addresses are dynamically assigned each time the node is started.

nonblocking

Describes processes that do not give up control of the CPU, but run to completion. Contrast with *blocking*.

nonblocking function

In NLM programming, a function that does not relinquish control of the CPU, but runs to completion. Contrast with *blocking function*.

noneffective class

An NDS class that cannot be used to create an object in the NDS tree. Noneffective classes are used to define other classes. For example, Server is a noneffective class used to define the effective class Print Server. Contrast with *effective class*.

nonpreemptive environment

NetWare 3.x and above is built around a fast, real-time, multitasking, nonpreemptive thread scheduler. Threads are scheduled according to priority levels and are executed on a run-to-completion basis. Since NetWare does not restrict a thread's execution by imposing time limits or preempting control of the CPU, a thread is responsible for its own conduct.

Novell Directory Services

See [“NDS” on page 63](#).

Novell Distributed Print Services

NDPS. Print services software that allows network administrators to manage network printing from within NDS. Features include bi-directional feedback, configurable event notification, automatic printer driver download function, protocol independence, and backward compatibility.

Novell Labs

A Novell agency that works with manufacturers to test hardware and software components designed to interoperate with the NetWare OS.

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NPA

See [“NWPA” on page 67](#).

NWPA

NetWare Peripheral Architecture. An extension of Media Manager (a database built into NetWare for managing storage devices and media). NWPA separates NetWare driver support into two components; a HAM and a CDM. The HAM drives the host adapter

hardware. The CDM drives storage devices or autochangers attached to a host adapter bus.

Also known as NPA.

OOO

object

See [“bindery object” on page 20](#) or *NDS™ object*.

object ID

A number that identifies an object.

Object Management Group

OMG. An open standards organization that dealing with object-oriented systems. The OMG is responsible for the OMA (Open Management Architecture) standard.

object property

Categories of information associated with an object.

Object Request Broker

ORB. A component in the CORBA programming model that acts as the middleware between clients and server. In the CORBA object-based computing 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. Novell has its own ORB.

object type

The classification of an object, for example, as a user, user group, server, and so on.

ODBC

Open Database Connectivity. A Microsoft database API that allows applications to access databases over a network. ODBC supports both SQL and non-SQL databases. See also [“JDBC” on page 54](#).

ODI

Open Data-Link Interface™. The interface used on NetWare servers to support multiple network boards as well as multiple protocol stacks, such as TCP/IP, IPX/SPX, or AppleTalk.

OEM

Original Equipment Manufacturer.

OLE

Object Linking and Embedding. A Microsoft Windows protocol which allows objects to be accessed across applications by linking or embedding the objects.

OMG

Object Management Group. An open standards organization that dealing with object-oriented systems. The OMG is responsible for the OMA (Open Management Architecture) standard.

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Open Systems Interconnection

OSI; short for OSI model. A seven-layer model for data communication which is the standard network architecture developed by the ISO. A seven-layer model for data communication. The layers are as follows: physical, data-link, network, transport, session, presentation, and application.

operating system

OS. The software that controls computer (or network, in the case of the NetWare® OS) resources and provides basic services.

ORB

Object Request Broker. A component in the CORBA programming model that acts as the middleware between clients and server. In the CORBA object-based computing 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. Novell has its own ORB.

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output cursor

A cursor that indicates the starting column/row position on the screen where the output will go when a function that writes to the screen is called.

PPP

packet

A group of bits transmitted as a unit of information on a network. These bits include data and control elements. The control elements include the addresses of the packet's source and destination and, in some cases, error-control information.

page description language

PDL. A software language used by printers that defines how text and graphics will appear when printed.

palette

A color scheme or set of colors used for a special purpose. For example, NWSNUT provides several standard color combinations for portals.

partition

A logical division of the NDS global database. A partition forms a distinct unit of data in the NDS tree that network administrators use to store and replicate NDS information.

Each partition consists of a container object, all objects contained in it, and the data about those objects. Partitions do not include any information about the file system or the directories and files contained there.

partition root

The object in the highest position in an NDS partition.

password

A combination of characters that allows users to log on to a system or to access a program or file.

path

A text string that specifies the hierarchical location or address of a file or folder.

pathname

The server name, volume, directory path, and filename that uniquely identify a file in NetWare.

PBX

Private Branch Exchange. A telecommunications switching system owned by the customer; it acts as an in-house central office with advanced switching features and capabilities.

PDL

page description language. A software language used by printers that defines how text and graphics will appear when printed.

peer-to-peer

Describes a type of communication between two devices that is not managed by a host or server.

performance metrics

Data objects that are collected by kernel instrumentation to measure resource usage and system events. These data objects are input for reporting utilities and data collection mechanisms. Ultimately the data is manipulated and used by experienced system administrators and performance tuners to evaluate system usage and performance.

Perl

Practical Extraction and Report Language. A freeware general-purpose scripting language often used for creating scripts on the Web, popular because of its ease of use and availability on a wide range of platforms. Perl 5 supports regular expressions, run-time libraries, exception handling, data structures, and object-oriented features.

physical address

The OSI data-link layer address of a network device.

PKI

Public Key Infrastructure. The policies and procedures for establishing a secure method for information exchange using public keys. It includes certification authorities and digital signatures as well as management hardware and software.

plaintext

Text that has not been encrypted and is readable by text editors and word processors. Also called "cleartext."

polling

The procedure of periodically checking the status of a physical or logical object.

popup screen

If the POP_UP_SCREEN attribute is set, the screen is a popup screen. A popup screen automatically overlays the currently displayed screen.

port

The point of contact between two hardware devices or two software elements.

A hardware port can be the physical connection point between a printer cable and the computer.

A software port, represented by a memory address, can be the logical contact point between a LAN driver and the protocol bound to it, or the point of access to a service on a TCP/IP host computer.

portal

In NWSNUT, a "window" or area of the screen in which text appears.

POSIX

Portable Operating System Interface for UNIX. A standard API (ISO/IEC standard 9945-1; ANSI/IEEE Standard 1003.1) that provides functions for accessing OS services. POSIX is available for multiple platforms.

PostScript*

A page description language developed by Adobe*.

preemption

An OS scheduling technique that allows the OS to take control of the processor at any instant, regardless of the state of the currently running application. Preemption guarantees better response to the user and higher data throughput. Most OSs are not preemptive multitasking, meaning that task-switching occurs asynchronously and only when an executing task relinquishes control of the processor.

preemption latency

The delay between the time a thread becomes runnable at sufficiently high priority to preempt a lower priority running thread, and the time that the preemption is complete and the higher priority thread begins executing.

PRELUDE.OBJ

An object file that contains routines to initialize and terminate NLM applications.

print job

In NetWare queue-based printing, a file stored in a print queue directory. As soon as a print server sends a print job to the printer, the print job is deleted from the queue directory.

print queue

A sequence of print job requests stored and waiting to be processed.

print server

In NetWare queue-based printing, a server that monitors print queues and printers. The print server takes waiting print jobs out of a print queue and sends them to a network printer.

printer

A computer device used to produce printed material.

Printer Agent

A logical entity that represents an NDPS printer, combining the functions previously performed by a printer, print queue, print server, and spooler into one intelligent and simplified entity. Before a printer can be incorporated into an NDPS printing environment, it must be represented by a Printer Agent.

Private Branch Exchange

PBX. A telecommunications switching system owned by the customer; it acts as an in-house central office with advanced switching features and capabilities.

private key

An encrypted mathematical formula that belongs to a subject (user, application, or computer) and is never revealed to anyone. The subject uses the private key to decrypt messages that it receives, and that are encrypted with the subject's public key.

A private key can also encrypt a message digest sent by the subject to anyone else. Using the subject's public key, anyone can decrypt the digest and be assured that the message originated from that subject.

process

One or more threads and the resources allocated to them by the processor, including a virtual address space. Each instance of any application runs within its own process.

program

A series of specially coded instructions that perform a specific task when executed by a computer.

protocol

A set of rules for computers and related hardware to communicate between two endpoints. A protocol specifies the format, timing, and sequence in which the network transmits data. Common protocols include AFP, ALAP, RTMP, NCP, and IPX.

protocol stack

A complete suite of protocols that includes hierarchical layers required to handle transmission and receipt of packets.

protocol suite

A hierarchical set of related networking protocols that provides the communications and services needed to enable computers to exchange messages and other information. The protocol suite typically does this by managing physical connections, communications services and application support.

proxy server

A server used as a buffer between two networks. It is often used as a firewall between an intranet and the Internet, preventing unauthorized inbound traffic and restricting downloading by blocking specific Web sites. It can also log and report on what sites users are viewing. In order to speed up downloading, the proxy server may be able to cache frequently-used Web pages locally.

public access printer

An NDPS printer available to all network users and not associated with an NDS object. Users can select and print to any public access printer they can view from their workstations. However, these printers have no security, and job event notification is limited.

public key

An encrypted mathematical formula that belongs to a subject (user, application, or computer) and is revealed to everyone. It is used to encrypt messages that are sent to the subject as well as to verify the signature of the subject. To ensure that the public key really belongs to the subject, it is embedded in a digital certificate.

Public Key Infrastructure

PKI. The policies and procedures for establishing a secure method for information exchange using public keys. It includes certification authorities and digital signatures as well as management hardware and software.

purge

To delete files permanently. Files that have been purged cannot be recovered.

QQQ

QMS

Queue Management System. Also called NetWare queue-based printing. QMS allows for creation and management of queues for printing and other tasks.

queue

A line or list formed by items waiting for service, from which elements can be removed only in the same order in which they were inserted, or in a specified order of priority.

Examples include print jobs waiting to be processed, tasks waiting to be performed, stations waiting for connection, or messages waiting for transmission.

Queue Management System

QMS. Also called NetWare queue-based printing. QMS allows for creation and management of queues for printing and other tasks.

RRR

RAD

rapid application development. Describes tools and processes that speed up application development. Examples include visual programming tools, scripting tools, and program modules of many types (such as JavaBeans and ActiveX controls).

RAM

random access memory. The internal dynamic storage of a computer that can be addressed by the computer's OS. RAM is erased when the power is turned off.

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RAM. The internal dynamic storage of a computer that can be addressed by the computer's OS. RAM is erased when the power is turned off.

rapid application development

RAD. Describes tools and processes that speed up application development. Examples include visual programming tools, scripting tools, and program modules of many types (such as JavaBeans and ActiveX controls).

read-only

An attribute of an object that prevents that object from being written to.

read-write locks

A synchronization mechanism that controls access for multiple classes of resource consumers such as readers and writers. This type of lock ensures that readers exclude writers and that a writer inhibits other writers before contending with readers. Normal locks and semaphores cannot be directly used by one class to inhibit other classes.

reboot

To restart a computer.

record locking

A type of concurrency control that enables an application to lock the record it is accessing within a file. Other users can read the record, but no other user can lock, update, or delete the record until the application that holds the lock releases it.

recursive mutex

A special-case mutex in which the mutex is already locked by the calling thread, the recursive depth is incremented, and control is returned to the caller, as if the lock had just been acquired.

reentrant routine

A routine that can be safely executed concurrently by more than one process or thread. A thread calling a reentrant routine must be guaranteed control over shared data controlled by the routine.

remote server support

A server function that provides an NLM™ with the ability to access other servers on the network through C functions. A remote server is accessed by calling LoginToFileServer with a server name attached to the object name (server/object).

replica

A copy of an NDS database partition's information, which can be stored on several servers.

For the NDS database to be distributed across a network, it must be stored on many servers. Rather than storing a copy of the whole NDS database on each server, replicas of each NDS partition are stored on many servers throughout the network.

An unlimited number of replicas can be created for each NDS partition and stored on any server.

Types of replicas include master, read-only, and read/write.

Requester

NetWare Requester™. A program that resides on a workstation and passes requests from an application to a server. The Requester is the NetWare program that provides network access for a client.

resource fork

The part of a Macintosh file that contains file resources, including Macintosh-specific information, such as the windows and icons used with the file.

resource tag

An OS tag that keeps track of NetWare server resources such as screens and allocated memory.

NLM programs request a resource from the NetWare server for each kind of resource they use and then give it a resource tag name. NLM programs return resources when they no longer need them. When the NLM is unloaded, the resources are returned to the NetWare server.

Resource tags ensure that allocated resources are properly returned to the OS upon termination of an NLM.

restore

To reinstate backed up data to the file system.

return code

See [“return value” on page 78](#).

return value

The value returned by a function upon completion. The return value usually indicates either success or the type of error that occurred during the execution of the function, but can also communicate other information.

right

An attribute assigned to an object, such as a user, that controls what that object can do with other objects, such as files or directories. Creating, reading, writing, and other operations can only be performed if an object has rights to perform them.

root directory

The highest directory level in a hierarchical directory structure.

In NetWare, the root directory is the volume; all other directories are subdirectories of the volume.

The root directory is represented by a slash (/) in UNIX systems.

root object

[Root] object. An object in the NDS tree whose purpose is to provide a highest point to access different Country and Organization objects, and to allow trustee assignments granting rights to the entire NDS tree. Country, Organization, and Alias objects can be created at the [Root] object. The [Root] object is a place holder; it contains no information. Sometimes called a directory root.

router

A device that connects two networks using the same networking protocol for managing the exchange of data packets. It operates at the network layer (Layer 3) of the OSI model.

router screen

Displayed whenever the server `TRACK ON` command is executed.

RPC

Remote Procedure Call.

RSA

Rivest-Shamir-Aldeman. A public key (also known as asymmetric) encryption algorithm, named after MIT professors who devised it.

runnable thread

A thread that is not blocked (available for scheduling).

SSS

SAA

Systems Application Architecture. An application architecture used to develop applications for the IBM SNA environment. Through Common User Access (CUA) architecture guidelines, Common Programming Interface (CPI) definitions, and Common Communications Support (CCS) protocols and conventions, SAA provides a basic structure for developing applications that are consistent across systems, including microcomputers, minicomputers, and mainframes.

SAP

Service Advertising Protocol. A protocol used by NLM programs to inform clients of a server's presence. Servers advertise their services, by both name and type, with SAP, allowing routers to create and maintain a database of current internetwork server information. This information goes to all nodes on an IPX network.

SBACKUP

An NLM in SMS which a NetWare server uses to provide backup and restore capabilities. It is used to back up data across the network.

scheduling

The mechanism for determining the best sequence for assigning resources to contending threads. Scheduling involves managing concurrently running threads, responding to requests for services, tracking the progress of threads, and allocating system resources (especially memory space and CPU time).

schema

In NDS, the rules that define how the NDS tree is constructed. These rules define specific types of information that dictate the way information is stored in the NDS database.

See also the *[NDK: Novell eDirectory Schema Reference](#)*.

screen attributes

A set of attributes that specify the screen's behavior. The supported screen attributes are listed as follows:

AUTO_DESTROY_SCREEN

DONT_CHECK_CTRL_CHARS

POP_UP_SCREEN

UNCOUPLED_CURSORS

screen handling services

Features that make it possible to manage the special features of the server's logical screens. Some of these special features are the ability to create new screens with a variety of different attributes, manipulate screen cursors, specify which screen is to be used when screen I/O is performed, and so on.

screen names

Names for screens that can be specified in the linker directive file or by CreateScreen. The SCREENNAME directive option can be used to specify the "initial" screen name, the name of the first screen that is automatically created when the NLM™ application is loaded. If the SCREENNAME option is not specified, the NLM description specified in the FORMAT directive is used as the screen name. If the NLM creates other screens, the names of these screens are specified in CreateScreen using the screenName parameter.

screen output

Any number of threads can do output to a single screen at a time. All of the output functions in the NLM API will complete all of their output before an output function called from another thread is allowed to write to the screen. This means that in general, output from multiple threads is not scrambled together.

script

1. A program written in a scripting language.
2. A small program that is used to call other programs in a sequence.

scripting language

A high-level programming, or command, language that is usually interpreted rather than compiled ahead of time. A scripting language is not a general-purpose programming language and is usually limited to specific functions used to direct the actions an application or system. Numerous scripting languages have been developed, including:

DOS batch files

JavaScript

macro languages for specific applications

Novell Script

Perl

Tcl

VBA

SCSI

Small Computer Systems Interface. An industry standard that defines both hardware and software communications between a host computer and any peripheral devices (such as hard drives or tape backup systems). Computers and peripheral devices designed to meet SCSI specifications have a large degree of compatibility.

second-level files

Files opened at the stream level (with fopen, fdopen, and freopen). Contrast with *first-level files*.

secondary server

The SFT III server that is activated after the primary server is activated. The secondary server mirrors the primary server, provides split seeks, and acts as a router for the local network segments to which it is directly attached (if the primary server isn't attached to

those segments). It cannot do any additional work because it uses all its CPU cycles to keep current its mirror of the primary server.

If the primary server fails, the secondary server becomes the primary server.

secondary time server

In time synchronization, a server that obtains the time from a single reference, primary, or reference time server and provides the time to client workstations.

Secure Socket Layer

SSL. The set of rules governing the exchange of information between two devices using a public key encryption system. SSL establishes and maintains secure communication between SSL-enabled servers and clients across the Internet.

semaphore

An interprocess communication signal that indicates the status of a shared system resource, such as shared memory.

Sequenced Packet Exchange

SPX. A NetWare protocol that enhances the IPX protocol by supervising data sent out across the network.

SPX verifies and acknowledges successful packet delivery to any network destination by requesting a verification form the destination that the data was received. The SPX verification must include a value that matches the value calculated from the data before transmission. By comparing these values, SPX ensures not only that the data packet arrived at the destination, but that it arrived intact.

server

A powerful computer running software that supplies network clients with services, such as file, print, communication, or application services. Examples of servers include:

Routing servers, which connect nodes and networks of similar architectures.

Gateway servers, which connect nodes and networks of different architectures by performing protocol conversions.

Terminal servers, print servers, disk servers, and file servers, which provide an interface between compatible peripheral devices on a LAN.

server console

The monitor and keyboard where the network administrator views and controls server activity.

server-side include

SSI. A set of commands, embedded in an HTML document, that are executed by the server for a Web site before the document is sent to the browser that requested the document.

Service Advertising Protocol

SAP. A protocol used by NLM programs to inform clients of a server's presence. Servers advertise their services, by both name and type, with SAP, allowing routers to create and

maintain a database of current internetwork server information. This information goes to all nodes on an IPX network.

Service Provider Interface

SPI. The programming interface used to develop Windows drivers. The application is written using a WOSA supported interface (such as ODBC or MAPI) and the service provider (such as a database manager or print spooler) is written to the SPI for that service class.

servlet

A small, server-based routine written in Java.

SET property

A bindery property that contains multiple bindery objects. See also “bindery” on page 20 and “ITEM property” on page 51.

settable parameter

Server variables that are controlled by using the SET command.

SFT

System Fault Tolerance. A means of protecting data by providing procedures that allow a network server to automatically recover from hardware failures. SFT protects data by providing data duplication on multiple storage devices; if one storage device fails, the data is available from another device.

There are three levels of SFT: Hot Fix, disk mirroring or duplexing, and server mirroring. Each level of redundancy (duplication) decreases the possibility of data loss.

Simple Network Management Protocol

SNMP. A TCP/IP protocol used for communicating between a network management console (SNMP Manager) and the devices the console manages. The protocol allows the SNMP Manager to gather information about the configuration and status of the TCP/IP protocol stacks of network nodes.

Simple Object Access Protocol

SOAP. A message-based protocol that uses XML to access services available on the Web. See also W3C (<http://www.w3.org/>).

single sign-on

SSO. A service which allows users to log in once and have access to multiple services or applications.

sleep

A condition of the suspension of the operation of a thread without terminating (block). A sleeping thread is temporarily suspended but remains in memory so that some event (such as an interrupt or call from another thread) can awaken it (restore operation). While a thread is sleeping, other threads can run. See also “block” on page 20 and “blocking” on page 21.

Small Computer Systems Interface

SCSI. An industry standard that defines both hardware and software communications between a host computer and any peripheral devices (such as hard drives or tape backup

systems). Computers and peripheral devices designed to meet SCSI specifications have a large degree of compatibility.

smart card

A plastic card with a built-in microprocessor and memory that is used primarily for identification. A smart card is more secure than a magnetic stripe card and can be programmed to self-destruct if a wrong password is entered too often. Currently smart cards are most often used for financial transactions.

SMP

symmetric multiprocessing. A system in which all processors can perform all tasks. At runtime, an algorithm assigns tasks to each processor as necessary to balance the work load. A symmetric multiprocessing system is the opposite of an asymmetric system, in which different processors are dedicated to different kinds of tasks.

SMS

Storage Management Services. Services that enable a user to back up or restore the NDS database, the file system, or an individual workstation's hard disk. The SMS architecture is independent of backup/restore hardware and the file system and provides an interface to all storage devices, including tape, optical, and jukebox.

SNA

Systems Network Architecture. A structure defining how computer equipment connects and communicates. SNA specifies the logical structure, formats, protocols, and operational sequences for transmitting information units by controlling the configuration and operation of networks. The SNA model includes the application, presentation, data flow control, transmission control, path control, data-link, and physical functional layers.

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SOAP

Simple Object Access Protocol. A message-based protocol that uses XML to access services available on the Web. See also [W3C \(http://www.w3.org/\)](http://www.w3.org/).

socket

A software structure that acts as a communications endpoint.

In an IPX network, the part of an IPX internetwork address, within a network node, that represents the destination of an IPX packet. Some sockets are reserved by Novell for specific applications. For example, IPX delivers all NCP request packets to socket 451h.

SPI

Service Provider Interface. The programming interface used to develop Windows drivers. The application is written using a WOSA supported interface (such as ODBC or MAPI) and the service provider (such as a database manager or print spooler) is written to the SPI for that service class.

spin

To loop through a section of code that tests a lock. This code repeatedly tests a lock until the lock is released.

spin lock

A functions that loops until a specified event occurs (until the mutex variable is acquired).

SPX

Sequenced Packet Exchange. A NetWare protocol that enhances the IPX protocol by supervising data sent out across the network.

SPX verifies and acknowledges successful packet delivery to any network destination by requesting a verification form the destination that the data was received. The SPX verification must include a value that matches the value calculated from the data before transmission. By comparing these values, SPX ensures not only that the data packet arrived at the destination, but that it arrived intact.

SQL

Structured Query Language. A standard language used to communicate with a database application. Most database providers support SQL.

SSI

server-side include. A set of commands, embedded in an HTML document, that are executed by the server for a Web site before the document is sent to the browser that requested the document.

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Secure Socket Layer. The set of rules governing the exchange of information between two devices using a public key encryption system. SSL establishes and maintains secure communication between SSL-enabled servers and clients across the Internet.

SSO

single sign-on. A service which allows users to log in once and have access to multiple services or applications.

stack-based parameter passing

The process of pushing all bytes, words, double words, and pointers onto the stack as 4-byte parameters. CLIB uses stack-based parameter passing.

static object

A bindery object that is recorded in server memory and remains there until explicitly deleted. See also [“bindery” on page 20](#) and [“dynamic object” on page 36](#).

Storage Management Services

SMS. Services that enable a user to back up or restore the NDS database, the file system, or an individual workstation's hard disk. The SMS architecture is independent of backup/restore hardware and the file system and provides an interface to all storage devices, including tape, optical, and jukebox.

stream

The name given to a second-level file which has been opened for data transmission. When a stream is opened, a pointer to a FILE structure is returned. This pointer is used to reference the stream when other functions are subsequently invoked.

Structured Query Language

SQL. A standard language used to communicate with a database application. Most database providers support SQL.

Supervisor

Usually called "network administrator" in NetWare. The person responsible for setting up and maintaining the network. The network administrator has the Supervisor right to create and manage objects in the NDS tree.

Generally, this means the person who has a trustee assignment to the [Root] object of the NDS tree, which would include the Supervisor rights to the entire NDS tree. However, the specific part of the NDS tree where this person has rights can vary from network to network.

Swing

A Java toolkit used to develop GUIs. Swing is platform-independent and offers sophisticated capabilities. Swing is part of the Java Foundation Classes provided with the JDK.

symmetric multiprocessing

SMP. A system in which all processors can perform all tasks. At runtime, an algorithm assigns tasks to each processor as necessary to balance the work load. A symmetric multiprocessing system is the opposite of an asymmetric system, in which different processors are dedicated to different kinds of tasks.

synchronization

A coordination activities that allows threads to inform other threads that certain events have occurred (such as having reached a certain point in execution). Synchronization is used to ensure that threads access shared resources properly to avoid data corruption.

synchronization point

A point where the normally asynchronous execution of a thread is synchronized (that is, modifies variables used for synchronization) with the execution of others. For example, code accessing a data structure would have a synchronization point wherever it examines or modifies shared data.

synchronous

Describes controlling the execution of two or more processes (threads) by using specific common events (usually common clock or timing signals).

system console screen

Server console commands can be entered at the command line of the System Console Screen. This screen always remains open in the background.

System Fault Tolerance

SFT. A means of protecting data by providing procedures that allow a network server to automatically recover from hardware failures. SFT protects data by providing data

duplication on multiple storage devices; if one storage device fails, the data is available from another device.

There are three levels of SFT: Hot Fix, disk mirroring or duplexing, and server mirroring. Each level of redundancy (duplication) decreases the possibility of data loss.

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TTT

task

A multiprocessing entity that is one or more sequences of instructions (threads) treated by the control program as a unit of work to be accomplished by the processors. A task has a definite address space shared in common by the individual threads composing the task.

task number

A unique number that identifies an individual program, running at any given time at a workstation. Task numbers are only unique for a given workstation.

TCP

Transmission Control Protocol. The major transport protocol in the Internet suite. TCP provides reliable, connection-oriented, full-duplex streams. It uses IP for delivery.

TCP/IP

Transmission Control Protocol/Internet Protocol. A protocol suite developed by the Advanced Research Projects Agency (ARPA). It includes TCP (Transmission Control Protocol) as the primary transport protocol and IP (Internet Protocol) as the network layer protocol.

thread

1. In computer processing, a sequence of instructions executed as an independent entity and scheduled by system software. A thread is also known as an executable object.

2. Within an Internet discussion group, an ongoing discussion about a particular topic. Sometimes called a conversation.

thread global data items

A set of data items that are global only within each thread. That is, they have separate values for each thread. The data items of one thread cannot be referenced by another thread.

thread group

A group of one or more threads as defined by the programmer.

thread group global data items

There is one instance of the data items for each thread group. Any change that one thread makes to the value of a thread group global data item affects all the threads in the group.

thread of execution

A thread that performs a request or polls for the occurrence of some event. Polling threads are always running but relinquish control after going through one polling loop. Normally, worker threads either quickly complete the request, or are put to sleep pending the completion of an external event, such as a disk I/O.

tightly coupled

Describes a symmetric multiprocessing hardware design in which processors share common memory and are typically hard-wired together over a shared multiplexed hardware bus. NetWare SMP uses this design.

timestamp

A code that indicates the time that an event happened.

time synchronization

A method of ensuring that all servers in an NDS tree report the same time. Single reference time servers or reference time servers are used to synchronize all other servers.

TLI

Transport Level Interface. A STREAMS-based interprocess communication mechanism that provides protocol-independent support for server applications.

TLS

Transport Layer Security. An IETF security protocol that contains SSL and other protocols. TLS is compatible with SSL and uses Triple DES encryption.

Topology Specific Module

TSM. An NLM used with LAN drivers.

transaction

A set of one or more operations that must be completed together to maintain file and database integrity.

transaction backout

Transactions are backed out because of system failures resulting from hardware problems and power outages at a workstation or the server. But backouts also occur because of problems with applications running on a workstation or because of user intervention at a workstation.

Transaction Tracking System™

TTS. A NetWare feature that protects database applications from corruption by backing out incomplete transactions that result from a failure in a network component.

Transmission Control Protocol

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Transmission Control Protocol/Internet Protocol

TCP/IP. A protocol suite developed by the Advanced Research Projects Agency (ARPA). It includes TCP (Transmission Control Protocol) as the primary transport protocol and IP (Internet Protocol) as the network layer protocol.

Transport Layer Security

TLS. An IETF security protocol that contains SSL and other protocols. TLS is compatible with SSL and uses Triple DES encryption.

Transport Level Interface

TLI. A STREAMS-based interprocess communication mechanism that provides protocol-independent support for server applications.

tree

Short for "NDS tree." A hierarchical structure of objects in the NDS database. The NDS tree includes container objects that are used to organize the network. The structure of the NDS tree can be based on a logical organization of objects, and not necessarily on their physical location.

trustee

Any object that has rights to access a network resource such as a directory, file, or object. Rights are granted to objects (making them trustees) by trustee assignments.

trustee right

A privilege assigned to a user or group for a specific volume, folder, directory, or file. The user or group is known as the trustee. The rights assigned determine the kinds of tasks the trustee can carry out.

TSM

Topology Specific Module. An NLM used with LAN drivers.

TTS

Transaction Tracking System. A NetWare feature that protects database applications from corruption by backing out incomplete transactions that result from a failure in a network component.

Turbo FAT index

An index of the blocks that pertain to a particular file. When a file exceeds 64 blocks, the traditional NetWare file system creates a turbo FAT index that groups together all FAT entries to the corresponding file. This index enables a large file to be accessed quickly.

type-ahead buffer

A buffer that holds input from the keyboard before it is processed by the NLM.

UUU

UDDI

Universal Description Discovery and Integration. An industry initiative that enables businesses to easily and efficiently conduct eCommerce. See <http://www.uddi.org/> (<http://www.uddi.org/>).

UDP

User Datagram Protocol. A transport protocol in the Internet suite of protocols. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagrams without acknowledgement or guaranteed delivery.

User Datagram Protocol

UDP. A transport protocol in the Internet suite of protocols. UDP, like TCP, uses IP for delivery; however, unlike TCP, UDP provides for exchange of datagrams without acknowledgement or guaranteed delivery.

Unicode

A fixed-width 16-bit code, defined by the Unicode Consortium, that supports up to 65,536 unique combinations. Each combination forms a character. Unicode allows mathematics, technical, graphical, and publishing symbols, punctuation marks, as well as the characters from written languages to be represented, each by a single 16-bit character.

uniform resource locator

URL. A generalization of the file naming concepts already in common use on the Internet. A URL extends the filename and pathname used to refer to files on a computer by adding an Internet address and protocol component. A URL specifies the computer and access method (protocol) in addition to the filename and thus can be used to refer to files anywhere on a network.

While URLs are used in various forms by different systems, they are most closely associated with the World Wide Web.

Universal Description Discovery and Integration

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user name

A name recognized by the network that represents a user.



variable length argument lists

Macros used when a function does not have a fixed number of arguments. The `va_arg`, `va_end`, and `va_start` macros provide the capability to access these arguments.

Virtual Loadable Module™

VLM. An executable program for a DOS workstation to enable various kinds of communications with a server, or to enable applications on a server running NetWare 4 or an earlier version.

For example, the NetWare DOS Requester is a suite of VLM programs, as is Desktop SNMP.

virtual machine

A computer that runs an OS that can host other OSs or multiple copies of itself. See also [“Java Virtual Machine” on page 53](#) (JVM).

virtual private network

VPN. A network that appears to be private, but is configured inside a public network. The VPN appears to be a private national or international network to the customer, but actually shares backbone trunks with other customers. In this way the VPN can enjoy the security of a private network through access control and encryption while taking advantage of the economy of scale of a large public network.

virus

A program that attaches itself to a host program and activates when the host program runs. It often contains code that damages other data on the computer by changing files on a hard disk, altering the system configuration, or copying itself to disk.

Visual Basic

A visual programming language based on BASIC. Visual Basic is frequently used to write ActiveX controls and client front ends for client/server applications.

VLM

Virtual Loadable Module. An executable program for a DOS workstation to enable various kinds of communications with a server, or to enable applications on a server running NetWare 4 or an earlier version.

For example, the NetWare DOS Requester is a suite of VLM programs, as is Desktop SNMP.

volume

A physical amount of hard disk storage space, fixed in size, that is the highest level in the NetWare directory structure (same level as a DOS root directory). Each volume is also a Volume object in the NDS tree.

volume table

A table that includes the number of volumes mounted in the server, the name, size, and other information pertaining to each volume.

VPN

virtual private network. A network that appears to be private, but is configured inside a public network. The VPN appears to be a private national or international network to the customer, but actually shares backbone trunks with other customers. In this way the VPN can enjoy the security of a private network through access control and encryption while taking advantage of the economy of scale of a large public network.

WWW

wildcard characters

1. A character used to replace other characters in a search string.
2. Special characters that match certain specified items; there are 2 wildcard characters, ? and *. The ? can be substituted for any single character in a filename and the * can be substituted for 1 or more characters in the filename or filename extension.
3. In a word search, file search, or directory search, wildcards are characters used to represent variables. A question mark represents a single character that you want to vary in a search; an asterisk (*) represents zero or more characters in succession.

Windows

The popular GUI OS for PCs from Microsoft.

WinSock

Short for Windows Sockets. An API that serves as an interface between WinSock-compliant applications and the TCP/IP protocol.

wizard

Instructional help that guides the user through a series of steps to accomplish a task.

workgroup

A group of users who share access to certain information.

workgroup administrator

A user given workgroup privileges who can change the way workgroup resources are set up.

workgroup manager

The status assigned by the network administrator that enables a user to add or delete users from a group, and to assign trustee rights to the group and its members.

workstation

A personal computer or terminal device connected to a network, through which a user can access a server. Also called "client," "node," or "station."

XXX

X.500

The OSI standard that defines where to find the address for the electronic envelope of an X.400 transmission. It becomes part of an X.500 directory of names and addresses similar to the yellow pages of a telephone directory.

X.509 certificate

A standard format for a digital certificate that is internationally recognized as an electronic document used to bind a name to a public key and to prove ownership of the public key over a communication network. It contains the issuer's name, the user's identifying information, and the issuer's digital signature, as well as other possible extensions in version 3 of the X.509 standard.

XForms

A specification for Web forms that is designed for multiplatform use. See also [W3C's XForms page \(http://www.w3.org/MarkUp/Forms/\)](http://www.w3.org/MarkUp/Forms/).

XML

Extensible Markup Language. A metalanguage containing a set of rules for construction other markup languages. See also [W3C's XML page \(http://www.w3.org/XML/\)](http://www.w3.org/XML/).

XO

exactly once.

XO transaction

A transaction method that ensures that a request is implemented only once.

ZZZ

zip

To compress a file. Popular compression utilities include PKZIP, WinZip, and zip.

Zip

A removable disk system from Iomega. Zip disks can store 100 MB or 250 MB of data. See also [“Jaz” on page 53](#).