Software Product Description

PRODUCT NAME: DEC TCP/IP Services for OpenVMS VAX, Version 3.3 SPD 25.A4.07

DESCRIPTION

DEC TCP/IP Services for OpenVMS VAX is a layered software product that provides interoperability and resource sharing between OpenVMS VAX systems, UNIX® systems, and other systems that support the TCP/IP Protocol Suite and Sun® Microsystems NFS™.

The DEC TCP/IP Services for OpenVMS VAX product provides network file access, remote terminal access, remote command execution, remote printing, mail, and application development. DEC TCP/IP Services for OpenVMS VAX has previously been identified by the name UCX.

NEW FEATURES

DEC TCP/IP Services for OpenVMS has the new features highlighted in the following list:

- **NFS Client VMS-to-VMS** - The Network File System (NFS) Protocol allows a user to access remote host file system as if it were local. With NFS Client functionality, OpenVMS users mount NFS files stored on remote OpenVMS hosts as if they were local OpenVMS files. Users can execute typical file actions such as create/delete, read/write, and set attributes.

- **SLIP/CSLIP** - SLIP/CSLIP allows users to connect host-to-host over a serial line. The serial line type may be dialup or dedicated.

- **Network Time Protocol (NTP)** - NTP synchronizes time stamps.

- **UCX$TRACE** - The UCX$TRACE Utility is enhanced.

INSTALLATION AND CONFIGURATION

The DEC TCP/IP Services for OpenVMS VAX V3.3 product is installed with VMSINSTAL.

For configuration ease, DEC TCP/IP Services for OpenVMS provides a menu-driven configuration procedure. This procedure enables you to configure only those services and applications that you use. You can also configure all client software components quickly without selecting individual menu options.

COMMUNICATIONS

Communications are based on the 4.3 Berkeley Software Distribution, implementing the following protocols and features:

- Transmission Control Protocol (TCP)
- Internet Protocol (IP)
- Internet Control Message Protocol (ICMP)
- Address Resolution Protocol (ARP)
- User Datagram Protocol (UDP)
- Routing Information Protocol (RIP)

DEC TCP/IP Services for OpenVMS also includes the functionality discussed in the following subsections.

Fiber Distributed Data Interface (FDDI) Support

FDDI is an ANSI standard for a network technology based on fiber optics. This technology specifies a 100MPS transmission rate. DEC TCP/IP Services for OpenVMS VAX enables TCP/IP communications between OpenVMS VAX systems and other hosts that are in the following configurations:

- On the same FDDI network
- Over a FDDI/Ethernet bridge
- Over a router

OpenVMS VAX hosts act as Internet gateways between FDDI networks and one or more Ethernets.

The management of the FDDI controller is integrated with the TCP/IP network management interface.

Auxiliary Server *(inetd)*

The *inetd* software is the TCP/IP service dispatcher for UNIX systems first provided by Berkeley Software Distribution (BSD) 4.3.

This feature significantly simplifies the writing of applications and manages overhead by reducing the number of simultaneous server processes on the system.

The DEC TCP/IP Services for OpenVMS VAX implementation of *inetd* does the following:

- Listens for incoming connection requests and appropriately starts application services.
- Controls dynamic process creation in the same manner as the UNIX based *inetd*.
- Provides a Services Database.
- Provides security features.
- Offers event logging.

BIND Server

The BIND Server translates Domain Name System host names to IP addresses. Network managers set up BIND databases to configure primary, secondary, and caching servers on OpenVMS VAX hosts. This complements the BIND resolver, the client part of BIND that requests name-to-address translations from a BIND server.

Remote Booting

Remote host booting of diskless clients uses OpenVMS VAX as the boot server. This feature uses the BOOTP and TFTP Protocols to initiate the boot request and to download the boot files.

UCX Management with Command-Line Interface

UCX Management provides DCL-style commands to control and monitor the UCX software components.

Simple Network Management Protocol (SNMP) Agent

SNMP is the internet standard protocol for network management over TCP/IP. The SNMP agent communicates with network management directors to provide information about network activity. MIB II variables are supported within SNMP.

Security and Network Access Control

System managers use network security features to control the accessibility to OpenVMS VAX systems from remote Internet hosts.

Application Programming Interfaces

DEC TCP/IP Services for OpenVMS VAX V3.3 includes the following application programming interfaces:

— C socket programming interface

Provides the Berkeley socket programming interface to develop TCP/IP networking applications in the C language.

— QIO programming interface

Provides a QIO programming interface to develop TCP/IP networking applications in any OpenVMS VAX language.

— SRI QIO interface

Provides emulation of the SRIQIO interface.

— Sun RPC, with XDR and Portmapper

Sun® Remote Procedure Calls (SunRPC) are included in the UCX Programming interface. The SunRPC library includes a library of RPC function calls, the Portmapper module, and eXternal Data Representation (XDR) routines.

Applications

This component includes the widespread end-user protocols for file transfer, remote login, remote command processing, remote printing, and mail exchange.

- *File Transfer Protocol (FTP)*

FTP is the internet application protocol for file transfer. It enables users to transfer files to and from remote hosts.

- *TELNET*

TELNET is the internet application protocol for remote login. This protocol enables OpenVMS VAX users to log in to remote systems and remote users to log in to OpenVMS VAX systems.

TELNET provides support for both character and line modes and enables users to activate multiple TELNET sessions.

- *TELNET 3270*

TELNET 3270 enables users to make TELNET connections from OpenVMS VAX systems to remote IBM® systems using a 3270-style terminal interface.

- *Berkeley Remote Commands* (rlogin, rsh, rexec)

DEC TCP/IP Services for OpenVMS VAX implements the popular UNIX remote login *rlogin*, remote shell *rsh*, and remote executive *rexec* services.

Like TELNET, *rlogin* enables users to log in to remote systems and remote users to log in to OpenVMS VAX systems.

The *rsh* service enables OpenVMS VAX users to execute commands on remote systems and remote users to execute DCL commands on OpenVMS VAX systems. Authentication is based on either user password or proxy access.

The *rexec* service provides authentication for the remote command based on user names and passwords.

- *Remote Printing*

DEC TCP/IP Services for OpenVMS VAX provides the following remote printing services:

OpenVMS VAX users can issue DCL-style PRINT commands to print files on remote systems using the LPD protocol.

Similarly, remote users can print files on OpenVMS VAX systems using the LPD protocol.

OpenVMS VAX users can also use the TELNET Print Symbiont to print files on remote systems.

- *Simple Mail Transfer Protocol (SMTP)*

SMTP is the internet application protocol for mail. Users can send and receive electronic mail to and from remote hosts.

- *Network File System (NFS)*

The NFS software supports the V2.0 protocol specifications. NFS is an application layer protocol that provides clients with transparent access to remote file services.

The NFS server software promotes data sharing among clients by providing a central data storage facility for OpenVMS VAX and UNIX files. The NFS server software provides two types of file access for remote clients:

  - Access to OpenVMS VAX files
  - Access to files that are compatible with the UNIX operating system

The NFS client software allows interactive users and local applications to access files that physically reside on a remote host running the NFS server software.

Automount

As implemented in DEC TCP/IP Services for OpenVMS VAX, the /AUTOMOUNT qualifier of the MOUNT command transparently mounts and unmounts NFS file systems on an as-needed basis, especially useful for mounting file systems and directories that are occasionally needed.

File Conversion On-The-Fly

Maximizes interoperability between OpenVMS VAX and other systems utilizing the NFS Protocol by providing a sequential "read on-the-fly" file conversion capability.

PC-NFS Server

Remote PC users mount and access NFS files from OpenVMS VAX. UID/GID identification and authentication of the remote PC user are established through the use of the UCX Proxy Database. Once access is established, users can print via the PC-NFS printing mechanism.

PATHWORKS Integration

DEC TCP/IP Services for OpenVMS VAX V3.3 supports the PATHWORKS IP driver for improved PATHWORKS and TCP/IP integration. (Requires PATHWORKS Version 5 series.)

HARDWARE REQUIREMENTS

Processors Supported:

VAX:	VAXft Model 110, VAXft Model 310, VAXft Model 410, VAXft Model 610, VAXft Model 612, VAXft Model 810
	VAX 4000 Model 100, VAX 4000 Model 200, VAX 4000 Model 300, VAX 4000 Model 500, VAX 4000 Model 600, VAX 4000 Model 700
	VAX 6000 Model 200 Series, VAX 6000 Model 300 Series, VAX 6000 Model 400 Series, VAX 6000 Model 500 Series, VAX 6000 Model 600 Series
	VAX 7000-600 Series
	VAX 9000 Model 110, VAX 9000 Model 210, VAX 9000 Model 300 Series, VAX 9000 Model 400 Series
	VAX 8200, VAX 8250, VAX 8300, VAX 8350, VAX 8500, VAX 8530, VAX 8550, VAX 8600, VAX 8650, VAX 8700, VAX 8800, VAX 8810, VAX 8820, VAX 8830, VAX 8840, VAX 8842, VAX 8974, VAX 8978
	VAX 10000-600 Series, VAX 10000-700 Series
	VAX–11/750, VAX–11/780, VAX–11/785
MicroVAX:	MicroVAX II, MicroVAX 2000, MicroVAX 3100 Model 10/10E,

	MicroVAX 3100 Model 20/20E, MicroVAX 3100 Model 30, MicroVAX 3100 Model 40, MicroVAX 3100 Model 80, MicroVAX 3100 Model 90, MicroVAX 3300, MicroVAX 3400, MicroVAX 3500, MicroVAX 3600, MicroVAX 3800, MicroVAX 3900
VAXstation:	VAXstation II, VAXstation 2000, VAXstation 3100 Model 30, VAXstation 3100 Model 38, VAXstation 3100 Model 40, VAXstation 3100 Model 48, VAXstation 3100 Model 76, VAXstation 3200, VAXstation 3500, VAXstation 3520, VAXstation 3540
	VAXstation 4000 Model 60, VAXstation 4000 Model 90, VAXstation 4000 VLC, VAXstation 8000
VAXserver	VAXserver 3100, VAXserver 3300, VAXserver 3400, VAXserver 3500, VAXserver 3600, VAXserver 3602, VAXserver 3800, VAXserver 3900
	VAXserver 4000 Model 200, VAXserver 4000 Model 300, VAXserver 4000 Model 500
	VAXserver 6000 Model 210 VAXserver 6000 Model 220, VAXserver 6000 Model 310, VAXserver 6000 Model 320, VAXserver 6000 Model 410, VAXserver 6000 Model 420, VAXserver 6000 Model 510, VAXserver 6000 Model 520, VAXserver 6000 Model 610, VAXserver 6000 Model 620, VAXserver 6000 Model 630
	VAXserver 9000 Series

Processors Not Supported:

VAX–11/725, VAX–11/730, VAX–11/782, MicroVAX I, VAXstation I, VAXstation 8000

For performance reasons, Digital does not recommend using a MicroVAX 2000 or any VAXstation as an NFS® server.

Other Hardware Required

One of the following controller interfaces is required:

DEUNA	Ethernet to UNIBUS controller.
DELUA	Ethernet to UNIBUS controller. The minimum revision level required is F1.
DEBNI	Ethernet to VAXBI communication controller.
DEMNA	High performance network adapter that connects XMI systems to both Ethernet and IEEE 802.3 local area networks.
DESVA	Ethernet controller interface.
DEBNA	Ethernet to VAXBI communication controller.
DELQA	Ethernet controller to Q–bus. This is the replacement for DEQNA. The minimum revision level required is C3.
DESQA	Ethernet controller to Q–bus for S-BOX configurations.
SGEC	Ethernet adapter for VAX 4000 systems.
DEMFA	DEC FDDI Controller 400 (XMI-to-FDDI Adapter).
DEFTA	High-performance network adapter that connects TURBO-channel systems to ANSI FDDI local area networks.
DEMNA	High-performance network adapter that connects XMI systems to both Ethernet and IEEE 802.3 local area networks.

DEC TCP/IP Services for OpenVMS can share an Ethernet Interface with other Digital networking products, such as DECnet.

Disk Space Requirements (Block Cluster Size = 1)

For DEC TCP/IP Services for OpenVMS:

Global pages	8,100
Global sections	42
Disk space required for installation	18,000 blocks
Disk space required for use (permanent)	17,000 blocks

These counts refer to the disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options.

CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed VAXcluster* configuration without restrictions. The *HARDWARE REQUIREMENTS* section of this product's Software Product Description details any special hardware required by this product.

* V5.x and 6.x VAXcluster configurations are fully described in the VAXcluster Software Product Description (29.78.xx) and include CI, Ethernet, and Mixed Interconnect configurations.

SOFTWARE REQUIREMENTS

To qualify for a software support contract, DEC TCP/IP Services for OpenVMS VAX requires OpenVMS operating system V6.0 or later.

Client access to DEC TCP/IP Services for OpenVMS requires a UNIX® operating system that supports the protocols specified by NFS V2.0 and all applicable TCP/IP protocols as defined by the Request for Comments (RFC).

OpenVMS Tailoring:

For VMS V5.5 or later or OpenVMS 6.0 or later operating systems, the following OpenVMS classes are required for full functionality of this layered product:

- OpenVMS Required Saveset
- Programming Support
- BLISS Required Files (optional for program development)

For more information on OpenVMS classes and tailoring, refer to the OpenVMS Operating System Software Product Description (SPD 25.01.42).

GROWTH CONSIDERATIONS

The minimum hardware and software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

9-track 1600 BPI Magtape, TK50 Streaming Tape

This product is also available as part of the OpenVMS Consolidated Software Distribution on CD-ROM (QA-VWJ8X-A8).

ORDERING INFORMATION

DEC TCP/IP Client for OpenVMS VAX

Software Licenses: QL-GL7A*-**
Software Documentation: QA-VHRAA-GZ
Software Product Services: QT-GL7A*-**

DEC TCP/IP Services for OpenVMS VAX

Software Licenses: QL-VHRA*-**
Software Media: QA-VHRAA-H*
Software Documentation: QA-VHRAA-GZ
Software Product Services: QT-VHRA*-**

DEC TCP/IP Client Upgrade

Software License: QL-0PJA*-**
Software Documentation: QA-VHRAA-GZ
Software Product Services: QT-0PJA*-**

* Denotes variant fields. For additional information on available licenses, services, and media refer to the appropriate price book.

SOFTWARE LICENSING

This software is furnished only under a license. For more information about Digital's licensing terms and policies, contact your local Digital office.

License Management Facility Support:

This layered product supports the OpenVMS License Management Facility.

License units for this product are allocated on an Unlimited System Use basis.

For more information about the License Management Facility, refer to the OpenVMS Operating System Software Product Description (SPD 25.01.42) or the *License Management Facility* manual of the OpenVMS Operating System documentation set.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. For more information, contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum.

APPENDIX A

The NFS component of DEC TCP/IP Services for OpenVMS has been tested for interoperability with the following systems:

- OpenVMS VAX and OpenVMS AXP
- Sun Microsystems SunOS
- Hewlett-Packard® HP®-UX
- IBM® AIX®
- Apple® A/UX®
- Santa Cruz Operations SCO™ UNIX
- DEC UNIX, DEC OSF/ULTRIX

Digital supports connectivity with these clients, but does not support the operating systems themselves.

The above information is valid at time of release. Please contact your local Digital office for the most up-to-date information.