

406 NADN (Nearest Active Downstream Neighbor)

(DTE device). The poll is sent because the far equipment is not responding. After the N2 is reached, a *Set Asynchronous Balanced Mode (SABM)* will be transmitted by the polling device, which will ultimately reset the entire link.

NADN (Nearest Active Downstream Neighbor) In token-ring or IEEE 802.5 networks, the closest downstream network device from any given device that is still active.

NAK The ASCII control-code abbreviation for negative acknowledge. The binary code is 0101001 and the hex is 51.

Naked Call An incoming call that receives no greeting message and no call menus or flexible routing before it is routed into an ACD queue.

NANP (North American Number Plan) See *Area Code*.

NAT (Network Address Translation) An early network protocol/ feature that advertises address changes. This has been replaced with newer methods. See *Layer 2,3,4 Switching*.

National Access Fee A Federal tax placed on telecommunications services provided by telephone companies.

National Television Standards Committee (NTSC) The pre-HDTV broadcast standard in Canada, Japan, the United States, and Central America. NTSC defines 525 vertical scan lines per frame and yields 30 frames per second. The scan lines refer to the number of lines from top to bottom on the television screen. The frames per second refer to the number of complete images that are displayed per second. See also *Television Broadcast Standards*.

Native Protocol The format of the LAN that is being transmitted over a WAN. For instance, if a LAN is Ethernet and it connects to a remote LAN via a frame-relay network, the native protocol is Ethernet, and the connection protocol is frame relay.

NAUN (Nearest Active Upstream Neighbor) In token-ring or IEEE 802.5 networks, the closest upstream network device from any given device that is operational.

NCP (Netware Core Protocol) The heart of the Novell NetWare operating system. It is a set of programmed instructions that enables communication to occur between software programs on a workstation and a file server's operating system. It manages the high-level aspects of communication, including: user account authorization, file retrievals, and remote printing services. Furthermore, NCP is a connection-oriented service. It acknowledges packets that have been received and requests retransmissions of lost or discarded packets.

NDIS (Network Driver Interface Specification) A standard data-link layer (OSI level 2) protocol within the TCP/IP family that enables multiple protocols and multiple network

(physical layer) adapters to exist on the same computer. NDIS allows all upper layer protocols to use the same *Network Interface Card (NIC)*.

NDT (No Dial Tone) An abbreviation frequently used on telephone company repair orders and by service personnel.

NE (Network Element) A device attached to a network via hardware or software that performs a service or function to the network. A network element can be a router, a host, a workstation, a hub, a central office switch, a private branch exchange switch, a voice-mail system, a firewall/security program, or any other network-servicing entity.

Near-End Cross Talk (NEXT) The uncommon phenomena of signals sent over twisted copper pairs bleeding onto each other via magnetic fields produced at cross connections, or within defective electronic equipment. The *near end* refers to the problem occurring between a switch and a DSLAM or other device within a central office/node. For a diagram, see *Far-End Cross Talk*.

Neighboring Routers A reference to routers that are adjacently connected within a network. In multiple-protocol networks, neighbors are dynamically discovered by the OSPF Hello protocol.

NetBIOS (Network Basic Input/Output System) A set of instructions within the Novell NetWare protocol stack that extend a PC's BIOS instructions to include those that enable communicating beyond its own hardware and into a network.

NetWare A trademark of Novell. Netware is a widely utilized network operating system software that was developed by Novell from the *XNS (Xerox Network Systems)* architecture, which was originally released in 1981. The Netware protocol suite is defined in the top five layers of the OSI, and can be made to run on virtually any data-link and physical layer system (*Fig. N.2*).

NetWare Core Protocol (NCP) The heart of the Novell NetWare operating system. It is a set of programmed instructions that enables communication to occur between software programs on a workstation and a file server's operating system. It manages the high-level aspects of communication, including: user account authorization, file retrievals, and remote printing services. Furthermore, NCP is a connection-oriented service. It acknowledges packets that have been received and requests retransmissions of lost or discarded packets.

NetWare Loadable Module (NLM) A Novell trademark. An individual program or application that can be loaded into memory and function as part of the Novell NetWare *NOS (Network Operating System)*.

NetWare Shell A function in the Novell Netware Protocol Stack. The NetWare Shell or "requestor shell" stays resident in a workstation or server's memory. It decides whether

NOVELWARE PROTOCOL SUITE

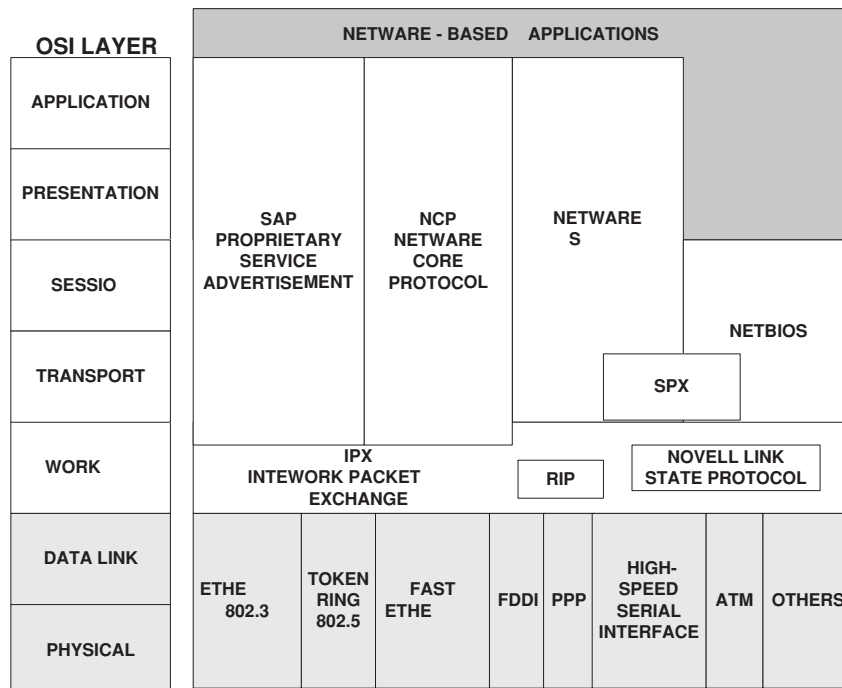


Figure N.2 Novell NetWare Protocol Suite

or not to send data/instructions entered by the user (or application) to the network. Each time the workstation user executes a command, the NetWare Shell software program determines whether the call/instruction is for the user's PC or for a remote server on the network.

Network A group of devices that communicate back and forth using a set of rules or a set of protocols (called a *protocol stack* in data communications). The medium that the devices communicate through can be copper wire (UTP), fiber optic, coax, fiber optic, air/vacuum (radio), or light (infrared).

Network Architecture The combination of software and hardware type of a network. Each network architecture can have one or more protocols within it.

Network Element (NE) A device attached to a network via hardware or software that performs a service or function to the network. A network element can be a router, a host, a workstation, a hub, a central office switch, a private branch exchange switch, a voice-mail system, a firewall/security program, or any other network-servicing entity.

Network File System (NFS) As commonly used, a distributed file-system protocol suite developed by Sun Microsystems that allows remote file access across a network. In actuality, NFS is simply one protocol in the suite. NFS protocols include NFS, RPC, XDR, and others. These protocols are part of a larger architecture that Sun refers to as *ONC*. See also *ONC*.

Network Forwarding Rate In bridges or routers, the amount of data in packets per second that a device such as a switch/router/bridge can transfer traffic in on one port and out on another.

Network Interface (NI) Also called a *Standard Network Interface (SNI)*, demarcation point, or lightning protector. The device that contains carbons to protect a phone line from being overloaded by lightning and acts as the separation point between the telephone company's wire and the customer's wire, which is also called the *IW (Inside Wire)*. For a photo, see *Standard Network Interface*.

Network Interface Card (NIC) An expansion board that plugs into a motherboard via an ISA or PCI expansion socket/slot. The network interface card provides the electronic and the physical interface for the network of its type. Network types include, but are not limited to, Ethernet and token ring. For a photo of a PCI Ethernet NIC, see *NIC*.

Network Layer A layer in a communications protocol model. In general, the network layer does the job of switching and routing of the data being transmitted within the protocol. A central-office switch would be a good example of a network layer function. The latest model (guideline) for communications protocols is the *OSI (Open Systems Interconnect)*. It is the best model so far because all of the layers or functions work independently of each other. For a diagram of the OSI model and its layers, see *Open Systems Interconnection*.

Network Node Interface (NNI) In the ATM world, this type of connection provides 4096 virtual paths and 65,536 virtual connections within each path for a total of 268,435,456 channels between two ATM networks, switches, or users that are physically connected over a *UNI (User Network Interface)*.

Network Operating System (NOS) Management software residing on a control server that manages user access to network file resources. Access is determined by policies set by an administrator. Network operating systems are distributed file systems. Examples include Novell NetWare, *Network File System (NFS)* for UNIX, Windows 2000, and Banyan VINES.

Network Service Access Point (NSAP) The logical, software, or virtual interface between the *OSI (Open Systems Interconnect)* network layer (3) and transport layer (4). This is known as a *socket* in Novell networks.

Network Service Provider (NSP) A company that provides telecommunications services such as frame relay, ADSL, HDSL, ATM, Internet Access or other services via their

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