

# Early Customer Experiences with z/VM Version 5 Release 3

**Chuck Morse, IBM Washington Systems Center**  
**Keri Borrego, IBM z/VM Development**

October 25, 2007



# Trademarks

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

APPN*	GDPS*	POWERPC*	Virtual Image Facility
CICS*	Geographically Dispersed Parallel Sysplex	PR/SM	Virtualization Engine
DB2*	HiperSockets	Processor Resource/Systems Manager	VisualAge*
DFSMSMVS	HyperSwap	QMF	VM/ESA*
DFSMS/VM*	IBM*	RACF*	VSE/ESA
DirMaint	IBM eServer	Resource Link	VTAM*
Distributed Relational Database Architecture*	IBM logo*	RMF	WebSphere*
DRDA*	IBMLink	RS/6000*	z/Architecture
e-business logo*	Language Environment*	S/390*	z/OS*
ECKD	MQSeries*	S/390 Parallel Enterprise Server	z/VM*
Enterprise Storage Server*	Multiprise*	System 370	z/VSE
Enterprise Systems Architecture/390*	On demand business logo	System 390*	zSeries*
ESCON*	OS/390*	System z	zSeries Entry License Charge
FICON*	Parallel Sysplex*	System z9	
GDDM*	Performance Toolkit for VM	Tivoli*	
* Registered trademarks of IBM Corporation	POWER5	Tivoli Storage Manager	
		TotalStorage*	

The following are trademarks or registered trademarks of other companies.

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

Linux is a trademark of Linus Torvalds 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 in the United States and other countries.

\* 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.

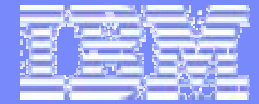
# Agenda

- **Brief Overview of z/VM 5.3 Enhancements**
- **Overview of z/VM 5.3 Early Support Program**
- **Customers Participating in the ESP**
- **Customer Experiences**
- **z/VM 5.3 Service to Watch For**

# z/VM Version 5.3 Enhancements

- **Enhanced scalability and constraint relief**
  - ▶ Support for greater than 128 GB real storage
  - ▶ Up to 32 real processors in a single z/VM image
  - ▶ Enhanced memory management for Linux guests
  - ▶ Enhanced memory utilization using VMRM between z/VM and Linux guests
  - ▶ HyperPAV support for IBM System Storage DS8000™
  - ▶ Enhanced FlashCopy® support
- **Virtualization enhancements for Linux and other guests**
  - ▶ Guest support for IBM System z specialty engines (processors)
  - ▶ Enhanced VSWITCH and guest LAN usability
  - ▶ Guest support for Modified Indirect Data Address Words (MIDAWs)
  - ▶ Guest ASCII console support
  - ▶ Enhanced SCSI support
- **Networking virtualization enhancements**
  - ▶ Enhanced virtual network management
  - ▶ Enhanced failover support for IPv4 and IPv6 devices
  - ▶ Virtual IP Address (VIPA) support for IPv6
- **Security**
  - ▶ Delivery of LDAP server and client
  - ▶ Enhanced system security with longer passwords
  - ▶ Conformance with industry standards and SSL server enhancements
  - ▶ Tape data protection with support for encryption
- **Systems management enhancements**
  - ▶ Enhanced management functions for Linux and other virtual images
  - ▶ Enhanced Performance Toolkit for VM
  - ▶ Enhanced guest configuration
- **Installation, service, and packaging changes**
  - ▶ Service and installation enhancements
  - ▶ RSCS repackaged as an optional feature
  - ▶ New RACF® Security Server for z/VM
  - ▶ z/Architecture CMS shipped as a sample program
  - ▶ Withdrawal of the ROUTED and BOOTP servers





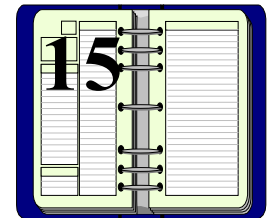
# z/VM 5.3 Early Support Program

## **z/VM Early Support Program Objectives**

- **Exercise the new features of z/VM V5.3 in customer production environments to gather feedback on product quality**
  - **Constraint relief**
  - **Passphrase support**
  - **Security enhancements**
  - **Networking enhancements**
- **Provide vendors and IBM product developers early access to the new release**
- **Exercise the support structure for the new release**

# z/VM Product Introduction Schedule

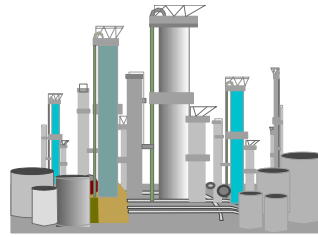
- ▶ **12/02/06 z/VM 5.3.0 in production on GDLVM7 (CP)**
- ▶ **12/07/06 Shipped z/VM 5.3.0 Field Test level to vendors & IBM internals**
- ▶ **12/15/06 z/VM 5.3.0 in production on GDLVME & S390VM (IBM)**
- ▶ **01/12/07 Shipped z/VM 5.3.0 ESP level to ESP customers**
- ▶ **02/08/07 First customer in production (university)**
- ▶ **06/08/07 Shipped z/VM 5.3.0 GA DDR to ESP customers**
- ▶ **06/29/07 z/VM 5.3.0 General Availability**



# z/VM 5.3 Worldwide ESP Customers

## ■ Industries

- ▶ Financial - 5
- ▶ Universities - 1
- ▶ Manufacturing - 3
- ▶ Government - 2
- ▶ Insurance - 1
- ▶ Transportation - 1



## ■ Geographic

- ▶ N. America - 9
- ▶ Europe - 4



## ■ Processors

- ▶ z9s
- ▶ z990s
- ▶ z890s
- ▶ z800



## ■ Plus

- ▶ Software Vendors - 14
- ▶ IBM Internal - 33





## z/VM 5.3 Worldwide ESP Customers...

- **Major Midwest Manufacturing Co.**
  - ▶ Linux guests, CMS, Nomad, Focus, DB2/VM
- **Manufacturer of Electric Products**
  - ▶ SAP
- **2 Large US Banks**
  - ▶ z/OS, Linux, TPF & CMS
- **2 Major US Financial Services Companies**
  - ▶ TPF, Linux, z/OS & CMS
- **Really Major University**
  - ▶ Oracle
- **Major US Insurance Co.**
  - ▶ Linux, CMS, z/OS
- **Large European Airline Reservation System**
  - ▶ TPF
- **Canadian Provincial Govt.**
  - ▶ Linux, Oracle WAS, MQ, LDAP
- **German Manufacturing Co.**
  - ▶ SAP
- **German Government Agency**
  - ▶ z/OS, Linux, LDAP
- **European Financial Services Co.**
  - ▶ z/OS, DB/2, Websphere



# Major US Insurance Co.

# Insurance Company

## ■ Environment

### ▶ Hardware

- Two IBM z9 processors for traditional work
- Two dedicated z9s for Linux with 26 IFLs and >500G memory total (and growing fast)

### ▶ 11 production z/VM systems

- includes guest test systems for VM and five z/OS systems using the Virtual Coupling Facility)

### ▶ 6 production z/OS systems

### ▶ VM software

- CA VM:Manager suite,
- CA VM:Webgateway
- full networking products (TCP/IP, VTAM, RSCS, etc)
- application development tools

### ▶ Over 475 Linux guests for production and development

# Insurance Company

- Installation with GA DDR went flawlessly
- CP upgrades fairly simple
  - ▶ Almost all local mods went on easy
  - ▶ Upgrading was virtually painless
- CMS upgrades were relatively simple
  - ▶ Local mods fit nicely
  - ▶ Needed more testing than CP
- Others components (GCS, TSAF, AVS, etc) were simple drop-ins
- VM development folks are making installations really *boring* – nothing breaks anymore!



# Major US Bank

## Major US Bank

- **Diversified financial services company**
- **Retail banking (23 western states), Mortgage in all 50**
- **23 Million customers**
- **~6000 branches - 6800 ATMs**
- **5<sup>th</sup> largest US bank**
- **158,000 employees**

# Environment

- **Traditional VM**
  - ▶ 2 VM systems
  - ▶ Traditional CMS applications – mainly reporting
  - ▶ IBI's FOCUS, Connect:Direct, Rexx, Pipes
- **Linux hosting**
  - ▶ 4 VM systems
  - ▶ 100 test and development Linux servers
  - ▶ 50 production Linux servers
  - ▶ Linux on System z used in ATM and POS transaction processing
    - Performance critical
    - High availability (spread over 3 LPARs)

# Hardware

- **Production Data Center**
  - ▶ 6 systems (5 z9 EC, 1 z900)
  - ▶ 17 IFL engines on 3 LPARs
  - ▶ 2 engine z900 for traditional z/VM work
- **HA/Test/Dev Data Center**
  - ▶ 2 z990s for z/OS HA
  - ▶ 1 z9 EC for z/OS and Linux test and development
- **BCP (disaster recovery) Data Center**
  - ▶ 5 z9 EC activated by Capacity Backup Up (CBU)



# VM Software

## ■ Linux Host Systems

- ▶ **CA VM:Manager Suite**
  - VM:Secure
  - VM:Operator
  - VM:Schedule
  - VM:Backup with HIDRO
  - VM:Schedule
  - VM:Spool
  - VM:Account
  - VM:Tape
- ▶ **RSCS (NJE and IP printing)**
- ▶ **TCP/IP (VSWITCH layer 3 and Guest LAN)**
- ▶ **DFSMS (RMS only) – support IBM 3494 ATL**
- ▶ **Velocity ESAMON/TCP/MAP/WEB**
- ▶ **Levanta (build and maintain Linux guests)**
- ▶ **SuSE Linux (8 and 9)**

## ■ Traditional VM Systems

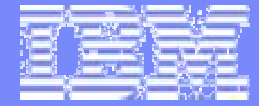
- ▶ **CA VM:Manager**
  - All on left + VM:Archiver VM:Prorexx VM:Webgatewayv
- ▶ **RSCS / VTAM / DFSMS (RMS only)**
- ▶ **Sterling Commerce Connect:Direct (aka NDM)**
- ▶ **STK HSC (for SILO support)**
- ▶ **Velocity**
- ▶ **Information Builders FOCUS**
- ▶ **Syncsort CMS**
- ▶ **LSoft LISTSERVE and LMAIL**
- ▶ **Allen Systems FCOPY**
- ▶ **Serena Answer:Comparex**

# ESP code Installation

- **Used DVD FTP to minidisk 2<sup>nd</sup> Level option (in install guide, not on the one page install flyer)**
- **Got CA products installed/working/configured**
  - ▶ Updates for most all of them needed
- **Done by our newbies (z/OS guys)**
  - ▶ Found the VM portion very simple
  - ▶ Challenged a little more trying to follow CA installation/configuration

# GA Installation

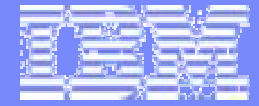
- **Installed 1<sup>st</sup> level on test/dev Linux Host System**
  - ▶ 100 Linux guests (50/50 sles9x/sles8)
  - ▶ 24 Gig memory (configure 20 central / 4 xstor)
  - ▶ 4.5TB DS8000 DASD
  - ▶ 3494/3590 ATL for tape backups
  - ▶ Crypto Express 2 runs as SSL accelerators (CE2XA)
  - ▶ Very very busy system (45 mod 3 paging volumes / often 100% cpu)
- **July 21 (3 weeks post GA)**
- **Upgraded CA products (Secure, Tape, Hidro)**
  - ▶ Left new passphrase support off
- **Upgrades to Velocity needed (3.7 + )**



# Summary of Customer Experiences

# General Observations

- **Installation is easy and straightforward**
- **Performance is at least as good as z/VM 5.2**
- **Passphrase support requires some planning**
- **Valuable new features**
  - ▶ **Passphrase support**
  - ▶ **CP Commands in the directory**
  - ▶ **LDAP server and client**
  - ▶ **RSCS as optional feature**
  - ▶ **New DVD installation options**
  - ▶ **Improved VSWITCH failover**
  - ▶ **REXX STSI function**



# z/VM 5.3 Service to Watch For



## Must Haves: R530 APARs

- **VM64297 - PAGING SPIKE DEMAND SCAN SHUTS DOWN SYSTEM HANG**
  - ▶ APAR open, target closure 10/31
  - ▶ Fixtest available from z/VM Level 2
- **VM64269 - EXCESSIVE PAGING ACTIVITY DURING DEMAND SCAN**
  - ▶ PTF UM32133 Available and on RSU2
- **VM64249 - PEVM63853 LPAR CHECK STOP DURING EDM H/W UPGRADE**
  - ▶ PTF UM32104 Available and on RSU2
  - ▶ HW Field Alert updated to include PTF numbers and additional information on z/VM 530 symptoms
  - ▶ Linux-only logical partitions when an Enhanced Driver Maintenance (EDM) occurs
- **VM64323 - PEVM63853 NO LPAR MONITOR RECORDS AFTER EDM UPGRADE**
  - ▶ APAR is open, target closure 10/31
- **VM64287 - SLOW PING RESPONSE TIMES OVER QDIO WITH MORE THAN ONE VIRTUAL PROCESSOR**
  - ▶ PTF UM32158 available 10/18/07



# Storage Management R530 HIPER APARs

- **VM64236 – ABENDHPC006 ASCCTPLK/ASCCTPLKA FIELD**
  - ▶ PTF UM32091 not on an RSU
- **VM64243 - ABENDPRG005 AT HCPHRP+6E0**
  - ▶ PTF UM32079 on RSU2
- **VM64246 - FRF002 FROM MEMORY LEAK DUE TO LOST PPDBKs**
  - ▶ PTF UM32069 on RSU2
- **VM64251 - HCPPTY CPEBK USAGE MAY CAUSE ABENDS PRG004 PRG005**
  - ▶ PTF UM32073 on RSU2
- **VM64253 - PEVM63968 ABENDSIT002 PGMCODE 0038 AT HCPHPC+1102**
  - ▶ PTF UM32108 on RSU2





## R530 APARs To Watch For – Not on an RSU

- **VM64031 - ABENDHTT001 ABENDHTT002 PAGE TRANSLATION IN CP MONITOR**
  - ▶ APAR closed, PTF not available yet
- **VM64239 – ABENDFRE016 HCPIPND18**
  - ▶ PTF UM32140 closed 10/04/07
- **VM64245 - TCPIP CTC LINK DROPS AFTER IFCC**
  - ▶ PTF UM32183 closed 10/18/07
- **VM64282 - ABENDIFI004 ON UNSOLICITED STATUS FOR A PAV DEVICE**
  - ▶ PTF UM32172 closed 10/02/07
- **VM64296 – ABENDHTT001 PGMCODE 0038 AT HCPMVP+A6**
  - ▶ PTF UM32181 closed 10/18/07
- **VM64315 - ABENDFRF002 AND USER HANGS DUE TO HW MALFUNCTION**
  - ▶ PTF UM32183 closed 10/18/07

## Other HIPERS Not on an RSU

- **VM64071 - ABENDPRG006 IF TRSOURCE TRACE ON BASR INSTRUCTION**
  - ▶ PTF UM32127, closed 08/13/07
- **VM64182 - ABENDHTT002 USING TRSOURCE WITH IF STATEMENTS**
  - ▶ PTF UM32085, closed 06/25/07
- **VM64184 - HUNG USER AFTER VARY ON COMMAND ISSUED TO PAV DASD**
  - ▶ PTF UM32096, closed 08/30/07
- **VM64257 - ABENDHTT001 ATTACH D/T3592E WITH KEYALIAS MORE THAN 32 BYTES**
  - ▶ PTF UM32109, closed 07/17/07
- **VM64262 - ABENDHTT001 CSCH INTERRUPT DURING RE-IPL HAD INVALID PARAMETER**
  - ▶ PTF UM32166, closed 09/28/07



# My Recommendations

- **Apply the latest RSU! (UM97530)**
  - ▶ **5302RSU available as of October 5, 2007**
  - ▶ **Brings CP to the 0702 RSU level**
- **Check the buckets!**
  - ▶ **ZVM530 bucket, 0702RSU subset**
  - ▶ **Hardware device buckets (2094DEVICE, 2096DEVICE, etc.)**



## How to reach us....

### **Keri Borrego**

kborrego@us.ibm.com  
607-429-5338

### **Chuck Morse**

morsec@us.ibm.com  
301-240-2672