Software Product Description

PRODUCT NAME: VAX Packetnet System Interface Access, Version 4.3 **SPD 27.78.02**

DESCRIPTION

The VAX Packetnet System Interface Access (VAX P.S.I. Access) product allows a suitably configured DECnet-VAX system in a DECnet environment to make logical connections to Packet Switching Data Networks (PSDNs) by using one or more connector node(s). VAX P.S.I. Access, with the connector node providing physical connection(s) to a PSDN(s), enables process-to-process and terminal communications between the Access system and the remote Data Terminal Equipment (DTE).

The connector node may be any of the following:

- An X25router 2000 product (refer to X25router 2000 Software Product Description SPD 28.86.xx).
- VAX P.S.I. configured in Multi-host mode (refer to VAX Packetnet System Interface P.S.I. Software Product Description SPD 25.40.xx).

DECnet logical links are established by VMS to connect the VAX P.S.I. Access node to the connector node. These links may use any supported DECnet communications path between the VAX P.S.I. Access node and the connector node, provided they themselves do not use an X.25 connection. VAX P.S.I. Access uses these links to transmit X.25 or X.29 messages between the connector node and the VAX P.S.I. Access host.

Note that successful use of an X.29 connection, either for incoming X.29 calls or by means of the host-based PAD utility supplied with VAX P.S.I. Access, depends on the DECnet circuit between the Access and connector nodes having a low response time. This requires high-speed DECnet connections and few intermediate routing nodes.

A single VAX P.S.I. Access host can connect to one or more connector nodes concurrently, and hence access all PSDN(s) accessible from those connector nodes. When VAX P.S.I. Access is installed, one of these connector nodes/PSDN combinations must be established as the default gateway for outbound and inbound traffic.

Features

VAX P.S.I. Access is a VMS layered product and can be used in the following ways:

- Process-to-process (X.25) communication
- Process-to-terminal (X.29) communication
- Terminal-to-Process (X.29) communication
- Open System Interconnection

Process-to-process (X.25) Communication

VAX P.S.I. Access supports access for VMS user programs written in VAX MACRO and native mode high-level languages such as VAX FORTRAN. Programs executing in PDP-11 compatibility mode cannot use VAX P.S.I. Access.

The VAX P.S.I. Access programming interface allows application programs to access the service interface to the packet level via the standard VMS QIO interface. Functions include the setting up and breaking of network connections, data transmission and reception, sending and receiving of interrupt messages, and resetting of virtual circuits. The interface also allows splitting and recombining of messages which are longer than the packet size selected for the circuit.

The programming interface enables an application program using VMS System Services to communicate with complementary software on other systems (Digital or non-Digital DTEs) accessible via the X.25 connection.

Process-to-terminal and Terminal-to-process (X.29) Communication

VAX P.S.I. Access supports terminal communications according to CCITT recommendations X.3, X.28, and X.29 for:

- Outgoing terminal traffic

  VAX P.S.I. Access host users may make outgoing calls to other Digital or non-Digital CPUs, or suitable network PADs accessible via a PSDN, using the X.29 programming interface or by using the host-based Packet Assembly/Disassembly (PAD) supplied with VAX P.S.I. Access. The PAD facility accepts DCL-style commands or CCITT X.28 commands.

- Incoming terminal traffic

  The X.29 Interactive Terminal Interface allows remote asynchronous terminals (character-mode DTEs) connected to the network to communicate with the VAX P.S.I. Access host in a manner similar to local terminals. Dissimilarities may appear as a result of delays caused by the PSDN(s) and the various PAD parameter settings chosen by the user or peculiar to the PSDN(s). In this case, the remote PAD must perform code conversions between ASCII and the code the terminal uses. Note that there may be some restrictions imposed by the PSDN(s).

Terminal parameters defined in the X.3 recommendation are explicitly supported. Network-specific enhancements or extensions to the X.3 parameters are available at both the X.29 programming interface and the host-based PAD user interface. Terminal processes that depend on these extensions may cause problems when used on other PSDNs or when accessing one PSDN via another (for example, international access).

The X.29 terminal interface is compatible with the local terminal interface, except for those facilities where the PSDN does not provide adequate support. The X.29 interface includes support for specific X.29 signaling. For example, the break key can be used to disable output, and the interrupt message can be mapped directly to the VMS interrupt character.

The host-based PAD employs a DCL-style command syntax offering the ability to reference the CCITT PAD parameters symbolically, as well as an interface that conforms to the standard CCITT command signals. The host-based PAD also offers the capability of running multiple X.29 sessions using the VMS SPAWN and ATTACH commands. The host-based PAD supports reception of reselection messages to allow X.29 calls to be redirected to another DTE.

The X.29 programming interface is similar to the X.25 interface and allows a VMS process to control the virtual circuit (for example, to modify PAD parameters or clear a call). The X.29 programming interface can also be used to make an outgoing call to a remote PAD. The programming interface allows generation of PAD reselection messages.

The maximum number of terminals supported (both local and remote X.29) must not exceed the number supported by VMS. The use of PVCs for X.29 connections is not defined by the 1980 and 1984 CCITT recommendations and is not available with VAX P.S.I. Access.

Open System Interconnection

VAX P.S.I. Access may be used for Open System Interconnection (OSI) communication using the OSI Applications Kernel product (OSAK). Refer to the VAX OSI Applications Kernel Software Product Description (SPD 27.47.xx).

VAX P.S.I. Access may be used with VAX FTAM for managing files on open systems (refer to VAX FTAM Software Product Description SPD 29.86.xx), and with the VAX Message Router Router X.400 Gateway to enable message exchange with other X.400 systems in X.400 public or private networks. Refer to the VAX Message Router X.400 Gateway Software Product Description (SPD 27.50.xx).

VAX P.S.I. Access also provides features of X.25 which permit a Connection Oriented Network Service (CONS) over X.25, according to ISO 8348.

Virtual Circuits

VAX P.S.I. Access supports both Permanent Virtual Circuits (PVCs) and Switched Virtual Circuits (SVCs) from the connector node, and supports up to 512 virtual circuits in total per host machine. One virtual circuit is used for each:

- Incoming or outgoing X.29 terminal connection
- X.25 call, using either an SVC or PVC

VAX P.S.I. and VAX P.S.I. Access Running on the Same System

In a network consisting of more than one connector node involving one or more VAX P.S.I. Multi-host nodes, users on a Multi-host node may need to gain access to PSDN(s) connected to another connector node. This is accomplished by installing both VAX P.S.I. and VAX P.S.I. Access on the same node in combination mode.

Configuration

VAX P.S.I. Access provides a configuration procedure to configure a VAX P.S.I. Access system locally. This allows network managers to create a configuration after initial installation, or subsequently when reconfiguration is necessary.

Network Management

VMS provides a Network Control Program (NCP) for management of both DECnet-VAX and VAX P.S.I. This program allows network managers to define the line(s) and PSDN(s) to which the system is connected, select the mode (DTE or DCE) of each, specify destinations for incoming calls, access counters, and perform other maintenance functions.

Problem Solving

The TRACE utility assists problem solving by tracing and analyzing information at various stages as it passes between the PSDN, the connector node and the VAX P.S.I. Access node. Event logging is available by means of normal VMS mechanisms.

P.S.I. Accounting

The P.S.I. Accounting utility enables the system manager to obtain information on VAX P.S.I. Access and network usage. The P.S.I. Accounting utility can extract the information collected and display the information directly on a terminal or write the information to a file. Information can be extracted for selected records or a summary produced. The P.S.I. Accounting utility is compatible with the VMS Accounting utility.

In the case of incoming X.29 calls, no information can be stored relating to the process/account on which a user is logged; this can be obtained through correlation with VMS accounting records.

On a VAX P.S.I. Access node, the P.S.I. Accounting utility records details of calls to and from the Access node only. Refer to the appropriate SPD for the connector node for details of the accounting features available.

If the connector node is a VAX P.S.I. Multi-host node, P.S.I. Accounting should also be used at the Multi-host node to gather comprehensive accounting data. Refer to the VAX P.S.I. SPD (25.40.xx) for more information about the available accounting features.

P.S.I. Security

The P.S.I. Security utility allows control of both remote DTE access to VAX P.S.I. Access, and access to the PSDN(s) by VMS processes. The Security utility allows for access control on the basis of:

- The remote DTE numbers involved, either on the basis of individual DTE numbers or groups of DTE numbers with common leading digits
- The process making the outgoing call or the application handling the incoming call
- Whether or not the call is normally or reverse charged

On a VAX P.S.I. Access node, the P.S.I. Security utility performs security checks for calls to and from the Access node only. Refer to the appropriate SPD for the connector node for details of the security features available.

If the connector node is a VAX P.S.I. Multi-host node, P.S.I. Security should also be used at the Multi-host node to provide comprehensive security. P.S.I. Security on a VAX P.S.I. Multi-host node checks both incoming and outgoing calls for the right to communicate with the VAX P.S.I. Access node. Refer to the VAX P.S.I. Software Product Description (SPD 25.40.xx) for more information about the available security features.

P.S.I. Mail

The P.S.I. Mail utility allows communication across a PSDN via electronic mail between two VMS systems running VAX P.S.I. or VAX P.S.I. Access, using the VMS Mail facility even in the absence of any DECnet communications between the two DTEs. Refer to the VMS Operating System Software Product Description (SPD 25.01.xx) for more information about VMS Mail.

Conformance to Standards

Please refer to appropriate SPD for the connector node for details of the standards and protocol options supported.

PREREQUISITE SUPPORT

The customer and Digital must jointly prepare a Network Profile and Customer Support Plan covering all the intended network nodes, their usage of SVCs, PVCs and other network facilities, and their support. Without this Network Profile and Customer Support Plan, Digital cannot support the network connections.

Support services for VAX P.S.I. Access require that a corresponding or a greater level of service are obtained for the connector node(s) used.

INSTALLATION

Digital requires that a customer's first purchase of this software product include Digital Installation Services. These services provide for installation of the software product by an experienced Digital Software Specialist.

Only customers experienced with Digital's X.25 products should attempt second or subsequent installations. Digital recommends that all other customers purchase Digital's Installation Services.

Customer Responsibilities

Before installation of the software, the customer must:

- Previously have installed all required software and hardware, including terminals.

- Obtain, install and demonstrate that both the connection from the connector node to the PSDN and the DECnet connection to the connector node are operational.
- Check the requirements for the connector node installation from the appropriate connector node SPD.
- Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communication facilities and terminals that are to be used during installation.

Delays caused by any failure to meet the responsibilities will be charged, at the then prevailing rate, for time and materials.

Courtesy Installation Service

This software product will be installed by Digital at no additional charge if purchased concurrently with a Startup Service Package that includes installation service. Both the operating system and this product must be installed concurrently. This service may not be available in all countries.

HARDWARE REQUIREMENTS

VAX, MicroVAX, VAXstation, or VAXserver configuration as specified in the System Support Addendum (SSA 27.78.02-x).

SOFTWARE REQUIREMENTS *

VMS Operating System

DECnet-VAX (either end-node or full-function)

* Refer to the System Support Addendum (SSA 27.78.02-x) for availability and required versions of prerequisite software.

ORDERING INFORMATION

Software Licenses: QL-061A*-**
Software Media: QA-061A*-**
Software Documentation: QA-061AA-GZ
Software Product Services: QT-061A*-**

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

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, please contact your local Digital office.

LICENSE MANAGEMENT FACILITY

This layered product support the License Management Facility. License units for this product are allocated on a CPU-capacity basis.

For more information on the License Management Facility, refer to the VMS Operating System Software Product Description (SPD 25.01.xx) or the VMS documentation set.

For more information about Digital's licensing terms and policies, contact your local Digital office.

SOFTWARE PRODUCT SERVICES

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

SOFTWARE WARRANTY

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

Use of the VAX P.S.I. Access software in conjunction with a connector node for which Digital support has not been purchased and/or is not available invalidates any warranty or support offered in this SPD.

Use of the VAX P.S.I. Access software and a connector node with a PSDN which Digital has not tested invalidates any warranty or support offered in this SPD. This software warranty applies only to those PSDN(s) which are fully supported by the connector node software.

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