z/VM Version 4 Release 2

IBM *e*server. For the next generation of e-business.

Trademarks

IBM @server zSeries

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

BookManager*	IBM*	OS/390*	VisualAge*
DB2*	IBM logo*	Parallel Sysplex*	VisualGen*
DFSMS/MVS*	HiperSockets	PR/SM	VM/ESA*
DFSMS/VM*	Language Environment*	QMF	VSE/ESA
e-business logo*	Multiprise*	RACF*	VTAM*
Enterprise Storage Server	MVS	RAMAC*	z/Architecture
ESCON*	NetRexx	S/390*	z/OS
FICON	OpenEdition*	S/390 Parallel Enterprise Server	z/VM
GDDM*	OpenExtensions		zSeries

* Registered trademarks of IBM Corporation

The following are trademarks or registered trademarks of other companies.

Lotus, Notes, and Domino are trademarks or registered trademarks of Lotus Development Corporation

LINUX is a registered trademark of Linus Torvalds

Penguin (Tux) compliments of Larry Ewing

Java and all Java-related trademarks and logos are trademarks of Sun Microsystems, Inc., in the United States and other countries

UNIX is a registered trademark of The Open Group in the United States and other countries.

Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation.

SET and Secure Electronic Transaction are trademarks owned by SET Secure Electronic Transaction LLC.

* All other products may be trademarks or registered trademarks of their respective companies.

Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

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

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

IBM @server. For the next generation of e-business.

Agenda

z/VM Evolution and Value

Servers Supported by z/VM

z/Architecture Support

z/VM Version 4 Release 2 Enhancements

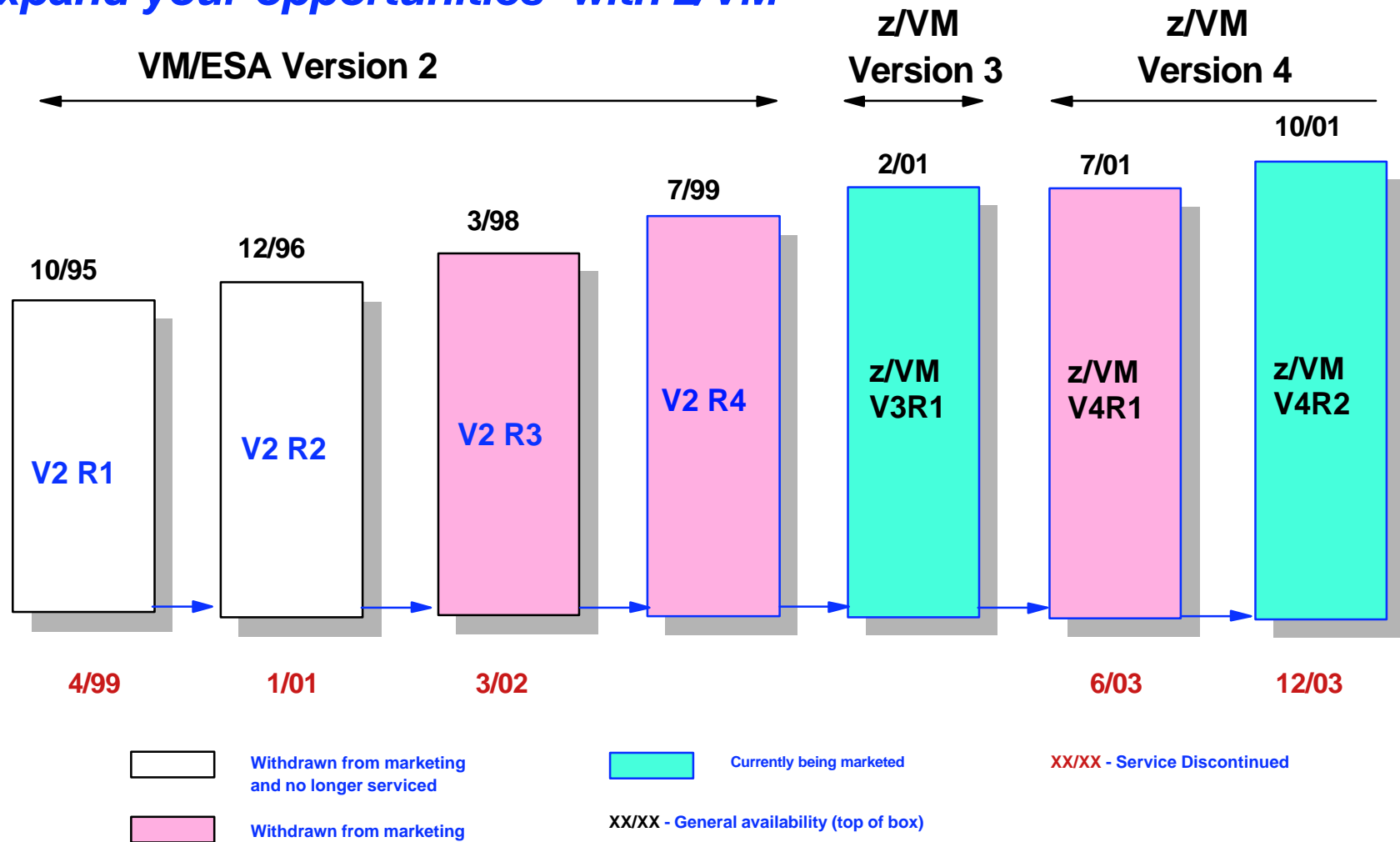Optional Features of z/VM Version 4

IBM @server. For the next generation of e-business.

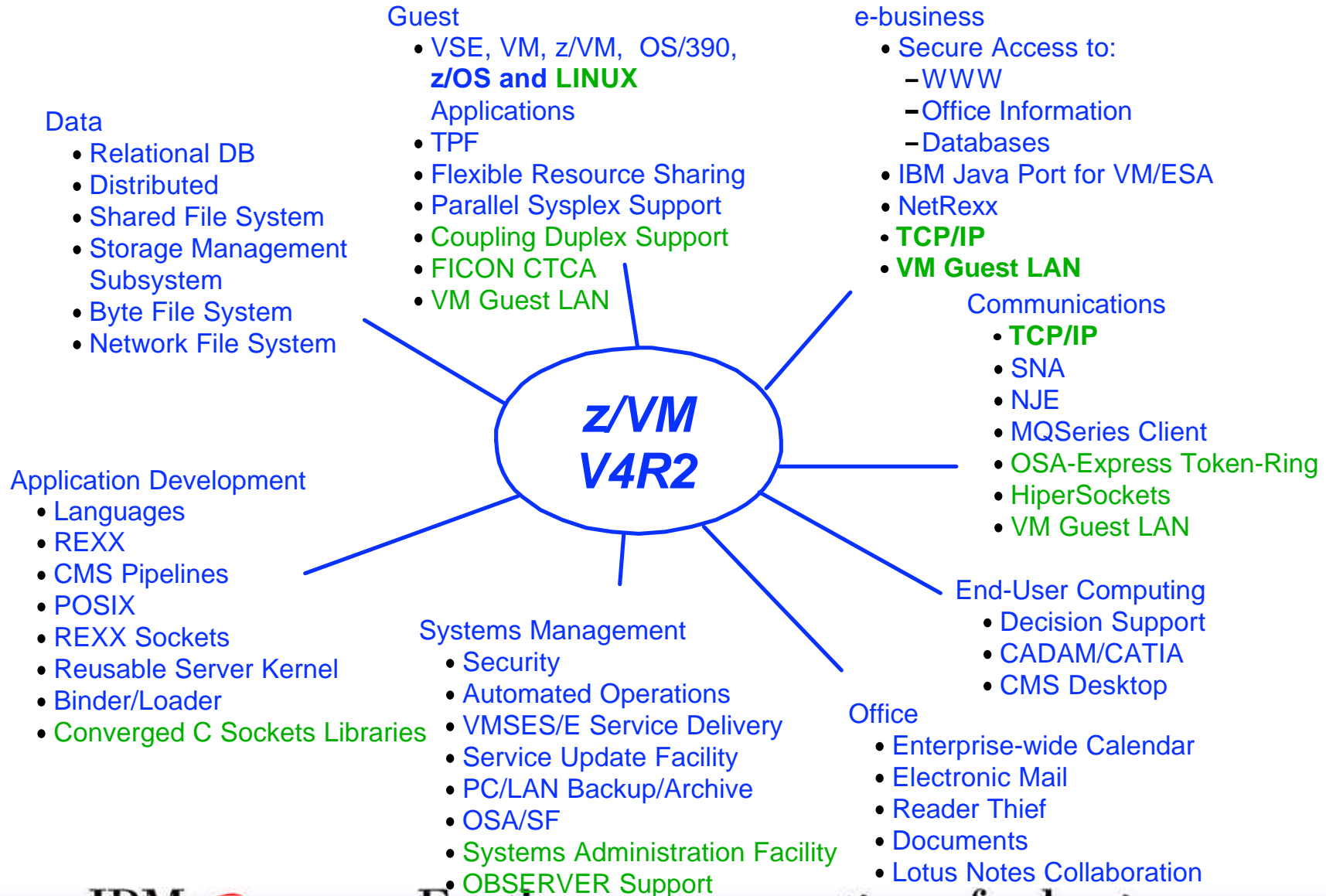VMV42010

z/VM Evolution

IBM *e*server zSeries

Expand your opportunities with z/VM

VM/ESA Version 2

z/VM Version 3

z/VM Version 4

10/95

V2 R1

12/96

V2 R2

3/98

V2 R3

7/99

V2 R4

2/01

z/VM V3R1

7/01

z/VM V4R1

10/01

z/VM V4R2

4/99   **1/01**   **3/02**   **6/03**   **12/03**

Withdrawn from marketing and no longer serviced

Withdrawn from marketing

Currently being marketed

XX/XX - Service Discontinued

XX/XX - General availability (top of box)

IBM *e*server. For the next generation of e-business.

VMV42020

Primary Uses of z/VM Platform by Function

IBM **eserver** zSeries

Data
- Relational DB
- Distributed
- Shared File System
- Storage Management Subsystem
- Byte File System
- Network File System

Guest
- VSE, VM, z/VM, OS/390, **z/OS and LINUX** Applications
- TPF
- Flexible Resource Sharing
- Parallel Sysplex Support
- Coupling Duplex Support
- FICON CTCA
- VM Guest LAN

e-business
- Secure Access to:
  - WWW
  - Office Information
  - Databases
- IBM Java Port for VM/ESA
- NetRexx
- **TCP/IP**
- **VM Guest LAN**

Communications
- **TCP/IP**
- SNA
- NJE
- MQSeries Client
- OSA-Express Token-Ring
- HiperSockets
- VM Guest LAN

z/VM V4R2

Application Development
- Languages
- REXX
- CMS Pipelines
- POSIX
- REXX Sockets
- Reusable Server Kernel
- Binder/Loader
- Converged C Sockets Libraries

Systems Management
- Security
- Automated Operations
- VMSES/E Service Delivery
- Service Update Facility
- PC/LAN Backup/Archive
- OSA/SF
- Systems Administration Facility
- OBSERVER Support

End-User Computing
- Decision Support
- CADAM/CATIA
- CMS Desktop

Office
- Enterprise-wide Calendar
- Electronic Mail
- Reader Thief
- Documents
- Lotus Notes Collaboration

IBM **eserver**. For the next generation of e-business.

VMV42030

Maximize Your Business Success With z/VM

IBM *@server* zSeries

No Other Platform Provides this
Range of Possibilities...

- Highly-flexible operating system
- Virtualization technology to host Linux images
- Industrial-strength interactive services
- Extensive open client/ser facilities
- Growing e-business solutions
- Support for multiple operating systems
- Comprehensive network connectivity
- Exploitation of CMOS technology (including z/Architecture) and advanced data storage

z/VM

Enterprise Server
- Distributed Relational Database
- Tivoli Storage Manager
- Intranet/Internet Server
- Distributed Files: SFS, NFS, BFS

Office Server
- Calendar and Scheduling
- Electronic Mail and Forums
- LAN Synergy

End-User Computing
- Decision Support
- Mainframe PC

Application Server
- UNIX APIs
- Languages
- REXX and CMS Pipelines
- IBM Java Port for VM/ESA

Guest Support
- VSE, OS/390, z/OS, Linux, TPF
- Additional hardware features
- Parallel Sysplex support
- VM Guest LAN

IBM *@server.* For the next generation of e-business.

VMV42040

Servers Supported by z/VM Version 4

IBM *@server* zSeries

z/VM Version 4 supports:

- IBM *@server* zSeries 900 in 64-bit mode
  - Will also run in ESA/390 (31-bit) mode

- Servers also supported by z/VM in ESA/390 mode:
  - zSeries S/390 Parallel Enterprise Servers Generation 5 and 6
  - zSeries S/390 Multiprise 3000

- Equivalent processors

Planned Availability of z/VM Version 4 Release 2 - October 26, 2001

IBM *@server.* For the next generation of e-business.

IBM *e*server zSeries 900

IBM *e*server zSeries

26 Models (1-16 way)
Up to 64 GB of central processor storage
Up to 15 LPARs
Maximum 64 GB of storage per LPAR
Up to 256 ESCON/88 Parallel channels
Up to 96 FICON Channels
64-bit architecture
Enhanced I/O subsystem supports greater
  bandwidth
Multiple clustered LPARs

- CPU management
- Channel subsystem priority queuing
- Dynamic channel management

Workload pricing
New function announced October 2, 2001:

- PCI Cryptographic Accelerator
- HiperSockets
- OSA-Express Token-Ring
- Coupling Facility Duplexing
- FICON Express and Channel-to-Channel

IBM *e*server. For the next generation of e-business.

S/390 Parallel Enterprise Server - G5/G6

IBM *@server* zSeries
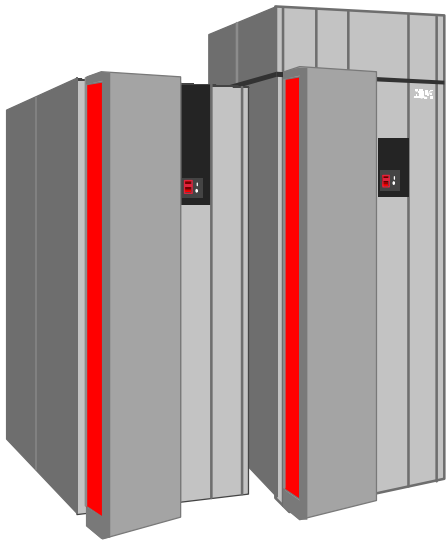
50 Models (1-12 way)
Up to 24 GB (G5), 32 GB (G6) of processor storage
Up to 15 LPARs
Maximum 2 GB of storage per LPAR
Up to 256 ESCON/96 Parallel channels
Up to 24 FICON Channels
Enhanced Cryptographic Coprocessor
IEEE Floating Point
Open Systems Adapter 2 (OSA-2)
OSA-Express Gigabit Ethernet (GbE, Fast Ethernet, ATM)
Capacity Upgrade on Demand
Connectivity Enhancements
Improved availability
Supported in ESA-mode only

IBM *@server.* For the next generation of e-business.

S/390 Multiprise 3000

IBM *e*server zSeries

Up to 4 Gigabytes of Processor Storage

ESCON and/or Parallel Channels

15 LPARs

High performance, high capacity Internal Disk or
   External Disk

CMOS Cryptographic Coprocessor (optional)

Flexible Network Connectivity options
- Token-Ring
- Ethernet
- WAN connectivity

Single System Parallel Sysplex Capability

New function announced September 18, 2001:
- Integrated Facility for Linux (IFL) engines

IBM *e*server. For the next generation of e-business.

z/Architecture Supported by z/VM

IBM ⓔserver zSeries

Exploit greater than 2 GB of central storage for guest pages, paging and minidisk cache
- Constraint relief for both ESA/390 and z/Architecture mode guests
- CP Nucleus and V=R/V=F must be below the 2 GB line

Run 64-bit capable guests with greater than 2 GB of virtual storage (OS/390 R10, z/OS, z/VM, and Linux for zSeries)
- DEFINE STORAGE CONFIG command allows defining discontiguous virtual storage areas

Requires 64-bit capable processor

Significant changes to CP control blocks and logic
- CP Nucleus module only - no IPLable nucleus
- control block fields have moved, changed size, etc.

z/VM Version 4 Enhancements

Release 1

- New terms and conditions
- Support for Integrated Facility for Linux processor engines
- Guest support enhancements for Linux
- Installation and service enhancements
- Packaging changes
- Modified ordering process
- Builds on z/VM Version 3 base

Release 2

- Exploitation of new technology
- Connectivity enhancements
- Systems administration enhancements
- Converged C sockets libraries

IBM *e*server. For the next generation of e-business.

VMV42100
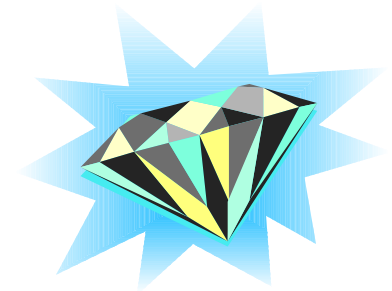
z/VM Version 4 Terms and Conditions

IBM **@server** zSeries

International Program License Agreement (IPLA)

- Program Use License for Version 4
  - One-time charge (OTC) for standard or IFL engines
  - Can be transferred within an enterprise
  - Service by mail, fax, e-mail only under basic warranty
- Subscription and Support
  - Comparable service as traditional ICA products
  - Not required but highly recommended
  - Must decline when ordering with z/VM Version 4 Release 2
  - Annual renewable charge per engine (or IFL process feature)
  - Adds telephone support
  - No additional charges for updates, new versions and releases

Support Line available for an additional charge

IPLA applies to z/VM base code as well as the optional features (RTM, PRF, and DirMaint)

IBM **@server.** For the next generation of e-business.

Integrated Facility for Linux (IFL) Support

IBM **@server** zSeries

Version 4 will IPL in an LPAR defined with IFL engines

LPAR can have standard or IFL engines but not both

Can only run Linux workloads on an IFL engine
- Only IPLA software can be licensed on IFL engines

IFL engines may help to reduce system costs
- Charges for IBM software on standard engines are not affected by the addition of IFL engines
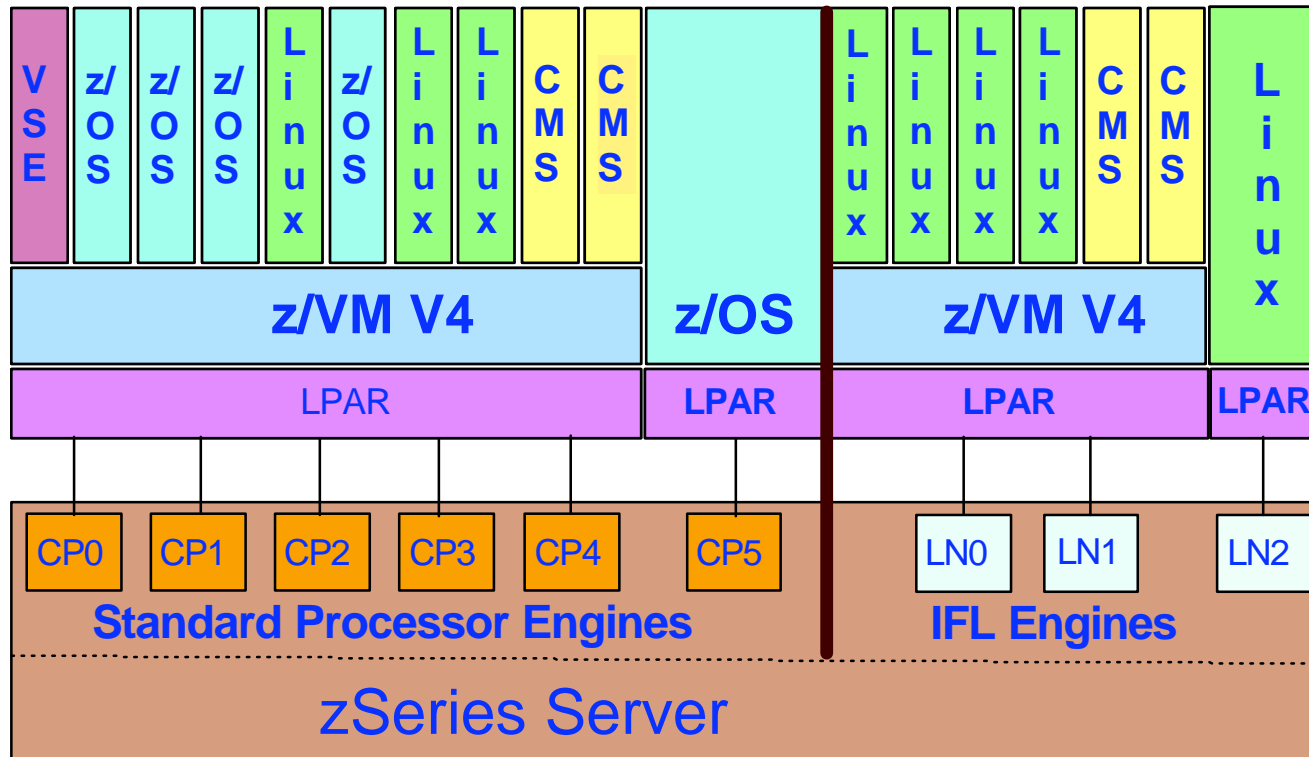 - ISVs may also have adopted this practice

IFL engines are now available on the Multiprise 3000

IBM **@server.** For the next generation of e-business.

IPLA Charges for z/VM Version 4

z/VM charges - 6 engines   **z/VM charges - 3 engines**

Technology Exploitation

Clear-key RSA Support for Linux Guests

IBM *@*server zSeries

Exploitation by Linux guests of:
- IBM PCI Cryptographic Accelerator (PCICA)
- IBM PCI Cryptographic Coprocessor (PCICC)

Enables hardware Secure Socket Layer (SSL) acceleration

No limit to the number of Linux guests

No software simulation of the cryptographic hardware

No impact on VM CMOS cryptographic support

Requires:
- PTF for VM62905
- Linux for zSeries cryptographic support

IBM *@*server. For the next generation of e-business.

I/O Enhancements for Linux Guests

z/VM Version 4 Release 1 provided:

- Fast CCW translation for Linux guests
  - Improves I/O performance for network devices
  - Extends fast CCW translation to CTCA, CLAW, OSA and LCS devices
  - Any VM guest may benefit

- Enhanced page fault handling
  - Page faults are nondisruptive to Linux guests
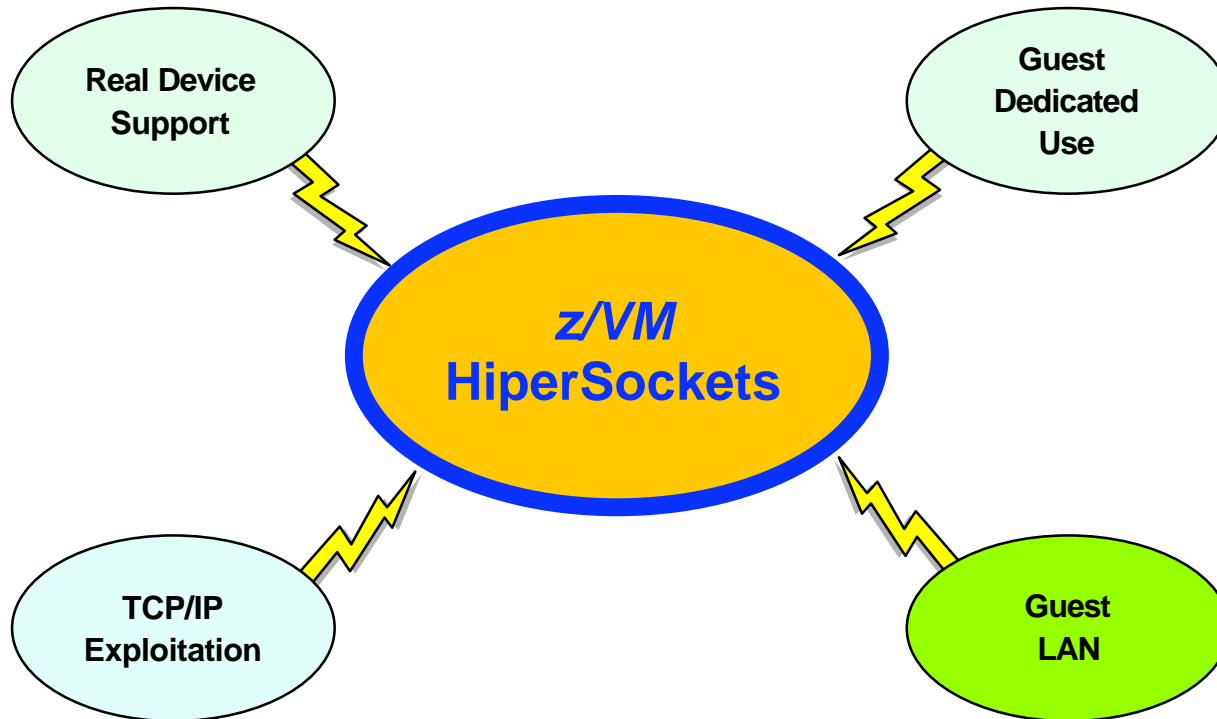 - Support required by Linux for zSeries

z/VM Version 4 Release 2 provides:

- DASD fast CCW translation and minidisk cache
  - Supports 64-bit format-2 indirect data address words (IDAWs)
  - Helps prevent minidisk I/O performance degradation in 64-bit mode

z/VM HiperSockets

Real Device
Support

Guest
Dedicated
Use

**z/VM
HiperSockets**

TCP/IP
Exploitation

Guest
LAN

Requires zSeries 900 server with EC Level J10607 or J10608
Requires enabling PTFs for APARs VM62938 and PQ51738

IBM *e*server. For the next generation of e-business.

VMV42170

z/VM HiperSockets Comprehensive Support

Real device support
- Define and manage HiperSockets hardware resources

Dedicated device support
- Allows guests to use real HiperSockets resources, just as if they were running stand-alone

TCP/IP exploitation
- Provides access to HiperSockets for z/VM-based clients, servers, and guests

VM Guest LAN support
- Virtualizes HiperSockets
- Real HiperSockets hardware not required
- No specific limits on configuration
- Performance is a function of processor speed

z/VM Real Device Support

Use VM dynamic I/O commands to define a CHPID, control unit, or device for a HiperSockets connection to any partition

Determine HiperSockets device status

Initialize HiperSockets devices

Obtain data on HiperSockets through the monitor system service

IBM *e*server. For the next generation of e-business.

VMV42190

z/VM Guest Dedicated Use

Provides VM guests the same interface as the real hardware

Allows dedicating HiperSockets subchannels to a guest
- ATTACH command for dynamic assignment
- DEDICATE directory statement for assignment at logon

Requires guest responsibility for iQDIO IP Protocol
- z/OS, Linux, and TCP/IP for z/VM

Allows accelerated performance for preferred guests

Imposes no software limitation on number of HiperSockets connections allowed

Guest Virtual Machine

iQDIO Queues

Address Translation and Page Locking

HiperSockets

VMV42200
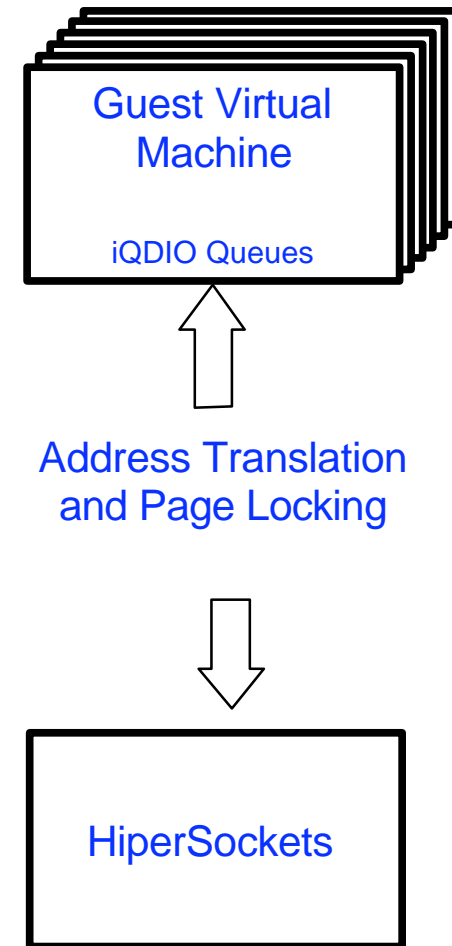
TCP/IP for z/VM Exploitation

Uses dedicated device support

Provides new statements for direct attachment

Allows transparent exploitation of HiperSockets by VM-based clients and servers

Linux

z/OS

HiperSockets

Client

TCP/IP for z/VM

Server

IBM *e*server. For the next generation of e-business.

VMV42210
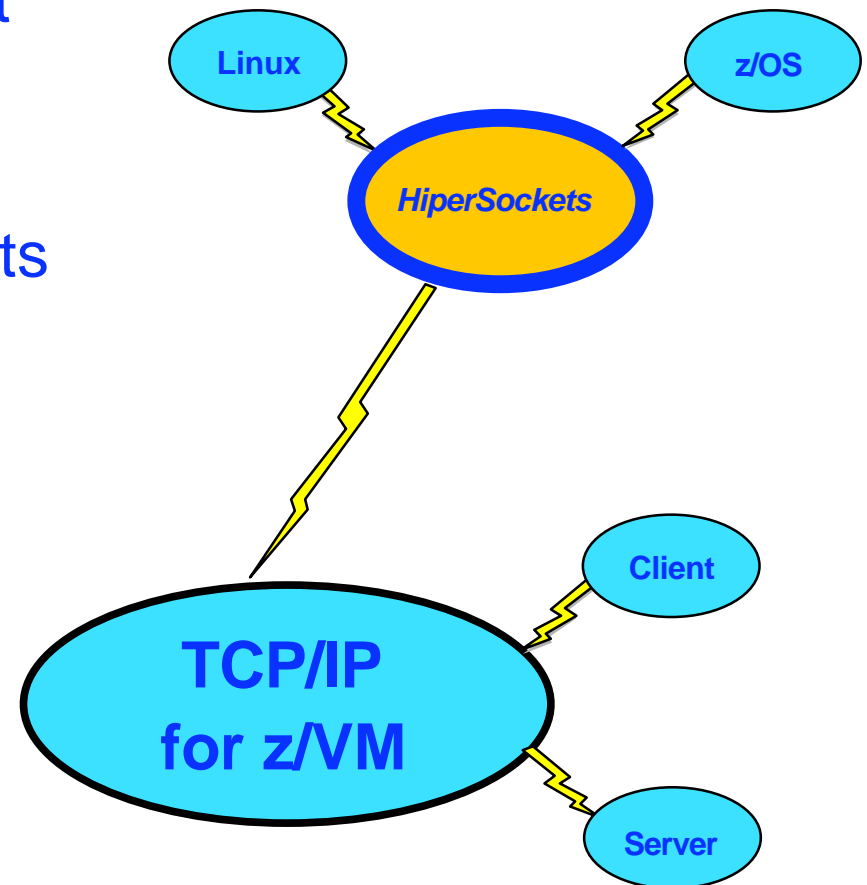
OSA-Express Token-Ring

IBM *e*server zSeries

Data transfer rates of 4/16/100 Mb/sec

zSeries 900 only...fits into new I/O cage

Two independently operating ports

Auto senses speed and full or half duplex operation

LPAR to LPAR communications for TCP/IP

QDIO (TCP/IP only)
- Minimum software support
  - OS/390 Version 2 Release 10 or z/OS Version 1 Release 1
  - z/VM Version 4 Release 2
  - Linux kernel Version 2.4
  - VM/ESA Version 2 Release 4 for VM Guest QDIO only

Non-QDIO (TCP/IP LCS or SNA/APPN/HPR LSA)
- Minimum software support
  - OS/390 Version 2 Release 6 or z/OS Version 1 Release 1
  - VM/ESA Version 2 Release 3 with PTF for APAR VM62184
  - z/VM Version 3 Release 1

IBM *e*server. For the next generation of e-business.

VMV42220

Guest Coupling Facility Duplexing

z/VM Version 4 Release 2 enhances the Guest Coupling
   Facility support by providing:

- Direct CF to CF connections
  - Up to two links from each sender CF to a receiver CF

- May be defined
  - In the directory with the SPECIAL MSGP statement
    - ◆ Allows automated IPL of sysplex
  - With the DEFINE CFLINK command

- Requires:
  - Release 10 of the Coupling Facility Control Code
  - z/OS V1R2 (with enabling SPE)
  - Parallel Enterprise Server G5 or G6 or zSeries 900

IBM *e*server. For the next generation of e-business.

VMV42230

FICON Support Extended for z/VM Guests

IBM *e*server zSeries

Provides FICON channel-to-channel (CTC) communication for z/VM guests which:

- Improves host-to-host communications between zSeries 900 and G5/G6 servers

- Enables higher bandwidth communication than achievable with ESCON

- Helps to reduce complexity in defining and configuring CTC communications

Requires PTF for APAR VM62906

FICON
Channel
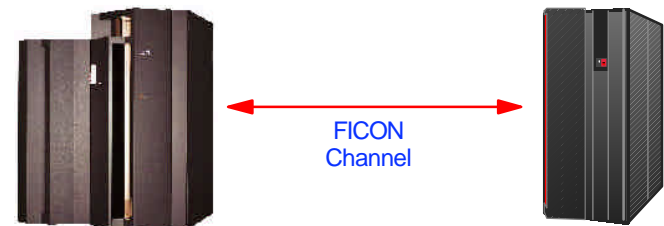
IBM *e*server. For the next generation of e-business.

Connectivity Enhancements

Guest LAN

Supports connectivity among guests, z/VM TCP/IP clients and servers running in a single z/VM image

Supports very large number of Guest LANs and devices based on real storage available to z/VM and performance objectives

Provides two modes of operation and management
- "Plug and play" allows dynamic definition of LANs and NICs with dynamic connection
- "Automatic" allows preconfigured definitions and connections
- Can use either or both, as desired

Provides extensive built-in diagnostic capabilities

Linux

z/OS

Guest LAN

TCP/IP for z/VM

Linux

z/VM

VMV42260
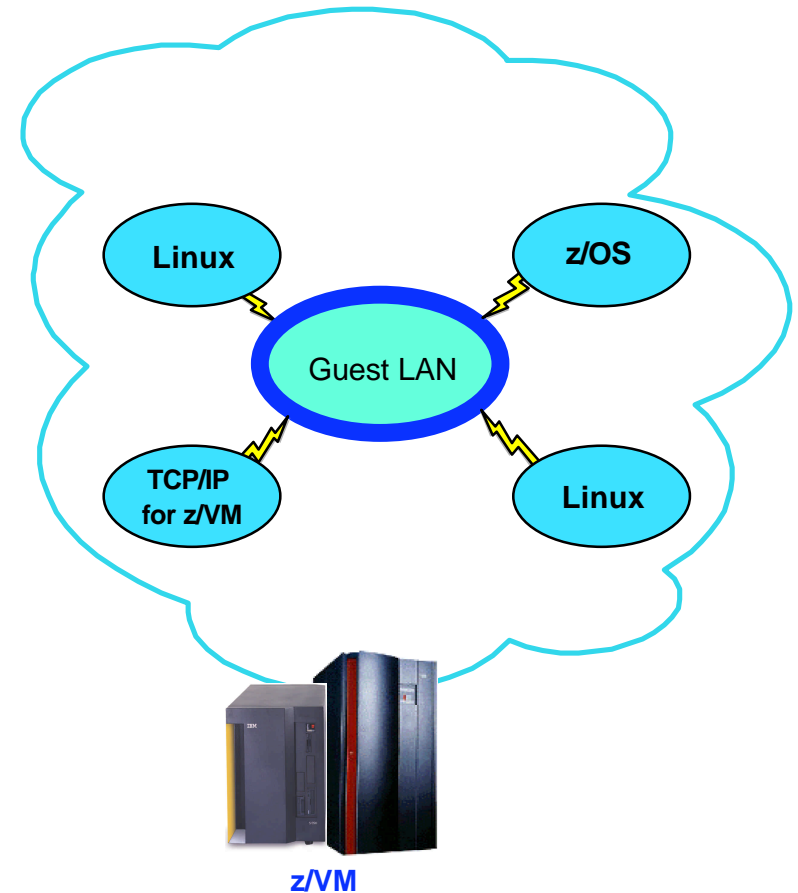
TCP/IP for z/VM IMAP Server

IBM *e*server zSeries

Internet Message Access Protocol (IMAP) as defined by RFC 2060

Store and serve electronic mail

Allow any IMAP Version 4 Revision 1 (IMAP4rev1) client to access and manipulate mail messages using IMAP protocol

Messages are stored in mailboxes in the z/VM IMAP Mailstore

- Permits **remote** manipulation of mailboxes as if they were local
- Allows creation, deletion, and renaming of mailboxes
- Mailboxes can be shared among users

TCPIP	VMCF	SMTP
IUCV	SPOOL	IMAP
IMAP Administrator	APPC	
		APPC
Mail Store		IMAPSFS

IP Network
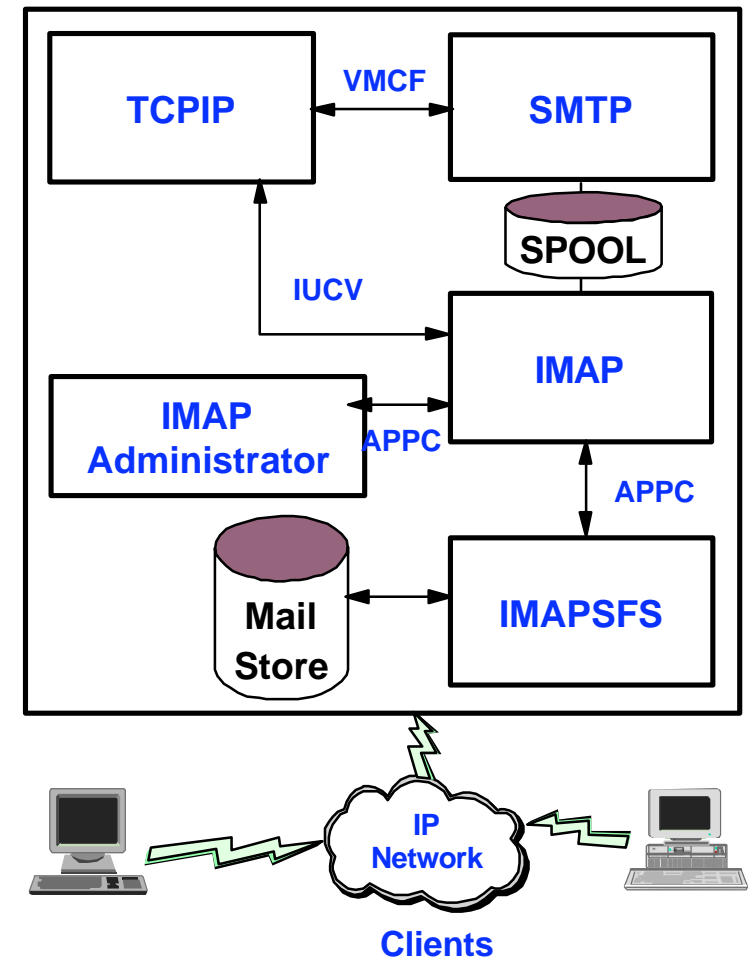
Clients

TCP/IP for z/VM Stack Security Improvements

Prevents some Denial of Service (DOS) attacks:

- Internet control message protocol (ICMP) Echo Request packets sent to IP broadcast or multicast addresses (Smurf)
- User Datagram Protocol (UDP) Echo Request packets sent to IP broadcast or multicast addresses (Fraggle)
- ICMP Echo Request packets that are too large (Ping-o-Death)

Enhancements consist of checks in existing code

New messages to alert system personnel to attacks

New TRACE processing

New data collection to identify nature of attacks

Systems Administration

System Administration Facility

Manage multiple Linux guest images on a single z/VM system

- **VMADMCTL** - initializes the VMADMIN environment
- **VMADMIN** - provides an environment which allows either a CMS or Linux client to perform system administration tasks for Linux guests
  - Create an image
  - Install the ramdisk version of the Linux distribution of your choice
  - Create the paging and image space that will be used by the image
  - Configure the image by adding any networking devices

Quick and easy method of moving Linux images from a Virtual Image Facility environment to z/VM

- **VIFMIGR** - migrate current Virtual Image Facility system configuration files and data to a new and unmodified z/VM system

System Administration Facility - SC24-6034

- Manual providing details on installation and administration of Linux guests and a complete command reference

IBM @server. For the next generation of e-business.

VMV42300

OBSERVER Support

IBM *@server* zSeries

Allows one virtual machine to watch line mode output of another virtual machine and enables:
- Application monitoring
- User assistance
- Systems management automation

May be particularly useful in an environment where multiple Linux guests are running under z/VM

Different than SECUSER (secondary user)
- Will not cause primary machine's behavior to change
- Observation is read-only
- Observe both connected and disconnected virtual machines
- Chains of observers and secondary users can be created

Primary Restrictions/Limitations
- A virtual machine may have an OBSERVER or SECUSER, but not both
- Observers not authorized to SEND commands to the Observed userid

IBM *@server.* For the next generation of e-business.

Application Development

IBM *e*server. For the next generation of e-business.

VMV42320

Converged VM C Socket Libraries

New C sockets library within the Language Environment (LE) for MVS and VM provides:

- Single and preferred C sockets API encompassing the functionality of both the existing OpenEdition for VM/ESA C socket library and the TCP/IP VM C socket library
- Consistency with OS/390 UNIX System Services sockets by implementing the new C sockets API within Language Environment (LE) for MVS and VM
- Version of the TCP/IP for z/VM Remote Procedure Call (RPC) function library that can be used in conjunction with the Language Environment C sockets

Existing OpenEdition and TCP/IP C socket libraries will continue to be supported as is, so that existing applications can continue to use them

z/VM Version 4 Product Packaging Changes

IBM @server zSeries

TCP/IP

- Integrated into z/VM - no license required
- Pre-installed on base system DDRs
- NFS Server feature integrated into TCP/IP - no license required
- NFS Client integrated into TCP/IP and CMS
- Kerberos Data Encryption Standard (DES) integrated into TCP/IP
- TCP/IP source supplied with z/VM - no license required
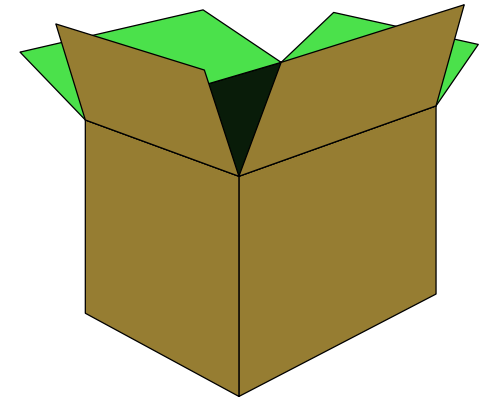
CMS Utilities Feature

- Integrated into z/VM - no license required

LANRES/VM

- Withdrawn from marketing and is not available with z/VM Version 4

Functions Removed

- CMS Vector support
- Distributed Computing Environment (DCE)
- BookManager Library
- Pre-configured CD
- ESAMIGR
- Installation to 9345 and FBA DASD

IBM @server. For the next generation of e-business.

Other z/VM Version 4 Product Changes

IBM @server zSeries

Publications
- All basic publications are available in hardcopy and supplied with order
- All updated publications available as PDFs from the IBM Publication Center, z/VM Web site, or on VM Collection CD-ROM (supplied with order)
- Some hardcopy publications available from the IBM Publication Center (fee)
- Publications available in BookManager format are available from VM Collection CD-ROM or the z/VM Web site
- Publications are NOT orderable from IBM distribution centers

OpenExtensions Shell and Utilities*
- Integrated into CMS
- Renamed from OpenEdition Shell and Utilities

RSCS*
- Priced product, pre-installed on base System DDRs - requires license to use

Tivoli Storage Manager (TSM) for VM, Version 4.1*
- Priced optional product of z/VM, pre-installed on base DDRs
- Same function as Tivoli ADSTAR Distributed Storage Manager (ADSM) for VM/ESA, Version 3.1

* indicates changes made in previous versions of VM

IBM @server. For the next generation of e-business.

RealTime Monitor FL410

IBM *e*server zSeries

OTC-priced feature under IPLA

Pre-installed but disabled, license required

Network Fast CCW translation counters added

Will only run on Version 4

Subscription & Support required for traditional service

IBM *e*server. For the next generation of e-business.

Performance Reporting Facility FL410

IBM *@server* zSeries

OTC-priced feature under IPLA

Pre-installed but disabled, license required

Network Fast CCW translation counters added

Will only run on Version 4

Subscription & Support required for traditional service

PTF for APAR VM62925 required for z/VM V4R2

IBM *@server*. For the next generation of e-business.

VMV42370

Directory Maintenance Facility FL410

OTC-priced feature under IPLA

Pre-installed but disabled, license required

EXTENT CONTROL contains only customer data

Simplified service and test procedures

Will only run on Version 4

Subscription & Support required for traditional service
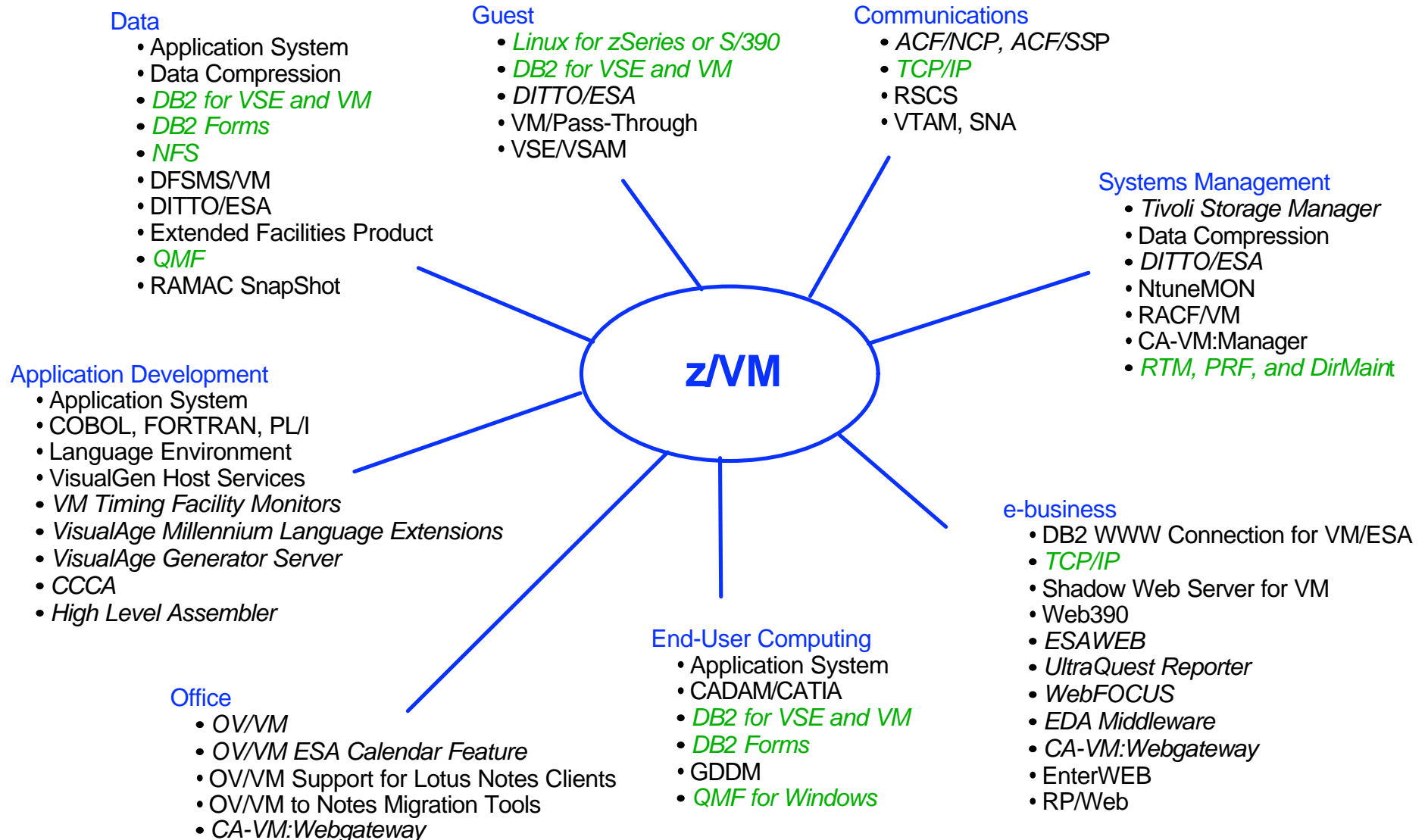
PTFs required for z/VM V4R2:
- APAR VM62908 required for new directory statements with z/VM V4R2
- APAR VM62933 required to support the IBM PCI Cryptographic Accelerator

IBM @server. For the next generation of e-business.

VMV42380

Primary Uses of z/VM Platform by Product

IBM *e* **server** zSeries

Data
- Application System
- Data Compression
- *DB2 for VSE and VM*
- *DB2 Forms*
- *NFS*
- DFSMS/VM
- DITTO/ESA
- Extended Facilities Product
- *QMF*
- RAMAC SnapShot

Guest
- *Linux for zSeries or S/390*
- *DB2 for VSE and VM*
- *DITTO/ESA*
- VM/Pass-Through
- VSE/VSAM

Communications
- *ACF/NCP, ACF/SSP*
- *TCP/IP*
- RSCS
- VTAM, SNA

Systems Management
- *Tivoli Storage Manager*
- Data Compression
- *DITTO/ESA*
- NtuneMON
- RACF/VM
- CA-VM:Manager
- *RTM, PRF, and DirMaint*

z/VM

Application Development
- Application System
- COBOL, FORTRAN, PL/I
- Language Environment
- VisualGen Host Services
- *VM Timing Facility Monitors*
- *VisualAge Millennium Language Extensions*
- *VisualAge Generator Server*
- *CCCA*
- *High Level Assembler*

e-business
- DB2 WWW Connection for VM/ESA
- *TCP/IP*
- Shadow Web Server for VM
- Web390
- *ESAWEB*
- *UltraQuest Reporter*
- *WebFOCUS*
- *EDA Middleware*
- *CA-VM:Webgateway*
- EnterWEB
- RP/Web

Office
- *OV/VM*
- *OV/VM ESA Calendar Feature*
- OV/VM Support for Lotus Notes Clients
- OV/VM to Notes Migration Tools
- *CA-VM:Webgateway*

End-User Computing
- Application System
- CADAM/CATIA
- *DB2 for VSE and VM*
- *DB2 Forms*
- GDDM
- *QMF for Windows*

IBM *e* **server.** For the next generation of e-business.

VMV42390

VM Support Options

IBM *e*server zSeries

z/VM Web site: **ibm.com**/eserver/zseries/zvm/

z/VM Technical Support
- **ibm.com**/support/ - Global
- 800-IBM-4YOU - North America Marketing Support
- 800-237-5511 - North America Software Support Services
- 800-IBM-SERV - North America Hardware Support

Enterprise Connection Conference Call Series

Lab Support

IBM *e*server. For the next generation of e-business.

How to Reach Us....

IBM **@server** zSeries

VM Platform Management Department

Postal: IBM Dept. G28
                     1701 North Street
                     Endicott, NY 13760

Fax: 607-752-1497 (T/L 852-1497),
                     Attn: Dept. G28

Feedback/e-mail: **ibm.com**/eserver/zseries/zvm/forms/

z/VM Web site: **ibm.com**/eserver/zseries/zvm/

IBM @server. For the next generation of e-business.

Additional Contact Information...

IBM *@server* zSeries

Name:
Postal:

Fax:
IBM VNET:
Internet:

IBM *@server*. For the next generation of e-business.