# Multiple Virtual Storage/Enterprise System Architecture (MVS/ESA) Version 4

- *A new era begins*



Making business growth more manageable is the most important challenge information systems will face in the 1990s. Through a number of systems management features, IBM's Multiple Virtual Storage/Enterprise Systems Architecture (MVS/ESA(*)) can help bring that control to MVS environments.

Designed to run on Enterprise Systems Architecture/390(*) processors, the MVS/ESA platform offers the capability and flexibility organisations require to:
- Support new applications opportunities and requirements across a variety of hardware and software environments
- Permit enterprise-wide access to data
- Grow in range and size with minimal disruption to users and applications
- Manage increasingly large and sophisticated systems dynamically, cost effectively and automatically

What's more, MVS/ESA can help today's organisations meet all of these objectives while protecting their current investments in hardware and software.

MVS/ESA accomplishes this through a broad spectrum of products and offerings. Among these are solutions that provide new applications opportunities available through Systems Application Architecture(*) (SAA(*)) distributed and cooperative processing . . . less disruptive change and growth capabilities . . . new availability, growth and manageability options . . . and increased focus on enterprise systems management. The result is greater power across the entire enterprise, from end-user workstation to mainframe database, providing greater opportunity — and added control — for new computing solutions.

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*Taking advantage of new applications opportunities*

Improving the link between today's highly productive programmable workstations (PWS) and powerful mainframe systems is the key to providing a productive, enterprise-wide cooperative and distributed processing environment. Advanced Program to Program Communication (APPC/MVS) makes this possible by incorporating an MVS implementation of LU6.2. This streamlines communication between programs within MVS and across a network of interconnected operating systems supporting the LU6.2 protocol.

In addition, APPC/MVS supports CPI-Communications, the designated SAA application programming interface for communications. APPC/MVS also provides MVS programming support for COBOL, C/370, FORTRAN, PL/1, RPG and REXX programming languages. Because SAA-conforming applications can run on any SAA system, this provides several benefits to the enterprise. Benefits such as increased application portability, more power for the PWS and improved manageability over the entire information system.

*Making growth less disruptive*

Another MVS/ESA advantage is the way it allows systems and enterprises to grow with less disruption. This is provided for both hardware and software configuration through Dynamic Reconfiguration capabilities.

The Hardware Configuration Definition (HCD) is an interactive tool that provides a panel-driven interface, defaults, validation checking during data entry and online Help to reduce the complexity and time required to define and activate a hardware I/O configuration. Software configuration support allows an organisation to change some of the characteristics and topology of its I/O components while the system is running.

In addition to Dynamic Reconfiguration, MVS/ESA also takes advantage of Virtual Telecommunications Access Method (VTAM(*)) to support the dynamic addition of channel-attached communication controllers and Systems Network Architecture (SNA) cluster controllers to existing systems.

*Improving availability throughout the enterprise*

Cost effective systems management and operation are important to enterprises of every size. MVS/ESA addresses this need through the SYStem ComPLEX (Sysplex)(*)

concept. Sysplex is a strategic platform that can make possible increased processing capability, continuous system and applications availability, and improved systems management and operations capabilities in multisystem environments.

One component of MVS/ESA is the Cross-System Coupling Facility (XCF). XCF provides a generic set of facilities to allow programs to communicate, monitor status and signal information across MVS system images in sysplex.

XCF monitoring and signalling can provide improved availability for subsystems with hot standby capability such as OPC/ESA and CICS/XRF.

*Highlights*
- APPC/MVS provides SAA connectivity for MVS
- Cross-system coupling facility improves multisystem communication and management for more efficient growth
- Dynamic Reconfiguration Management provides less system disruption for the addition and deletion of I/O devices
- Hardware Configuration Definition provides an interactive dialogue for configuring systems and results in improved productivity and system availability
- Diagnostic enhancements improve maintainability
- New configuration enhancements improve usability
- Platform provided for improved performance through data-in-memory techniques
- Powerful addressing capability is offered through the creation of multiple data spaces up to 2GB in size. This addressability allows applications to continue to grow
- Virtual lookaside facility uses data spaces to hold program libraries for reduce I/O
- Expanded storage can be exploited through Hiperspace(*) (high performance space) for reduced I/O

*Technical information*

Machine requirements
MVS/ESA version 4 requires one of the following processors:
- IBM ES/9000(*) Processor
- IBM ES/3090-9000T(*) Processors
- IBM Enterprise System/3090(*) (ES/3090(*) Processor Unit Model E, J or S at the appropriate engineering-change level that supports the IBM Enterprise Systems Architecture/370(*)
- IBM Enterprise System/4381(*) (ES/4381(*) Model Group 90E, 91E or 92E
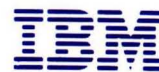
The following hardware supports the functions specified:
- Use of Hiperbatch(*) requires expanded storage and one of the following IBM processors:
— IBM ES/9000 processor
— IBM ES/3090-9000T processor
— IBM ES/3090 Model 150JH, 170JH, 180J, 200J, 250JH, 280J, 300J, 380J, 400J, 500J or 600J
— IBM ES/3090 Model 180S, 200S, 280S, 300S, 380S, 400S, 500S or 600S with the no-charge engineering change, EC228862
- Connecting two or more processors in a Sysplex requires:
— One or more IBM 3088 Multisystem Channel Comms Unit or an ES Connection Channel
— Sysplex Timer (9037)
— Shared direct access storage device (DASD)
- To take advantage of SLIP command enhancements, the PER2 hardware is required

Programming requirements
MVS/ESA requires:
- Assembler H Version 2 (5668-962) with current maintenance
- MVS/Extended Architecture (MVS/XA(*) Data Facility Product (DFP) Version 3.2 (5665-XA3) with PTFs, or higher
- System Modification Program/Extended (SMP/E) Release 5 (5668-949) for installation or maintenance
- TIOC (5752-VS2) with a PTF (Required only by new MVS customers)

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