



hp e3000
business servers



NS3000/iX

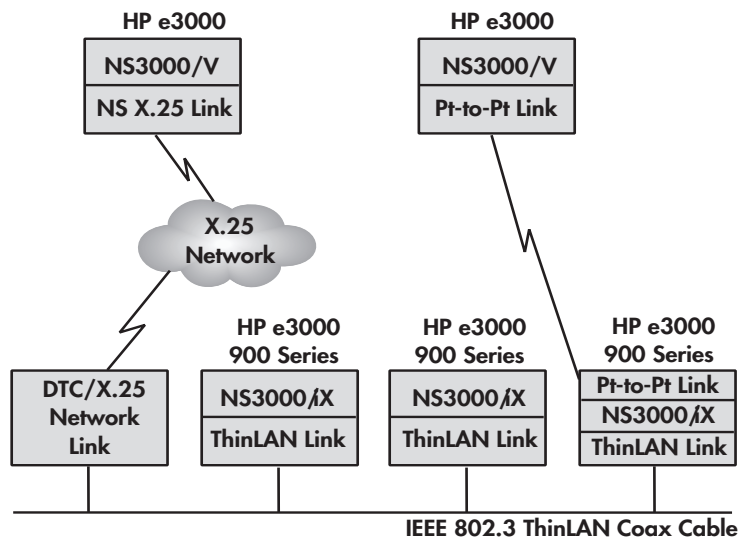
provides networking capabilities between locally or remotely networked HP e3000 systems

36920B—NS3000/iX
Network Services

NS3000/iX (Network Services for the A-/N-Class or 900 Series HP e3000) provides networking capabilities between locally or remotely networked HP e3000 systems. The high-level services provided to interactive users and to application programs include file transfer, remote IMAGE/SQL database access, virtual terminal access, and remote file and peripheral access.

For MPE/iX-based processor, NS3000/iX extends the domain of many MPE capabilities beyond the boundaries of a single computer. An application program can read and write files and databases on remote systems with the same commands used to read and write local files and databases. This facilitates easy and transparent movement of data or information across the network.

An MPE/iX-based system with NS3000/iX can communicate with HP e3000s running NS3000/V or NS3000/iX over HP local and wide area network links, including the ThinLAN 3000/iX Network Link, Token Ring 3000/iX Network Link, the NS Point-to-Point 3000/iX Network Link, and the X.25/iX Network Link (see network link data sheets for information).



features

- For communication with other HP e3000 systems running NS3000/V or NS3000/iX, a variety of network services are available, providing a choice of capabilities to address any specific task
 - Remote database access
 - Remote file access
 - Remote peripheral access
 - Network file transfer
 - Virtual terminal access
 - NetIPC
 - RPM
- The services provided with NS3000/iX are fully interoperable with those of NS3000/V, with the single exception of Program-to-Program Communication, which is only supported by NS3000/V.
- Network File Transfer and Network InterProcess Communication are supported to the HP 1000 and HP Vectra.
- NS3000/iX and the associated NS network link products were built in conformance with the International Standards Organization's Open Systems Interconnection (OSI) model. NS3000/iX provides the functionality of OSI layers six and seven (presentation and application layers).
- NS3000/iX capabilities are accessible from applications in many languages, including COBOL II, FORTRAN, Pascal and SPL Programs.

functional specifications

NS3000/iX is designed to extend the capabilities of the MPE/iX operating system beyond a single computer to a network of computers. NS3000/iX is particularly useful in applications that involve transaction processing and are functionally dispersed among several HP e3000 systems. Any system command and many operating system intrinsics may be executed remotely through a simple extension provided by NS3000/iX. The terminal user or application programmer requires no knowledge of the communication protocol or physical link.

NS3000/iX requires users to pass all the security checks imposed by MPE/iX, such as entering passwords when logging on to a remote system. NS3000/iX also provides additional security features applicable only to a network environment. For example, the system operator may limit activity on a communication link to either incoming access or outgoing access.

The following describes the facilities provided by NS3000/iX, communicating with NS on an MPE VE- or MPE/iX-based HP e3000 system.

remote file and peripheral access

With NS3000/iX the user gains access to files and peripheral devices on a remote system as easily as access to files and peripheral devices on the

local system. MPE provides a set of intrinsics for local manipulation (FOPEN, FREAD, FWRITE, etc.) and since MPE treats peripherals similarly to files, the same intrinsics are used to handle local peripheral devices. NS3000/iX transparently extends the operation of these intrinsics to files and peripherals residing on another HP e3000.

NS3000/iX implements the extensions at the intrinsic level, in cooperation with the operating system. For this reason, user applications written in most languages, as well as most HP-provided utility programs, gain this ability to access remote files and peripherals. NS3000/iX and MPE must know the location of the file or peripheral to be accessed. The user provides this information by appending "nodename" to the file name in the call to FOPEN or in the ":FILE" equation. The same security provisions apply to remote access as apply to local access, including logon passwords.

remote database access

IMAGE/SQL provides a set of intrinsics (DBOPEN, DBGET, DBPUT, etc.) that allows an application program to access a IMAGE/SQL database. NS3000/iX transparently extends these intrinsics to permit manipulation of a IMAGE/SQL database residing on a remote system. Password security for logon and IMAGE/SQL database access apply to remote access.

The user specifies the location of the database, through an MPE ":FILE" equation or through a database access file. The MPE ":FILE" equation can be executed either just before invoking the application program or from inside the application program via the MPE COMMAND intrinsic. The first method completely removes any knowledge of the database location from the application program, but not from the user. The second removes the knowledge from the user and embeds it in the application program.

To isolate both the user and the application program from needing to know the database location, IMAGE/SQL allows the database administrator to create a database access file that defines the location of the database and the authorized users. Only the administrator need be concerned with actual locations; IMAGE/SQL and NS3000/iX handle the rest. This flexibility allows the administrator to relocate databases without affecting the users' operating procedures or modifying application programs.

network file transfer

The DSCOPY utility program transfers files from one system to another in large buffers containing multiple records. DSCOPY can be invoked from a session, a job, or a program. The source file node, the destination file node, or both may be remote from the node on which the transfer is initiated. Compared to using FCOPY with Remote

File Access, DSCOPY reduces the NS3000/iX overhead and makes more efficient use of the communication line capacity.

virtual terminal access

From a terminal on a local HP e3000 system, a user may log on to a remote HP e3000 and conduct an interactive session as if the terminal were directly connected to the remote system. Character-mode applications and block-mode applications using VPLUS are supported. This capability requires no distinct command language, simply a specification of the remote system and the prefix “:REMOTE”. For example, to log on to the remote system enter “:REMOTE HELLO user.account”. To execute a stream of commands on the remote system, the keyword “:REMOTE” by itself connects the terminal to the remote system until the user requests a return to the local system. Multiple remote sessions to a single node or multiple remote session from a single local session can be established. In order to distinguish the sessions, an interactive user can specify the prompt for each session. Programs may also communicate with the remote operating system command interpreter by using the MPE COMMAND intrinsic.

For PCs connected to an HP e3000 over an IEEE 802 LAN, Virtual Terminal Access allows terminal emulation access to most HP e3000 applications. An HP Services product and compatible terminal emulator are required on the PC.

Note: Virtual Terminal functionality is part of ThinLAN/iX and does not require NS3000/iX.

remote process management

Remote Process Management consists of a set of intrinsics used to initiate and terminate remote processes. These intrinsics will normally be used in conjunction with the Network InterProcess Communication intrinsics, allowing an entire distributed application to be controlled from a single system. Created processes may be independent (continue executing when the creating process terminates) or dependent (terminate when the creating process terminates).

migration to NS3000/iX from DS/3000

Applications on HP e3000s that use the DS/3000 capabilities of Remote File Access, Remote Database Access, Network File Transfer, and Virtual Terminal Access can be moved to the MPE/iX-based system via a STORE tape. They will run with NS3000/iX with no required changes to programs or job streams, and with no recompilation in most cases. (Note that the DS/3000 capability of Program-to-Program communication is not supported on NS3000/iX. With the advent of a newer, more powerful technology in NetIPC, it is to the user's advantage to use this technology as opposed to the older, less functional PTOP.)

network capacity and performance

The maximum number of separate conversations with other notes that a single processor can support and the peak user data rates achievable on each communication link are complex functions of many interrelated variables. Among these are the type of NS3000/iX capability being used, the main memory and speed of each processor that is a party to the conversation (and its peripherals), and the load on each system from non-network applications.

Because of the number and complexity of these factors, it is difficult to make accurate generalizations about capacity and performance. Hewlett-Packard Technical Consultants are available to consult in network design. They have data on the system and network parameters that affect network operation. With this information and an accurate understanding of the target environment, they can assist in designing an effective network.

installation and configuration policy

The NS3000/iX Services product is completely customer installable. No additional product configuration is necessary.

customer responsibility

The customer is responsible for performing the following tasks to successfully install the NS3000/iX Services product:

- Providing HP with the information necessary to complete the Network Implementation and Support Plan (NISP) including:
 - System configurations
 - Logical network map identifying relevant traffic flow
 - Physical network map identifying relevant network hardware components.
- Verifying the proper installation, configuration, and functioning of the associated NS link product (ThinLAN 3000/iX Link, Token Ring 3000/iX Network Link, NS Point-to-Point 3000/iX Network Link and/or DTC X.25/iX Network Link).
- Updating the HP e3000 system to the proper release level and installing the NS3000/iX Services product using AUTOINST. Refer to the HP e3000 MPE/iX Installation and Update Manual (36123-90001).
- Verifying that all of the necessary software modules have been successfully installed by AUTOINST and are at the correct version levels using the NMMMAINT.PUB.SYS utility.
- Verifying the successful installation of the NS3000/iX Services product by issuing the appropriate NSCONTROL start command for an

associated started Network Interface and communicating with another node on this network installed with either the NS3000/V Services (HP 32344A) or NS3000/iX Services.

additional implementation assistance

For implementation needs that go beyond installation, the customer can either provide self-support, or can purchase additional services from HP. These services include Network Startup and HP ConsultLine. In addition, the customer can also purchase service from HP on a time-and-materials basis.

Network Startup includes implementation scheduling and network configuration and verification testing, and network documentation.

ordering information

NS 3000/iX network services

- 36920B—NS3000/iX Network Services License, Software, and Documentation
- 310—Tier 1 License (also applies to 315, 320 Tier 2, 3 systems)
- 330—Tier 4 License (also applies to 335 Tier 5 systems)
- 340—Tier 6 License (also applies to 350 Tier 7 systems)
- OCD—Upgrade credit Tier 1
- OCF—Upgrade credit Tier 4

In order to receive the upgrade credit, customers must select the upgrade credit option that pertains to their current processor/tier-based option in addition to the new tier-based option on the same order.

Customers must also order the MPE media product (HP 51453B) on MPE/iX 5.5 Express 7 or later, or MPE/iX 6.0 Express 1 or later. This is required to receive software for this product.

network links

- 36923A—ThinLAN 3000/iX Network Link (Supported only on HP Series 900)
- J2167B—Token Ring 3000/iX Network Link (Supported only on HP Series 900)
- 36922C (NS Point-to-Point Network link for A-/N-Class servers) and 36922B (NS Point-to-Point 3000/iX Network Link for Series 900 servers)

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DTC/X.25/iX network link

- 36939B—X.25/iX System Access
- J2070A Opt. 1CW—X.25/RS-232 Network Access Card
- J2070A Opt. 1CX—X.25/V.35 Network Access Card
- J2079A—Add-on X.25 Network Access Card for DTC72MX
 - Opt. 1CW—add-on X.25/RS-232 Network Access Card for DTC72MX
 - Opt. 1CX—add-on X.25/V.35 Network Access Card for DTC72MX

The appropriate software, hardware, interface card, and cables are included in each network link. For more information, consult the appropriate data sheet.

support products

HP offers a spectrum of support service products to help plan, implement, operate, and manage your multivendor network throughout the network lifecycle.

documentation

Provided with NS3000/iX

- 36920—Using NS3000/iX Network Services

Related Documentation

- 36922-61005—NS3000/iX Operations and Maintenance Reference Manual
- 36923-61000—NS3000/iX Error Messages Reference Manual
- 36922-90040—NS3000/iX NMMGR Screens Reference Manual
- 36920-61005—NetIPC 3000/iX Programmer's Reference Manual
- 32022-61005—Using the Node Management Services (NMS) Utilities
- 36922-90041—HP 3000/iX Network Planning and Configuration Guide
- 36922-61029—HP SNMP/iX User's Guide
- 36939-61004—Configuring and Managing Host-Based X.25 Links

for more information on hp e3000 business servers, contact any of our worldwide sales offices or hp channel partners (in the u.s. 1-800-637-7740) or visit our hp e3000 business servers website at www.hp.com/go/e3000

