

# NS/9000 for Series 300/400, Series 700, and Series 800/600

## Technical Data

### Product Numbers

**B1012B for Series 300/400**

**B1029B for Series 800/600**

**J2140A for Series 700**

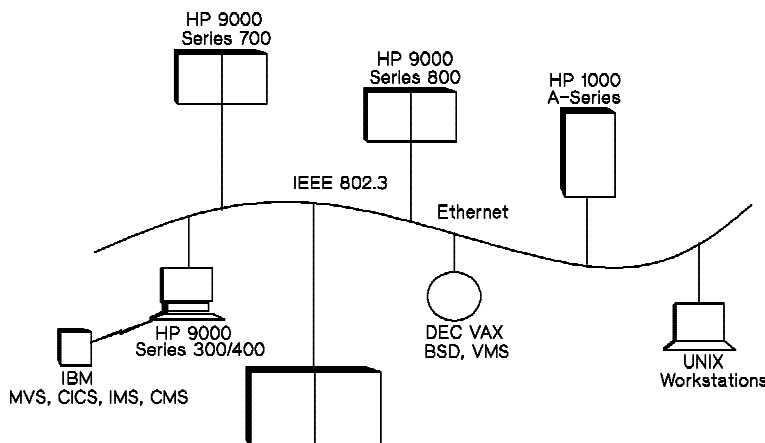
Network Services/9000 (NS/9000) provides engineering and manufacturing environments with the ability to communicate in a multivendor environment. NS/9000 has been designed in a layer approach following the International Standards Organization's Open Systems Interconnection (ISO/OSI) Model. NS/9000 supports communication between the

HP 9000 Series 800, 700, 600, 400, and 300; the HP 1000 A-Series, and the HP 3000 over a local area or X.25 network. Users can easily access remote systems while error checking is performed automatically. The NS/9000 product requires the LAN/9000 Series 800/600, Series 700, Series 300/400 Link product, or the X.25 Link product. The Token Ring and FDDI links are not supported with NS/9000.

### Features

- NS/9000 supports two network services over the high-speed IEEE 802.3 Local Area Network Link:
  - Network File Transfer (NFT) - enables the user to transfer files across a Local Area Network (LAN) between HP 9000 Series 800, 600, 700, 400, and 300; HP 1000 A-Series, and the HP 3000 computers.
  - Virtual Terminal to HP 3000 (VT3K) - provides virtual terminal capability from Series 300/400, Series 700s, and Series 800/600s into HP 3000 systems. Can be used in combination with X-Window-based HPTERM on Series 300, 400, 700, or with a direct-connected terminal on the Series 800 or Series 600.
- Industry Standards-based protocols: NS/9000 runs on the LAN/9000 Series 800 or Series 300 Link product, which supports IEEE 802.3/Ethernet thick or thin coax cable or

Figure 1



EtherTwist twisted-pair, as well as transport and internet protocol layers based on the Advanced Research Projects Agency (ARPA) Transport Control Protocol and Internet Protocol (TCP/IP). (NS/9000 is not ARPA compatible.)

## Functional Description

NS/9000 functionality combines the NS Common Services transports with the capabilities of the LAN transports and the IEEE 802.3 LAN/9000 Series 800/600, Series 700, and Series 300/400 Links. These facilities are described in detail in figure 2, which shows the relationship between the NS Common Services, transports, and like components of the product.

## User Level Services

### Network File Transfer

Network File Transfer (NFT) copies files between any two NS nodes on a network. The HP NFT protocol is common to all HP Network Services implementations. Files can be copied interactively or programmatically. Network File Transfer includes features that allow users to:

### Copy Remote Files:

Using NFT on all local Series 300, 400, 600, 700, or 800 systems, a user can copy files from a local node to a remote node, from a remote node to a local node, and between remote nodes.

### Translate File Attributes:

File attributes are translated transparently and on demand when files are copied between different systems. This means that when an HP-UX file is copied to an HP 1000 A-Series computer, the file attributes will be translated into RTE-A file format.

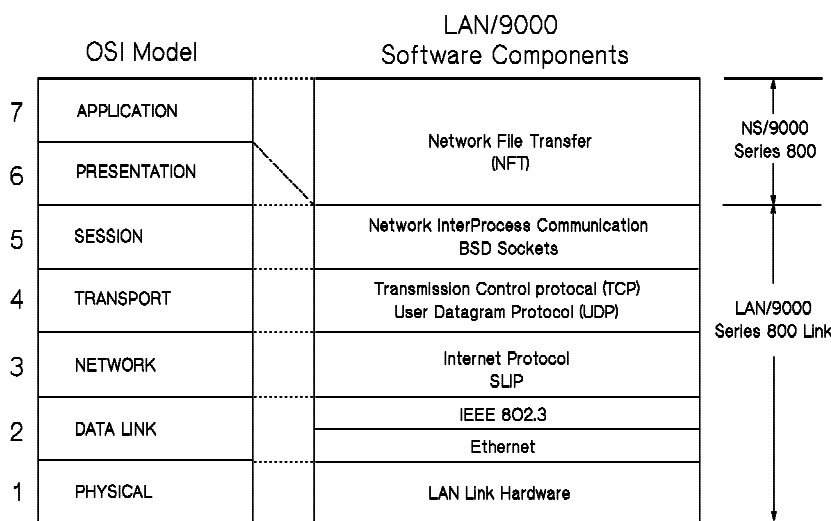
### Access Remote Accounts:

Files under any account can be accessed if the user provides the correct user name and password.

The **dscopy** command is used to copy files from system to system over the network. This command is similar to the HP-UX **cp** command, which is used for local file copies. With **dscopy**, however, you must specify a system name and the appropriate login information before a remote file can be copied. For example, to copy a file from a system named **pc\_design** to a system named **pc\_fab**, you could execute the command (command is typed on only one line):

```
dscopy
pc_design#alpha:beta#source_file\pc_fab#delta:gama#dest_file
```

The source and destination files are **source\_file** and **dest\_file**, respectively. The login for **pc\_design** is **alpha:beta**, and the login for **pc\_fab** is **delta:gama**.



---

### Virtual Terminal to HP 3000

Virtual Terminal to HP 3000 (VT3K) allows users on HP 9000 Series 300/400, Series 700, and Series 800/600 systems to log into HP 3000 systems running MPE/V and MPE/XL. VT3K is supported on two configurations: HP 2392 or HP 700/92 terminals connected via RS-232 to a Series 800, or on the X-Window based HPTERM on a Series 300/400/700 system. VT3K is not supported over TELNET connections.

VT3K is invoked using the VT3K command on an HP 9000 and specifying an HP 3000 hostname. For example, the user opens an HPTERM window on a Series 300 and types:

**vt3k host3000**

where host3000 is either an MPE/V or MPE/XL based HP 3000. The connection is established and the user logs into the HP 3000 normally.

VT3K supports the use of an input file (script) for automatic login and command execution by using the **vt3k-a** command. It also provides options for logging input and output to a file and enabling and disabling type ahead buffering.

VT3K supports line-oriented and VPLUS blockmode applications on the HP 3000. Non-VPLUS applications or hybrid applications that mix VPLUS and MPE intrinsic calls for terminal communications

are not supported. Character-at-a-time applications that require type ahead to be enabled on the HP 3000 are not supported.

### Network Link Requirements

Use of NS/9000 requires the Local Area Network Link. The LAN/9000 Series 800/600, Series 700, and Series 300/400 Links alone enable Series 800/600, Series 700, and Series 300/400 computers to communicate with other HP 9000 computers using NetIPC and BSD Sockets. Service Products available to run on the LAN/9000 Links are NS/9000 (as described in this data sheet) and ARPA Services/9000 (see table 1).

Token Ring and FDDI LAN Links are not supported with NS/9000.

Communication with other Series 800/600, 700, and 300/400 computers over the LAN requires that the remote systems be equipped with a LAN/9000 Series 800/600, 700, or 300/400 Link and either NS/9000 or ARPA Services/9000 software. Specific requirements for intersystems communication with LAN/9000 Series 800/600, 700, and 300/400 Links and NS/9000 between HP 9000 and non-HP 9000 processors are described in table 2.

*Table 1*

Model #	LAN/9000 Link Product	Network Services 9000	ARPA Services 9000
Series 800/600	36967A	B1029B	B1030B (included with all 8x7 systems)
Series 300/400	98171A	B1012B	Included with HP-UX OS
Series 700	25567A	J2140A	Included with HP-UX OS

**Table 2: HP 9000 NS and LAN Links**

Computer System	LAN Link	Software
HP 9000 Series 800/600	LAN/9000 Series 800 (36967A) (choose appropriate options)	NS/9000 Series 800/600 (B1029B)
HP 9000 Series 300 Model 320	LAN/9000 Series 300 Model 320 (98171A)	NS Services/300 (B1012B)
HP 9000 Series 300 Models 340, 345, 360, 370, 375	Built-in LAN interface Additional LAN interfaces require 98171A	NS Services/300 (B1012B)
HP 9000 Series 400	Built-in LAN interface Additional LAN interfaces require 98171A	NS Services/400 (B1012B)
HP 9000 Series 700	Built-in LAN interface Additional LAN interfaces require 25567A	NS Services/700 (J2140A)
HP 1000 A-Series	LAN/1000 Link (12076A)	NS/1000 (91790A)
HP 3000	LAN/3000	NS/3000

at least one disk drive. A minimal configuration for NS/9000 Series 300/400 functional operation is 4 Mbytes of memory, which includes the memory requirements for the HP-UX operating system. Eight or more megabytes are recommended. Series 300s can run NS/9000 in diskless configurations or with a disk drive.

Hewlett-Packard System Engineers and Data Communications Specialists are available to consult in network design, and can assist in designing an effective network. Consult your HP Sales Representative for more details.

### Compatibility

NS/9000 Series 800/600, 700, and 300/400 software is compatible with:

- NS/1000 (91790A) NFT and TELNET\* Services
- NS/3000 NFT and VT Services

\* TELNET service requires the ARPA Service/800/600 or ARPA Services/300/400/700 product also.

### System Environment

Series 800/600 computers running NS/9000 must be running the HP-UX operating system version 8.0 or later. Series 700 and Series 300/400 computers running NS/9000 must be running the HP-UX operating system version 8.0 or later. A minimal configuration for NS/9000 Series 800/600 functional operation is 8 Mbytes of memory, which includes the memory requirements for the HP-UX operating system, and

---

## Installation Policy

### Customer Responsibility

The NS/9000 Series 800/600, 700, 300/400 customer must assume the following responsibilities with the purchase of NS/9000.

1. LAN/9000 Series 800/600, Series 700, or Series 300/400 Link products must be installed prior to the NS/9000 software. The customer is responsible for network configuration and installation of the NS/9000 software.
2. It is highly recommended that one person in the customer's organization be designated as the Network Manager. This person will assume responsibility for configuration and maintenance of the customer's systems, and will function as the focal point for Hewlett-Packard's support of the network.
3. Hewlett-Packard strongly recommends that the customer purchase TeamLine Software Support or ResponseLine Software Support for NS/9000 and related hardware and software support products.

## Documentation

The following documentation is provided with the NS/9000 product. This material describes the functionality and versatility of NS/9000.

**5958-8563** NS Cross System NFT Reference Manual  
**B1012-90009** Using Network Services  
**B1012-90010** Installing and Administering Network Services  
**B1012-90012** HP 9000 Computers Network Overview  
**0B0** Deletes 5958-8563

## Ordering Information

### Software

**B1029B** NS/9000 for Series 800/600 options

**AHO** For Tier 1 SPUs  
**AEL** For Tier 2 SPUs  
**AE5** For Tier 3 SPUs  
**AE6** For Tier 4 SPUs  
**AEN** For Tier 5 SPUs  
**AEP** For Tier 6 SPUs  
**AH1** For Tier 7 SPUs  
**030** Documentation and media on ¼-inch tape for HP-UX 8.0  
**031** Documentation and media on ½-inch tape for HP-UX 8.0  
**032** Documentation and media on digital audio tape for HP-UX 8.0  
**033** Additional copies of documentation for HP-UX 8.0

Order the appropriate upgrade option if moving to a larger system:

**0CA** Return credit for the 500 processor  
**0GR** Return credit for option AH0  
**0GE** Return credit for option AEL  
**0G8** Return credit for option AE5  
**0GS** Return credit for option AE6  
**0GT** Return credit for option AEN  
**0GJ** Return credit for option AEP

**B1012B** NS/300/400 License to Use

**0AK** Additional software license to use  
**AA0** Documentation and media on ¼-inch tape for HP-UX 8.0  
**0BI** Additional copies of documentation for HP-UX 8.0

**J2140A** NS/700 License to Use

**AAU** Documentation and media on CD ROM for HP-UX 8.0  
**0BI** Additional copies of documentation for HP-UX 8.0  
**AAH** Documentation and media on DDS cartridge for HP-UX 8.0  
**0AK** Additional software license-to-use

### Hardware

Consult LAN/9000 Link Data Sheet