

*When the networking mission is critical!*



## VTAM, Version 4 Release 4 for MVS/ESA

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### **Highlights**

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**Offers higher availability for important applications with multinode persistent sessions and generic resource support of TSO/E that allow you to build fault-tolerant networks and applications**

**Provides high-speed, high-capacity data transfers with native ATM capability on the S/390 server**

**Optimizes performance with high-performance data transfer for APPC applications and multipath channel enhancements that offer large data object transfer across high-speed networks**

**Simplifies migration to APPN and supports additional HPR configurations**

**Improves usability with dynamic VTAM definitions and AnyNet/MVS integration, while tightening security with enhanced VTAM cryptographic support**



*Pictured are, clockwise from left, Mac Devine, Pat Hochstetler, Phillip Shaw, and Rich McGuinness.*

### **When the networking mission is critical**

As much as your networking strategy may change, there are certain elements that must remain the same. Configuration support, security, priority, guaranteed delivery, and efficient use of bandwidth continue as key attributes of networks supporting important application environments.

As businesses explore opportunities, such as electronic commerce, certain activities must continue. Sensitive data must remain secure, customer orders must be processed, parts from suppliers must be on schedule, and branch offices need central office support. In other words, critical business functions must be executed as effectively as ever. As customers consider their networking protocol alternatives, there is very little debate that VTAM with the strengths of SNA/APPN, is the most capable alternative to address these key networking requirements.

With VTAM the best choice for supporting your important applications is even better with new capabilities and improvements to the most solid networking alternative available.

### **When high availability is top priority**

With multinode persistent sessions (MNPS), VTAM has the capability to preserve sessions across application outages in configurations where hosts are connected through the S/390 coupling facility. MNPS provides for the recovery of VTAM, MVS, or hardware failures with minimal impact to the user. Because session information is preserved, the workload and extra network traffic to re-establish connections are avoided.

With the automatic restart manager function of MVS/ESA, the application restart can be dynamically executed, further minimizing impacts to users. Because hardware and software outages can be recovered without termination and reestablishment of potentially large numbers of user sessions, cost savings per outage can be substantial. The actual level of recovery capability is application-dependent.

Coupled with High-Performance Routing (HPR), MNPS allows you to build networks and applications that are fault tolerant, with the potential to maintain S/390 connectivity through planned and unplanned outages.

In addition, VTAM generic resource support is extended to support Time Sharing Option Extensions (TSO/E) environments. Availability of TSO resources is increased because all TSO instances can now be accessed using a generic name. Should a particular TSO fail, a session request, using the generic name can still be successful to another TSO with the same generic name selected as the session partner. In addition to generic resource support, the capability to balance session distributions across TSO instances in the sysplex is provided. This greatly enhances productivity for users of S/390 parallel sysplex servers with coupling facilities.

### **When native ATM capability on S/390 server is important**

VTAM, with the S/390 Open Systems Adapter-2 (OSA-2), provides a native asynchronous transfer mode (ATM) communication capability enabling the S/390 server to better support high-speed and high-capacity traffic requirements.

Native ATM support, coupled with VTAM high-performance data transfer (HPDT) and APPN and HPR, gives you access to the most advanced networking and system functions on your OS/390 server. APPN and HPR class of service will be mapped to ATM virtual channel connection characteristics. This allows existing applications to exploit the full capabilities of the ATM network without requiring changes.

The VTAM native ATM support includes best-effort virtual circuits and reserved-bandwidth virtual circuits. A best-effort virtual circuit combines the capabilities of the OSA-2 ATM adapter and VTAM to provide the ability to optimize link capacity. Link capacity is optimized by allowing best-effort circuits to use the native ATM network when reserved bandwidth connections are idle. Reserved-bandwidth virtual circuit gives you the ability to provide your network users with the most up-to-date support characteristics, such as:

- Bandwidth reservation specified and allocated
- Prioritization of interactive traffic over batch
- Priority and segregation of batch traffic within a predefined window of time
- Prioritization and segregation of classes of users, allowing response time targets, to be set

### **When high-speed networking is key**

To better capitalize on high-speed networking, VTAM introduces high-performance data transfer (HPDT) services and a new programming interface to optimize performance for VTAM APPC applications, particularly those that transfer large data objects.

HPDT services are available to applications written to the VTAM APPC COMMAND (APPCCMD) interface, where sessions connect two intrahost applications or traverse one of the following high-bandwidth network attachments:

- Open System Adapter-2, connected to a native ATM network
- APPN node-to-node channel connections
- Cross-system coupling facility (XCF) between processors in sysplex
- IBM 2216 Multiaccess Connector, Model 400
- IBM 3746 N Ways Multiprotocol Controller, Model 900 and 950, with multiaccess enclosure and ESCON adapter

HPDT interface allows system-authorized applications, requiring efficient bulk data transfer, to gain additional performance improvements and eliminates entirely the data copy as data is transferred between the APPCCMD application and VTAM. The new APPCCMD interface includes a new communication storage manager that allow VTAM and applications to exchange ownership of commonly addressable storage so there is no need to copy data at the APPCCMD application programming interface (API). The performance improvements increases as the API crossing size increases.

VTAM multipath channel (MPC) is being enhanced to include HPDT MPC (also referred to as MPC+) connections. HPDT MPC connections provide more efficient transfers of data because they use HPDT services which result in data packing without data movement and improved scheduling of channel programs. Both data packing without data movement and improved scheduling of channel programs reduce CPU cycles used for communication by as much as two-

thirds. Improvements will vary, depending on factors such as system configuration, size, and type of data objects.

### **When HPR benefits really make a difference**

HPR benefits are extended in this version of VTAM to support configurations where HPR session end-points traverse across APPN networks and subnetworks. This extends HPR value to a substantially larger user population.

Migration to HPR from environments using APPN over subarea connections (VRTGs) is simplified in that HPR is now supported across these connections. Applications can reside on an S/390 with attached 3745/NCP so users will have the advantage of HPR when applications are on composite network node (CNN) or the migration data host (MDH).

APPN network availability is enhanced by VTAM HPR support which eliminates single points of failure and effects of network outages, provides enhanced network management information, and improves Network Control Program (NCP) performance and storage savings, compared to SNA network interconnection (SNI) through HPR border node.

### **When improved usability and security matters**

Dynamic definition of VTAM-to-VTAM connections, working with the cross-system coupling facility (XCF) of IBM OS/390, Release 3, improves usability by allowing you to eliminate predefinition of channel-to-channel connections between VTAM systems. This enables the addition of S/390 images without VTAM-specific definitions for the connections.

AnyNet/MVS is now integrated as a no-charge component of VTAM. Now there is no separate installation or additional charge for VTAM customers adding multiprotocol application support for socket applications in SNA networks.

Security is improved with enhancements to VTAM Cryptographic Support through message authentication code (MAC), which ensures data is not tampered with. Another enhancement includes Transaction Security System support for a broad range of Common Cryptographic Architectures (CCA), and support of common master keys for logical units (LUs) with the same cryptographic key. This eliminates the need to redundantly code keys. Applications written to APPCCMD API can exploit third-party authentication, which is a security function of a Distributed Computing Environment (DCE) that allows users to access a network with a single logon.

### **For more information**

If you'd like more information about VTAM, including specific hardware and software requirements, contact your local IBM marketing representative. Or, visit the IBM Networking Home Page at

<http://www.networking.ibm.com/netsoft.html>

**Features**

**Benefits**

**High-Performance Routing (HPR)**

- Positions existing SNA/APPN customers to satisfy requirements for future high-speed backbone networks
- Improves throughput and increases availability in APPN networks by combining the best attributes of SNA/APPN and IP networks
- Implements sophisticated congestion control techniques for reduced bandwidth requirements or more efficient usage of existing bandwidth
- Offers HPR support of sessions traversing APPN networks
- Provides migration to HPR, simplified with support across APPN over subarea connections

**Native ATM support with Open System Adapter 2**

- Provides a native ATM communication capability enabling the S/390 server to better support high-speed and high-capacity traffic requirements

**Network topology management agent**

- Offers an open, standards-based SNA management capability following OSI standards for network and systems management
- Provides more complete and timely SNA/APPN network topology information
- Simplifies the tasks associated with SNA and dynamic APPN networks

**High-performance data transfer (HPDT)**

- Improves performance for VTAM APPC applications, particularly those transferring large data objects
- VTAM multipath channel is enhanced to include HPDT MPC (also referred to as MPC+) for improved performance

**Multinode persistent session**

- Improves availability by preserving sessions during failures where hosts are connected through S/390 coupling facility

**AnyNet/MVS function**

- Supports IBM Open Blueprint and OpenEdition
- Provides for open interfaces and application portability
- Enhances network resource availability



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