Helmut Riethmüller,
IBM Deutschland Research & Development

G02 – Aktuelles zu z/VM, z/VSE & Linux auf System z

GSE 2011

Düsseldorf – 2. – 4. Mai, 2011

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Agenda

- **Welcome Message –**
  Tom Rosamilia, General Manager, Power and z Systems

- **Updates – what's new?**
  - zEnterprise
  - z/VSE
  - z/VM
  - Linux on System z

- **System z – Academic Initiative**
  - IIC @ University of Karlsruhe

Tom Rosamilia, IBM General Manager, Power and z Systems

Video Message, November 2010

"For the past four decades, z/VSE has been an important part of our portfolio. [...] z/VSE is designed to help you protect your existing investment in applications and data. And IBM remains committed to address the requirements for growing z/VSE workloads."

"We are also committed to expand the options available for deploying Linux workloads. These implementations can drive significant financial benefits."

"Recent z/VM enhancements also strengthen System z virtualization technology. The goal is to enable you to take advantage of the new function, performance, reliability, availability, and serviceability improvements of the IBM zEnterprise System, including hybrid system environments."

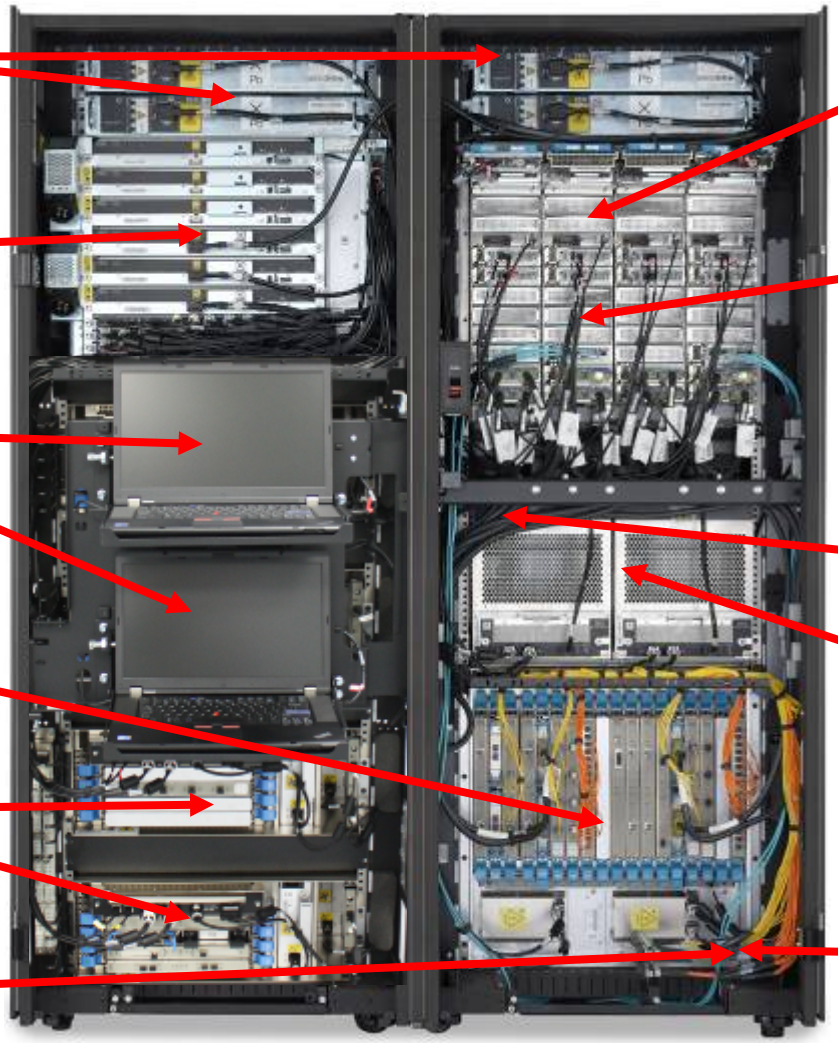
zEnterprise

IBM zEnterprise™ 196 (z196)

IBM zEnterprise BladeCenter® Extension (zBX)

zEnterprise Unified Resource Manager

z196 – Under the covers (Model M66 or M80)



The Value begins at the heart of z196 …. and extends to heterogeneous platforms

Up to **40%** Improvement for traditional z/OS workloads

Up to an ADDITIONAL **30%** Improvement in CPU intensive workloads via compiler enhancements

Up to **60%** Total capacity improvement

zEnterprise 196 (z196)
Machine Type: 2817
Models: M15, M32, M49, M66, M80

- **1 to 80 configurable for client use**
- **IFL, zIIP, zAAP, ICFs and optional SAPs**
- **Up to 3 TB RAIM memory**
- **15 subcapacity settings**
- **Cryptographic enhancements**
- **Optional water cooling and/or HV DC Power**
- **1 to 80 configurable for client use**

… managed by the zEnterprise Unified Resource Manager

IBM zEnterprise BladeCenter Extension (zBX)
Machine Type: 2458 – Model 002

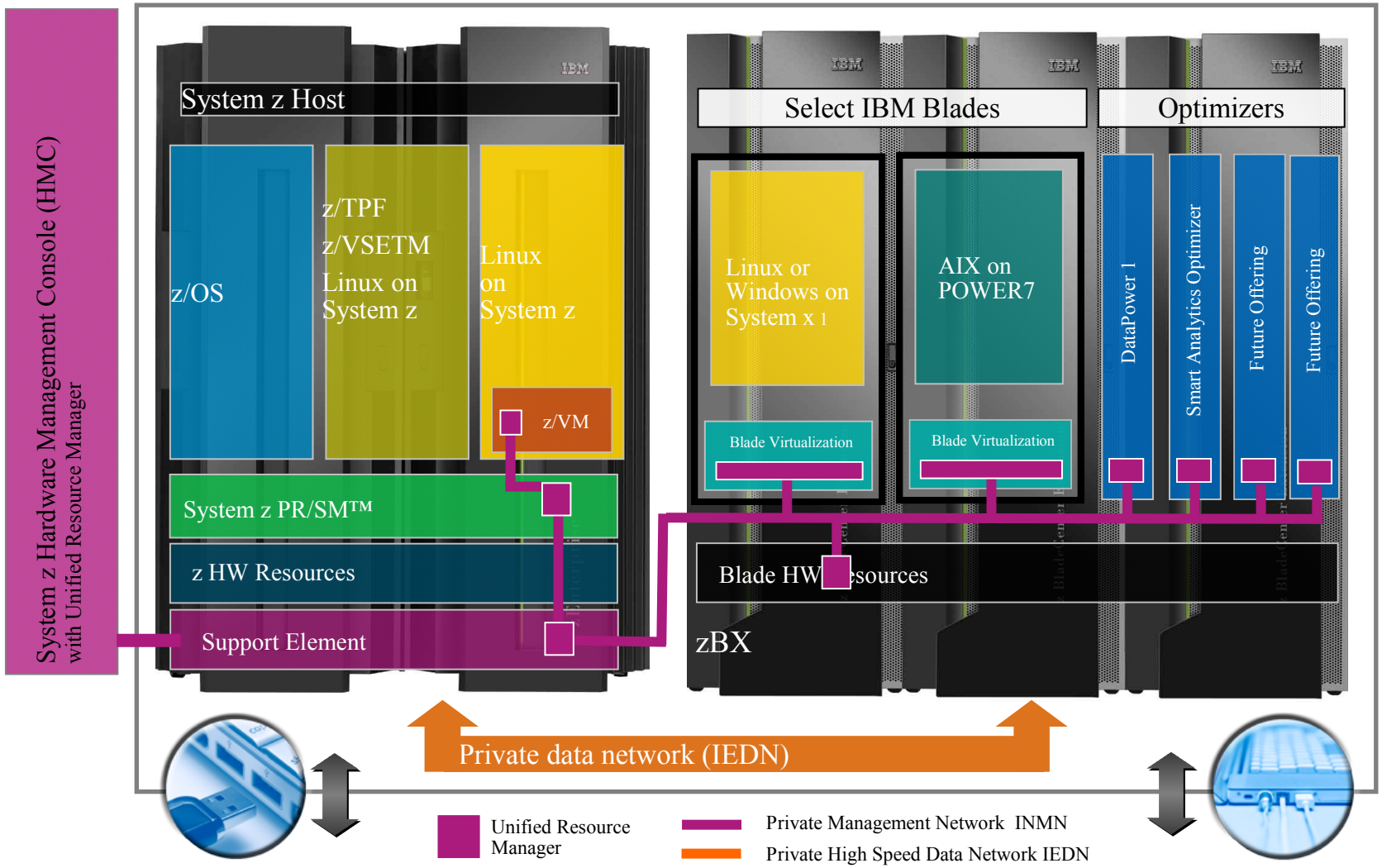
Optimizers
- IBM Smart Analytics Optimizer
- DP[1]

Select IBM Blades
- BladeCenter PS701 Express
- System x[1]

- **One to four – 42u racks – capacity for 112 blades**
- **No System z software running in zBX – Passport Advantage software licensed to blades**
- **No MIPS/MSU rating**
- **Configured for high availability**
- **One to four – 42u racks – capacity for 112 blades**

Putting zEnterprise System to the task

Use the smarter solution to improve your application design



[1] All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

Statements of Direction

- ***ESCON channels - February 15, 2011:***
  - **The IBM zEnterprise 196 (z196) will be the last high-end server to support ESCON channels**: IBM plans not to offer ESCON channels as an orderable feature on high-end System z servers which follow the z196 (machine type 2817). In addition, ESCON channels cannot be carried forward on an upgrade to such a follow-on server.

  Notes:
  - This new Statement of Direction supersedes the previous ESCON SOD in Announcement letter 110-170 of July 22, 2010. It also confirms the SOD in Announcement letter 109-230 of April 28, 2009 that "ESCON Channels will be phased out."
  - This SOD does **NOT** say that the z10 BC will be the last midrange server to support ESCON channels or the last to offer ESCON channels as an orderable feature.

- ***IBM System x blades on zBX – April 12, 2011:***
  - In the third quarter of 2011, IBM intends to offer select IBM System x blades running **Linux in the IBM zEnterprise System on zBX** Model 002.
  - In the fourth quarter of 2011, IBM intends to offer select IBM System x blades running **Windows in the IBM zEnterprise System on zBX** Model 002.

z/VSE Update

z/VSE Evolution

z/VSE V5.1 Preview April 12, 2011

NEW

- z196 / zBX exploitation
- ALS to System z9 (and higher)
- 64-bit virtual addressing

z/VSE V4.3 Nov 26, 2010

- Virtual storage (24-bit) constraint relief
- 4-digit device addressses, IPv6/VSE
- Security / Crypto / Networking enhancements

z/VSE V4.2 Oct 17, 2008

- More tasks, PAV, SVC, SCRT, LDAP Client
- SoD for CICS/VSE, RBD V7, WMQ V3
- Crpto Express3 (April 30, 2010)
- IPv6/VSE* (May 28, 2010)

z/VSE V4.1 March 16, 2007

- z/Architecture only / 64-bit real addressing
- MWLC full & sub-cap pricing

z/VSE V3.1 March 4, 2005

- selected zSeries features, FCP/SCSI
- 31-bit mode only

VSE/ESA V2.7 March 14, 2003

- enhanced interoperability
- ALS2 servers only

VSE/ESA V2.6 Dec 14, 2001

- last release to support pre-G5 servers

Protect
Integrate
Extend

Hardware Support
Capacity
Quality
z/OS Affinity
Interoperability
Linux workloads

* IPv6/VSE is a registered trademark of Barnard Software, Inc.

z/VSE Support Status

VSE Version and Release	Marketed	Supported	End of Support
z/VSE V4.3	✓	✓	tbd

[1]) z/VSE V3 is 31-bit mode only. It does not implement z/Architecture, and specifically does not implement 64-bit mode capabilities. z/VSE is designed to exploit select features of IBM System z10, System z9, and zSeries hardware.

[2]) z/VSE V4 is designed to exploit 64-bit real memory addressing, but will not support 64-bit virtual memory addressing

z/VSE V4.3 - General Availability since 11/26/2010

Previewed 10/20/2009, refreshed 07/22/2010, full announce 10/05/2010

Black = previewed

Blue = added w/ full announce

- **IBM zEnterprise and System z10 technology exploitation**
  - Dynamic add of logical CPs to LPAR without Re-IPL
  - Large page (1 megabyte page) support for data spaces
  - FICON Express8 and Crypto Express3 support
  - LFP connector: Fast path from z/VSE to Linux TCP/IP in a z/VM-mode LPAR
- **Virtual storage constraint relief for workload growth**
  - Move selected system programs and buffers from 24-bit into 31-bit storage
- **Ease of use through four-digit device addresses**
  - Transparent for system, vendor, and user applications that rely on 3-digit CUUs
- **Enhanced storage options**
  - DS8000 Remote Mirror and Copy (RMC) feature support through ICKDSF
  - IBM System Storage TS7700 WORM support
  - XIV support
- **Networking, security, and auditability enhancements**
  - SNMP agent to retrieve z/VSE specific system and performance data
- **DOS/VS RPG II support for CICS Transaction Server (CICS TS)**
  - Allows RPG programs implemented for CICS/VSE V2.3 to run with CICS TS V1.1
- **IPv6/VSE as optional product (IPv6 solution)**
  - IBM IPv6/VSE – licensed from BSI – includes IP stack & applications for both, IPv6 and IPv4

z/VSE V5.1 Preview Announcement - GA planned for 4Q2011

- **64-bit virtual addressing for growing / future workloads**
  - Keep ‘more data in memory’ to benefit from increased processor storage
  - Built upon z/Architecture capabilities and 64-bit real addressing introduced with z/VSE V4
  - 64-bit API is compatible with z/OS
  - Fulfills SoD as announced with z/VSE V4.3, dated October-5-2010

- **Introduction of an Architectural Level Set (ALS) that requires System z9 (or later)**
  - z/VSE V5 will run on System z9 BC/EC, z10 EC/BC, and zEnterprise 196

- **zEnterprise 196 exploitation**
  - Support Static Power Save Mode for MWLC clients with subcapacity option (also z/VSE V4)
  - 4096-bit RSA keys with Crypto Express3 for enhanced security
  - Support of OSA-Express for zBX (CHPID OSX) to participate in an Intra Ensemble Data Network (IEDN)

- **Exploitation of IBM System Storage options**
  - Copy Export function of TS7700 Virtualization Engine for disaster recovery
  - IBM Storwize V7000 Midrange Disk System (z/VSE V4.2 and later)
  - IBM XIV (z/VSE V4.2 and later)

- **Networking enhancements**
  - IPv6 support added to Linux Fast Path connector

z/VSE Support for IBM Mainframe Servers

IBM Servers	z/VSE V5 (NEW)	z/VSE V4.3	z/VSE V4.2	z/VSE V4.1
IBM zEnterprise 196	✔	✔	✔	✔
IBM System z10 EC & z10 BC	✔	✔	✔	✔
IBM System z9 EC & z9 BC	✔	✔	✔	✔
IBM eServer zSeries 990 & 890	✘	✔	✔	✔
IBM Servers	z/VSE V5	z/VSE V4.3	z/VSE V4.2	z/VSE V4.1

Please note:

- z/VM V6 requires System z10 technology (or higher)
- Novell SLES 11 requires System z9 technology (or higher)
- Red Hat RHEL 6 requires System z9 technology (or higher)

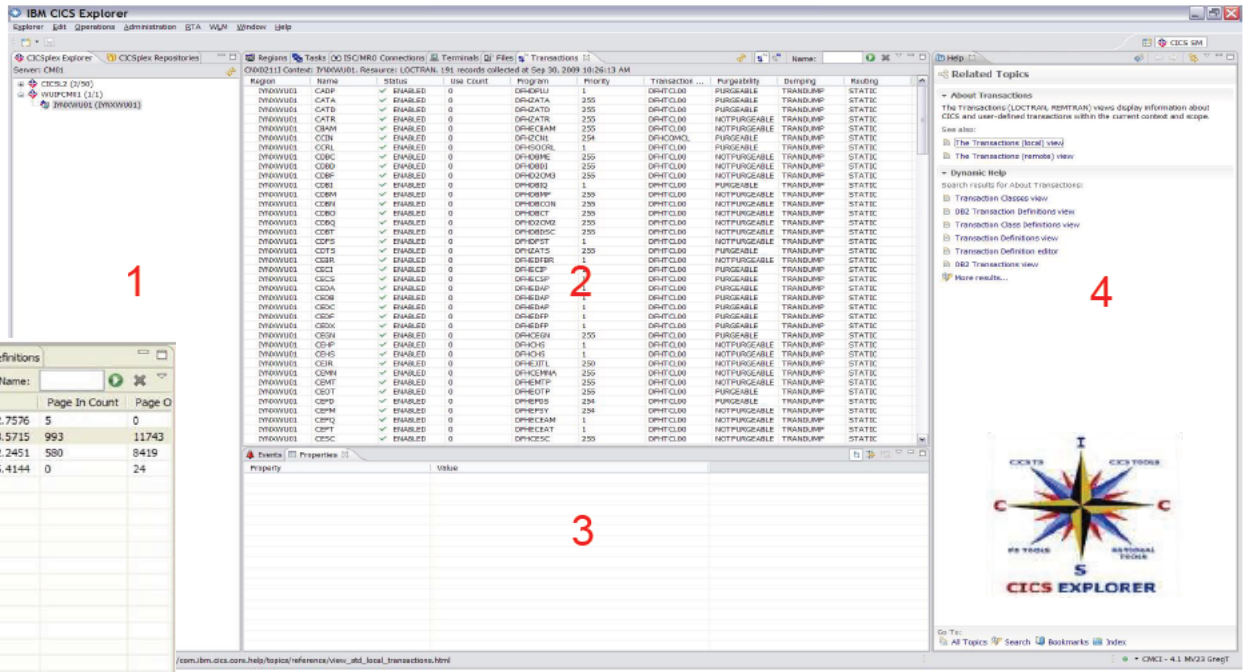
New SoD - included in z/VSE V5.1 Preview Announcement

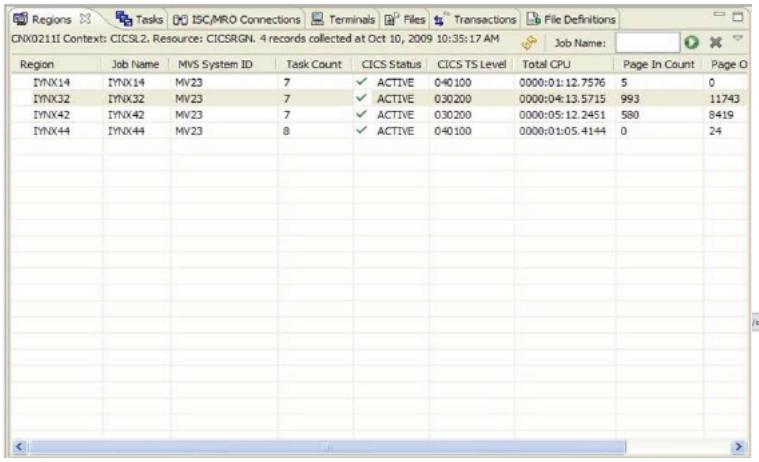
Statement of Direction:

"IBM intends to provide CICS Explorer capabilities for CICS TS for VSE/ESA, to deliver additional value."

CICS Explorer

- Based on the Eclipse Rich Client Platform (RCP)
- Provides integration platform
- Scalable and intuitive way to monitor CICS systems
- Can be extended via plug-ins





Note: All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

z/VSE Live Virtual Classes (Webcasts)

- **March 2011**
  - Overview of Cryptography and Enhancement on z/VSE V4.3
- **January 2011**
  - IBM z/VSE V4.3 in Modern Solutions with Linux on System z
- **December 2010**
  - IBM z/VSE V4.3 – More Capacity for Growth
- **June 2010**
  z/VSE and IPv6/VSE Update

Replays available!
Dates and replays @ http://www-03.ibm.com/systems/z/os/zvse/education/

How to get z/VSE Support

Reporting a problem

- IBM Support Portal – Service Request Tool (requires registration, directly queued to L2)
- Call IBM - Specify customer number & comp ID (e.g. 5686CF806 for z/VSE V4)
- z/VSE Home Page – Contact z/VSE (in case of problems opening a PMR)

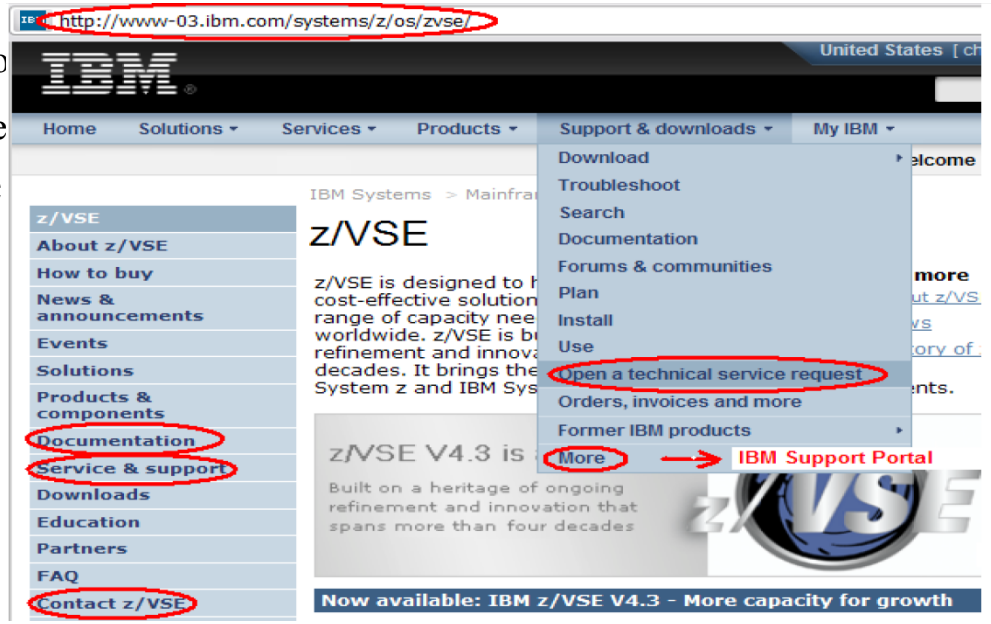
Finding known fixes

- IBM Support Portal
  - Downloads and fixes – Search for compo
  - Notifications of new APARs – Subscribe
- z/VSE Home Page – Service and latest APAR list)

Ordering service

- ShopzSeries
  - Order PTF with report

    (w/o report requisite search goes back 90 days only)
  - Order PSP with report



zJournal April/May 2011 - www.mainframezone.com

The z/VSE Fast Path to Linux on System z

by Ingo Franzki, Karsten Graul

Print this article

TRANSLATE

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April 6, 2011

Linux on System z has been an important part of z/VSE's Protect, Integrate and Extend (PIE) strategy for many years. It:

- Protects customers' enormous cumulative investment in their core z/VSE applications
- Integrates z/VSE systems and applications into a heterogeneous IT environment
- Extends z/VSE's capabilities with features and functions provided by Linux on System z or other platforms.

Linux on System z provides many useful functions that z/VSE doesn't provide. It offers WebSphere, Java, DB2 Universal Database, a rich set of development tools, and a growing selection of packaged applications. On the other hand, z/VSE provides excellent, cost-effective capabilities to run traditional workloads such as CICS transactions or batch jobs.

To allow easy integration of z/VSE with other systems and applications, z/VSE provides a huge set of so-called connectors that allow access to various types of z/VSE data and applications from remote applications

Modern Solutions With z/VSE & Linux on System z

by Wilhelm Mild

Print this article

TRANSLATE

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April 6, 2011

The future started more than a decade ago, when z/VSE defined in its strategy that Linux on System z is the natural extension for z/VSE on a System z. Modern solutions leverage the synergy of core applications and CICS transactions running in z/VSE and the new Java and Internet interfaces in Linux on System z.

Virtualization with z/VM reached new dimensions, making available virtual switch, guest LAN, and the ability to virtualize hundreds of different guest systems. z/VSE 4.3 now exploits the Linux Fast Path network topology, which effectively supports TCP/IP socket communications between z/VSE applications and Linux on System z. The communication occurs via z/VM and its internal communication layer, Inter User Communication Vehicle (IUCV), and is fully transparent for z/VSE applications. It reduces the complexity and path length in application communications.

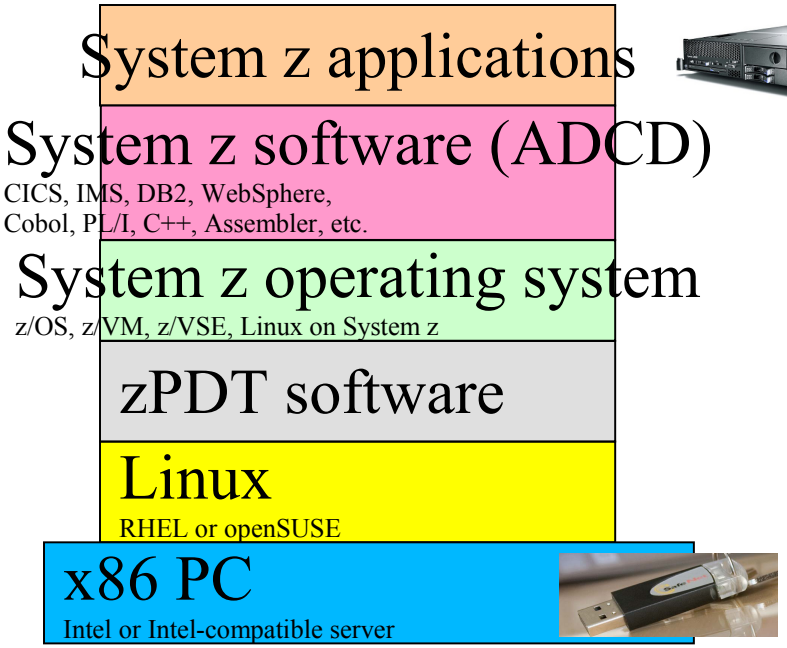
Along with the network and virtualization, the interoperability between z/VSE and Linux on System z focuses on customer needs for modern business solutions. The Internet technologies, Java applications, and electronic business through Linux can be implemented with low impact to existing processes in z/VSE.

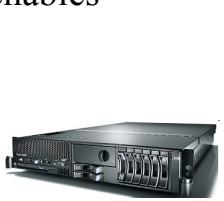
The maturities of the highly scalable solutions built with z/VSE and Linux on System z empower the business, modernize interaction interfaces, and simplify the IT infrastructure. The

zPDT and RDz UT – System z Application Development on Intel

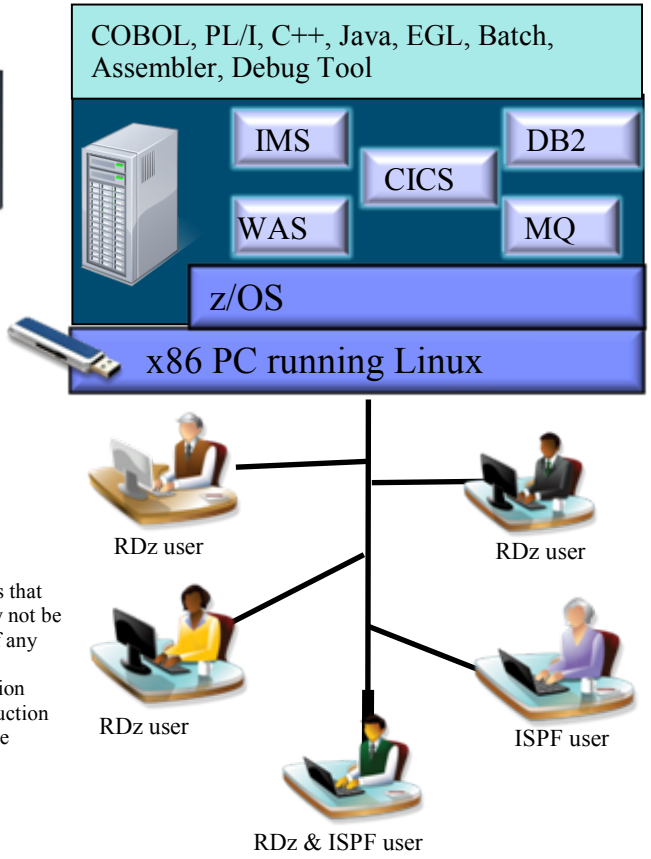
zPDT = System z Personal Development Tool

zPDT technology consists of a 1090 USB security hardware key and some software that enables System z architecture on Intel





RDz UT = Rational Developer for System z Unit Test



Note: RDz UT is licensed only for development and test of applications that run on IBM z/OS. The Program may not be used to run production workloads of any kind, nor more robust development workloads including without limitation production module builds, pre-production testing, stress testing, or performance testing.

zPDT is for application development, test, and demo of System z applications

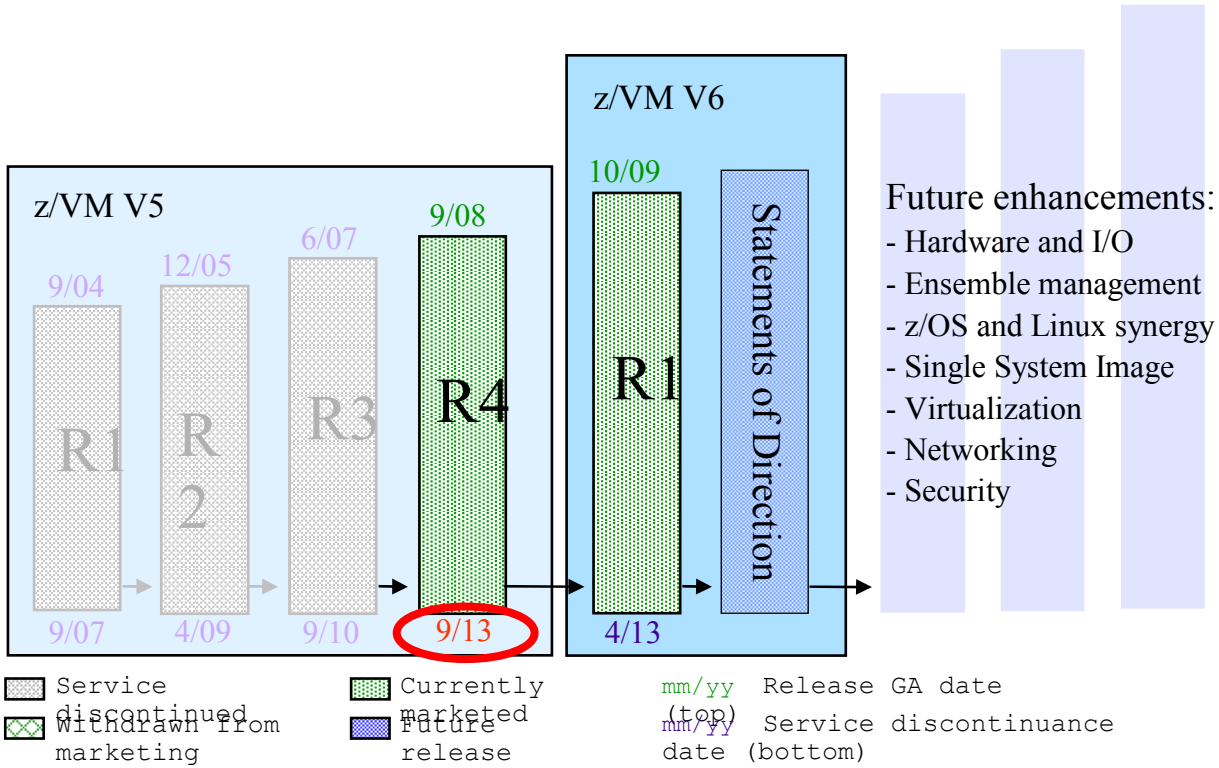
zPDT is available to ISVs onl

RDz UT is for application development, unit test, and function test of System z applications

RDz UT is available to anyone, but for z/OS only!

z/VM Update

z/VM Release Status



IBM received EAL 4+ certification of z/VM V5.3 from the German Federal Office of Information Security (Bundesamt für Sicherheit in der Informationstechnik) for conformance to the Controlled Access and Labeled Security protection profiles (CAPP and LSPP) of the Common Criteria standard for IT security, ISO/IEC 15408. z/VM V6.1 is currently undergoing evaluation against OSPP with the labeled security extension at EAL 4+.

z/VM Version 6.1

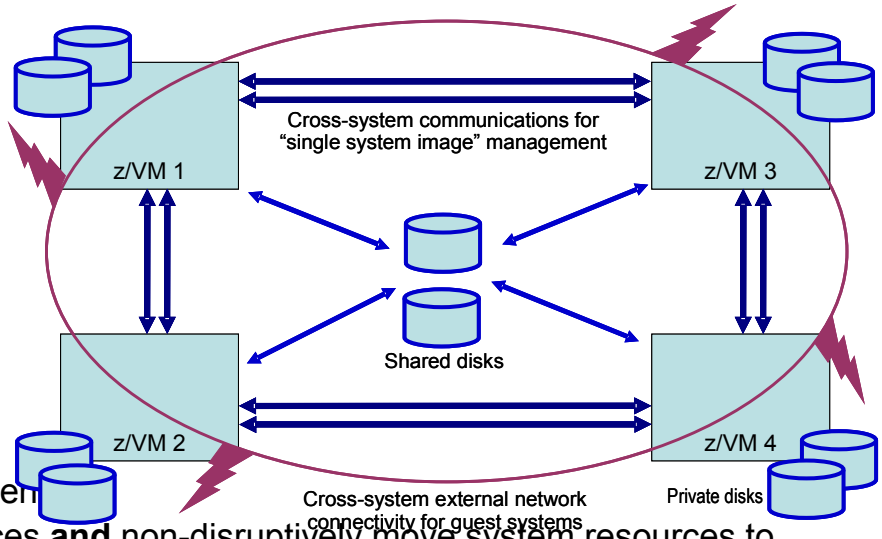
The Foundation for System z Virtualization Growth
Available October 23, 2009

- **Architectural Level Set establishes a new z/VM technology base on IBM System z10**
  - z/VM V6 operates only on z10 EC, z10 BC, and z196
- **Allows optimization of z/VM function for greater business value on newer hardware**
  - Prefetch Data instruction improves performance of streaming network connections between guests on a VSWITCH
- **Multi-system virtualization support (future release support)**
  - z/VM clustering and guest mobility statements of direction
  - A more manageable ecosystem for cloud computing
    - add hardware to the workload
    - move workload to hardware
  - Helps clients avoid the virtual machine sprawl challenges of x86 systems: fewer real systems hosting thousands of server images

z/VM Statement of Direction

Clustered Hypervisor with Guest Mobility

- Clients can cluster up to four z/VM systems in a **Single System Image** (SSI)
- Provides a set of shared resources for the z/VM systems and their hosted virtual machines
- z/VM system images can be run on the same or different System z10 or z196 servers
- Simplifies systems management of a multi-z/VM environment
  - Single user directory
  - Cluster management from any system
    - Apply maintenance to all systems in the cluster from one location
    - Issue commands from one system to operate on another
  - Built-in cross-system capabilities
  - Resource coordination and protection: network and disks
- Dynamically move Linux guests from one z/VM system to another with **Live Guest Relocation**
  - Reduce planned outages; enhance workload management
  - Non-disruptively move work to available system resources **and** non-disruptively move system resources to work



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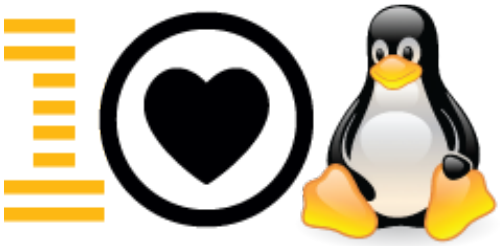
Linux on System z Update

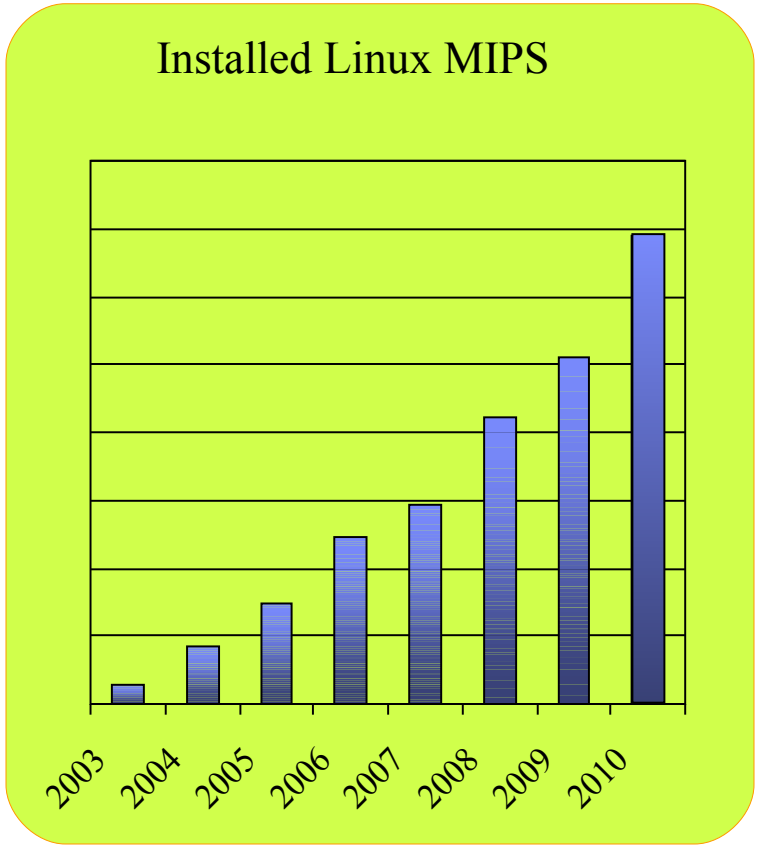


Novell

redhat

Linux on IBM System z

The momentum continues



- **Growth 4Q09 to 4Q10:**
  - **Shipped IFL volumes increased 34%**
  - **Installed IFL MIPS increased 35%**
- **32% of System z customers have IFLs installed**
- **64% of the Top100 System z clients are running Linux on the mainframe**
- **Two Linux partners: Novell SUSE and Red Hat**
- **> 3,000 applications are available for Linux on System z**
- **Gold standard in virtualization**

Enterprise Linux Distributions

The table below shows IBM tested Linux environments. IBM remote technical support for these environments is provided when you obtain a Support Line contract. You may also find support for these environments by contracting with a third party provider.

Hardware Platform and Operating System Software Compatibility 64-bit environment				
Release	**zSeries**	**System z9**	**System z10**	**zEnterprise**
SLES 9 (*)	✓	✓	✓	✓ (2)
SLES 10	✓	✓	✓	✓
SLES 11	✗	✓	✓	✓
RHEL 4 (*)	✓	✓	✓	✓ (1)
RHEL 5	✓	✓	✓	✓
RHEL 6	✗	✓	✓	✓

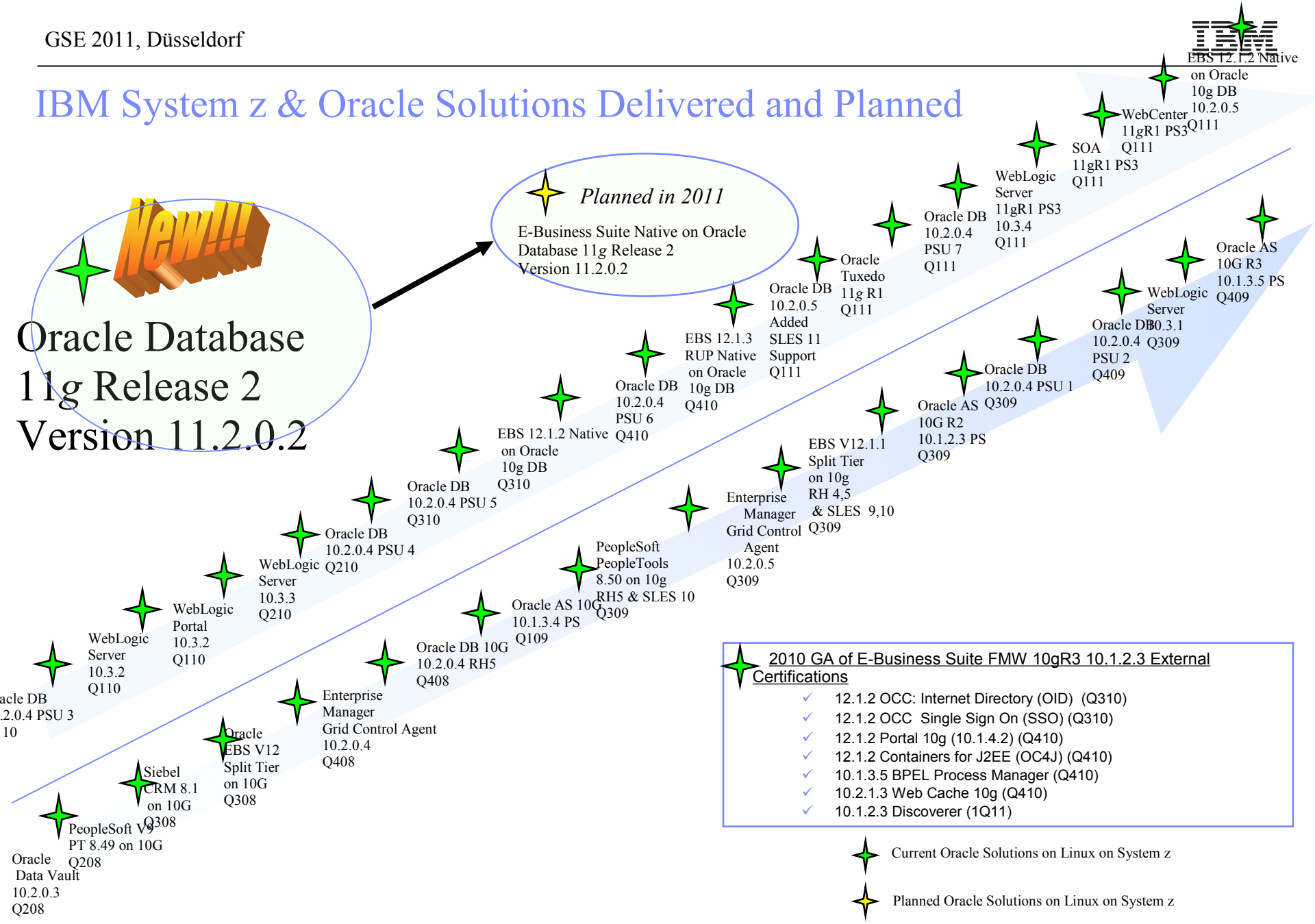
The listed distributions are 64-bit distributions, they all include the 31-bit emulation layer to run 31-bit software products.

(1) RHEL 4.8 only. Some functions have changed or are not available with the z196, e.g. the Dual-port OSA cards support to name one of several.
(2) SLES 9 SP4 + latest maintenance updates only. Some functions have changed or are not available with the z196,
(*) Also available as 31-bit distribution.

For information on which HW is supported by:

- Red Hat please visit the Red Hat Hardware Catalog: https://hardware.redhat.com/hwcert/index.cgi
- Novell SUSE, please visit the SUSE YES Certified Bulletin Search: http://developer.novell.com/yessearch/Search.jsp
- System Storage Interoperation Center: http://www.ibm.com/systems/support/storage/config/ssic/index.jsp

IBM System z & Oracle Solutions Delivered and Planned



2010 GA of E-Business Suite FMW 10gR3 10.1.2.3 External Certifications

- ✓ 12.1.2 OCC: Internet Directory (OID) (Q310)
- ✓ 12.1.2 OCC Single Sign On (SSO) (Q310)
- ✓ 12.1.2 Portal 10g (10.1.4.2) (Q410)
- ✓ 12.1.2 Containers for J2EE (OC4J) (Q410)
- ✓ 10.1.3.5 BPEL Process Manager (Q410)
- ✓ 10.2.1.3 Web Cache 10g (Q410)
- ✓ 10.1.2.3 Discoverer (1Q11)

Current Oracle Solutions on Linux on System z

Planned Oracle Solutions on Linux on System z

Distribution Performance Analysis

- New vs. Prior Distribution

Area	Benefits especially suited for, but not limited to the following workloads
FICON I/O	Databases, Datastage and TSM running on ECKD Disks
Process scaling	Websphere Family Roll-your-own and new ISV applications Clearcase, DB2 running on ECKD disks **Benefits especially suited for, but not limited to the following workloads**
CPU scaling	
Compiler	
Disk I/O via page cache	
Area	

Compared Set
- RHEL5 U4
- RHEL6 GA + tunings

Improved	No difference or Trade-off	Degraded
34	48	0

Compared Set
- SLES10 SP3
- SLES11 SP1 + tunings

Improved	No difference or Trade-off	Degraded
36	46	0

Please check out the Live Virtual Class covering the details: http://www.vm.ibm.com/education/lvc/

More Choice with Linux on System z and zBX

Linux on System z

- Highly virtualized with z/VM hypervisor
  - Highest flexibility
  - Supports large number of virtual servers
- Excellent dynamic management of resources
- High level of integration with other System z environments (e.g. z/OS, z/VSE)
  - HiperSockets (data transfer in memory)
  - optionally same disk environment (integration of backup, DR) and more

zEnterprise BladeCenter Extension (zBX)

- Integration of Linux & Windows on System x and AIX on POWER Blades
  - Unified management with zEnterprise Unified Resource Manager
  - Enables full integration of heterogenious application environments
- High-performance optimiziers and appliances for fast analysis and reduced cost

zEnterprise is the beginning of a new generation of System z
... expect more to come!

Linux on System z Live Virtual Classes (Webcasts)

- **April 2011**
  - Problem Reporting and Analysis Linux on System z – How to survive a Linux critical situation
- **March 2011**
  - Linux on System z RHEL 6 Performance Report
- **February 2011**
  - Lessons learned from putting Linux on System z in Production
- **January 2011**
  - Best Practices for WebSphere Application Server on System z Linux
- **2010:**
  - The Linux on System z toolchain in a nutshell
  - Linux on System z disk I/O performance
  - Linux on System z: Current & Future Technologies
  - Linux on System z SLES11 SP1 Performance Report
  - Linux Performance on zEnterprise 196
  - Linux on System z Customer Webcast: FCP on Linux for System z Overview
  - Introduction to the new Linux on System z Terminal Server using IUCV
  - What's new in RHEL 6 for Linux on System z

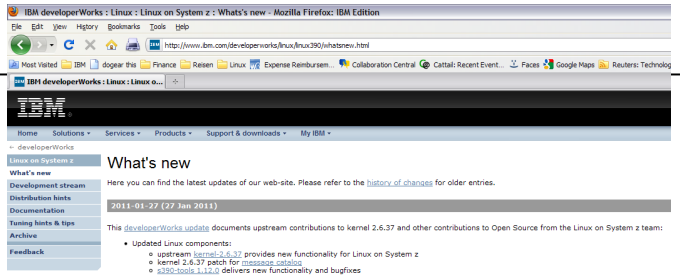
Replays available!
Dates and replays @ http://www.vm.ibm.com/education/lvc/

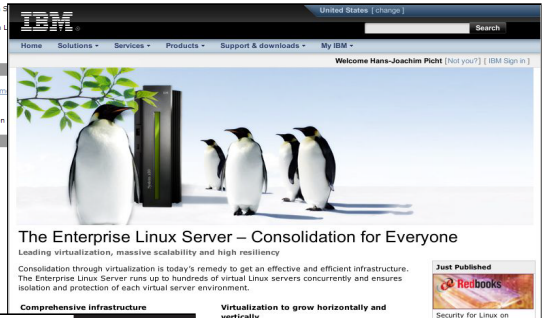
Linux on System z information

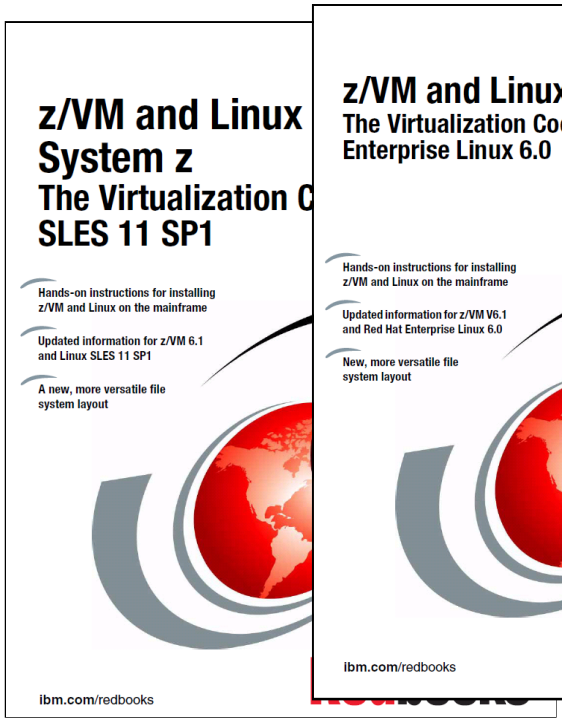
- Public information:
  http://www-05.ibm.com/de/promotions/els/

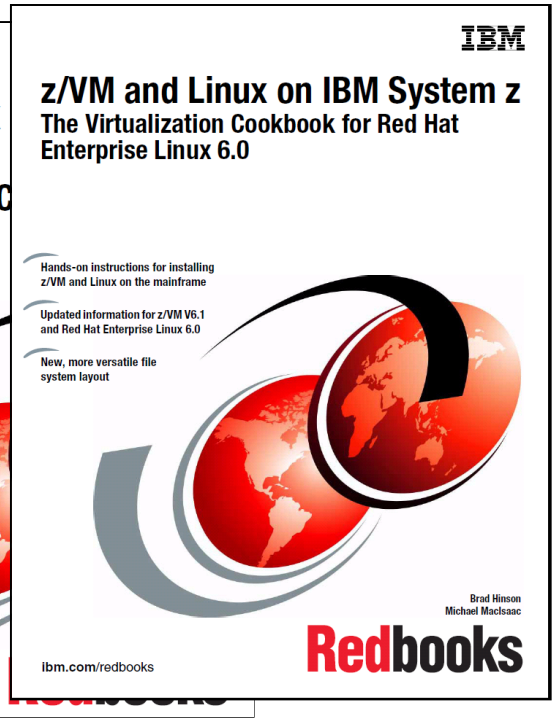
- IBM developerWorks – What's new
  http://www.ibm.com/developerworks/linux/linux390/whatsnew.html

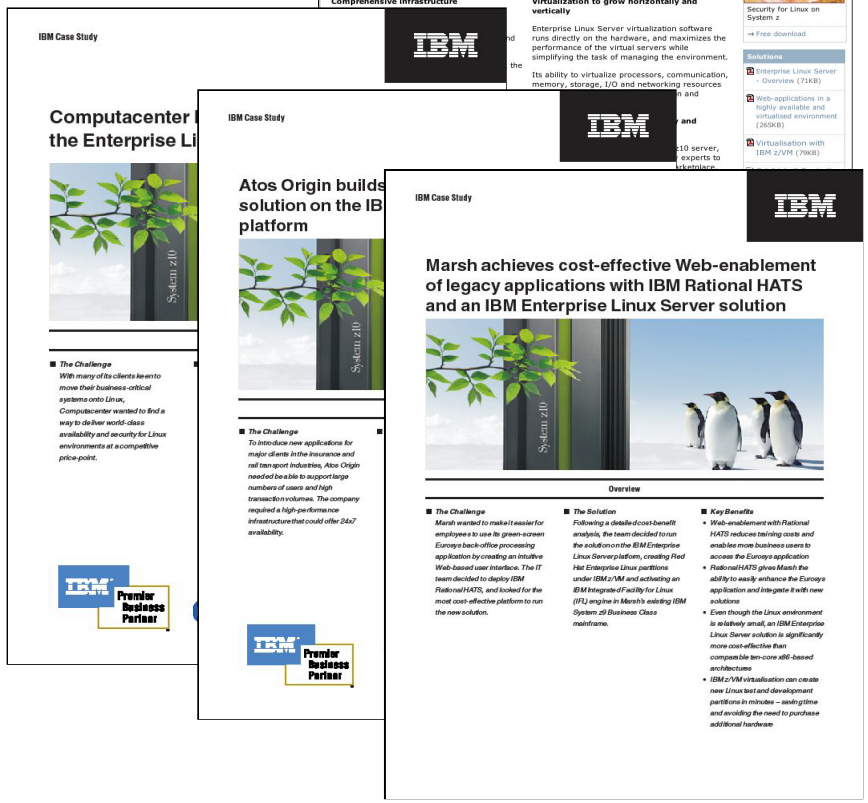
- RedBooks
  http://www.redbooks.ibm.com/portals/linux





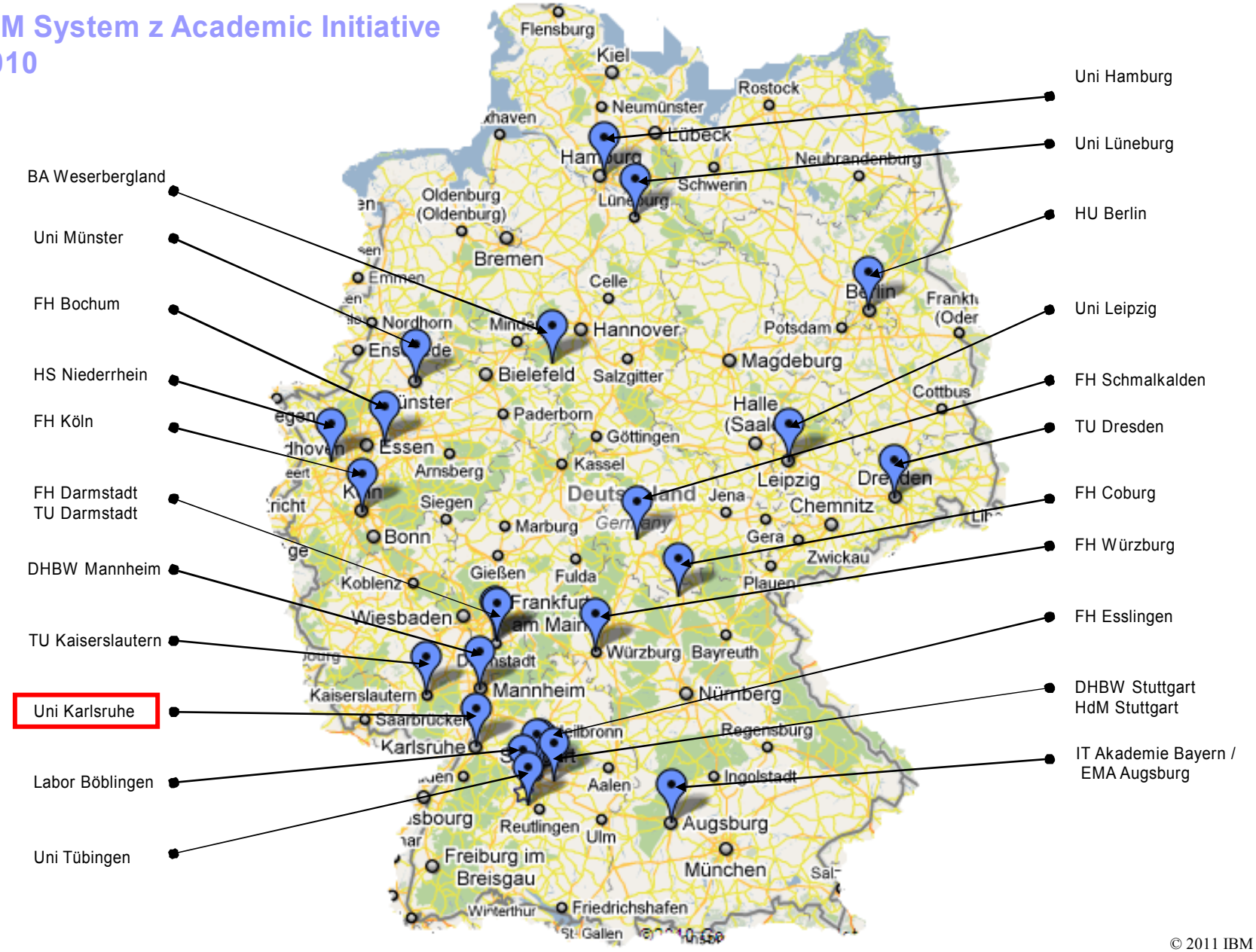






System z – Academic Initiative

IBM System z Academic Initiative 2010



Karlsruhe Institute of Technology (KIT)

"Hochverfügbarkeit und Skalierbarkeit moderner Unternehmensserver am Beispiel von IBM System z"

- Established in 2009
  Taught over two semesters
  Klaus Goebel, Robert Vaupel, Joachim von Buttlar
- 16-20 students per year
  Credited towards Diploma and/or Bachelor/Master exam
- Hands-on excercises now being developed by Ph.D. students and junior professor
- Nov. 2010:
  Founded the IIC (Informatics Innovation Center) and donated an IBM System z10 BC for education, training, and research projects.
  - Partnership Program

- CPU Architecture
  - Register sets
  - Memory organization
  - Virtual storage
  - Interrupt mechanism
  - Timing facilities
  - Instruction set
  - Multiprocessing facilities
- I/O Architecture
  - I/O infrastructure
  - Adapter types & channels
  - Control unit & devices
  - Extensions for large configurations
- Partitioning and virtualization
  - LPAR versus z/VM
  - Differences and commonalities
  - Hardware facilities
  - Storage management
  - Processor management
  - I/O management
- z/OS
  - Address space and storage concepts
  - Task execution and serialization
  - Program communication and data exchange
  - RAS concepts of z/OS
  - ECKD format
  - Data formats & data sets
  - I/O flow
  - z/OS subsystems
- Workload Management
  - Dispatching on large scale computer environments
- Parallel Sysplex
  - Cluster concepts
  - Coupling facility structure
  - Parallel Sysplex structure and exploitation
  - GDPS concepts
  - Data mirroring
  - System automation
- Middleware Integration
- z/VM
  - z/VM virtualization concepts
  - CMS, XEDIT, CP basics
  - Efficient multi-level virtualization
  - Resource over-commitment
- z/VSE
  - POWER, VSAM, CICS, ICCF, LIBR, ref customers
- Linux on System z
  - Devices & drivers
  - I/O setup
  - Virtual networking
  - Memory management
- Security / Cryptography
  - Cryptographic accelerators
  - Cryptographic coprocessors

IIC

Informatics Innovation Center,

a joint research & education center between IBM Research & Development (IBM R&D), Karlsruhe Institute of Technology (KIT), and Forschungs-Zentrum für Informatik (FZI)

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Gründung des Informatics Innovation Center (IIC) [0]

Karlsruhe (bd) - Mit der Gründung des Informatics Innovation Center (IIC) wird die langjährige Kooperation der Fakultät für Informatik des Karlsruher Instituts für Technologie mit dem Forschungszentrum Informatik (FZI) und IBM auf ein neues Fundament gestellt: Gemeinsam möchten die Partner IT-Innovationen auf den Weg bringen. Am Dienstag, den 16. November feierten Vertreter aus Politik, Wissenschaft und Wirtschaft die Gründung des Innovationszentrums, das Baden-Württemberg in den Bereichen Innovation, Forschung und Lehre weiter stärken soll. IBM übergab dem KIT einen Großrechner im Wert von zwei Millionen Euro, der in Lehre und Forschung an der Informatikfakultät eingesetzt wird.

Investition in Forschung und Lehre: IBM stellt der Fakultät für Informatik einen Großrechner vom Typ IBM z10 im Wert von zwei Millionen Euro zur Verfügung

Das IIC soll das Wissen aus Wirtschaft und Wissenschaft besser miteinander vernetzen und die Zusammenarbeit bei strategischen IT-Themen ausbauen. Die Studierenden profitieren von der praxisnahen Ausbildung und kommen früher und stärker als bisher mit der Industrie in Kontakt, beispielsweise durch gemeinsame Projekte im Rahmen von Abschlussarbeiten oder durch praxisnahe Lehrveranstaltungen. „Durch den engen Kontakt mit der Wirtschaft lernen die Studenten frühzeitig, die Brücke zwischen Theorie und Praxis zu schlagen und erfahren, welche Wettbewerbsvorteile sich Unternehmen durch eine leistungsfähige IT verschaffen können, so

Karlsruher Institut für Technologie

■ Campus

- » Neues aus den Hochschulen
- » Hochschule Karlsruhe - Technik und Wirtschaft
- » Pädagogische Hochschule
- » Duale Hochschule Baden-Württemberg
- » Karlsruher Institut für Technologie (KIT)
- » Hochschule für Gestaltung (HfG)

acebook StudiVZ MeinVZ iPhone

aktuelle Fotogalerien

http://www.ka-news.de/nachrichten/camp

Karlsruhe/Stuttgart/Böblingen - 17 Nov 2010: IBM, das Forschungszentrum Informatik und das Karlsruher Institut für Technologie gründen das neue "Informatics Innovation Center (IIC)". Der Großrechner stärkt die Lehre und Forschung im Bereich Mainframetechnologie und ermöglicht flexible Cloud-Services für andere wissenschaftliche Einrichtungen. Die Rechenpower soll das gemeinsame Forschungsprojekt "HOMER" voran bringen und die Sicherheit in der Cloud auf ein bisher unerreichtes Niveau erhöhen. Studierende profitieren von der praxisnahen Ausbildung an dem modernen Großrechner und verbessern ihre Arbeitsmarktchancen.

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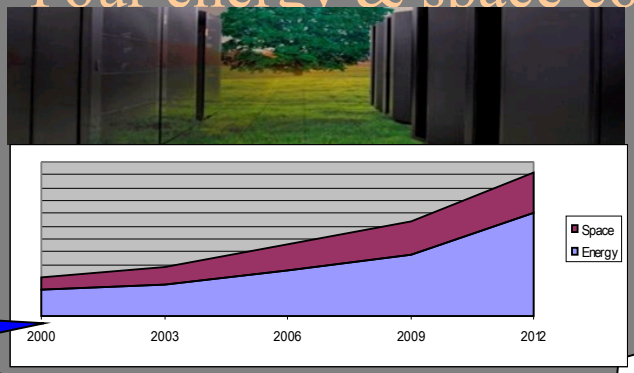
Summary

Your business requirements

Your heterogeneous IT

Your energy & space cost



Dynamic efficiency by IBM System z

Consolidation proposal

Your benefit

Insurance Company Reduced Energy Requirements 95% by Consolidating 292 Servers to a z10

	FROM …	TO …
Current hardware infrastructure	Sun (Fire, Netra, Enterprise servers)	z10 EC
Footprints	292	1
Cores/Memory	500+ cores	22 IFLs
Avg Utilization	30 %	90 %
Application	Mainly Web services	Mainly Web services
OS	Solaris	Linux + z/VM
Energy / Space savings		Energy reduction: 95% Heat reduction: 93.6% Floor space reduction: 97%

Summary of Benefits: Improved utilization, reductions in energy, heat
Floor space savings with 292 footprints to 1 reduction

Questions ?

Ansprechpartner:

Helmut Riethmüller,
IBM Deutschland Research & Development
hrieth@de.ibm.com

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