



VM/ESA Platform Update

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Advanced Peer-to-Peer	DirMaint	Multiprise	SQL/DS
Networking	DisplayWrite*	MVS*	SQL Master
AIX*	Distributed Relational	MVS/ESA	System/390*
AIX/6000	Database Architecture	MVS/SP	S/370
APL2*	Domino	MVS/XA	S/390*
APRN	DRDA*	Net.Data	S/390 Multiprise
Approach	Enterprise Systems Connection	NetView*	S/390 Parallel Enterprise
AS/400*	Architecture	Notes	Server
C/VM	Enterprise Systems	NotesPump	TalkLink
C/370	Architecture/390	OfficeVision*	Time and Place
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Common User Access	GDDM*	OS/2*	VisualiLift
Current	Hardware Configuration Definition	OS/390	Visual Warehouse
CUA	IBM*	Parallel Sysplex	VM/ESA*
DataJoiner	IBM Business Partner	PowerPC	VM/XA
DataPropagator	IBMLink	PR/SM	VSE/ESA
DB2*	IMS	PROFS*	VTAM*
DB2 Connect	Language Environment*	QMF	Wordpro
DB2/2	Lotus Notes	RACF	

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CSS	Java	NFS	VM:Webserver
DEC	KERBEROS	Open Software Foundation	Windows
DirectPC	LAN Manager	OSF, Motif	Windows NT
EnterpriseWeb/VM	Linux	POSIX	Write once, run anywhere
EnterpriseWeb Calendar	Macintosh	SAS	XPG4
Enterprise View	Motrice Kern Systems	SnapShot	X-Windows
Ethernet	InterOpen	Sterling Software	

All statements regarding IBM's future intent are subject to change without notice, and represent goals and objectives only.

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Topics

VM/ESA Version 2 Release 4 Overview

- Classic Strengths
- Network Computing Enhancements
- Application Support

Related Products Update

Linux for S/390 and VM/ESA

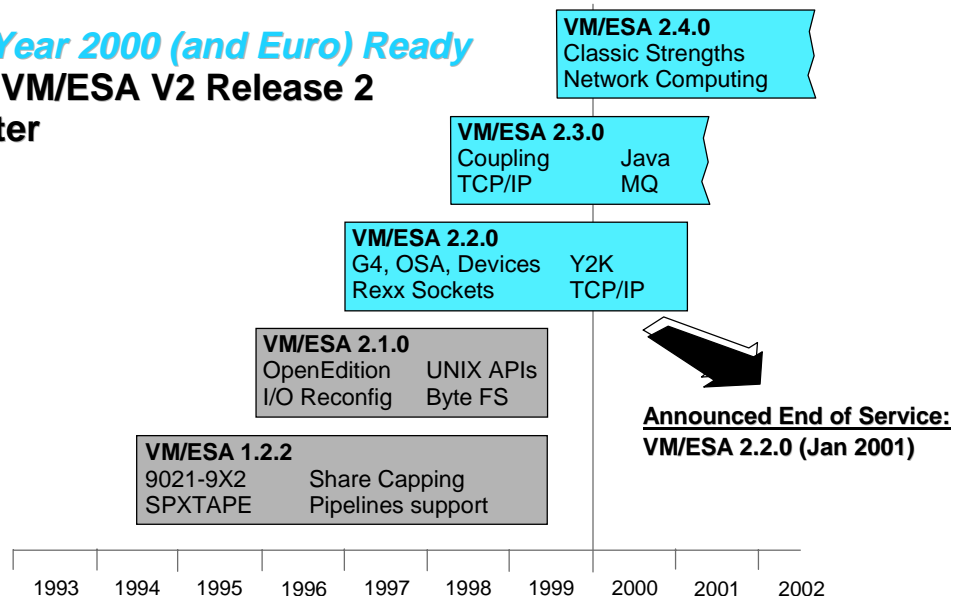
Futures



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VM/ESA Release Review

Get *Year 2000 (and Euro) Ready* with VM/ESA V2 Release 2 or later



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VM/ESA 2.4.0 Highlights

Classic Strengths

- Guest Crypto support
- G5/G6 processor support
- Performance reporting for FICON channels
- Shark Parallel Access Volume (PAV) guest support
- Dynamic CP exits
- 128-bit TOD clock support

Network Computing

- TCP/IP enhancements
- NFS Version 3 server
- RSCS UFT support
- ADSM V3 packaging

Application Support

- Reusable Server Kernel
- OSSIM improvements
- Rexx DATE separator character support

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VM/ESA and IBM G5/G6 Processors

Up to 12-way SMP configurations (G6)

Guest support for IEEE floating point

- VS FORTRAN V2.6 (with PTF) supports all 16 floating point registers

Fibre Connection (FICON) channels

Capacity Upgrade on Demand (CUoD)

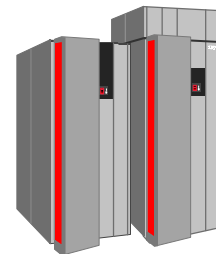
Integrated Cluster Bus support

No S/370 mode (LPAR or VM)

PTFs required for VM/ESA 2.2.0 & 2.3.0

VM/ESA-2.4.0-only support:

- OSA Direct Express gigabit ethernet
- Guest use of the Crypto Coprocessor

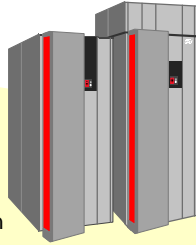


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CMOS Cryptographic Co-processor

World Class Security

- ★ Dual Cryptographic Coprocessors
- ★ Triple DES (TDES)
- ★ Double-Key MAC Support (ANSI X9.19)
- ★ Secure Electronic Transaction (SET)
- ★ Visa/MasterCard Card Verification (CVV/CVC) support
- ★ Zero Pad option for RSA encryption of DEA keys for key management



- ★ Enhanced availability
- ★ Improved encryption/decryption strengths and performance
- ★ Enhanced security for message authentication
- ★ Added security, flexibility and efficiency for Public/Private Keys
- ★ Improves e-business solutions

On Multiprise 2000, Multiprise 3000,
G3, G4, G5 and G6 Servers



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IBM Multiprise 3000 Extending the S/390 Family

- S/390 processor based on G5 chip technology**
- 3 models: H30 (Uni), H50 (Uni), H70 (2-way)**
- Up to 4GB of processor storage**
- Up to 56 ESCON or Parallel channels**
- Flexible network connectivity options**
- High performance, high capacity Internal Disk (up to 792GB) or external DASD**
- Optional CMOS Crypto Coprocessor**
- Supported by VM/ESA 2.2.0, 2.3.0, and 2.4.0 via PTF (VM62180)**



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Shark DASD

The IBM Enterprise Storage Server

Up to 11 TB of storage capacity

3990 controller and 3380/3390 compatibility

Very high availability; non-disruptive upgrades

IBM support center "call home" connection capability

Supported by VM/ESA 2.2.0, 2.3.0, and

VM/ESA 2.4.0 (PTFs required)

VM/ESA-2.4.0-only support:

- Guest Parallel Access Volume (PAV)
- Guest FlashCopy



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Dynamic CP Exits

Create exit code without predefined exit points

- Customize your system(s)
- Debug aid
- Evaluate new exit points

Extremely level dependent (the safety lock is off)

New CP commands and config file statements to define or change exit points

```
DEFINE EXIT 8765 HCPGRAF+1A4 91204002 PARM G3 G6%+8
```

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TCP/IP Enhancements

Function Level 320 (FL 320)

- Native ATM support**
- Improved TCP/IP customization**
- RouteD improvements**
- SMTP enhancements**
- FTP improvements**
- NFS Server enhancements**
- NFS and FTP user authorization improvements**



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TCP/IP NFS Server Enhancements

NFS Version 3 support (RFC1813)

- Removes capacity limits
- Supports TCP transport protocol

Additional server enhancements

- Will respond to client "dump" requests
- Will show client list of available mounts (EXPORT list)
- Can restrict mounts to those in EXPORT list
- Can configure size of read/write requests
- Server configuration updated dynamically
- Can issue SMSG to query server activity



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RSCS 3.2.0 UFT Support

Two new line drivers

UFT (Unsolicited File Transfer) client allows SENDFILE over a TCP/IP connection

UFTD (Unsolicited File Transfer Daemon) allows RSCS to receive files for delivery to

- A local VM user
- A remote NJE node
- Locally- or remotely-attached printers
- A UFT link

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Tivoli Storage Manager S/390 Version 3.7 for VM/ESA

Expanded centralized control facilities

- Central logging and reporting via SQL interface

Server-to-server communication (optional feature)

- Workload balancing across multiple servers
- Sharing of key storage resources

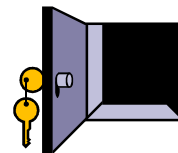
Improved performance

- Enhanced buffering technologies
- Reduced overhead for backup and archive of small files

Resumption of interrupted restores

Enhanced usability

- All new end-user and administrative interfaces
- Web interface



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Reusable Server Kernel (RSK)

**A simplified CMS multitasking development environment
Execution environment exploits VM's advanced server capabilities**

Adds several callable API sets

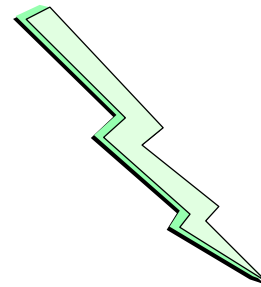
- Memory, storage group, and file management
- Authorization database functions

PL/X and Assembler bindings for APIs

Operator commands for management of:

- Configuration parameters
- Authorization database
- Storage groups data files

In VM/ESA 2.4.0 base; VM/ESA 2.2.0 or 2.3.0 via PTF



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OSSIM and Tape Enhancements

Larger Linkage Editor (LKED) work areas

- SIZE default options increased
 - value1 = 400K (was 384K)
 - value2 = 100K (was 96K)
- Maximum CSECT size in work area is 32760 bytes (was 21504 bytes)

Record I/O support for 65535-byte records

- CMS files
- OSSIM variable spanned record files

QSAM support includes both LRI and XLRI

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REXX Date Support Enhancement

New parameters to allow the specification of date separator characters for input or output

- DATE (offormat, datevalue, ifformat, osepchar, isepchar)

offormat = output format

datevalue = input date value to be converted

ifformat = input format of date value

osepchar = output separator character

isepchar = input separator character

- Example: DATE ('S','12/04/99','U','-','/')

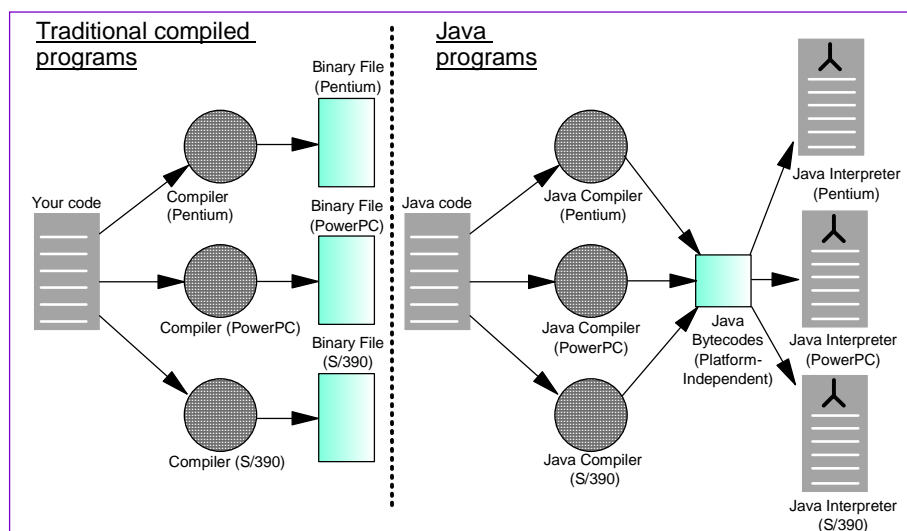
- Result: 1999-12-04

Base VM/ESA 2.4.0 function

VM/ESA 2.2.0 and 2.3.0 via PTFs (VM62022 and VM62023)

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The Java Virtual Machine Concept



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Java on VM/ESA

The 1.1.6 level of the Java Developer's Kit (JDK) is now available for VM/ESA 2.3.0 and 2.4.0

VM/ESA's 1.1.6 JDK includes a Just-in-Time (JIT) compiler and Remote Abstract Windowing Toolkit (RAWT) APIs

Visit IBM's VM web site to download

- <http://www.ibm.com/s390/vm>

An updated level of NetRexx (1.160) is also available for download

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NetRexx

A blend of Rexx and Java

High productivity and simplicity for users

- Rexx syntax plus Java object model
- Rexx ease of use plus Java portability

Current implementation translates NetRexx to Java source code

- The translator is a Java program
- Runs wherever there is a Java Virtual Machine

Any class written in Java can be used from NetRexx code

Any class written in NetRexx can be used from Java code

Available on the web

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S/390 Service Update Facility (SUF)

Uses Internet for S/390 service distribution

Support for OS/390, VM, VSE

Offers a web browser graphical user interface

Evaluates service level at customer system

Generates a recommendation for service update

Provides

- Preventive service (RSUs)
- Corrective service (Individual PTFs)

Allows service to be delivered via internet, satellite, physical media

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VM Service Available on CD-ROM

VM customers can request RSU or PTF delivery on CD-ROM

Service envelope is uploaded to VM/ESA from workstation

Service applied using VMSES/E

Alternative to 4mm DAT for P/390, R/390 and S/390 Integrated Server



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VM Related Products Update

DB2 Server for VSE and VM (and related features)

DB2 Forms for VM and VSE

DITTO/ESA Release 3 for MVS, VSE and VM

ACF/NCP V7R8, ACF/SSP V4R8, NtuneMON V2R6

IBM High Level Assembler for MVS, VM and VSE Release 3

VisualAge Generator Server for MVS, VSE and VM V1 R2

VM Timing Facilities Monitor

VisualAge PL/I and COBOL Millennium Language Extensions

**COBOL and CICS Command Level Conversion Aid (CCCA)
for OS/390, MVS and VM Version 2**

Visit <http://www.ibm.com/s390/vm/vendor> for the latest VM vendor product information

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DB2 Server for VSE and VM Version 6.1

Enhanced support for e-business solutions

- Stored Procedures support
- DRDA and private protocols over TCP/IP (VM only)

**DRDA online application requestor support extended
to include VSE as well as VM**

**Improved availability via incremental archive
capability of the Data Restore optional feature**

QMF and QMF for Windows

- Optional features
- Powerful decision support capabilities

More information available at:

- <http://www.software.ibm.com/data/db2/vse-vm/>



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DB2 Server for VSE and VM Version 7.1

Distributed database support

- Stored procedures application requester support

VSE enhancements

- DRDA over TCP/IP
- DRDA batch application requester

DB2 Control Center for VM, Version 7.1 enhancements

- Create tables; extend your QMF capability
- Generate referential integrity reports
- Support successive online archives
- A new suite of QMF tools (enhanced decision support)

New function in the QMF for VM & QMF for VSE feature

Enhancements to the QMF for Windows feature



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QMF for VM & QMF for VSE, Version 7.1

End-user productivity enhancements

- Defaulting to object type when entering commands
- Fast path to the QMF home screen
- New edit codes and database types

Access to DB2 for AS/400 is now possible

DRDA application requester support for VSE QMF users

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QMF for Windows, Version 7.1

Java-based query capability

Personal portal for launching QMF objects from a browser

The ability to group and aggregate within query results

- And save formats for sharing and reuse

Procedures with REXX

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DB2 WWW Connection for VM Version 1

DB2 accessibility using internet technologies

- Access from any HTML-standard web browser
- CGI gateway to the DB2 family
- Supports SELECT, INSERT, UPDATE, and DELETE

Requires a VM/ESA Web server

Supports data linking between queries

Re-use of Web apps on more than one platform

Heterogeneous data access with DataJoiner

Protects unauthorized access to DB2 data

- Available via Web download at
<http://www.software.ibm.com/data/db2/www/>

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DB2 Forms for VSE and VM

Create applications that set new standards for performance

Build GUIs to:

- Any DB2 data warehouse
- DB2 operational data

Satisfy universal requirements

- Transactions
- Table editing
- QBE
- Data entry

Reduce development time

Store, update, and serve applications to all users from a single database location

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DITTO/ESA Release 3 for MVS, VSE, and VM

Tape label processing enhancements

Scaling support for high-capacity tape media

VSE external security manager support

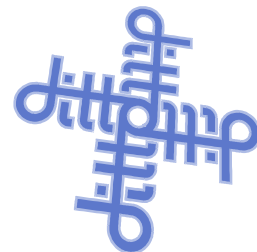
Spool Services support for VSE POWER queues

VSAM editor improvements for ISPF users

Improved performance for MVS System Catalog Services

Support for VTS Exported Stacked Volumes

- ESVs created by the EXPORT function of the Virtual Tape Server can be processed by DITTO (List and Copy functions)
- Available via PTF (UQ40493) for MVS and VM



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Networking Enhancements

ACF/NCP Version 7 Release 8

- Improved support for SNA, Token Ring, APPN, ESCON
- New functions require concurrent support of ACF/SSP V4R8

ACF/SSP Version 4 Release 8

- Supports new function in ACF/NCP V7R8
- Network Definition Facility (NDF) offers additional NCP info
- SSP loader obtains work storage above the 16MB line

NTuneMON Version 2 Release 6

- Improved productivity with support for new ACF/NCP
- NTuneNCP feature offers improved network availability
- Supports NCP Bisync and Start-stop lines

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High Level Assembler for MVS, VM, and VSE Release 3

Supports new binary floating-point instructions and data formats of the IBM G5 processor

New diagnostics and cross-reference features

Many language enhancements

The disassembler in the Toolkit Feature is enhanced to accept CMS modules

Enhancements to the conditional assembly language include new system variables

HLASM Toolkit Feature

- Program Understanding Tool for Windows (ASMPUT)
- Analyzes assembler language programs and produces a control flow graph

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VisualAge Generator Server for MVS, VSE, and VM Version 1.2

**Provides runtime libraries for programs built using
VisualAge Generator Version 3.1, or earlier**

Libraries provide support for:

- Communication
- Text user interface applications
- Common subroutines that can be shared by Visual Generator programs

**The Server runtime component and generated COBOL
programs can now be loaded into VM shared saved
segments**

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Mirasoft's VM Timing Facility Monitor

Year 2000 Tools from MiraSoft, Inc.

Identify use of system time and date services

- OS-compatible TIME SVC (SVC11)
- Pseudo-timer Diagnose (x'00c' and x'270')
- Store Clock instruction (STCK)
- REXX DATE() and TIME()
- EXEC2 &DATE and &TIME

Report on

- Applications that may have date dependencies
- Frequency of use and affected users

**Aid year 2000 testing by dynamically altering the values
returned by system time and date services**

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VisualAge PL/I and COBOL Millennium Language Extensions

Provides an automated date windowing technique to help customers meet parts of their Year 2000 challenge

Minimizes the need for source code modifications

Reduces the time and effort needed for a Y2K transition

Eases the implementation of the date century windowing technique

- The compiler can generate desired windowing code
- Problematic usage flagged where it occurs

Allows you to pick and choose which technique is best for each date variable within a program

Automatic expansion of windowed dates for comparison to four-digit years

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CCCA for OS/390, MVS, and VM V2

Helps convert old COBOL source code and copy modules to new versions of COBOL

Allows conversion of COBOL applications to use the new Millennium Language Extensions

Simplifies the COBOL migration process

- Automates the identification and conversion of source code
- Reduces the effort to convert programs
- Minimizes conversions errors

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LINUX® for S/390®

Linux for S/390 is...

- Linux
- ASCII
- Open Source software
- Highly portable
- Attracting applications
- Hip and happenin'

Linux for S/390 on VM is...

- Scaleable (horizontally)
- Architecturally robust (QoS)
- Nimble
- Developer friendly
- A great place to build a Linux environment

Don't "buy the farm", build a virtual one instead!

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IBM Embraces Linux for e-business

The Journey Begins

Linux and S/390

"IBM has released source code modifications that enable Linux to run on S/390 servers. These modifications can be downloaded free of charge from the IBM developerWorks Web site.

IBM is not providing services support or maintenance for this source code. However, IBM is currently conducting a joint customer study to gauge customer interest and support requirements for Linux running on S/390 servers."



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IBM Announces Linux for S/390

May 17, 2000

Announced Support:

- ✓ Linux for S/390 distributions from SuSE and TurboLinux
- ✓ Services and defect support from IBM Global Services (IGS)
- ✓ Linux for S/390 products from IBM
 - DB2 Connect V7
 - DB2 Universal Database V7
 - MQ Client
 - Java JDK 1.2.2
 - CICS Transaction Gateway V3.1
 - IMS Connect V7
 - WebSphere
 - Tivoli Framework V3.7
 - Tivoli Storage Manager Client
- ✓ Linux for S/390 products from ISVs
 - Software AG
 - BMC



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Linux and VM: Perfect Together

The Value of VM's Hypervisor Support

The machines are virtual -- productivity and cost advantages

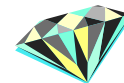
- Ideal for **prototyping**, proof-of-concept, system testing
- More **flexible** and less disruptive than LPAR
- **System resources** can be virtualized, simulated, and shared
- Customers can **adapt** quickly with virtual system environments

Very large multi-image support -- do more with less

- Run hundreds (thousands!) of images on **one server** (even in one LPAR)
- Ideal for **consolidating** multiple server images on a single processor
- Enables workload growth via **server replication**
- Virtual machines for **every** developer/tester/student/etc.

S/390 architecture exploitation -- enhanced qualities of service (QoS)

- Create a guest environment **functionally richer** than native or LPAR
- High-performance **networking** among virtual machines (IUCV, VCTCA)
- Transparent exploitation of VM's **hardware support** (w/error recovery)
- Enhanced **performance** using VM's data-in-memory support
- Multi-system **throughput** improvements using VM's large n-way support



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http://www.linuxplanet.com/linuxplanet/reports/1848/1/

The screenshot shows a web browser window displaying the LinuxPlanet website. The page features a navigation menu on the left with links like 'Front Page', 'Discussion', 'LinuxEngine', 'Opinions', 'Reports', 'Reviews', and 'Tutorials'. The main content area is titled 'LinuxPlanet / Reports' and features a large banner for 'TURBOLINUX WORKSTATION 6.0'. Below the banner, the article title reads 'It's Official: IBM Announces Linux for the S/390 IBM Partners with SuSE Linux, TurboLinux'. The article text begins with 'After months of pre-release code availability, IBM today announced the general availability of Linux for the S/390 mainframe platform...' and continues to discuss IBM's partnership with SuSE and TurboLinux. A sidebar on the left contains a 'Sponsored by Oracle' section with the text 'Become an Oracle Certified Professional' and an 'Internet.com' logo. The browser's address bar shows the URL 'http://www.linuxplanet.com/linuxplanet/reports/1848/1/'.

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http://www.bloomberg.com

The screenshot shows a web browser window displaying the Bloomberg.com website. The page features a navigation menu at the top with links like 'MARKETS', 'HOME', 'MARKETS', 'MONEY', 'LIFE', 'TV', 'RADIO', 'CHARTS', 'TOOLS', 'HELP', and 'THE BLOOMBERG'. The main content area is titled 'Technology News' and features a large banner for 'Buy an E-Store by March 15 and get a FREE domain name! Click Here'. Below the banner, the article title reads 'IBM Unveils Way to Make Mainframes Act Like Hundreds of Smaller Servers' by Jeff Bliss. The article text begins with 'IBM Finds Way to Make Mainframes Act Like Servers (Update2)' and continues to discuss IBM's partnership with Sun and its customers. A sidebar on the left contains a 'STOCK QUOTES' section with a search box and a 'NEWS' section with links like 'Top Financial News', 'Top World News', 'Stock Market Update', 'After Hours Trading', 'Technology', 'Government & Politics', 'Economics', 'Fed Watch', and 'Columns'. The browser's address bar shows the URL 'http://www.bloomberg.com'.

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The screenshot shows a web browser window displaying the EarthWeb website. The page features a search bar, navigation links, and a main article titled "Linux on Big Iron" by Gary Whotton. The article's sub-headline reads "41,400 copies of Linux running on one box? No problem." The text of the article discusses IBM's use of Linux on its S/390 mainframe computers, mentioning a demonstration at the Linux World conference in early February. The browser's address bar shows the URL: http://www.opensourceit.com/tools/000327_mainframe.html.

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The screenshot shows a web browser window displaying the LinuxPlanet website. The page features a search bar, navigation links, and a main article titled "S/390: The Linux Dream Machine" by Scott Cranor. The article's sub-headline reads "Linux Everywhere: More than a Slogan". The text of the article discusses the challenges of running Linux on IBM S/390 mainframes, mentioning the expense and complexity of the hardware. The browser's address bar shows the URL: http://www.linuxplanet.com/linuxplanet/reports/1532/1/.

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http://www.zdnet.com/zdnn/stories/news/0,4586,2491800,00.html?chkpt=zdhnews01

The screenshot shows a Netscape browser window displaying a ZDNet news article. The article title is "Has the Linux 'dream machine' arrived?". The sub-headline reads: "IBM's S/390 is gaining ground with e-commerce customers, and Big Blue credits Linux with helping to breathe new life into the mainframe 'vintages'." The author is listed as "By Mary Jo Foley, ZDNet News" and the date is "March 30, 2000 2:50 PM PT". The article includes a photograph of several mainframe server racks. A sidebar on the right lists "RELATED NEWS" items with dates and brief descriptions. The browser's address bar shows the URL: "http://web3.zdnet.com/0,4586,2491800,00.html?chkpt=zdhnews01".

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http://www.linuxvm.org/index.html

The screenshot shows a Netscape browser window displaying the LinuxVM website. The page title is "Linux for S/390 Linux for Big Iron". On the left is a large image of the Linux penguin mascot with "VM" written below it. The main content area contains text about Linux for S/390, stating it is the native port of Linux to the S/390 hardware platform. It also describes the LinuxVM project's purpose. A "Software" section lists links for "Binary distribution", "Ported Packages", and "Patches". An "Information" section lists links for "VM and Linux Resources", "Introduction to Linux/390", "Note & Observations", "Top 10 reasons to run Linux on VM", and "STO Port, aka Redfoot". A quote from an IBM report is featured, discussing the benefits of Linux on mainframes. The browser's address bar shows the URL: "http://www.linuxvm.org/index.html".

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The screenshot shows the IT-DIRECTOR.COM website. The main article is titled "Linux, Coming Soon to a Mainframe Near You" and is dated Thursday, 09 March 2000. The article text reads: "You could be forgiven for thinking that there was little need in putting Linux on the IBM mainframe, with its EBCDIC character set, logical partitions and durable but very un-Unix batch architecture. However, there is a history of mainframe UNIX ports which goes back many years. IBM's AIX/390 and AIX/ESA are both now defunct, but Amdahl's UTS and Hitachi's OS/390 are alive and kicking, and still selling. Now we also have Linux/390." Below this, it says: "News of an IBM Linux port to the 390 began to emerge last year, as a rumour, following a posting to the Linux Kernel list which inquired about DMA buffers and address space. The rumour was confirmed in December when IBM published its modifications and additions to the Linux 2.2.13 code base for the support of the S/390 architecture. The Linux port was designed to run under VM/ESA and natively. The code has subsequently been rolled into the 2.2.15 level." At the bottom, it states: "Since then there has been a Linux/390 section on the IBM web site: <http://www10.software.ibm.com/vme/linuxmainframe/linux>

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The screenshot shows the vnunet.com website. The main article is titled "IBM has Linux/390 for the mainframe" and is dated 05 Nov 1999. The article text reads: "IBM has ported Linux to its S/390 mainframe platform, but is keeping the news - which could send shockwaves throughout the industry - under wraps for now. An attendee at a mainframe conference held earlier this autumn said that IBM, 'talked about but did not announce Linux/390. The future technical session showed false about Linux/390.' He said that there would be two versions. The first will be Linux/390 under virtual machine (VM) only, and the second will be Linux/390 as S/390, running 'bare metal' - directly on the hardware itself. According to this source, Linux/390 under VM is ready now and IBM had hoped to announce this at the conference, but the decision was delayed. He understood that 'most software runs by just recompiling for Linux/390.' Phil Payne, an independent analyst, said that IBM is porting a Linux compiler to S/390 to alleviate delays porting applications such as SAP and Lotus Domino to the mainframe. 'It is a time to market issue. Domino and SAP are developed in C and depend on RT and Linux. So, the time there for the mainframe team is

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Linux for S/390 - NetScape

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Linux for S/390

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This S/390 server is running Linux 2.2.14 with Apache 1.3.0

Linux now runs on the S/390 architecture. Compiled binaries are available that contain everything to install a complete GNU/Linux OS featuring ELF binary format, Xlib, perl, and more. Apache and Emacs can be easily built (and are already part of the large root file system). Mainframe hard- and software supports multiple ways of running an OS. A Linux for S/390 will run either on native hardware, e.g. LPAR (logical partition), or as a VM guest (virtual machine). It can be booted from TAPE or DASD (hard disk) as well as being sp'd from a VM/CMS session.

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Download installation manual

- [HowTo migrate to the new code version](#)
- [Requirements and Restrictions](#)
- [Installation, Configuration, and Use](#)
- [Quick Start](#)
- [Network, LCSI, Device Drivers](#)

Download binaries for install

- Linux kernel with tape IPL [image tape bin](#)
- Linux kernel with VM Reader IPL [image vms bin](#)
- Initial VM Imagefile [image1 bin](#)
- Initial RAMDISK [image1 bin.gz](#)
- Small root file system [image1_small tar](#) (36309408 byte)
- Large root file system [image1_bin tar](#) (102179165 byte)

Document: Date

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What is S/390?

S/390 is IBM's standard bearer for enterprise computing. S/390 provides scalability, availability, security, openness, the flexibility to handle mixed workloads, and a low total cost of computing.

What is Linux?

The Linux operating system is a variant of the UNIX® operating system. Its kernel was developed by Linux Torvalds and initially distributed in 1991. Linux has evolved to become a widely accepted operating system with a wealth of applications. Today, many Linux distributions also contain a variety of tools and utilities provided by the open source community (e.g., from the GNU project). Linux is platform-independent and executes on many architectures, including Intel®, Alpha® or Sparc®. Linux is Open Source software that may be downloaded free of charge. You can learn more about Open Source at <http://www.opensource.org/>

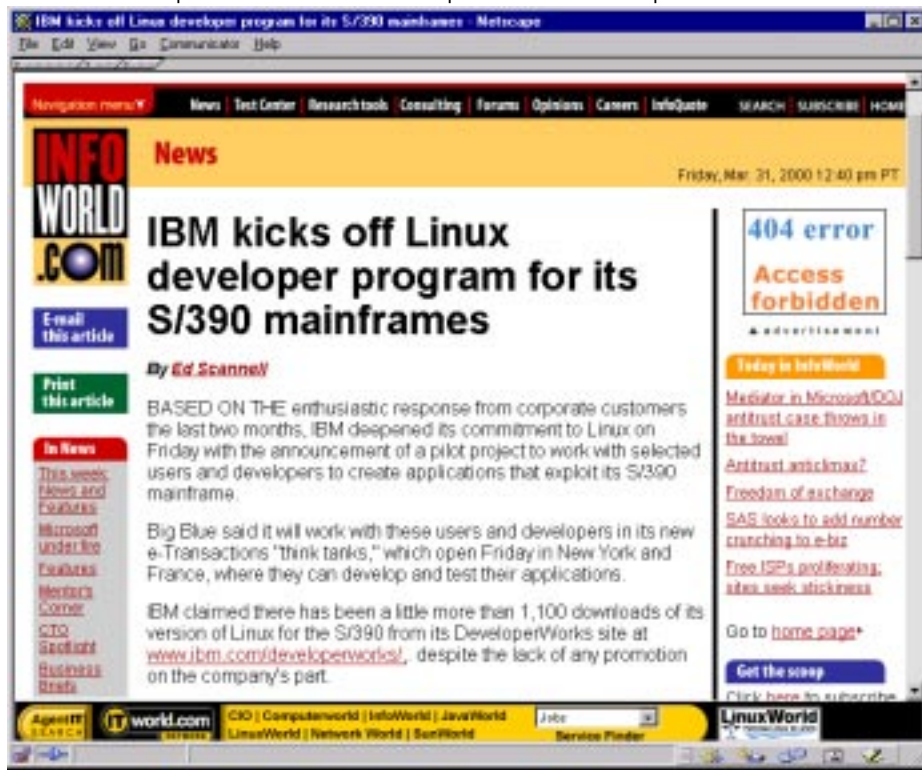
What is Linux for S/390?

Linux for S/390 is a prototype port of Linux to the S/390 architecture. Linux for S/390 is a "pure" Linux from a user point of view. It supports the S/390 processor architecture.

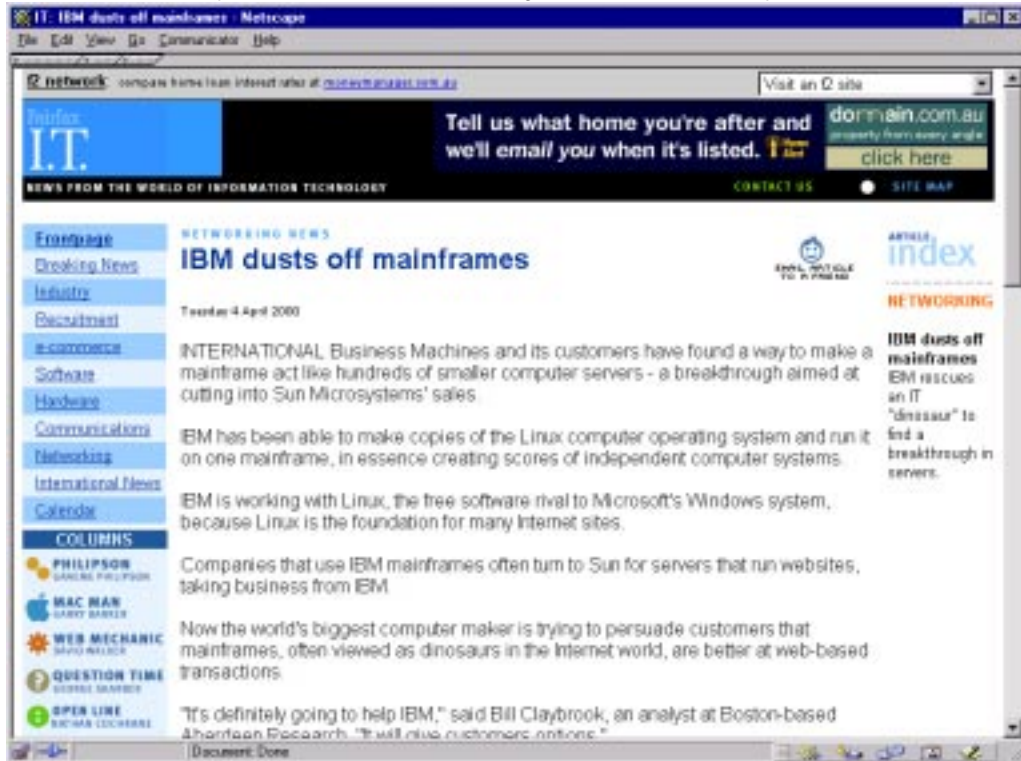
Linux

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http://www.nwfusion.com/news/2000/0403linuxibm.html

The screenshot shows a Netscape browser window displaying the NetworkWorldFusion website. The main article is titled "Linux livin' large on mainframe" by Marc Songini, dated 04/03/00. The article discusses IBM's mainframe systems running Linux. The website layout includes a navigation menu on the left, a search bar, and various sidebars with links and advertisements. The browser's address bar shows the URL: http://www.nwfusion.com/news/2000/0403linuxibm.html.

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http://www5.zdnet.com/zdnn/stories/news/0,4586,2504419,00.html?chkpt=zdnntop

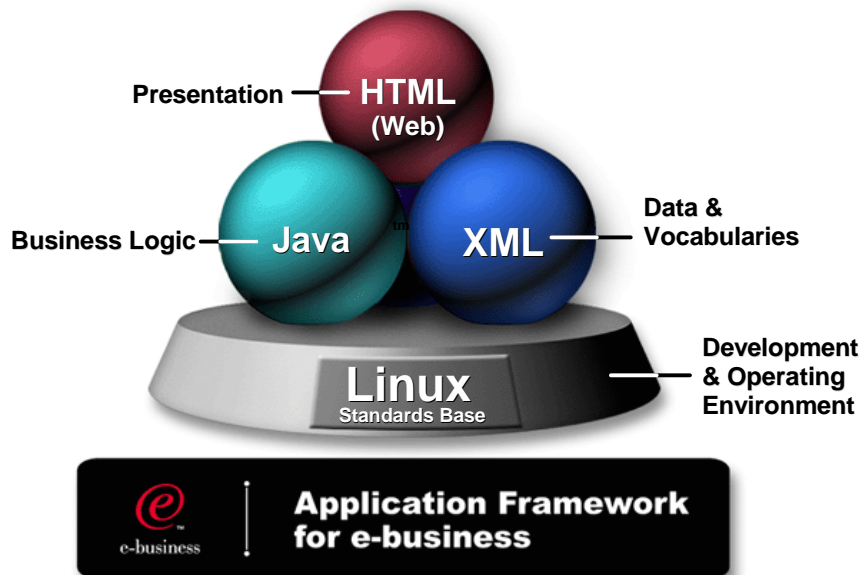
The screenshot shows a Netscape browser window displaying the ZDNet website. The main article is titled "IBM sees Linux in your future" by Charles Babcock, dated April 4, 2000. The article discusses IBM's perspective on Linux as a disruptive technology. The website layout includes a navigation menu, a search bar, and various sidebars with links and advertisements. The browser's address bar shows the URL: http://www5.zdnet.com/zdnn/stories/news/0,4586,2504419,00.html?chkpt=zdnntop.

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The screenshot shows a Netscape browser window with the address bar containing the URL. The page header includes the Dr. Dobb's logo and a navigation menu with links for HOME, ABOUT US, and SUBSCRIBE TO DDJ. The main article title is "Linux/390 in the Spotlight at SHARE 94" by Jack J. Woehr. The article text describes the atmosphere at the SHARE 94 conference in Anaheim, California, highlighting the presence of Linux/390 and the IBM S/390 mainframe. A sidebar on the right contains several links related to Linux/390 and SHARE 94. The browser's status bar at the bottom indicates "Document Done".

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Strategic Context: Linux is an Emerging e-business Standard



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VM Investment Plan Candidates

Hardware and Guest Support

- Guest support for 64-bit architecture, including guest coupling
- Processor and device support
 - Shark DASD FlashCopy support
 - Virtual Tape Server support enhancements

Infrastructure

- Sockets library convergence
- Language Environment upgrade

Connectivity

- NFS Client - CMS access to network file systems
- TCP/IP enhancements for performance, availability, security
 - Native QDIO exploitation by TCP/IP
 - IP Multicast support
 - SSL support in the TCP/IP stack

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How to Contact VM Development

VM Web Site: <http://www.ibm.com/s390/vm/>

VM Platform Management:

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Endicott NY 13760
USA
Fax: 607-752-1497
Internet: vmesa@vnet.ibm.com

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