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DECNIS V2.3 Software Release

An overview of the functionality in the DECNIS V2.3 software release.

Document Number: NIPG-008-01

January, 1994

Abstract

This document provides an overview of the functionality included in the DECNIS V2.3 software release. It provides information to help Digital resellers, account teams and support personnel to identify customer opportunities and to answer customer questions.

For more information about this release, please refer to the Q3 FY94 announcement information and the January 1994 special edition of Sales Update.

Introduction

The DECNIS V2.3 Software Release provides some major new functionality to the DECNIS multiprotocol router product, including:

- PC management, DECNIS 500/600 can now be installed, configured and managed from standard MS-DOS PCs, including laptops!
- Netware IPX certification, and industry leading IPX routing for high performance Client/Server computing.
- Open Shortest Path First (OSPF) routing**,** for improved TCP/IP internetworking and interoperability with 3rd party routers.
- SNMP network management, with set and trap support for Digital vendor MIB, MIB-II, Bridge and FDDI MIBs from POLYCENTER/NETVIEW 6000 and industry standard management platforms.
- Cisco HDLC support, for interoperability with DECbrouter 90 and Cisco routers.
- OSF/1 support, for loading, configuration and management from Alpha AXP systems.
- Frame Relay bridging, to allow bridging as well as routing over public Frame Relay services.

Customer Problems

The need for high performance client server networking is becoming more important as the use of data intensive user applications becomes more widespread. PCLAN products such as Novell NetWare and Digital's PATHWORKS have become standards for integrating user PCs into the client server environment. At the same time, TCP/IP has become the most prevalent protocol for building large internetworks to link workgroup LANs into an enterprise network.

Customers need multiprotocol router products that can be installed, configured and managed from a standard platforms such as PCs and which provide the routing capabilities needed in today's high performance client/server environments.

How DECNIS V2.3 Addresses these Problems

Customer Need	Digital Solution
Reliable client server networking	High performance, multiprotocol routing with no packet loss and prioritization of management and control packets provides a best in class networking solution.
Ease of use and flexibility	Loading from platform of choice, including standard PCs and Digital's Alpha AXP systems, with support for industry standard management protocols.
Vendor choice and investment protection	Leading interoperability both for routing protocols and data link protocols means that customers have a wider choice of supplier whilst protecting their investment.

The DECNIS V2.3 release provides new features to address the following customer needs.

Customer Need	DECNIS V2.3 Features and Benefits
Novell Netware LANs	Industry leading performance of over 83,000 pps with no packet loss for IPX routing, plus Novell certification allow the DECNIS to provide best in class solutions for high performance client server networking in Novell NetWare environments.
TCP/IP backbones	OSPF support allows customers to use DECNIS to build large TCP/IP only internets. OSPF support also allows the DECNIS to interoperate with other vendors' OSPF routers.
Management from industry standard platforms	Enhancements to SNMP to include sets and traps allows MIB-II, Management Bridge and FDDI MIB variables to be managed dynamically from POLYCENTER/NetView 6000 and other industry standard network management platforms such as HP OpenView and SunNet Manager.

Customer Need	DECNIS V2.3 Features and Benefits
Ease of use, and convenience of loading platform	The MS-DOS PC based management utility provides a flexible configuration, loading and management tool for standard MS-DOS PCs. DECNIS can now be sold to a much wider customer base without the need for a Digital VMS or ULTRIX host.
Connection to Cisco router networks	Cisco HDLC data link support means that the DECNIS can interoperate with Cisco routers at the data link level. Interoperability with the DECbrouter 90 product, developed by Digital with Cisco, has also been improved.
Alpha AXP support	OSF/1 support allows the DECNIS V2.3 software to be installed, configured and managed from Digital's Alpha AXP systems, allowing customers to combine high performace networking with high performance client server solutions.
Choice of vendor and investment protection	Improvements to allow greater interoperability with Cisco, Wellfleet, Proteon and other vendors' router products reinforces Digital's committment to multivendor networking.

PC Load Configuration and Management Utility

The DECNIS PC LCM utility allows DECNIS to be loaded, configured and managed from a standard MS-DOS PC instead of from a VMS or ULTRIX system. This allows multiple DECNIS configuration files to be created and stored on either a single PC or multiple PCs in the network to provide a flexible solution to suit most customer environments.

The minimum configuration is an Intel 386 PC with 4M of memory and at least 80M of disk space. The PC LCM utility can be installed standalone or optionally on a PC running PATHWORKS (V4.1 or V5.0) or Novell NetWare (V3.x or V4.x).

The DECNIS PC LCM utility uses the same menu driven host and DECNIS configurators as the VMS and ULTRIX based utilities. Both Bootp and MOP loading are supported via the PC's local Ethernet adapter. Any Ethernet adapters which provides an NDIS driver can be used.

Once loaded from the PC, the DECNIS configuration is stored in the DECNIS FLASH memory for fast reboot in the event of power failure or network outage. While running, the DECNIS can be managed dynamically from the PC by using the NCL command line interface to send management directives to the DECNIS. PCLAN and IP routing functionality have been significantly enhanced with the V2.3 release.

Novell Netware and PATHWORKS Support

The DECNIS IPX routing performance was measured by Scott Bradner of Harvard University in August 1993 at over 83,000 pps with zero packet loss between 6 Ethernet pairs, making the DECNIS best in class for IPX routing.

The DECNIS IPX implementation has been tested and approved by Novell Inc against Novell NetWare V3.x and V4.x. for use as an IPX LAN router in Ethernet and FDDI environments.

In addition, the DECNIS V2.3 software has been tested by Digital against the latest PATHWORKS V5 implementation. The DECNIS PC LCM utility can optionally be installed on a PATHWORKS V5 PC, or on a PATHWORKS V4 PC.

TCP/IP Networking

OSPF V2 routing as defined in RFC 1247 allows customers to build large IP networks based on the more advanced link state routing algorithm rather than the older distance vector routing algorithm used by RIP. Full route propogation and filtering between OSPF and Integrated IS-IS, RIP and EGP is also supported.

Network Management

SNMP has become the industry standard for monitoring and managing network devices from platforms such as Digital's POLYCENTER/NetView 6000, HP OpenView or SunNet Manager.

SNMP get and set support allows DECNIS Management Information Base (MIB) variables to be monitored and changed dynamically, for example packet counters can be monitored, lines can be turned on and off, IP routing parameters adjusted, etc while the DECNIS is running.

The DECNIS V2.3 release includes support for the DEC vendor MIB and several IETF defined MIBs, including MIB-II (RFC 1213) with full data link support, Bridge MIB (RFC 1493) and FDDI MIB 9RFC 1512).

SNMP traps allow network events defined in the respective MIBs to be generated to allow the appropriate action to be taken by the network manager. For example, traps can be generated for changes in router adjacencies, and the change in status of lines and circuits.

Interoperability

Multi-vendor interoperability is important becasue it allows customer choice, flexibility and investment protection. Digital is committed to improving the interoperability of its router products through the adoption of open standards and, where appropriate, proprietary standards.

Cisco HDLC data link support means that the DECNIS interoperates with the AGS+, 7000 and other Cisco routers for IP, DECnet, OSI CNLP and bridging. The DECbrouter 90, developed by Digital with Cisco, supports Cisco HDLC as well as PPP for interoperability with the DECNIS.

The addition of OSPF support also allows the DECNIS to interoperate in IP only networks with other vendors' OSPF routers. Interoperability is also aided by using the route propogation and filtering included in the DECNIS implementation to exchange information between routing protocols, for example between OSPF and RIP.

Product Quality

Product quality continues to be an important focus for the DECNIS software. As well as internal and customer field testing, the DECNIS software has been extensivelly tested by appropriate external organizations.

- Novell certification - the DECNIS V2.3 IPX implementation was tested by Novell Inc at their test laboratories in Utah, USA, against Novell NetWare V3.x and V4.x. and has been approved for use as an IPX LAN router in Ethernet and FDDI environments. The DECNIS was the second router to obtain this certification.

- OSPF testing - the DECNIS OSPF implementation was tested by OSPF Interoperability Group of the Corporation for Open Systems (COS) in July 1993 against 11 other vendors' OSPF implementations. The DECNIS OSPF implementation was tested over both Ethernet and PPP synchronous links against other routers.

- Frame Relay certification - the DECNIS Frame Relay implementation conforms to ANSI-D, CCITT and LMI specifications and has been tested and certified for connection to several public Frame Relay network services including AT&T Interspan, British Telecoms Global Network Service, and Sprint Frame Relay service. Testing has also been performed with Stratacom Inc. and Cascade Inc. Frame Relay switches.

- X.25 PSDN certification - the DECNIS X.25 implementation conforms to CCITT X.25 (1980, 1984, 1988) and has also received US and European GOSIP conformance. Over 40 public X.25 PSDNs are supported worldwide in addition to many private X.25 PSDNs.

- Documentation - the DECNIS hardware documentation has received 1993 Excellence awards from both the US Society of Technical Communication (STC) and the International Technical Publications Competition (ITPC).

Pricing and Ordering Information

The DECNIS V2.3 software runs on both the DECNIS 500 and DECNIS 600 platforms which are available in a number of base and packaged systems. Full details are provided in the NIPG marketing document, *DECNIS Platforms and Packages*, Document Number NIPG-009.

Separate software licenses are required for the following functions on each hardware unit.

- Routing license - this license is required for IP, DECnet and OSI routing. This license ships with all base and packaged systems and includes X.25 Gateway and Relay functionality at no extra cost.

- Bridging license - this license is required for local and remote bridging and ships with some packaged systems or may be ordered separately.

- PCLAN license - this license is required for Novell IPX and AppleTalk routing and must be ordered separately.

- Vlink license - this license is required for Vitalink VCP support and must be ordered separately.

For customers without software license update update service contracts DECNIS routing, bridging and PCLAN upgrade licenses are available.

Media and documentation are required for the first purchase of a DECNIS package for each customer or location. There are separate software media kits for MS-DOS, OSF/1 for Alpha AXP, Open VMS for VAX, or RISC/ULTRIX load host installation.

Documentation is included in all media kits. The MS-DOS H-kit includes ASCII text files of the DECNIS Problem Solving Guide. The OSF/1 for Alpha AXP, Open VMS for VAX and RISC/ULTRIX H-kit includes an online Bookreader version of the DECNIS Problem Solving Guide. Separate -GZ documentation kits are also available.

Order Number	Description	US List
QL-GZNA9-AA	DECNIS Bridging License W/W	$ 1,000
QL-08VA9-AA	DECNIS PCLAN License W/W	$ 1,000
QL-0PDA9-AA	DECNIS Vitalink VCP License W/W	$ 233
QL-GX7A9-RA	DECNIS Routing Upgrade Lic	$ 320
QL-GZNA9-RA	DECNIS Bridging Upgrade Lic	$ 160
QL-08VA9-RA	DECNIS PCLAN Upgrade Lic	$ 160
QL-0PDA9-RA	DECNIS Vitalink VCP Upgrade Lic	$ 37
QA-GX7AA-H*	DECNIS VAX/VMS Media and Doc Kit	$ 450
QA-GX7AC-H*	DECNIS RISC/ULT Media and Doc Kit	$ 450
QA-GX7AD-H8	DECNIS OSF/1 for AXP CDROM and Doc Kit	$ 450
QA-GX7AF-HC	DECNIS DOS Media and Doc Kit	$ 250
QA-GX7AA-GZ	DECNIS VMS, OSF/1 ULTRIX Doc Kit	$ 185
QA-GX7AF-GZ	DECNIS DOS Doc Kit	$ 200

* = 5 for TK50, M for mag tape

For full details of DECNIS ordering, please refer to the DECNIS Sales & Configuration Guide.

Further Information

More information on the DECNIS can be found in the following publications:

DECNIS V2.3 Software Product Description	SPD 36.05.07
Digital's Multiprotocol Router Family Info Sheet	EC-F2444-42
How to Build Multivendor, Multiprotocol Networks	EB-L6020-42
T&N Buyers Guide July 1993	EC-I1866-42

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