# Software Product Description

**PRODUCT NAME: PATHWORKS for VMS, Version 4.0 (Formerly VMS Services for PCs)** **SPD 30.50.07**

## DESCRIPTION

PATHWORKS for VMS is based on the Personal Computing Systems Architecture (PCSA), which is an extension of Digital Equipment Corporation's systems and networking architecture that merges the VAX, RISC and personal computer environments. The PATHWORKS product family, developed under the PCSA architecture, provides a framework for integrating personal computers into an organization's total information system so that different types of users can share information and network services across the entire organization.

The PATHWORKS family of software products includes:

- PATHWORKS for VMS - Software that allows a VMS-based VAX system to act as a file, print, mail and disk server to DOS and OS/2® personal computers. (Described in this document.)
- PATHWORKS for ULTRIX - Software that allows an ULTRIX-based VAX or ULTRIX-Based RISC system to act as a file, print and mail server to DOS and OS/2personal computers. (Described in SPD 32.44.xx.)
- PATHWORKS for OS/2 - Includes client software which allows a personal computer running the OS/2 Operating System to use the facilities provided by PATHWORKS for VMS, PATHWORKS for ULTRIX, or the PATHWORKS for OS/2 server software. Also includes server software which allows an OS/2 based personal computer to act as a file, print and mail server to other personal computers. (Described in SPD 55.24.xx.)
- PATHWORKS for Macintosh® - Software which allows a VMS-based VAX system to act as a file or print server to Macintosh computers. Also includes Macintosh client applications and utilities. (Described in SPD 31.53.xx.)
- PATHWORKS for DOS - Software which allows a personal computer running the DOS Operating System to use the facilities provided by PATHWORKS for VMS, PATHWORKS for ULTRIX, or the PATHWORKS for OS/2 server software. (Described in SPD 55.07.xx.)
- PATHWORKS for DOS (TCP/IP) - Software required for a personal computer running the DOS Operating System to access services of a PATHWORKS for VMS or PATHWORKS for ULTRIX server via the TCP/IP network transport. (Described in SPD 33.45.xx.)
- DECnet/PCSA Client: VAXmate - Required software for VAXmates to use the facilities provided by PATHWORKS for VMS. (Described in SPD 55.10.xx.)

PATHWORKS for VMS software allows VAX, MicroVAX, VAXstation and VAXserver computers to act as application, data and resource servers to groups of personal computers. By using these server systems, personal computers can share applications, data and resources. Information can be accessed from local and remote systems and that information can be applied in DOS or OS/2 applications.

PATHWORKS for VMS supports DECnet, LAST and TCP/IP network transports in Local Area Network (LAN) environments and DECnet and TCP/IP in Wide Area Network (WAN) environments.

*Features*

PATHWORKS for VMS software provides the following services for personal computers running the following specific versions of software, PATHWORKS for DOS V3.0 and V4.0, and PATHWORKS for OS/2 V1.0 and V1.1 and DECnet/PCSA for VAXmate V2.2 client software. These services include:

- Network Transport Support
- NetBIOS Interface Support
- File Services
- Disk Services
- Print Services
- Mail Services
- Time and Date Services
- Server Management and Control
- Broadcast Utility

- Remote Boot Services (DOS clients only)
- Installation

**Note:** For the purposes of this Software Product Description, the term "DOS" refers to all disk operating system software supported by PATHWORKS for DOS software. (See System Support Addendum SSA 55.07.09-x.) The term "OS/2" refers to all operating system software supported by PATHWORKS for OS/2 software. (See SPD 55.24.xx.)

*Network Transport Support*

PATHWORKS for VMS supports DECnet, LAST and TCP/IP network transport software.

*DECnet*

The DECnet transport is provided with the VMS Operating System. Using DECnet, supported personal computer clients can access servers in both local area and wide area networks. Refer to the PATHWORKS for DOS and PATHWORKS for OS/2 Software Product Descriptions for detailed information on supported features. Using DECnet as a transport, PATHWORKS for VMS provides file, print, mail and time and date services to supported clients.

*TCP/IP*

Support for TCP/IP is available using the VMS/ULTRIX Connection product. PATHWORKS clients accessing PATHWORKS for VMS via TCP/IP can use file and print services only. Refer to PATHWORKS for DOS (TCP/IP) SPD 33.45.xx for details.

*LAST*

LAST is a high performance Local Area Network protocol supported by PATHWORKS for VMS, that provides file, print and disk services. LAST does not support Wide Area Network functionality.

Refer to the *SOFTWARE REQUIREMENTS* section of this document for information on required network transport software.

*NetBIOS Interface Support*

PATHWORKS for VMS makes use of NetBIOS naming services and datagram service, however, a NetBIOS programmatic interface is not provided.

PATHWORKS for VMS supports the NetBIOS interface in TCP/IP Networks. The is a B-node RFC 1001/1002 compliant implementation. This means that the NetBIOS interface is supported under TCP/IP in Local Area Network (LAN) environments only.

*File Services*

PATHWORKS for VMS file services provides DOS and OS/2 clients with a remote file system that appears as a transparent extension of the client system's local computing environment.

PATHWORKS for VMS file services are based on the Microsoft® LAN Manager SMB (Server Message Block) protocols.

Each DOS or OS/2 file stored through the file service is stored as a VMS file: either a Stream file or an RMS Sequential Fixed Length Record (512 record bytes) file type. The files stored through the file service are accessible to PC clients, VMS users, and to applications that can interpret the content and organization of the file written by the client application. Each read issued by the client application will result in the presentation to the application of the next "n" data bytes contained sequentially in the file.

Multiple DOS and OS/2 clients can concurrently access files stored on the server's disk through the file access modes and byte range locking support provided by the server as defined by Microsoft's SMB protocol.

Through the use of the VMS Lock Manager, VMS and PC based applications can control file access. Refer to *Server Management and Control* section of this SPD for further information on access control.

*Restrictions*

The DOS and OS/2 utilities that are specific to PC hardware devices cannot be used with file services, such as CHKDSK, FDISK, DISKCOPY, DISKCOMP and FORMAT.

DOS filenames containing two underscores sequentially (_ _) are not supported by PATHWORKS for VMS. This is a restricted character sequence for use by the Server only.

*Disk Services*

Through Digital's Local Area Systems Transport (LAST), PATHWORKS for VMS software provides PC clients with local area disk services. The local area disk service defines a space on a VMS disk for clients to access as a virtual disk. This virtual disk is formatted as an OS/2 or DOS disk. Because LAST is a LAN-only communications protocol, overhead is low and performance high.

Local area disk services are accessible through the PATHWORKS for DOS client and PATHWORKS for OS/2 client software using LAST in a Local Area Network (LAN) and through the Network Disk Utility (NDU)

using DECnet in a Wide Area Network (WAN). PATHWORKS for DOS and PATHWORKS for OS/2 client software can also access virtual disks created with NDU. Access to local area disks in extended LANs across bridges with a transfer speed of 10Mb/seconds or less is also provided.

Disk management may be done from the VAX or remotely from the personal computer.

The local area disk service has the following restrictions:

- Only one client at a time may have read and write access to the local area disk.
- Multiple readers (and no writers) to a local area disk are allowed.
- The DOS and OS/2 files cannot be shared with VMS users.
- The local area disk service is available only in a Local Area Network configuration. However, virtual disks created with the local area disk service are available in a Wide Area Network through the Network Device Utility (NDU).

The local area disk's size is established at its creation and can be 360K bytes, 720K bytes, 1.2M bytes, 1.44M bytes, 5M bytes, 10M bytes, 20M bytes, or 32M bytes, 64M bytes, 128M bytes, 256M bytes, 512M bytes. Refer to *Server Management and Control* for further information on access control.

*Print Services*

PATHWORKS for VMS software allows DOS, OS/2, and VMS users to share printers connected to a VAXserver, VAXcluster or LAT supported terminal servers in a LAN or WAN. PATHWORKS clients can send files to the remote printer from DOS, OS/2, Microsoft Windows (DOS clients only) or from applications. PC clients can also delete a remote print entry and can associate some VMS printing parameters with a redirected logical print device.

The system administrator assigns a service name to a VMS print queue and can define user access to the print service. The PATHWORKS for DOS client and PATHWORKS for OS/2 client software redirect printer I/O from a client printer port to a defined print service.

The system administrator's utility in PATHWORKS for VMS software creates the physical and generic queues as well as defines forms for selected Digital and third party printers. Refer to *Optional Hardware* in the SSA for details.

Multiple print services may be set up for the same printer. For example, a landscape service and a portrait service may be created for the same LN03 PLUS printer. In addition, other printer queues can be manually set to support additional Digital and third-party printers that are not listed in the menus.

*Mail Services*

The mail server which is part of PATHWORKS for VMS provides DOS and OS/2 clients with the ability to send and receive electronic mail messages. A mail account is established on the VMS server for each PC client. Mail can be sent to this account by other PC clients as well as users of VMS mail software. The mail server then routes messages to the appropriate client when the client logs onto the server.

The PATHWORKS for VMS mail server provides the PC user with folders, distribution lists, and delivery capabilities. Notification of new messages occurs both real-time and upon login to a network session. Real-time notification of incoming messages can be optionally disabled by the client.

PATHWORKS for VMS allows PC users to read mail without having to log in to the VMS system. The mail utility is based on the mail 11 product.

*Time and Date Services*

DOS and OS/2 clients can request date and time information from the server system to set the local workstation date and time.

*Server Management and Control*

Two types of server management interface are provided by PATHWORKS for VMS, a menu driven user interface, and a command line interface.

The Manager Menu is a PC style menu interface that requires only minimal knowledge of VMS Operating System commands. The Manager Menu allows the system administrator to manage file and print services, user accounts and the client workstation database. Users can also create groups of users and grant these groups access to file, disk and print services.

Service and file access is supported across a VAXcluster. In a VAXcluster, a common database must be used for the cluster. Access to the file service is determined via standard VMS file access authorization mechanisms.

Print service access is controlled through username, password, and VMS Access Control Lists.

Access to the disk service is controlled via passwords, and the assignment of read-only or read/write privileges to users of a local area disk service.

PATHWORKS for VMS also includes a DOS file maintenance utility called PCDISK which can be used to maintain DOS devices accessable to VMS. This would include virtual disk files, LAD disk services, and physical diskette devices on the VMS server. The interface is DOS-like, while VMS-style prompting, line editing, and HELP are available. It supports wildcard file transfer between DOS devices and the VMS file system.

The system administrator can restrict the number of simultaneous client connections to a given service on the server. This capability means the system administrator can restrict access to DOS or OS/2 applications stored in the directory, to ensure compliance with vendor licensing agreements. Other restrictions on the use of the server can be imposed to help meet performance and security goals.

An administrator's utility is provided to allow the system administrator to add and remove services, register clients, and list resources. The server software can list current connections, current file opens, current sessions, and current services available, as well as show various counters. The server also provides for the use of broadcast information to all actively connected clients that are configured to use RECEIVE.

PATHWORKS for VMS also includes an automated tool called the Configurator which is used to tune the VMS server. The Configurator will verify and recommend the appropriate changes needed, if any, to the VMS sysgen parameters so that the PATHWORKS software will make optimal use of the VMS server.

In addition, the Manager Menu can be used to view the following log files:

- Audit log file which tracks network and server events, such as notices about connections being opened and closed, and failed attempts to access server resources.
- Error log file is used to log server related errors.

The server administrator can also use the command line interface to control all the features and services that are accessible via Menus. The command line interface can also be invoked by batch allowing the user to create automated command procedures.

*Broadcast Utility*

PATHWORKS for VMS includes a message broadcast facility that allows the system administrator to send messages to workstations in the local area network. A message can be sent to a single client or to all currently active clients in the LAN.

The broadcast utility can be used to inform users of system events, such as the creation of new services or the shutdown of the system.

*Remote Boot Services (DOS clients only)*

PATHWORKS for VMS software also enables remote boot for VAXmates and DOS personal computers with Digital's DEPCA or DEMCA PC Ethernet controllers. DOS personal computers using other supported Ethernet controllers can remote boot utilizing the supplied Remote Boot Software diskette. The administrator's utility provides facilities to add, delete, and list workstations to be booted remotely. LAST disk services on a LAN is a prerequisite.

## INSTALLATION

Digital requires that a customer's first purchase of this software product at each site include Digital's PATHWORKS for VMS MS-DOS® and OS/2 DECstart (QS-A93AL-4R). This service provides implementation support for customers installing PATHWORKS for VMS software and for the integration of DOS and OS/2 workstations into the Digital network.

For subsequent purchases of this product, Digital recommends that customers purchase Digital's Installation Service.

## HARDWARE REQUIREMENTS

VAX, MicroVAX, VAXstation, or VAXserver configuration as specified in the System Support Addendum (SSA 30.50.07-x).

## SOFTWARE REQUIREMENTS *

VMS Operating System

DECnet-VAX

VAX/ULTRIX Connection (for TCP/IP support)

* Refer to the System Support Addendum (SSA 30.50.07-x) for availability and required versions of prerequisite/optional software.

## ORDERING INFORMATION

Software Media: QA-A93**-**
Software Documentation: QA-A93*A-GZ
Software Media and Documentation: QA-A93*A-H*
Software Product Services: QT-A93**-**

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

## SOFTWARE LICENSING

You are licensed to use the VMS server product if you have purchased an appropriate Digital PATHWORKS client license.

For your first installation of this software product, you must purchase as a minimum for each server:

* The PATHWORKS for DOS license for each DOS PC (SPD 55.07.xx), a PATHWORKS for OS/2 client license for each OS/2 PC (SPD 55.24.xx), and a VAXmate license (SPD 55.10.xx).

To support TCP/IP you must purchase the VAX/ULTRIX Connection (SPD 25.A4.xx).

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## SOFTWARE PRODUCT SERVICES

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