COMPAQ

Software Product Description

PRODUCT NAME: Compaq Advanced Server V7.3A for OpenVMS and Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server) **SPD 30.50.32**

INTRODUCTION

This Software Product Description describes two separate products that provide similar PC server capabilities:

- Compaq Advanced Server V7.3A for OpenVMS

  Advanced Server V7.3A for OpenVMS requires Compaq *OpenVMS* Alpha Version 7.2-2, 7.3, or 7.3-1.

- Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

  PATHWORKS V6.1 for OpenVMS (Advanced Server) requires OpenVMS Alpha Version 6.2, 7.2-2, 7.3, or 7.3-1, or OpenVMS VAX Version 6.2, 7.2, 7.3.

Both products are included in the CD-ROM media kit (QA-A93AA-H8) and are available on both the Operating System and Layered Products Consolidated Software Distribution CD-ROM.

This Software Product Description (SPD) has three sections:

- Compaq Advanced Server V7.3A for OpenVMS
- Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)
- Software Licensing and Ordering Information

September 2002
AE-RD64H-TE

PRODUCT NAME: Compaq Advanced Server V7.3A for OpenVMS

DESCRIPTION

Compaq Advanced Server for OpenVMS is an OpenVMS layered application providing a network operating system that is compatible with the Microsoft networking technology. In particular, the Advanced Server for OpenVMS is based on the Windows NT Server, but it provides additional features. It enhances the Windows NT Server functionality by incorporating both OpenVMS and Microsoft technology to deliver powerful features for network administration and enhanced security. It combines the networking strengths and rich application set of Windows NT with the proven availability, reliability, scalability, and security of OpenVMS. The Advanced Server for OpenVMS can operate independently from or in cooperation with the Windows NT Server, or with a Windows 2000 Server.

The Advanced Server for OpenVMS software evolved from the PATHWORKS V6 for OpenVMS (Advanced Server) product to provide tighter integration with the OpenVMS operating system and the enhanced Windows NT integration features introduced with OpenVMS Alpha Version 7.2.

Advanced Server for OpenVMS supports Extended File Specifications based on OpenVMS ODS-5 disk volumes. The server product supports long names and deep directories, certain Unicode or extended character-set characters, the OpenVMS Registry (based on the Windows NT registry), COM for OpenVMS, and other capabilities that integrate Windows NT and OpenVMS environments. (The ODS-2 file system continues to be supported.) As a result, the Advanced Server for OpenVMS takes advantage of the OpenVMS operating system's native ability to function simultaneously as a file, print, communications, and applications server while ensuring compatibility with Microsoft networking features and interoperability with Microsoft desktop environments. DOS, Windows, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP Professional, and OpenVMS users can share files and printers over the network.

As a server for workstations on a network, the Advanced Server for OpenVMS provides file and print shares that enable a community of desktop users to share computing resources efficiently. The Advanced Server for OpenVMS can function as a simple file and print server for a small, isolated community of users or as the foundation of a large network distributed over a wide geographical area.

Desktop and OpenVMS users can share printers connected to Alpha computers or to OpenVMS Cluster systems, as well as network-based printers such as LAT printers and PrintServers. The Advanced Server for OpenVMS gives you the option of configuring the server to allow management of shared printers from Windows NT, thereby allowing you to take advantage of the features provided by Windows NT print services.

Compaq Advanced Server V7.3A for OpenVMS

FEATURES

The Advanced Server for OpenVMS adds an additional dimension to general-purpose OpenVMS systems. Along with providing traditional support for business, scientific, and engineering applications, the server allows an OpenVMS operating system to appear to PC clients as a Windows NT Server.

The major features of the Advanced Server for OpenVMS are described in the following sections.

File Services

The Advanced Server for OpenVMS provides clients with a remote file system that appears as a transparent extension of the client system's local computing environment.

The Advanced Server lets users share OpenVMS files. The Advanced Server file shares are based on Microsoft's Advanced Server V3.0 SMB (Server Message Block) protocols. You can use discretionary Windows NT access controls on each file and directory to specify the groups and users that can access files, to define the levels of access that each group or user is permitted, and to control auditing supported by Windows NT-like security. Additional, optional security is provided by OpenVMS file and directory protections.

Each file stored in a file service is stored as an OpenVMS file in Record Management Services (RMS) format. Four types of RMS file or record formats are allowed and supported on each volume:

- Sequential stream
- Sequential stream_LF
- Sequential fixed-length record (512 bytes per record)
- Sequential undefined

The Advanced Server for OpenVMS now provides improved performance for access of sequential and VFC (variable length with fixed-length control) files. In previous versions of the Advanced Server, and on ODS-2 volumes, the file has to be read completely to determine the correct file size. The Advanced Server now supports file-size calculations for RMS sequential and VFC files on ODS-5 volumes. This reduces the number of I/Os and the file-open time when the Advanced Server opens a file for the first time.

Multiple clients can concurrently access files stored on the server's disk through the file-access modes and byte-range locking support provided by the Advanced Server. In addition, opportunistic locking allows clients to lock files and cache data locally without risk of another user changing the file; this provides performance improvements and reduces network traffic related to client/server communication.

Note: The Advanced Server does not support concurrent simultaneous access to files by OpenVMS processes and the Advanced Server processes.

Files stored in a file service are accessible to PC clients, to OpenVMS users, and to applications that can interpret the content and organization of a file written by the client application.

The Advanced Server for OpenVMS ensures compatibility with a wide variety of clients and legacy applications attempting to share server resources. Some of the Advanced Server for OpenVMS features that help ensure such compatibility include:

- Extended File Specifications

  Extended File Specifications, based on ODS-5, includes support for deep directories and extended file names.

- Unicode characters or extended character sets

  The Advanced Server for OpenVMS file server can now allow certain Unicode characters and extended character sets that are foreign to the Western European languages, making available a broader set of characters not only for file and share names, but also for other objects manageable by the Advanced Server, such as user names and group names. The Advanced Server for OpenVMS provides six additional character sets with the potential of supporting over 40 different languages. Though you can configure any one of these languages, Compaq has tested and officially supports the following languages:

  - English (USA)
  - Hebrew

  By giving you a choice of languages, the Advanced Server for OpenVMS can enable you to configure the server to the local language of the server's users. Most of the Western European languages support the Euro currency symbol.

- Legacy applications with more restrictive file-naming conventions

  Some legacy applications (such as MS-DOS) are more restrictive than the Advanced Server, Windows NT, and other systems, in both the length of file names and in the set of valid characters supported for file names. As a result, these applications cannot take full advantage of the capabilities of the OpenVMS ODS-5 disk volume and longer file names supported on the other systems. To enable compatibility with these applications, the Advanced Server for OpenVMS automatically creates MS-DOS-compatible alias file names for files whose names do not comply with the file-naming standards of those applications. As a result, client applications that either must use or choose to use the MS-DOS format for file names can access these shared files on the server by using the file's associated alias name.

Print Shares

The Advanced Server for OpenVMS software lets DOS, Windows, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP Professional, and OpenVMS users share printers connected to Alpha computers or OpenVMS Cluster systems — as well as network-based printers such as LAT printers and PrintServers. Print shares are supported in local area network (LAN) and wide area network (WAN) environments. PC clients can print files from their desktop operating systems as well as from PC applications.

Multiple print shares can be defined for a single printer. For example, separate services can be created for landscape-mode printing and portrait-mode printing. Similarly, separate services can be created for DIGITAL mode and IBM ProPrinter mode printing for a single LA75 printer.

The Advanced Server for OpenVMS supports all PostScript printers supported by OpenVMS. Selected PostScript printers may need the DECprint Supervisor for OpenVMS (DCPS) software to provide access through the OpenVMS queuing system over TCP/IP or DECnet. The DECprint Supervisor for OpenVMS (DCPS) product provides PostScript and DEC ANSI printing to selected industry-standard PostScript printers.

By default, you manage shared printers using the Advanced Server for OpenVMS ADMINISTER command-line interface. However, the Advanced Server for OpenVMS gives you the option of configuring the server to support management of shared printers from Windows NT, using the Windows NT print services. Whichever style of management you choose, you have full functionality only from the style chosen — you cannot have full management functionality with both. Advantages of the Windows NT style of management include:

- Simple management of Advanced Server shared printers by using the Windows NT print services dialog boxes.
- When adding a printer to the Advanced Server, the Windows NT Add Printer Wizard installs the required drivers for the printer on the server; these drivers are provided by the administrator (such as from the Windows NT installation CD-ROM). When a client is set up to use the printer, these drivers are available for downloading. When new drivers are distributed, administrators have to update a single location only.
- Use of Windows NT access permissions for Advanced Server shared printers.

Before considering whether to take advantage of this feature, consult the latest Advanced Server for OpenVMS Release Notes.

Sharing of Network Resources by Heterogeneous Users

Services provided by Advanced Server are accessible to PATHWORKS clients as well as to Microsoft clients. All clients using the services of the Advanced Server for OpenVMS must be properly licensed. (For more information, see the section SOFTWARE LICENSING.)

Files are stored on the server in native OpenVMS RMS format. This allows information stored by the PCs using Advanced Server to be shared with traditional OpenVMS users. In addition, this feature allows information to be shared among all clients.

Network Transports

Advanced Server for OpenVMS supports DECnet (Phase IV) and DECnet-Plus (formerly known as DECnet/OSI) transport software as supported by OpenVMS Alpha Version 7.2-2, 7.3, and 7.3-1. The server also supports TCP/IP and NetBEUI network transport software. One or more transport stacks can work concurrently on the server.

Both the TCP/IP and DECnet transports are sold as separate Compaq products and require separate licenses.

NetBEUI transport software is included with the Advanced Server software. Using NetBEUI transport software, clients can access the server in the LAN for file and print shares. NetBEUI is recommended for use in small LAN-only environments of 50 nodes or less.

For information on supported network transport software, see the section SOFTWARE REQUIREMENTS.

NetBIOS Interface

The Advanced Server supports the NetBIOS interface in TCP/IP, DECnet, and NetBEUI networks, using multiple transport stacks on a single controller or on different network controllers. However, a NetBIOS programming interface is not provided.

NetBIOS support under TCP/IP includes both a p-node and a b-node RFC 1001/1002 implementation. Therefore, the NetBIOS interface can be used under TCP/IP in both LAN and WAN environments. The Advanced Server Configuration Manager utility allows you to select one or more of the following methods for NetBIOS name resolution for WANs:

- LMHOSTS file
- Windows Internet Name Service (WINS)
- DNS

  Note: Enabling DNS allows the server and clients to use a specified DNS name server for NetBIOS name resolution as a last resort if all other methods fail to resolve a NetBIOS name. DNS is also used by server clients to resolve the server cluster alias and to provide dynamic load balancing and failover on servers in an OpenVMS Cluster in a WAN environment. The DNS name server used for load balancing must support dynamic updates (Berkeley Internet Name Domain [BIND] server, Version 8.1.1 or later).

DNS is not configured as a replacement for WINS or LMHOSTS but rather as a supplement. The Advanced Server still uses WINS, LMHOSTS, or broadcast methods for resolving names.

Note Advanced Server for OpenVMS supports dynamic purging and reloading of the NetBIOS name cache, and the ability to display the name cache contents — similar to the NBSTAT capabilities provided on some Microsoft clients.

Flexible Security Models

The Advanced Server allows you to choose one of two modes of security, depending on the needs of your environment:

- In Advanced Server Only mode, only the Advanced Server (Windows NT Server style) security model is enforced.

  This mode is sufficient for most network environments. The Advanced Server employs a user-level security model that provides precise control over access to shared resources, including disk devices, directories, and printers. Control is based on a password assigned to each user account and the specific access permissions defined for the resources.

  The Advanced Server incorporates enhanced features that provide a high level of control over user and resource permissions and auditing. These features include support of discretionary access control permissions on individual files, directories, and resources and complete auditing capabilities.

  Like Windows NT Servers, Advanced Server does not support share-level security and operates in user-level security mode only.

- In the Advanced Server and OpenVMS security mode, both the OpenVMS and Advanced Server security models are enforced.

  Use of both security models is never necessary to control user access to resources, but is provided to allow administrators of systems with complex OpenVMS security controls already in place to use those same controls to restrict access by client users. Note that use of the Advanced Server and OpenVMS security model results in the extra overhead of validating both the Advanced Server and OpenVMS settings.

In addition, the Advanced Server supports external authentication (allowing OpenVMS users to log in at the OpenVMS prompt using their domain user name and password) and password synchronization between OpenVMS and Advanced Server systems, and it supports user account lockout.

Domain Support

Advanced Server allows the network to be subdivided into domains (administrative groups of servers and clients). Domains are a convenient mechanism for controlling user access to the network and for managing large networks. The Advanced Server can be a member of a single domain. The Advanced Server can be a primary domain controller (PDC), a backup domain controller (BDC), or a member server.

The Advanced Server can be deployed as the PDC in a network comprising other Advanced Servers, Windows NT Servers, PATHWORKS for OpenVMS (LAN Manager) servers, or LAN Manager for OS/2 servers. It also can act as a BDC for other Advanced Servers and Windows NT Server computers. In addition, the Advanced Server can act as a BDC in Windows 2000 mixed-mode domains, or as a member server in Windows 2000 native-mode and mixed-mode domains, in accord with the limitations imposed by Microsoft on Windows NT V4-compatible servers.

The Advanced Server for UNIX can be part of the same domain with Advanced Server for OpenVMS and can be designated as either the PDC or the BDC.

Advanced Server for OpenVMS provides support for wide area networks using one or more of the following methods:

- LMHOSTS file

  The presence of the LMHOSTS file on Advanced Server allows NetLogon services and security database replication over wide area TCP/IP configurations. This file contains a list of nodes from geographically dispersed sites synchronized by the PDC and accessible to clients in the server's domain. However, use of the LMHOSTS file for replication over extreme distances or in networks with slow transmission speeds is not recommended.

- WINS (Windows Internet Name Service)

  Support for WINS allows the Advanced Server to act as a WINS client; that is, to use the name registration and resolution facilities available from Microsoft WINS services across routed wide area TCP/IP networks, thus enabling WAN support for domain functions, NetLogon services, and security database replication.

- DNS

  This allows the Advanced Server and clients to use a DNS server for NetBIOS name resolution. The Advanced Server and clients use DNS for name resolution as a last resort if all other methods fail to resolve a NetBIOS name.

Trust Relationships

The Advanced Server supports trusts. Trust relationships can allow users from other domains to access resources in the local domain, and allows local domain users to access resources in other domains.

NetLogon Services

A single domainwide logon lets a user access resources on any server in a domain or on servers in other domains that trust the domain.

The domain capabilities of the Advanced Server make it possible for a user to issue a single logon request to authenticate the user for access to multiple servers in a network. The NetLogon service forces the validation of users' logon requests. The logon server that processes a request checks its copy of the domainwide user accounts database for the user name and password supplied in the logon request.

Network Browser Services

The Advanced Server can act as a Master Browser in a Windows NT network.

TimeSource Services

DOS and Windows clients can request date and time information from the Advanced Server and set the local workstation date and time to coincide with it.

User Environment Management

Logon scripts can be used to configure MS-DOS and Windows workstation user environments by making network connections and starting applications. User profiles can make workstations easier to use, as well as control workstation access to network resources.

Server Management and Control

The Advanced Server can be managed from either the OpenVMS server or a client workstation, using one of the following server management interfaces:

- The Advanced Server ADMINISTER command-line interface, which can be accessed from a terminal or terminal emulator. It conforms to standard DCL command syntax.
- Windows NT server administration tools, which are included in the Advanced Server software kit to be installed on Windows NT, Windows 95, Windows 98, and Windows for Workgroups workstations. These tools, including Server Manager, User Manager for Domains, and Event Viewer, allow you to administer Advanced Server and Windows NT Server computers from network clients.
- Windows NT Server tools, which are available as part of the Windows NT Server.
- Windows 2000 file and print server tools, which are available as part of the Windows 2000 Server.

Server management interfaces can be used to:

- Manage file and printer shares, user accounts, and groups

- Display and control server resources currently in use, such as active sessions, connections, and services
- View context-sensitive online help that provides command syntax, options, and qualifiers for each menu item and command

The Advanced Server can be administered remotely from PATHWORKS and Microsoft Windows client workstations. The Advanced Server can also be managed remotely from Windows NT Server, Windows 2000 Server, PATHWORKS Advanced Server, and other Advanced Server for OpenVMS systems.

Other Advanced Server tools are provided for management of other aspects of the file server. These tools are to be used for local server management only and include:

- The Advanced Server Configuration Manager utility (a character cell interface) to manage local server configuration parameters that are, for the most part, directly or indirectly related to the environment in which the server operates, such as the server's usage of OpenVMS system resources. Any adjustments that need to be made to the OpenVMS SYSGEN parameters to support the running of the server are automatically performed by the Configuration Manager utility.
- The Advanced Server Parameter Management utility (PWRK$REGUTL) to manage server configuration parameters that affect the behavior of the Advanced Server but not, for the most part, file server resource consumption.
- The License Manager (a character cell interface) to manage the License Server.

Windows 2000 and Windows XP Support

The Advanced Server supports:

- Windows 2000 and Windows XP Professional clients. For Windows XP Professional support, check with Compaq customer support.
- Windows 2000 domain controllers in a Windows 2000 mixed-mode domain, when the Advanced Server is a backup domain controller or member server; Windows 2000 domain controllers in a pure (native) Windows 2000 domain, when the Advanced Server is a member server.

Integrating with Microsoft Environments

The Advanced Server for OpenVMS provides numerous Windows NT integration features, including those provided on OpenVMS Alpha systems. These features include:

- Extended File Specifications, based on ODS-5, with support of long names and deep directories
- Unicode characters and extended character sets

- Alias file names, generated automatically to provide compatibility with legacy applications that only support file names that comply with the more limited MS-DOS name conventions
- Remote management from:
  - Network clients, using Windows NT server administration tools that are provided for installation on the clients
  - Windows NT Servers, using tools available on the Windows NT Server
- Windows NT management of shared printers
- Windows NT security model
- PDC, BDC, or member server participation in domains
- Master Browser or Backup Browser participation in domains
- Windows NT-compatible Server Message Block (SMB) file and print protocols
- Connections from a wide variety of Windows clients

Integrating with OpenVMS

Advanced Server encompasses many features of the OpenVMS operating system, including OpenVMS Clusters and symmetric multiprocessing. OpenVMS Cluster configurations provide load-balancing failover availability and extensive resource capacities by integrating multiple OpenVMS systems that can be accessed using a single cluster name.

The Advanced Server includes support for a transport-independent cluster alias NetBIOS name that allows multiple cluster members to appear as a single server to the connecting clients. This provides higher availability. The cluster alias name has a load-balancing feature that connects clients to the cluster member that is the least loaded at the time the session is established. The Advanced Server includes a high-performance, clusterwide distributed data cache that provides scalability in a clustered environment.

The Advanced Server supports the use of ODS-2 disk volumes and ODS-5 disk volumes, a feature of OpenVMS V7.2 and later, for share and file access by clients. The new ODS-5 based Enhanced File Specifications provide support for long names.

The Advanced Server for OpenVMS is installed using the OpenVMS POLYCENTER Software Installation utility. The Advanced Server for OpenVMS uses the OpenVMS Registry to store server parameters.

Integrating with External Authentication

External authentication is an optional feature that allows users to log in to an OpenVMS system using their Advanced Server (domain security) user name and password. This feature is useful to OpenVMS system managers who want to provide users with a single user name and password combination for both OpenVMS login and Advanced Server network logon.

If external authentication is being used in an OpenVMS Cluster, all cluster members should be configured to process OpenVMS logon requests for network users. You can set up external authentication support on nodes that do not run Compaq OpenVMS file servers. In mixed-architecture OpenVMS Clusters with the Advanced Server for OpenVMS running on the Alpha members, the VAX members can still use external authentication. For details about setting up external authentication in OpenVMS Clusters, refer to the *Advanced Server for OpenVMS Server Installation and Configuration Guide*.

For more information about external authentication for OpenVMS, refer to the Software Product Description for OpenVMS Alpha and VAX (SPD 25.01.xx).

Integrating with OpenVMS Security

The Advanced Server provides an extension to the Windows NT security model by supporting OpenVMS security enforcement as an optional enhancement.

Integrating with OpenVMS Registry

Advanced Server provides network users with access to the OpenVMS Registry. Advanced Server also stores its own configuration data in the OpenVMS Registry. The Advanced Server provides the PWRK$REGUTL utility for managing server configuration parameters in the OpenVMS Registry. The server parameters in the OpenVMS Registry can also be viewed and managed from a Windows NT based registry editor.

Alerter Service

The Advanced Server includes an Alerter Service that sends automatic alert messages to clients and users as specified in the Advanced Server AlertNames parameter setting in the OpenVMS Registry.

Event Log Service

Event logs provide valuable information about server activities. The administrator can select from several event types and can select, for each, whether successful or unsuccessful attempts at specific operations are to generate event messages. Security event messages are generated based on the audit policy specified for the Advanced Server and for files and directories.

Replicator Service

Windows NT Servers provide user data replication across domain controllers using the Replicator service. The Replicator service is not provided by Advanced Servers. Therefore, automatic replication of user files and directories on Advanced Servers is not supported.

Installation Utilities

The Advanced Server for OpenVMS is installed on the OpenVMS operating system using the POLYCENTER Software Installation utility. This utility is also used to verify that the installation was performed properly and to remove installations.

The installation procedure allows you to install either the complete Advanced Server software, the standalone License Server only, the standalone external authentication images only, or both standalone components only.

The Advanced Server for OpenVMS installation procedure gives you the option of delaying a reboot indefinitely, such as when you need to configure or change more settings before rebooting.

PATHWORKS NetWare Server

The PATHWORKS for OpenVMS (NetWare) server software has been retired. This product is no longer supported, and licenses to use this product are no longer sold.

If you are running the PATHWORKS for OpenVMS (NetWare) server on the same system with Advanced Server, you must remove the NetWare server software from the system before you install Advanced Server.

License Management

The Advanced Server offers license management for Client Access licenses, which can be used in either client-based or server-based mode. (For details, see the section SOFTWARE LICENSING.)

The license deliverables for Advanced Server are Product Authorization Keys (PAKs) that are then used with the OpenVMS License Management Facility (LMF). These PAKs must be loaded into an LMF database, using standard LMF procedures, on an OpenVMS operating system that is hosting the Advanced Server or an Advanced Server License Server.

The two types of license management are:

- **Client-based license management**. The Advanced Server provides a facility called Advanced Server License Server that acts as a proxy for client systems that require license keys stored in the LMF database on an OpenVMS operating system.

  A single copy of the License Server software provides and verifies Client Access licenses being used in client-based mode.

The Advanced Server License Manager, which must be run on the same node as the License Server, provides a user interface that allows the administrator to monitor client-based license usage, to manage license groups, to set alert levels, to set logging levels for licensing events, to enable or disable the License Server, and to revoke assigned licenses. The Advanced Server License Manager is also used to preallocate licenses to specific ''groups'' (including the special predefined Server-Based group described later).

Each LAN needs only one active Advanced Server License Server. (The License Server provided with the Advanced Server supports Client Access licenses for all supported clients.)

The Advanced Server License Registrar, which must be run on the same system as the file server, verifies the licenses for clients requesting access to the server functions. Clients that can produce a valid Client Access license are allowed access to the services offered by the Advanced Server.

- **Server-based license management**. The Advanced Server also allows client access based on the availability of Client Access licenses in the local LMF database being used in server-based mode. If a client requesting access to the server fails to produce a valid client-based license, the Advanced Server License Registrar software checks for the availability of a valid Client Access license being used in server-based mode. If one is available, the client is allowed access.

  Client Access licenses can be put into server-based mode in one of two ways:

  – If the Advanced Server License Server was not configured for the system where Advanced Server is executing, then all Client Access licenses loaded into the local LMF database on that system will be used in server-based mode.

  – If the Advanced Server License Server was configured for the system where Advanced Server is executing, then all Client Access licenses loaded into the local LMF database will, by default, be used in client-based mode.

    To allow some or all of these licenses to be used in server-based mode, use the Advanced Server License Manager to allocate a portion of those licenses to the special predefined Server-Based group. Licenses available in the Server-Based group will then be available for use in server-based mode.

Note: The Advanced Server allows you to simultaneously use Client Access licenses in both client-based and server-based mode. However, because clients using Client Access licenses in client-based mode are already licensed to use the server software, they never consume additional Client Access licenses allocated for use in server-based mode.

LAN Manager and PATHWORKS Compatibility

The Advanced Server maintains compatibility with LAN Manager client and server software. The Advanced Server also maintains compatibility with PATHWORKS for OpenVMS (Advanced Server).

A PATHWORKS V5.x for OpenVMS (LAN Manager) server:

- Can be upgraded to an Advanced Server. (You can upgrade PATHWORKS V5 for OpenVMS (LAN Manager) to PATHWORKS V6.1 for OpenVMS (Advanced Server), then upgrade PATHWORKS V6.1 for OpenVMS (Advanced Server) to Advanced Server V7.3A for OpenVMS.)
- Can continue running PATHWORKS for OpenVMS (LAN Manager) and act as a BDC, member server, or standalone server in a domain where the PDC is an Advanced Server or a Windows NT Server computer.

HARDWARE REQUIREMENTS

The following systems, components, and peripherals are supported except as noted.

Processors Supported

All Alpha processors supported by OpenVMS Version 7.2-2, 7.3, and 7.3-1 are also supported by Advanced Server for OpenVMS.

Memory Requirements

The Advanced Server requires a minimum of physical memory for proper installation, configuration, and execution of the software, depending on the processor type:

- On Alpha systems, a minimum of 64 MB

Note: These memory requirements are a minimum requirement only. Memory requirements can vary widely according to the server CPU, the number of clients using the server and their activities, and the number and speed of the server's disks and the other applications running on the server.

For example, a typical configuration supporting a light workload (word processing or spreadsheet applications) for 50 PC users requires an Alpha system with approximately 64 MB of memory. This means that 80% of the system memory and CPU time is dedicated to the Advanced Server, even though some work might use less.

OPTIONAL HARDWARE

PostScript Printers

The Advanced Server supports all PostScript printers supported by OpenVMS. Selected PostScript printers may need the DECprint Supervisor for OpenVMS (DCPS) software to provide access through the OpenVMS queuing system over TCP/IP or DECnet. Refer to the DCPS Software Product Description (SPD 44.15.xx) for a complete list of the DIGITAL PostScript printers and other PostScript printers supported by DCPS.

DIGITAL PostScript printers connected by serial lines or DECservers and printers attached directly to the Ethernet are supported.

Network Interface Controllers

Advanced Server supports the following Ethernet, FDDI, and Token Ring network hardware devices:

- **For the TCP/IP transport**, Advanced Server supports the network hardware devices supported by the specific TCP/IP product. Refer to the Software Product Description for Compaq TCP/IP Services for OpenVMS (SPD 46.46.xx). For information about what software versions of Compaq TCP/IP for OpenVMS are supported, see the section SOFTWARE REQUIREMENTS. For information about other TCP/IP products, contact the vendor.
- **For the DECnet transport using Ethernet, FDDI, or Token Ring**, see the SPD for the following product:
  - *Compaq DECnet-Plus for OpenVMS Alpha* (SPD 50.45.xx)

    For information about what software versions of DECnet are supported, see SOFTWARE REQUIREMENTS.
- **For the NetBEUI transport**, Advanced Server provides the same level of support for Ethernet and FDDI as the OpenVMS Alpha and VAX operating systems. For more information, see the Software Product Description for the OpenVMS Alpha and VAX operating system (SPD 25.01.xx).

Note: Advanced Server does not support the DEFZA FDDI controller.

CLUSTER ENVIRONMENT

Advanced Server runs on members of OpenVMS Clusters. OpenVMS Cluster configurations are fully described in the Software Product Description for OpenVMS Cluster Software (SPD 29.78.xx)

The Advanced Server for OpenVMS can run on members of an OpenVMS Cluster that are running OpenVMS Alpha Version 7.2-2, 7.3, or 7.3-1. Mixed-version clusters are supported if all cluster members upon which the Advanced Server for OpenVMS runs are running OpenVMS Versions 7.2-2, 7.3, or 7.3-1. The enhanced OpenVMS Registry components of Versions 7.2-2, 7.3, and 7.3-1 are compatible with each other, but they are incompatible with the Registry components of earlier versions of OpenVMS. Therefore, you cannot run Registry servers or clients (such as the Advanced Server for OpenVMS) on both the earlier and later OpenVMS systems at the same time. For more information, refer to the OpenVMS Alpha release notes for the latest system you are running.

Advanced Server supports up to 31 server nodes in a cluster; no more than 31 nodes in a cluster can run Advanced Server concurrently. In a typical scenario, the server runs on only a few central nodes, to exploit the cluster's shared disks and high-speed interconnect environment.

In a cluster, Advanced Server supports simultaneous file access by all nodes running the server. A central event log, central Advanced Server accounts, and share databases are maintained in a cluster. In an Advanced Server domain, the OpenVMS Cluster represents a single domain member, whether it is acting as the PDC, BDC, or a member server.

SOFTWARE REQUIREMENTS

Operating System

- OpenVMS Alpha Version 7.2-2, 7.3, or 7.3-1

For minimum hardware requirements of the operating system, refer to the Software Product Description for OpenVMS Alpha and VAX (SPD 25.01.xx).

Network Transport Software

Advanced Server includes NetBEUI network transport software. TCP/IP or DECnet network transport software might also be required by Advanced Server, depending on the transport used by clients requiring connections to the server, or for use of some features.

When the Advanced Server is to be used in a TCP/IP environment, OpenVMS-based TCP/IP software is required. This software must be purchased separately. The following TCP/IP transports are compatible with the Advanced Server:

- Compaq TCP/IP Services for OpenVMS. The versions supported for each version of the OpenVMS operating system are indicated in Table 1, Compaq TCP/IP Services for OpenVMS Versions Supported.
- MultiNet for OpenVMS (from Process Software Corporation)
- TCPware for OpenVMS (from Process Software)

Note: Third-party TCP/IP products must include a PATHWORKS IP (PWIP) driver in order to work with the Advanced Server.

Table 1 Compaq TCP/IP Services for OpenVMS Versions Supported

OpenVMS Version	TCP/IP Services for OpenVMS
Alpha V7.3-1	V5.3
Alpha V7.3	V5.3 or V5.1
Alpha V7.2-2	V5.1

The following DECnet products are compatible with the Advanced Server for OpenVMS. The versions supported for each version of the OpenVMS operating system are indicated in Table 2, DECnet Versions Supported.

- Compaq DECnet-Plus for OpenVMS
- Compaq DECnet for OpenVMS

Table 2 DECnet Versions Supported

OpenVMS Version	DECnet for OpenVMS	DECnet-Plus for OpenVMS
Alpha V7.3-1	7.3-1	7.3-1
Alpha V7.3	7.3	7.3
Alpha V7.2-2	7.2	7.2-1

PATHWORKS Software

The Advanced Server for OpenVMS cannot run on the same system as other PATHWORKS server products. Specifically, this includes:

- **PATHWORKS V5.0 for OpenVMS (LAN Manager)**. You can upgrade the PATHWORKS V5.0 for OpenVMS (LAN Manager) server to PATHWORKS V6.1 for OpenVMS (Advanced Server). Running the Advanced Server on a system also running the PATHWORKS V5.0 for OpenVMS (LAN Manager) is not possible or supported. You cannot continue to run the PATHWORKS for OpenVMS (LAN Manager) software, once the Advanced Server software has been installed. The Advanced Server cannot coexist on the same OpenVMS Cluster with the PATHWORKS for OpenVMS (LAN Manager) server.

- **PATHWORKS V6.1 for OpenVMS (Advanced Server)**. You can upgrade the PATHWORKS V6.1 for OpenVMS (Advanced Server) to Advanced Server for OpenVMS. Running any PATHWORKS for OpenVMS (Advanced Server) server on a system that is also running the Advanced Server for OpenVMS is not possible or supported. You cannot continue to run the PATHWORKS for OpenVMS (Advanced Server) once the Advanced Server for OpenVMS software has been installed. The Advanced Server for OpenVMS cannot coexist on the same OpenVMS Cluster with PATHWORKS for OpenVMS (Advanced Server).

The Advanced Server maintains down-level compatibility with LAN Manager client and server software. LAN Manager users can add an Advanced Server to an existing network and migrate to the new technology at their own pace. A PATHWORKS for OpenVMS (LAN Manager) server can be upgraded to act as a BDC, member server, or standalone server in a network in which the PDC is an Advanced Server or a Windows NT Server computer.

The Advanced Server can be deployed as a PDC in a network comprising other Advanced Server for OpenVMS servers, Windows NT Servers, PATHWORKS for OpenVMS (Advanced Server) servers, PATHWORKS for OpenVMS (LAN Manager) servers, or LAN Manager for OS/2 Servers. It can also act as a BDC for other Advanced Server for OpenVMS, PATHWORKS Advanced Server, or Windows NT Server computers.

In addition, the Advanced Server can act as a BDC in Windows 2000 mixed-mode domains, or as a member server in Windows 2000 native-mode and mixed-mode domains.

Client Software

The following versions of client software are supported for use with Advanced Server for OpenVMS:

- Windows NT workstation software V4.0
- Windows 2000
- Windows XP Professional
- Windows 98
- Windows 95
- Windows for Workgroups V3.11
- Compaq PATHWORKS 32 Version 7.2 (see SPD 56.33.xx)

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.

PRODUCT NAME: Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

DESCRIPTION

Compaq PATHWORKS for OpenVMS (Advanced Server), also known as the PATHWORKS Advanced Server, is an OpenVMS layered application providing a network operating system that is compatible with the Microsoft networking technology. In particular, PATHWORKS for OpenVMS (Advanced Server) is based on the Windows NT Server, but it provides additional features. It enhances the Windows NT Server functionality by incorporating both OpenVMS and Microsoft technology to deliver powerful features for network administration and enhanced security. It combines the networking strengths and rich application set of Windows NT with the proven availability, reliability, scalability, and security of OpenVMS. The Advanced Server can operate independently or in cooperation with the Windows NT Server.

As a server for workstations on a network, PATHWORKS Advanced Server provides file and print shares that enable a community of desktop users to share computing resources efficiently. PATHWORKS Advanced Server can function as a simple file and print server for a small, isolated community of users or as the foundation of a large network distributed over a wide geographical area.

PATHWORKS Advanced Server software lets DOS, Windows, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP Professional, and OpenVMS users share printers connected to VAX computers, Alpha computers, or OpenVMS Cluster systems, as well as network-based printers such as LAT printers and PrintServers.

PATHWORKS Advanced Server represents LAN Manager systems technology. It enhances the LAN Manager functionality by incorporating Microsoft technology to deliver powerful features for network administration and enhanced security. PATHWORKS Advanced Server can operate independently or in cooperation with systems running Windows NT Server software.

FEATURES

PATHWORKS Advanced Server adds an additional dimension to general purpose OpenVMS systems. In addition to providing traditional support for business, scientific, and engineering applications, PATHWORKS Advanced Server allows an OpenVMS system to appear to PC clients as a Windows NT Server.

The major features of PATHWORKS Advanced Server are described in the following sections.

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

File Services

PATHWORKS Advanced Server provides clients with a remote file system that appears as a transparent extension of the client system's local computing environment.

PATHWORKS Advanced Server lets users share OpenVMS files. PATHWORKS Advanced Server file shares are based on Microsoft's Advanced Server V3.0 SMB (Server Message Block) protocols. You can use discretionary access Windows NT controls on each file and directory to specify the groups and users that can access files, to define the levels of access that each group or user is permitted, and to control auditing supported by Windows NT-like security. Additional, optional security is provided by OpenVMS file and directory protections.

Each file stored in a file service is stored as an OpenVMS file in Record Management Services (RMS) format. Three types of RMS file or record formats are allowed and supported on each volume:

- Sequential stream
- Sequential fixed-length record (512 bytes per record)
- Sequential undefined

Files stored in a file service are accessible to PC clients, to OpenVMS users, and to applications that can interpret the content and organization of a file written by the client application.

Multiple clients can concurrently access files stored on the server's disk through the file-access modes and byte-range locking support provided by PATHWORKS Advanced Server.

Note: The Advanced Server does not support concurrent simultaneous access to files by OpenVMS processes and the Advanced Server processes. To enable compatibility with legacy applications such as MS-DOS, the Advanced Server automatically creates MS-DOS-compatible alias file names for files whose names do not comply with the file naming standards of those applications. As a result, client applications that must use, or choose to use, the MS-DOS format for file names, can access these shared files on the server by using the file's associated alias name.

Print Shares

PATHWORKS Advanced Server software lets DOS, Windows, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP Professional, and OpenVMS users share printers connected to VAX computers, Alpha computers, or OpenVMS Cluster systems, as well as network-based printers such as LAT printers and PrintServers. Print shares are supported in local area network (LAN) and wide area network (WAN) environments. PC clients can print files from the DOS, Windows, Windows 95, Windows 98, Windows 2000, Windows XP Professional, and Windows NT operating systems as well as from PC applications.

Multiple print shares can be defined for a single printer. For example, separate services can be created for landscape-mode printing and portrait-mode printing. Similarly, separate services can be created for DIGITAL mode and IBM ProPrinter mode printing for a single LA75 printer.

PATHWORKS Advanced Server supports the DECprint Supervisor for OpenVMS (DCPS) product, which provides PostScript and DEC ANSI printing to selected industry-standard PostScript printers.

Sharing of Network Resources by Heterogeneous Users

Services provided by PATHWORKS Advanced Server are accessible to PATHWORKS clients as well as to Microsoft clients. All clients using the services of a PATHWORKS Advanced Server must be properly licensed. (For more information, see the section SOFTWARE LICENSING.)

Files are stored on the server in native OpenVMS RMS format. This allows information stored by the PCs using PATHWORKS Advanced Server to be shared with traditional OpenVMS users. In addition, this feature allows information to be shared among all clients.

Network Transports

PATHWORKS Advanced Server supports TCP/IP, DECnet (Phase IV), DECnet-Plus (formerly known as DECnet/OSI), and NetBEUI network transport software. One or more transport stacks can work concurrently on the server.

Both the TCP/IP and DECnet network transports are sold as separate Compaq products and require separate licenses.

NetBEUI transport software is included with PATHWORKS Advanced Server software. Using NetBEUI transport software, LAN Manager clients can access the server in the LAN for file and print shares. NetBEUI is recommended for use in small LAN-only environments of 50 nodes or less. For information about supported network transport software, see the section SOFTWARE REQUIREMENTS.

NetBIOS Interface

PATHWORKS Advanced Server supports the NetBIOS interface in TCP/IP, DECnet, and NetBEUI networks, using multiple transport stacks on a single controller or on different network controllers. However, a NetBIOS programming interface is not provided.

NetBIOS support under TCP/IP includes both a p-node and a b-node RFC 1001/1002 implementation. Therefore, the NetBIOS interface can be used under TCP/IP in both LAN and WAN environments. The PATHWORKS Advanced Server Configuration Manager utility allows you to select one or both of the following methods for NetBIOS name resolution for WANs:

- LMHOSTS file
- Windows Internet Name Service (WINS)
- DNS

  Note: Enabling DNS allows the server and clients to use a specified DNS name server for NetBIOS name resolution as a last resort if all other methods fail to resolve a NetBIOS name. DNS is also used by server clients to resolve the server cluster alias and to provide dynamic load balancing and failover on servers in an OpenVMS Cluster in a WAN environment. The DNS name server used for load balancing must support dynamic updates (Berkeley Internet Name Domain [BIND] server, Version 8.1.1 or later).

  DNS is not configured as a replacement for WINS or LMHOSTS but rather as a supplement. The Advanced Server still uses WINS, LMHOSTS, or broadcast methods for resolving names.

Flexible Security Models

The Advanced Server allows you to choose one of two modes of security, depending on the needs of your environment:

- In Advanced Server Only mode, only the Advanced Server (Windows NT Server style) security model is enforced.

  This mode is sufficient for most network environments. The Advanced Server employs a user-level security model that provides precise control over access to shared resources, including disk devices, directories, and printers. Control is based on a password assigned to each user account and the specific access permissions defined for the resources.

  The Advanced Server incorporates enhanced features that provide a high level of control over user and resource permissions and auditing. These features include support of discretionary access control permissions on individual files, directories, and resources and complete auditing capabilities.

  Like Windows NT Servers, Advanced Server does not support share-level security and operates in user-level security mode only.

- In the Advanced Server and OpenVMS security mode, both the OpenVMS and Advanced Server security models are enforced.

  Use of both security models is never necessary to control user access to resources, but is provided to allow administrators of systems with complex OpenVMS security controls already in place to use those same controls to restrict access by client users. Note that use of the Advanced Server and OpenVMS security model results in the extra overhead of validating both the Advanced Server and OpenVMS settings.

In addition, the Advanced Server supports external authentication (allowing OpenVMS users to log in at the OpenVMS prompt using their domain user name and password) and password synchronization between OpenVMS and Advanced Server systems, and it supports user account lockout.

Domain Support

PATHWORKS Advanced Server allows the network to be subdivided into domains (administrative groups of servers and clients). Each PATHWORKS Advanced Server can be a member of a single domain. A PATHWORKS Advanced Server can be a primary domain controller (PDC), a backup domain controller (BDC), or a member server. Domains are a convenient mechanism for controlling user access to the network and for managing large networks.

The Advanced Server can be deployed as the PDC in a network comprising other Advanced Servers, Windows NT Servers, PATHWORKS for OpenVMS (LAN Manager) servers, or LAN Manager for OS/2 servers. It also can act as a BDC for other Advanced Servers and Windows NT Server computers. In addition, the Advanced Server can act as a BDC in Windows 2000 mixed-mode domains, or as a member server in Windows 2000 native-mode and mixed-mode domains, in accord with the limitations imposed by Microsoft on Windows NT V4-compatible servers.

Advanced Server for UNIX, as well as any Windows NT compatible server, can be part of the same domain with PATHWORKS for OpenVMS (Advanced Server) and can be designated as either the PDC or BDC.

PATHWORKS Advanced Server provides support for wide area domains using one or both of the following methods:

- LMHOSTS file

  The presence of the LMHOSTS file on the PATHWORKS Advanced Server allows NetLogon services and security database replication over wide area TCP/IP configurations. This file contains a list of nodes from geographically dispersed sites synchronized by the PDC and accessible to clients in the server's domain. However, use of the LMHOSTS file for replication over extreme distances or in networks with slow transmission speeds is not recommended.

- WINS (Windows Internet Name Service)

  Support for WINS allows PATHWORKS Advanced Server to act as a WINS client; that is, to use the name registration and resolution facilities available from Microsoft WINS services across routed wide area TCP/IP networks, thus enabling WAN support for domain functions, NetLogon services, and security database replication.

- DNS

This allows the Advanced Server and clients to use a DNS server for NetBIOS name resolution. The Advanced Server and clients use DNS for name resolution as a last resort if all other methods fail to resolve a NetBIOS name.

Trust Relationships

PATHWORKS Advanced Server supports trusts. Trust relationships can allow users from other domains to access resources in the local domain, and allows local domain users to access resources in other domains.

NetLogon Services

A single domainwide logon lets a user access resources on any server in a domain or on servers in other domains that trust the domain.

The domain capabilities of PATHWORKS Advanced Server make it possible for a user to issue a single logon request to authenticate the user for access to multiple servers in a network. The NetLogon service forces the validation of users' logon requests. The logon server that processes a request checks its copy of the domainwide user accounts database for the user name and password supplied in the logon request.

Network Browser Services

PATHWORKS Advanced Server can act as a Master Browser in a Windows NT network.

TimeSource Services

DOS, Windows, and clients can request date and time information from the PATHWORKS Advanced Server and set the local workstation date and time to coincide with it.

User Environment Management

Logon scripts can be used to configure MS-DOS and Windows workstation user environments by making network connections and starting applications. User profiles can make workstations easier to use, as well as control workstation access to network resources.

Server Management and Control

PATHWORKS Advanced Server can be managed from either the OpenVMS server or a client workstation, using one of the following server management interfaces:

- PATHWORKS Advanced Server ADMINISTER command line interface, which can be accessed from a terminal or terminal emulator. It conforms to standard DCL command syntax.

- Windows NT server administration tools, which are included in the PATHWORKS Advanced Server software kit to be installed on Windows NT, Windows 95, Windows 98, and Windows for Workgroups workstations. These tools, including Server Manager, User Manager for Domains, and Event Viewer, allow you to administer PATHWORKS Advanced Server and Windows NT Server computers from network clients.
- Windows NT Server tools, which are available as part of the Windows NT Server.

Server management interfaces can be used to:

- Manage file and printer shares, user accounts, and groups.
- Display and control server resources currently in use, such as active sessions, connections, and services.
- View context-sensitive online help that provides command syntax, options, and qualifiers for each menu item and command.

PATHWORKS Advanced Server can be remotely administered from PATHWORKS and Microsoft Windows client workstations. PATHWORKS Advanced Server can also be managed remotely from Windows NT Server, Advanced Server for OpenVMS, and other PATHWORKS Advanced Server systems.

Other PATHWORKS Advanced Server tools are provided for management of other aspects of the file server. These tools are to be used for local server management only and include:

- The PATHWORKS Advanced Server Configuration Manager utility (a character cell interface) to manage local server configuration parameters that are, for the most part, directly or indirectly related to the environment in which the server operates, such as the server's usage of OpenVMS system resources. Any adjustments that need to be made to the OpenVMS SYSGEN parameters to support the running of the server are automatically performed by the Configuration Manager utility.
- The PATHWORKS License Manager (a character-cell interface) to manage the PATHWORKS License Server.

Windows 2000 and Windows XP Support

The Advanced Server supports:

- Windows 2000 and Windows XP Professional clients. For Windows XP support, check with Compaq software support.
- Windows 2000 domain controllers in a Windows 2000 mixed-mode domain, when the Advanced Server is a backup domain controller or member server; Windows 2000 domain controllers in a pure (native) Windows 2000 domain, when the Advanced Server is a member server.

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

Integrating with Microsoft Environments

The Advanced Server provides numerous Windows NT integration features, such as:

- Remote management from:
  - Network clients, using Windows NT server administration tools that are provided for installation on the clients
  - Windows NT Servers, using tools available on the Windows NT Server
- Windows NT security model
- PDC, BDC, or member server participation in domains
- Alias file names, generated automatically to provide compatibility with legacy applications that only support file names that comply with the more limited MS-DOS name conventions
- Master Browser or Backup Browser participation in domains
- Windows NT-compatible Server Message Block (SMB) file and print protocols
- Connections from a wide variety of Windows clients

Integrating with OpenVMS

PATHWORKS Advanced Server encompasses many features of the OpenVMS operating system, including OpenVMS Clusters and symmetric multiprocessing. OpenVMS Cluster configurations provide failover availability and extensive resource capacities by integrating multiple OpenVMS systems that can be accessed using a single cluster name.

PATHWORKS Advanced Server includes support for a transport-independent PATHWORKS cluster alias NetBIOS name that allows multiple cluster members to appear as a single server to the connecting clients. This provides higher availability. The PATHWORKS cluster alias name has a load-balancing feature that connects clients to the cluster member that is the least loaded at the time the session is established. PATHWORKS Advanced Server includes a high-performance, clusterwide distributed data cache that provides scalability in a clustered environment.

PATHWORKS Advanced Server can run on both VAX and Alpha members of homogeneous or mixed architecture OpenVMS Clusters. PATHWORKS Advanced Server on Alpha systems supports the use of ODS-2 disk volumes and ODS-5 disk volumes, a feature of OpenVMS Version 7.2 and later, for share and file access by clients. However, PATHWORKS V6.1 for OpenVMS (Advanced Server) does not support the features of ODS-5 devices; instead, it treats the ODS-5 device as an ODS-2 device.

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

Integrating with External Authentication

External authentication is an optional feature that allows users to log in to an OpenVMS system using their PATHWORKS Advanced Server user name and password. This feature is useful to OpenVMS system managers who want to provide users with a single user name and password combination for both OpenVMS login and PATHWORKS Advanced Server network logon.

If external authentication is being used in an OpenVMS Cluster, all cluster members should be configured to process OpenVMS logon requests for network users. If one or more members do not support external authentication, user logins might result in unpredictable behavior. To ensure that external authentication works properly on the cluster, each node in the cluster should be at OpenVMS Alpha V7.2-2 or later or OpenVMS VAX 7.2 or later.

For more information about external authentication for OpenVMS, refer to the Software Product Description for OpenVMS Alpha and VAX (SPD 25.01.xx).

Integrating with OpenVMS Security

PATHWORKS Advanced Server provides an extension to the Windows NT security model by supporting OpenVMS security enforcement as an optional enhancement.

Alerter Service

PATHWORKS Advanced Server includes an Alerter Service that sends automatic alert messages to clients and users as specified in the LANMAN.INI file.

Event Log Service

Event logs provide valuable information about server activities. The administrator can select from several event types and can select, for each, whether successful or unsuccessful attempts at specific operations are to generate event messages. Security event messages are generated based on the audit policy specified for the PATHWORKS Advanced Server and for files and directories.

Replicator Service

Windows NT Servers provide user data replication across domain controllers using the Replicator service. The Replicator service is not provided on PATHWORKS Advanced Servers. Therefore, automatic replication of user files and directories on PATHWORKS Advanced Servers is not supported.

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

Installation Utilities

PATHWORKS Advanced Server is installed on OpenVMS systems using the standard VMSINSTAL procedure. An Installation Verification Procedure (IVP) is also included, which can be used to confirm that the server software has been installed properly.

The installation procedure allows you to install PATHWORKS Advanced Server with the integrated License Server or just the standalone License Server, the external authentication images (except on OpenVMS V6.2), or the Upgrade utility.

PATHWORKS NetWare Server

The PATHWORKS for OpenVMS (NetWare) server software has been retired. This product is no longer supported, and licenses to use this product are no longer sold.

If you are running the PATHWORKS for OpenVMS (NetWare) server on the same system with PATHWORKS Advanced Server, you must remove the NetWare server software from the system before you install PATHWORKS Advanced Server.

License Management

PATHWORKS Advanced Server offers license management for Client Access licenses, which can be used in either client-based or server-based mode. (For details, see the section SOFTWARE LICENSING.)

The license deliverables for PATHWORKS products are Product Authorization Keys (PAKs) that are then used with the OpenVMS License Management Facility (LMF). These PAKs must be loaded into an LMF database, using standard LMF procedures, on an OpenVMS system that is hosting a PATHWORKS Advanced Server or a PATHWORKS License Server.

The two types of license management are:

- **Client-based license management**. PATHWORKS Advanced Server provides a facility called PATHWORKS License Server that acts as a proxy for client systems that require license keys stored in the LMF database on an OpenVMS system.

  A single copy of the PATHWORKS License Server software provides and verifies Client Access licenses being used in client-based mode by clients running LAN Manager protocols.

  The PATHWORKS License Manager, which must be run on the same node as the License Server, provides a user interface that allows the administrator to monitor client-based license usage, to manage license groups, to set alert levels, to set logging levels for licensing events, to enable or disable the License Server, and to revoke assigned licenses. The PATHWORKS License Manager is also used to preallocate licenses to specific ‘‘groups’’ (including the special, predefined server-based group described later).

  Each LAN needs only one active PATHWORKS License Server. (The License Server provided with PATHWORKS Advanced Server supports Client Access licenses for all supported clients.)

The PATHWORKS License Registrar, which must be run on the same system as the file server, verifies the licenses for clients requesting access to the server functions. Clients that can produce a valid Client Access license are allowed access to the services offered by the PATHWORKS Advanced Server.

- **Server-based license management**. PATHWORKS Advanced Server also allows client access based on the availability of Client Access licenses in the local LMF database being used in server-based mode. If a client requesting access to the server fails to produce a valid client-based license, the PATHWORKS License Registrar software checks for the availability of a valid Client Access license being used in server-based mode. If one is available, the client is allowed access.

  Client Access licenses can be put into server-based mode in one of two ways:

  – If the PATHWORKS License Server was not configured for the system where PATHWORKS Advanced Server is executing, then all Client Access licenses loaded into the local LMF database on that system will be used in server-based mode.

  – If the PATHWORKS License Server was configured for the system where PATHWORKS Advanced Server is executing, then all Client Access licenses loaded into the local LMF database will, by default, be used in client-based mode.

    To allow some or all of these licenses to be used in server-based mode, use the PATHWORKS License Manager to allocate a portion of those licenses to the special, predefined Server-Based group. Licenses available in the Server-Based group will then be available for use in server-based mode.

Note: PATHWORKS Advanced Server allows you to simultaneously use Client Access licenses in both client-based and server-based mode. However, because clients using Client Access licenses in client-based mode are already licensed to use the server software, they never consume additional Client Access licenses allocated for use in server-based mode.

Accommodation of Retired Features

The following features of PATHWORKS V5.0 for OpenVMS (LAN Manager) are not provided in PATHWORKS V6.1 for OpenVMS (Advanced Server):

- **Standalone server role**. PATHWORKS Advanced Server can be configured as a PDC, BDC, or member server.
- **FAT volumes**. To continue to provide FAT volume access to clients, you must maintain the PATHWORKS for OpenVMS (LAN Manager) server on a separate system. Files held within shares on a FAT volume must be migrated to PATHWORKS for OpenVMS (LAN Manager) shares before you upgrade to PATHWORKS Advanced Server.
- **Backward-compatibility mode**. This mode is used to ease the migration from PATHWORKS V4.x to PATHWORKS V5.0 for OpenVMS (LAN Manager) . Make sure all clients making use of this connection format are upgraded before the installation of PATHWORKS Advanced Server.

- **Remote Boot service**. If clients depend on remote booting, you must maintain the PATHWORKS for OpenVMS (LAN Manager) server on a separate system. Transfer this function to another server that supports Remote Boot service before the upgrade.
- **Share-level security**. PATHWORKS Advanced Server manages access to all resources through user-level security.
- **LAN Manager and creator security mode**. The server can be configured for PATHWORKS Advanced Server Only security model or for PATHWORKS Advanced Server and OpenVMS security model.
- **PATHWORKS for OpenVMS (LAN Manager) Net command-line interface and ADMINISTER/PATHWORKS character-cell interface**. These features were replaced by the PATHWORKS Advanced Server ADMINISTER command-line interface. The ADMINISTER command-line interface provides automatic translation of a subset of Net commands that have ADMINISTER command equivalents.

LAN Manager Compatibility

PATHWORKS Advanced Server maintains compatibility with LAN Manager client and server software. A PATHWORKS V5.0 for OpenVMS (LAN Manager) server:

- Can be upgraded to a PATHWORKS Advanced Server.
- Can continue running PATHWORKS for OpenVMS (LAN Manager) and act as a BDC, member server, or standalone server in a domain where the PDC is a PATHWORKS Advanced Server or a Windows NT Server computer.

HARDWARE REQUIREMENTS

The following systems, components, and peripherals are supported except as noted.

Processors Supported

All VAX and Alpha processors supported by OpenVMS Alpha Version 6.2, 7.2-2, 7.3, and 7.3-1, and by OpenVMS VAX Version 6.2, 7.2, and 7.3, are also supported by PATHWORKS V6.1 for OpenVMS (Advanced Server), except for the following:

GPX II

MicroVAX: MicroVAX I, MicroVAX II, MicroVAX 2000, MicroVAX 3100 Model 40 and lower

VAX: VAX-11/725, VAX-11/730, VAX 11/750, VAX 11/780, VAX 11/782, VAX 11/785

VAXstation: VAXstation I, VAXstation II, VAXstation 2000, VAXstation 4000 VLC, VAXstation 8000

Memory Requirements

PATHWORKS Advanced Server requires a minimum of physical memory for proper installation, configuration, and execution of the software, depending on the processor type:

- On Alpha systems, a minimum of 64 MB
- On VAX systems, a minimum of 64 MB

Note: These memory requirements are a minimum requirement only. Memory requirements can vary widely according to the server CPU, the number of clients using the server and their activities, and the number and speed of the server's disks and the other applications running on the server.

For example, a typical configuration supporting a light workload (word processing or spreadsheet applications) for 50 PC users requires an Alpha system with approximately 64 MB of memory. This means that 80% of the system memory and CPU time are dedicated to PATHWORKS Advanced Server, even though some work might use less.

OPTIONAL HARDWARE

PostScript Printers

PATHWORKS Advanced Server supports all PostScript printers supported by OpenVMS. Selected PostScript printers may optionally need the DECprint Supervisor for OpenVMS (DCPS) software to provide access through the OpenVMS queuing system over TCP/IP or DECnet. Refer to the DCPS Software Product Description (SPD 44.15.xx) for a complete list of the DIGITAL and other PostScript printers supported by DCPS.

DIGITAL PostScript printers connected by serial lines or DECservers and printers attached directly to the Ethernet are supported.

Non-PostScript Printers

PATHWORKS Advanced Server also supports the following non-PostScript printers:

DIGITAL LA75 Companion Printer
DIGITAL LA210
DIGITAL LA324
DIGITAL LJ250 Companion Color Printer
DIGITAL LN03 PLUS
EPSON FX850
EPSON FX1050
IBM ProPrinter
NEC SilentWriter II Model 290

Network Interface Controllers

PATHWORKS Advanced Server supports the following Ethernet, FDDI, and Token Ring network hardware devices:

- **For the TCP/IP transport**, PATHWORKS Advanced Server supports the network hardware devices supported by the specific TCP/IP product. Refer to the Software Product Description for Compaq TCP/IP Services for OpenVMS (SPD 46.46.xx). For information on what software versions of Compaq TCP/IP for OpenVMS are supported, see the section SOFTWARE REQUIREMENTS. For information about other TCP/IP products, contact the vendor.
- **For the DECnet transport using Ethernet, FDDI, or Token Ring**, see the SPDs for the following products:
  - Compaq DECnet-Plus for OpenVMS Alpha (SPD 50.45.xx)
  - Compaq DECnet-Plus for OpenVMS VAX (SPD 25.03.xx)
  - Compaq DECnet for OpenVMS VAX and Alpha (SPD 48.48.xx)

  For information about what software versions of DECnet are supported, see the section SOFTWARE REQUIREMENTS.
- **For the NetBEUI transport**, PATHWORKS Advanced Server provides the same level of support for Ethernet and FDDI as the OpenVMS operating system. For more information, see the Software Product Description for OpenVMS Alpha and VAX (SPD 25.01.xx).

Note: PATHWORKS Advanced Server does not support the DEFZA FDDI controller.

CLUSTER ENVIRONMENT

PATHWORKS Advanced Server runs on members of OpenVMS Clusters. OpenVMS Cluster configurations are fully described in the Software Product Description for OpenVMS Cluster Software (SPD 29.78.xx).

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

PATHWORKS Advanced Server supports up to 31 server nodes in a cluster. In other words, no more than 31 nodes in a cluster can run PATHWORKS Advanced Server concurrently. In a typical scenario, the server is run on only a few central nodes, to exploit the cluster's shared disks and high-speed interconnect environment.

In a cluster, PATHWORKS Advanced Server supports simultaneous file access by all nodes running the server. A central event log, central Advanced Server accounts, and share databases are maintained in a cluster. In a PATHWORKS Advanced Server domain, the OpenVMS Cluster represents a single domain member, whether it is acting as the PDC, BDC, or a member server.

SOFTWARE REQUIREMENTS

Operating System

- OpenVMS Alpha Version 6.2, 7.2-2, 7.3, and 7.3-1
- OpenVMS VAX Version 6.2, 7.2, and 7.3

For minimum hardware requirements of the operating system, refer to the Software Product Description for OpenVMS Alpha and VAX (SPD 25.01.xx).

Network Transport Software

PATHWORKS Advanced Server includes NetBEUI network transport software. TCP/IP or DECnet network transport software might also be required by PATHWORKS Advanced Server, depending on the transport used by clients requiring connections to the server, or for use of some features.

When PATHWORKS Advanced Server is to be used in a TCP/IP environment, OpenVMS based TCP/IP software is required. This software must be purchased separately. The following TCP/IP transports are compatible with the PATHWORKS Advanced Server:

- Compaq TCP/IP Services for OpenVMS.

  The versions supported for each version of the OpenVMS operating system are indicated in Table 3, Compaq TCP/IP Services for OpenVMS Versions Supported.

- MultiNet for OpenVMS from Process Software Corporation
- TCPware for OpenVMS from Process Software Corporation

Note: Third-party TCP/IP products must include a PATHWORKS IP (PWIP) driver in order to work with the Advanced Server.

Table 3 Compaq TCP/IP Services for OpenVMS Versions Supported

OpenVMS Version	TCP/IP Services for OpenVMS
Alpha V7.3-1	V5.3
Alpha V7.3	V5.3 or V5.1
Alpha V7.2-2	5.1
Alpha V6.2	V4.2
VAX V7.3	V5.3 or V5.1
VAX V7.2	5.1
VAX V6.2	V4.2

The following DECnet and DECnet-Plus products are compatible with the PATHWORKS Advanced Server. The versions supported for each version of the OpenVMS operating system are indicated in Table 4, DECnet Versions Supported.

- Compaq DECnet-Plus for OpenVMS
- Compaq DECnet for OpenVMS

Table 4 DECnet Versions Supported

OpenVMS Version	DECnet for OpenVMS	DECnet-Plus for OpenVMS
Alpha V7.3-1	7.3-1	7.3-1
Alpha V7.3	7.3	7.3
Alpha V7.2-2	7.2	7.2-1
Alpha V6.2	6.2	6.3
VAX V7.3	7.3	7.3
VAX V7.2	7.2	7.2
VAX V6.2	6.2	6.3

Other PATHWORKS Server Software

The following PATHWORKS server products cannot run on the same system as PATHWORKS V6.1 for OpenVMS (Advanced Server):

- **PATHWORKS V5.0 for OpenVMS (LAN Manager)**. You can upgrade the PATHWORKS V5.0 for OpenVMS (LAN Manager) server to PATHWORKS V6.1 for OpenVMS (Advanced Server). Running the PATHWORKS V6.1 for OpenVMS (Advanced Server) server on a system also running the PATHWORKS V5.0 for OpenVMS (LAN Manager) server is not possible or supported. You cannot continue to run the PATHWORKS for OpenVMS (LAN Manager) software, once the PATHWORKS Advanced Server

software has been installed. PATHWORKS Advanced Server cannot coexist on the same OpenVMS Cluster with PATHWORKS V5.0 for OpenVMS (LAN Manager).

- **PATHWORKS V6 for OpenVMS (Advanced Server)**. You can upgrade any of the previous PATHWORKS V6 for OpenVMS (Advanced Server) servers (V6.0 through V6.0D) to PATHWORKS V6.1 for OpenVMS (Advanced Server). Running any of these earlier servers on a system that is also running the PATHWORKS V6.1 for OpenVMS (Advanced Server) is not possible or supported. Once the PATHWORKS V6.1 for OpenVMS (Advanced Server) has been installed, you cannot continue to run an earlier version of the server. PATHWORKS V6.1 for OpenVMS (Advanced Server) cannot coexist on the same OpenVMS Cluster with any of the earlier PATHWORKS V6 for OpenVMS (Advanced Server) servers.

PATHWORKS Advanced Server maintains down-level compatibility with LAN Manager client and server software. LAN Manager users can add PATHWORKS Advanced Server to an existing network and migrate to the new technology at their own pace. A PATHWORKS for OpenVMS (LAN Manager) server can be upgraded to PATHWORKS Advanced Server technology or act as a BDC, member server, or standalone server in a network in which the PDC is a PATHWORKS Advanced Server or a Windows NT Server computer. PATHWORKS Advanced Server can be deployed as a PDC in a network comprising other PATHWORKS Advanced Servers, Windows NT Servers, PATHWORKS for OpenVMS (LAN Manager) servers, or LAN Manager for OS/2 servers. It can also act as a BDC for other PATHWORKS Advanced Server or Windows NT Server computers. In addition, the Advanced Server can act as a BDC in Windows 2000 mixed-mode domains, or as a member server in native-mode and mixed-mode Windows 2000 domains.

Advanced Server for OpenVMS Software

The Advanced Server for OpenVMS cannot run on the same system as the PATHWORKS V6.1 for OpenVMS (Advanced Server). The PATHWORKS V6.1 for OpenVMS (Advanced Server) cannot coexist on the same OpenVMS Cluster with any of the Advanced Server for OpenVMS products.

Client Software

The following versions of client software are supported for use with PATHWORKS Advanced Server:

- Windows NT workstation software V4.0
- Windows 2000
- Windows XP Professional
- Windows 98
- Windows 95

Compaq PATHWORKS V6.1 for OpenVMS (Advanced Server)

- Windows for Workgroups V3.11
- Compaq PATHWORKS 32 V7.2, SPD 56.33.xx

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.

Licensing and Ordering Information: Advanced Server V7.3A for OpenVMS and PATHWORKS V6.1 for OpenVMS (Advanced Server)

SOFTWARE LICENSING

Both the the Advanced Server V7.3A for OpenVMS and PATHWORKS V6.1 for OpenVMS (Advanced Server) products are licensed for use in exactly the same way. Each product is purchased by licensing the clients or applications that use the services provided by the product. There is no additional fee.

Though previously purchased licenses continue to be valid for use with pre-V6.0 servers, only the new Client Access licenses can be purchased when adding new clients to existing systems.

The license required for clients to use Advanced Server file and print services is referred to as a Client Access license (PAK Product Name: PWLMXXXCA07.03). (**Note**: COM for OpenVMS users do not require a license to use the Advanced Server. Only clients using the file and print servers require a license.)

Though there is only one license sold for any client using this Advanced Server, this license can be used in one of two ways:

- Client-based mode (also known as per-seat mode)
- Server-based mode (also known as per-server or concurrent-use mode)

A description of the two different licensing modes follows.

- *Client-based licensing mode*

  When a license for Advanced Server is used in client-based mode, the right to use the server is assigned electronically to a particular client or seat. Once the right is assigned, the client system can access all systems that are running Advanced Server as well as all systems that are running any previous version of the file and print server. (**Note**: In client-based mode, the PAK associated with the Client Access license works only with PATHWORKS V5.0 for OpenVMS (LAN Manager) servers that have been upgraded to a minimum of V5.0**F**. Earlier revisions of PATHWORKS V5.0x will not recognize this PAK.)

  Client-based licensing is typically used when a customer has more than one server and in systems where clients normally access more than one server at the same time. Because only one license per client is required regardless of how many servers are being accessed, client-based licensing mode can be more economical than server-based mode. In addition, because a client with a client-based license cannot be refused access to a server because of license limits, this mode also guarantees that a particular system will always have access to one or more servers.

  Note: To use this licensing mode, a small licensing agent must be loaded and enabled on each licensed client. The code for this licensing agent is distributed with the Advanced Server and is also available on CD-ROM at a nominal fee.

- *Server-based licensing mode*

  When a license for Advanced Server is used in server-based licensing mode, any client can access the server and make as many connections to file services and print shares as needed. (**Note**: In server-based mode, the PAK associated with the Client Access license works only with PATHWORKS V5.0 for OpenVMS (LAN Manager) servers that have been upgraded to a minimum of V5.0**F**. Earlier revisions of PATHWORKS V5.0x will not recognize or use this PAK.)

  Server-based licensing works best in situations where all clients use or access only one server and there are enough licenses available on each system for all clients to access their assigned server. (A ''system'' is defined as either a standalone system or a cluster.)

  (**Note**: When using server-based licenses to access file and print services in an OpenVMS Cluster environment, clients should connect to the cluster using the Advanced Server cluster alias, if this option is available. Clients connecting in this way use one server-based license. Clients connecting directly to specific cluster members use one server-based license for each connection to a different cluster member. A client can map multiple drives and printers from a single server while using a single server-based license.)

  The Advanced Server will allow up to ''n'' clients to access its services concurrently, where ''n'' is the total number of licenses being used in server-based licensing mode. The server will not allow the ''n+1'' client to access its services until one of the first ''n'' clients has disconnected from the server.

  Though a server can have only ''n'' licenses available, any number of clients can potentially access that server. The restriction is based only on the total number of clients that can connect to the server *at the same time*.

  For example, if you have 100 licenses assigned to an Advanced Server in server-based licensing mode, then any 100 clients can make use of all services offered by the Advanced Server at one time. However, if an additional client (the 101st) attempts to connect to the server, the client will be denied access until one of the connected clients disconnects from all services.

Customers can choose to operate in either client-based or server-based mode, or in a combination of both. They can change the licensing mode, as their situation dictates, without contacting or notifying Compaq.

Note that any portion of multiple licenses delivered in a single PAK can be used in server-based mode, while the remainder can be used in client-based mode. Because a PAK can legally be loaded on only one system, only the system on which the PAK is loaded can use the licenses in server-based mode. (**Note**: PAKs must be loaded into a clusterwide, available LMF database.)

For complete terms and conditions related to Client Access licenses, refer to the back of your PAK for these licenses, or consult the Software Licensing Web site at:

http://www.compaq.com/products/software/info

ORDERING LICENSES

General Information

Unless otherwise noted, licenses related to each part number are delivered in a single PAK. Because each PAK can be loaded on only one system, it is important to order your licenses in a manner that best fits your needs.

New or Additional Licenses

For new or additional users of Advanced Server software, use the part numbers in Table 5, New License Part Numbers, to purchase the number of Client Access licenses required.

Table 5 New License Part Numbers

Part Number	Number of Licenses per PAK
QM-5SUAA-AB	1
QM-5SUAA-AC	10
QM-5SUAA-AD	25
QM-5SUAA-AE	50
QM-5SUAA-AF	100
QM-5SUAA-AG	250
QM-5SUAA-AH	500
QM-5SUAA-AJ	1000
QM-5SUAA-AK	Variable[1]

[1]Equals total quantity ordered as a single line item.

Upgrade Licenses

Customers with licenses for previous versions of the file and print server that support the LAN Manager protocol are eligible to purchase Upgrade licenses to Advanced Server V7.3A for OpenVMS. Combined with your original license, the Advanced Server Upgrade license provides the right to use Advanced Server V7.3A for OpenVMS and PATHWORKS V6.1 for OpenVMS (Advanced Server). To be eligible to purchase an Upgrade license, you must have proof-of-license for any version of one of the licenses shown in Table 6, Previous-Version Licenses That Qualify for Upgrade Licenses. Table 7, Upgrade License Part Numbers, lists the part numbers for these Upgrade licenses. All the licenses listed are no longer sold but continue to be valid and grant the right to use the PATHWORKS V5.0 for OpenVMS (LAN Manager) software.)

Advanced Server V7.3A for OpenVMS andPATHWORKS V6.1 for OpenVMS (Advanced Server)

Note: Advanced Server V7.3 for OpenVMS and Advanced Server V7.2 for OpenVMS customers with a "right to new version contract" will be given a free upgrade license.

Table 6 Previous-Version Licenses That Qualify for Upgrade Licenses

License Name	Part Numbers
PATHWORKS V5.x for DOS and Windows (LAN Manager) CCS	QM-0TLAA-A *
PATHWORKS V5.x for OS/2 (LAN Manager) CCS	QM-YFWAA-A*
PATHWORKS V5.0 (LAN Manager) FPA	QM-2CLAA-A*
PATHWORKS V5.0 (LAN Manager) Designated Access	QM-2CLAA-A*
PATHWORKS V5.0 for OpenVMS (LAN Manager) FPS	QM-A93AA-A*
PATHWORKS V5.0 for OpenVMS (LAN Manager) PC Concurrent	QM-A93AA-A*
PATHWORKS V6.*x* for OpenVMS (Advanced Server) Client Access	QM-A93AA-A*
Advanced Server V7.2*x* for OpenVMS Client Access	QM-5SUAA-A*

*Variable field

Table 7 Upgrade License Part Numbers

Part Number	Number of Licenses	Number of Licenses per PAK
QM-5SUAA-CA	1	Variable[1]
QM-5SUAA-CB	1	1
QM-5SUAA-CC	10	10
QM-5SUAA-CD	25	25
QM-5SUAA-CE	50	50
QM-5SUAA-CF	100	100
QM-5SUAA-CG	250	250
QM-5SUAA-CH	500	500
QM-5SUAA-CJ	1000	1000

[1]Equals total quantity ordered as a single line item.

SOFTWARE MEDIA AND DOCUMENTATION

Software media and documentation are available in the following formats:

QA-A93AA-H8, CD-ROM media
QA-A93AA-GZ, Documentation kit

In addition, Advanced Server V7.3A for OpenVMS and PATHWORKS V6.1 for OpenVMS (Advanced Server) software and documentation are included in the following:

QA-03XAA-H8, OpenVMS Alpha Software Layered Products Library Package

PATHWORKS V6.1 for OpenVMS (Advanced Server) software and documentation are included in the following:

QA-5G88A-H8, OpenVMS VAX Software Layered Products Library Package

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

Service Licenses

Service customers can order right-to-new version service licenses, a media and documentation update service license, and a documentation-only update service license.

- **Right-to-new version service licenses.** Service customers can use the part numbers listed in Table 8, Rights-to-New Version Service License Part Numbers, to order the indicated licenses granting the right to use the latest version of the Advanced Server software.

Table 8 Rights-to-New Version Service License Part Numbers

Part Number	Number of Licenses	Number of Licenses per PAK
QT-5SUAA-TB	1	1
QT-5SUAA-TC	10	10
QT-5SUAA-TD	25	25
QT-5SUAA-TE	50	50
QT-5SUAA-TF	100	100
QT-5SUAA-TG	250	250
QT-5SUAA-TH	500	500
QT-5SUAA-TK	1	Variable [1]

[1]Equals total quantity ordered as a single line item.

- **Media and documentation update service license.** To order the update service license for media and documentation, use part number QT-A93AA-E8.
- **Documentation-only update service license.** To order the update service license for documentation only, use part number QT-A93AA-KZ.

SOFTWARE PRODUCT SERVICES

A variety of service options are available including media and documentation update service, rights-to-new-version service, and software telephone support and installation services. Ordering information may vary depending on your geographical location. For specifics, contact your local sales office or account representative.

SOFTWARE WARRANTY

This software is provided by Compaq with a 90-day conformance warranty in accordance with the Compaq warranty terms applicable to the license purchase.

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