Software Product Description

PRODUCT NAME: DECmessageQ for VMS, Version 1.0 **SPD 34.07.00**

DESCRIPTION

DECmessageQ for VMS is the VMS Operating System implementation of a generic software message queuing bus that provides easy-to-use, efficient task-to-task communications among processes using DECmessageQ on VMS, ULTRIX, MS-DOS®, and OS/2®.

A common call interface allows messages to be delivered via high-speed global sections for some intra-CPU applications, or via DECnet-VAX for inter-CPU applications. Applications can be designed so client applications can be redeployed easily anywhere within the DECmessageQ network configuration, whether in a standalone node, a Local Area Network (LAN), or a wide area network.

The DECmessageQ communication implementation is designed for ease-of-use, expandability, and efficiency. Its features include:

- High speed local message delivery using Global Sections
- Remote message delivery via DECnet
- Fully asynchronous and synchronous receipt of messages
- Message sizes up to 32,000 bytes
- Priority queuing of messages
- Message recovery using Message Recovery Services (MRS)
- Message broadcasting using Selective Broadcast Services (SBS)
- Selective reception of messages according to certain fields within the DECmessageQ header and within the data portion of the message
- Shared input queues using Multi-Reader Queues (MRQ)
- Use of intra-CPU naming through high-speed global sections, and inter-CPU naming through VAX Distributed Name Service
- Message simulation facility for use in application testing
- Set of message delivery options
- Selectable tracing of Messages and calls to DECmessageQ
- A maximum of 999 queues per DECmessageQ Group
- A maximum of 32,000 DECmessageQ Groups
- Integration of VMS timers
- Support for languages adhering to the VAX Common Language standard
- Utilities for monitoring the network configuration and flow of messages
- Dynamic addition of message queues and CPUs to the communication network
- Message interface for retrieving DECmessageQ configuration information on-line
- Portable call interface
- Connectivity to DECmessageQ implementations on VMS, ULTRIX, OS/2, and MS-DOS

DECmessageQ for VMS can also be used as an integration tool to merge many external events with the message queuing bus. In addition to integrating messages from local processes and remote processes, DECmessageQ also provides facilities for the integration of other events such as:

timer settings,
simulated messages,
LU6.2 conversations, or
other external events such as special hardware I/O.

DECmessageQ Queues

DECmessageQ for VMS provides three types of queues. A queue is a memory storage location for DECmessageQ messages. Any process can insert a message into any queue. These queues are accessed directly by DECmessageQ procedures. These procedures are called by user-written applications. DECmessageQ queue types are:

- Primary Queue (PQ) — Each process that attaches to the message queuing bus is assigned a Primary Queue. This queue is used to receive messages from processes using DECmessageQ.
- Secondary Queue (SQ) — Any process may attach to one or more secondary queues. These queues can also be used to receive messages. The order in which queues are scanned for messages is defined by the DECmessageQ selection rules.
- Multi-Reader Queue (MRQ) — A Multi-Reader Queue is a single shared queue that can be shared by up to 40 simultaneous readers.

Message Recovery Services (MRS)

Message Recovery Services for the DECmessageQ Message Queuing Bus extend data recovery to the level of pending messages. Using Message Recovery Services, the sender is relieved of the responsibility of tracking the progress of a message through its next level of processing. This functionality can be used both at the client and server sides of the application.

Message Recovery Services increase the robustness of DECmessageQ by providing applications with the ability to recover from message delivery failures due to:

- Application program abort
- Communication line failure
- System crash

Some of the applications requirements addressed by MRS are:

- Sender wishes to insure delivery of messages when the receiving process is available but does not wish to monitor the delivery.
- Sender wishes to know that a message is recoverable to avoid the cost of reconstructing it but does not care when it is finally delivered.
- Receiver wishes to maintain a journal of all messages received by it for audit trail or reprocessing.

Message Recovery Services are primarily implemented by an MRS server, a non-privileged program attached to the DECmessageQ Message Bus. MRS actions are invoked by standard DECmessageQ send and receive message calls.

MRS is oriented toward messages, not processes. That is, not all messages sent from or directed to a particular process need to be processed by MRS. This allows applications to selectively incur the additional processing imposed by MRS for just those messages that are not easily recovered. Message recovery characteristics are set by the sending process.

Selective Broadcast Services (SBS)

There are two important application requirements handled by this service. The first requirement is the ability to send a message to many targets without going through multiple application DECmessageQ send message requests. The second requirement is the ability to generate broadcast messages without the originator knowing the quantity or location of the target process(es).

Selective Broadcast Services provide a conceptual broadcast stream of data. In this broadcast stream any process can insert a message. Any process can select messages from this broadcast stream for delivery. Messages may be selected using a set of rules that provide relational comparisons against DECmessageQ header information or user's message data information. The Selective Broadcast Services operate in a single server environment or between cooperating DECmessageQ servers. When the SBS is operating between nodes, it can operate using DECnet services or using direct Ethernet operations. In the direct Ethernet operations, the SBS will optimize message traffic by using Ethernet's multi-casting capabilities.

Delivery Options

DECmessageQ for VMS provides the following set of delivery options:

- Datagram — A non-recoverable attempt is made to deliver a message. If the message cannot be delivered to a target then an error is logged.
- Wait for enqueue — The sending process will block until the message is written to the target queue. A return status will indicate if the message successfully enqueued to the queue.
- Blocking and non-blocking message Store-and-Forward — The sending process will send messages that are stored in a disk file locally, before they are sent over any communication link(s).
- Blocking and non-blocking message disk queuing — The sending process will send messages that will be delivered to the target's disk queue.

DECmessageQ Scripts Facility

The DECmessageQ scripts facility provides a general capability to perform message capture, simulation, and replay.

- Capture — DECmessageQ scripts can be used to capture messages that are sent or received from a process. These messages can be displayed on the output device or collected in a disk file. The messages are displayed in an ASCII file using the DECmessageQ scripts syntax.

- Simulation — A disk file containing DECmessageQ scripts commands can be used to simulate message traffic to a process. The commands use the DECmessageQ scripts syntax. The process will receive these messages after any DECmessageQ queue is scanned for receivable messages.
- Replay — A replay is the simulation of messages that were previously captured.

DECmessageQ LU6.2 Services (License Option)

DECmessageQ LU6.2 Services for VMS systems allows user programs attached to a DECmessageQ Message Queuing Bus to request, accept, and conduct APPC (Advanced Program-to-Program Communications) conversations with programs running under CICS/VS, IMS/VS, and other IBM® environments over SNA LU6.2 sessions.

Note: See the DECnet/SNA APPC-LU6.2 Software Product Description (SPD 26.88.xx) for currently supported environments.

DECmessageQ LU6.2 Services allows users unfamiliar with SNA communications to develop quickly and easily applications that operate with IBM-based APPC applications. Users are insulated from the details of both SNA and APPC. DECmessageQ provides additional insulation between the two environments by translating transaction program names known to DECmessageQ user programs to names known to the IBM system(s) and vice versa.

DECmessageQ LU6.2 Services for VMS consists of:

- An LU6.2 Server image ("Port Server") that provides connection management facilities, isolating the end user from details of SNA-APPC communications
- A library of predefined DECmessageQ message structures for ease of program development
- Utilities for managing the LU6.2 Server
- Tools for developing user-written LU6.2 Servers

DECmessageQ LU6.2 Services Limits

DECmessageQ LU6.2 Services for VMS has the following limits:

Maximum user message size:	31,982 bytes
Maximum number of active LUs:	256 per Port Server
Maximum number of remote Transaction Programs:	512 per DECmessageQ LU6.2 Server (user-written servers: unlimited)

DECmessageQ LU6.2 Services Utilities

DECmessageQ LU6.2 Services for VMS includes a management utility that allows a suitably privileged user to start, stop, and configure DECmessageQ LU6.2 servers and observe their activity (through an event monitoring facility).

Users can develop specialized LU6.2 servers by using the DECmessageQ LU6.2 Server tool kit. The tool kit consists of a DECmessageQ/VMS User Callback (a "user callback" is a special User Exit module) and 21 predefined DECmessageQ message structures.

The LU6.2 Server tool kit gives the user a much finer degree of control over the APPC environment than the standard DECmessageQ LU6.2 Server. Functions supported via the tool kit are:

- DEFINE_LU
- DEFINE_TP
- DELETE_LU
- ALLOCATE_CONVERSATION
- DEALLOCATE_CONVERSATION
- REQUEST_CONFIRMATION
- ISSUE_CONFIRMATION
- ISSUE_ERROR
- REQUEST_TO_SEND
- SEND
- RECEIVE

HARDWARE REQUIREMENTS

VAX, MicroVAX, VAXstation, or VAXserver configuration as specified in the System Support Addendum (SSA 34.07.00-x).

SOFTWARE REQUIREMENTS

VMS Operating System
DECnet/SNA APPC LU6.2 Programming Interface
(for LU6.2 Services option only)

OPTIONAL SOFTWARE

DECnet-VAX
VAX Distributed Name Service
DECmessageQ for ULTRIX
DECmessageQ for MS-DOS
DECmessageQ for OS/2

ORDERING INFORMATION

Development Option

The DECmessageQ for VMS/Development Option includes the base message queuing software, language compiler binding libraries, and configuration definition utilities.

Run-Time Only Option

The Run-Time Only Option provides all the facilities of the development version of DECmessageQ for VMS except the language compiler binding libraries and the configuration definition utilities. The purpose of the Run-Time Only version is to support the execution of previously developed applications on a target machine. Program development is not supported under the Run-Time Only Option.

LU6.2 Services Option

The DECmessageQ for VMS/LU6.2 Services option supports conversations with programs running under CICS/VS, IMS/VS, and other IBM environments over SNA LU6.2 sessions.

Software Licenses:

DECmessageQ for VMS/Development: QL-GKPA9-J*
DECmessageQ for VMS/Run-Time Only: QL-GHVA9-J*
DECmessageQ for VMS/LU6.2 Services:
QL-GKQA9-J*

Software Media:

DECmessageQ for VMS/Development: QA-GKPAA-H*
DECmessageQ for VMS/Run-Time Only:
QA-GKPAA-H*
DECmessageQ for VMS/LU6.2 Services:
QA-GKPAA-H*

Software Documentation:

DECmessageQ for VMS/Development: QA-GKPAA-GZ
DECmessageQ for VMS/Run-Time Only:
QA-GKPAA-GZ
DECmessageQ for VMS/LU6.2 Services:
QA-GKPAA-GZ

Software Product Services:

DECmessageQ for VMS/Development: QT-GKPA*-**
DECmessageQ for VMS/Run-Time Only: QT-GHVA*-**
DECmessageQ for VMS/LU6.2 Services: QT-GKQA*-**

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

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LICENSE MANAGEMENT FACILITY SUPPORT

This layered product supports the VMS 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 *License Management Facility* manual of the VMS Operating System documentation set.

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