Dr. Klaus Goebel

IBM Research & Development, Böblingen, kgoebel@de.ibm.com

Aktuelles aus z/VM, z/VSE, Linux on System z

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DS6000	IBM eServer	System z10	zSeries*
DS8000	IBM logo*	System z10 Business Class	z9
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ESCON*	MQSeries*	TotalStorage*	z10 BC
FICON*	OMEGAMON*	VSE/ESA	z10 EC

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Agenda

§ **z/VSE**

§ **z/VM**

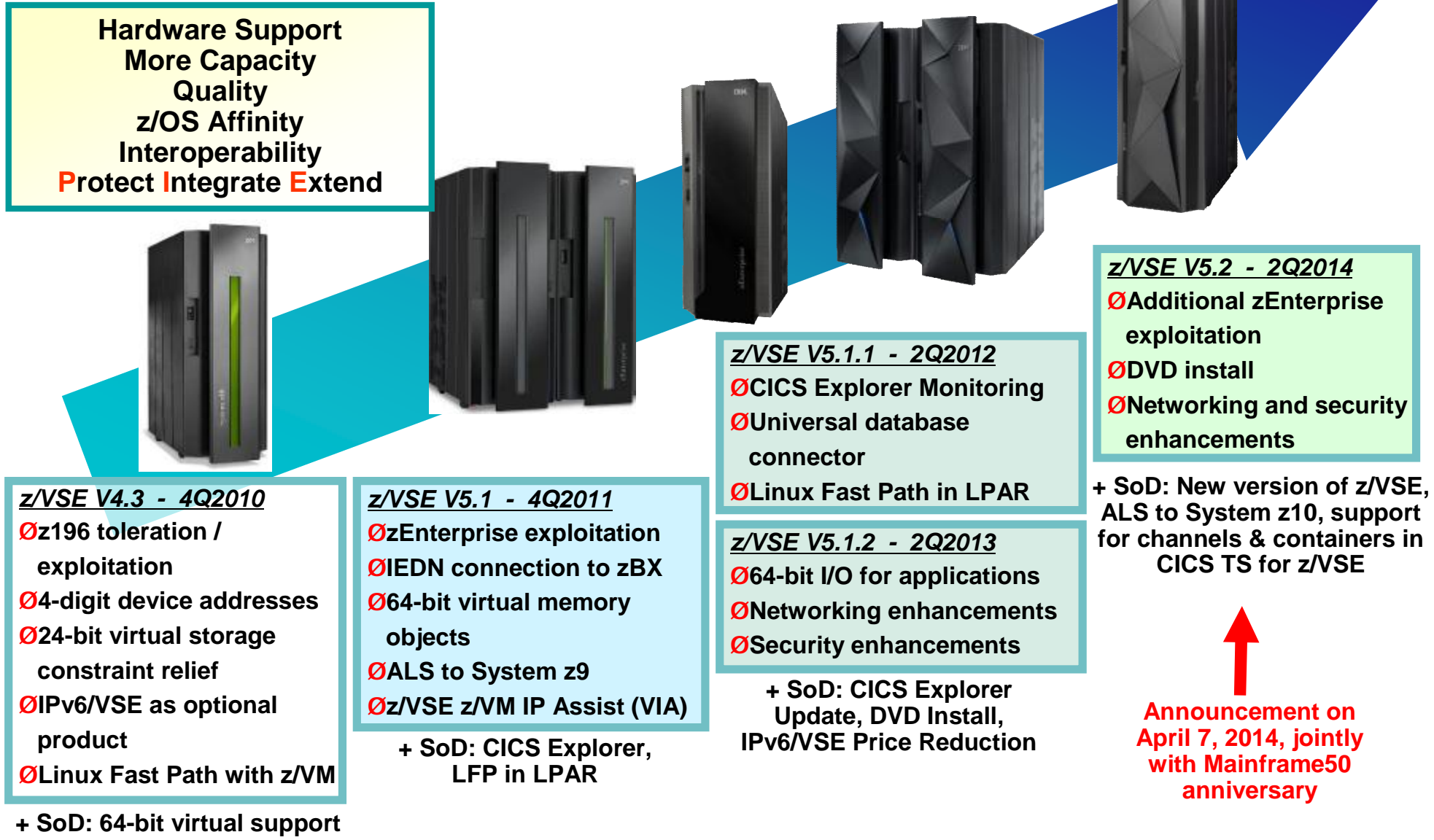§ **Linux on System z**

§ **IBM Wave for z/VM**

§ **CAMS Offering**

z/VSE Support Status (as of April 2014)

VSE Version and Release	Marketed	Supported	End of Support
z/VSE V5.1 requires z9 or newer system	a	a	**tbd**
z/VSE V4.3 requires z800 or newer system	r	a	**10/31/2014**
z/VSE V4.2 incl CICS/VSE V2.3, DL/I V1.11	r	r	10/31/2012
z/VSE V4.1 [2]	r	r	04/30/2011
z/VSE V3.1 [1]	r	r	07/31/2009
VSE/ESA V2.7	r	r	02/28/2007

Service Extension Contracts available on request

[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 continues to demonstrate IBM's commitment

**Hardware Support
More Capacity
Quality
z/OS Affinity
Interoperability
Protect Integrate Extend**

z/VSE V5.2 - 2Q2014
Ø**Additional zEnterprise exploitation**
Ø**DVD install**
Ø**Networking and security enhancements**

z/VSE V5.1.1 - 2Q2012
Ø**CICS Explorer Monitoring**
Ø**Universal database connector**
Ø**Linux Fast Path in LPAR**

+ SoD: New version of z/VSE, ALS to System z10, support for channels & containers in CICS TS for z/VSE

z/VSE V4.3 - 4Q2010
Ø**z196 toleration / exploitation**
Ø**4-digit device addresses**
Ø**24-bit virtual storage constraint relief**
Ø**IPv6/VSE as optional product**
Ø**Linux Fast Path with z/VM**

z/VSE V5.1 - 4Q2011
Ø**zEnterprise exploitation**
Ø**IEDN connection to zBX**
Ø**64-bit virtual memory objects**
Ø**ALS to System z9**
Ø**z/VSE z/VM IP Assist (VIA)**

z/VSE V5.1.2 - 2Q2013
Ø**64-bit I/O for applications**
Ø**Networking enhancements**
Ø**Security enhancements**

+ SoD: CICS Explorer Update, DVD Install, IPv6/VSE Price Reduction

+ SoD: CICS Explorer, LFP in LPAR

Announcement on April 7, 2014, jointly with Mainframe50 anniversary

+ SoD: 64-bit virtual support

z/VSE V5.2

Announced April 7, 2014, General Availability planned for April 25, 2014

§ **Hardware Exploitation**
  – Integration of PTFs delivered with z/VSE V5.1.2+
    • zBC12 exploitation (incl. support for Crypto Express4S, OSA-Express5S)
    • TS1140 tape drive (incl. encryption capabilities)
  – Virtual disk in 64-bit virtual memory objects

§ **Ease of Use**
  – Install from DVD for ECKD devices
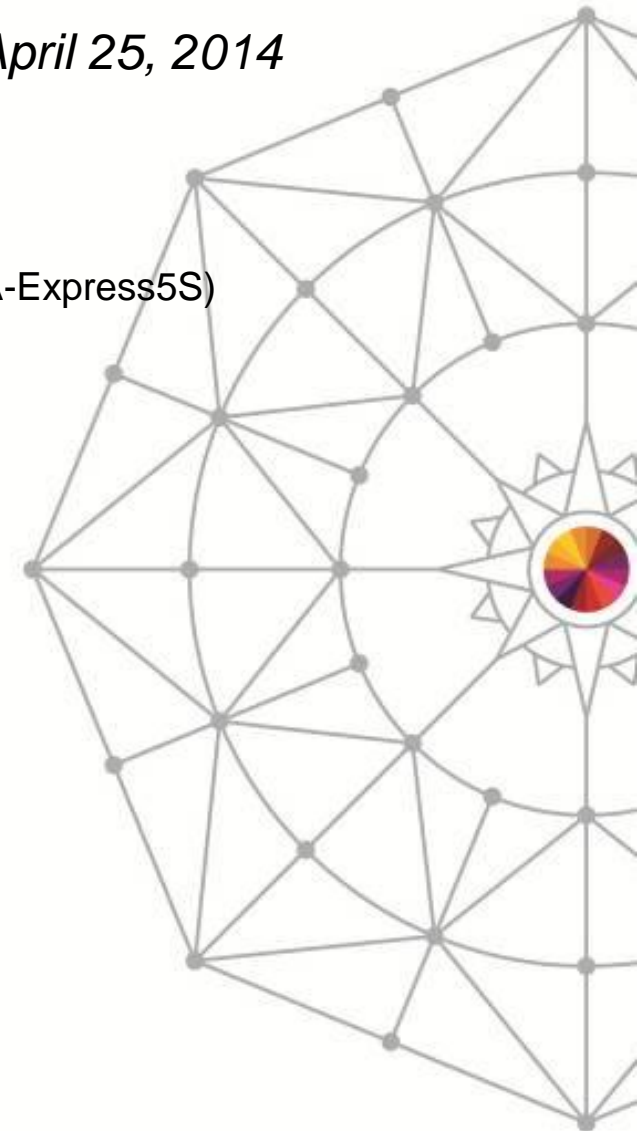   • Tape-less system for initial install

§ **Networking**
  – IPv6 enhancements

§ **Security**
  – Auditing enhancements
  – OpenSSL integration

§ **Customer Requirements**

§ **New z/VSE Statements of Direction**

IBM

New z/VSE Statements of Direction (SODs)
Announced April 7, 2014 – jointly with Mainframe50 Anniversary

§   **IBM intends to provide new capability in a future release of IBM CICS Transaction Server for z/VSE to provide:**

   i.   **Updates to CICS resources for CICS Explorer, and**

   ii. **Channels and Containers to enable the transfer of large amounts of data between CICS applications.**

§   **Support for CICS Distributed Data Management (DDM) is stabilized in CICS TS for VSE/ESA V1.1.1. In a future release of CICS TS for z/VSE, IBM intends to discontinue support for CICS DDM.**

§   **z/VSE V5.2 will be the last release that supports IBM System z9. Future releases of z/VSE will support IBM System z10 and higher.**

§   **IBM intends to rename the product z/VSE Central Functions to z/VSE in a new z/VSE version.**

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New Redbook: Enhanced Networking on IBM z/VSE - SG24-8091

Available since February 6, 2014

http://www.redbooks.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg248091.html

This IBM Redbooks publication helps you install, tailor, and configure new networking options for z/VSE that are available with TCP/IP for VSE/ESA, IPv6/VSE, and Fast Path to Linux on System z (Linux Fast Path). We put a strong focus on network security and describe how the new OpenSSL-based SSL runtime component can be used to enhance the security of your business.

Chapter 1. Networking options overview

Chapter 2. TCP/IP for VSE/ESA

Chapter 3. IPv6/VSE

Chapter 4. Fast Path to Linux on System z

Chapter 5. OpenSSL

Chapter 6. Comparison of stacks and protocols

Appendix A. API reference

Enhanced Networking on IBM z/VSE

Learn how to use IPv6 on z/VSE

Experience the benefits of OpenSSL

Use LFP on Z/VM and in LPAR for selected applications
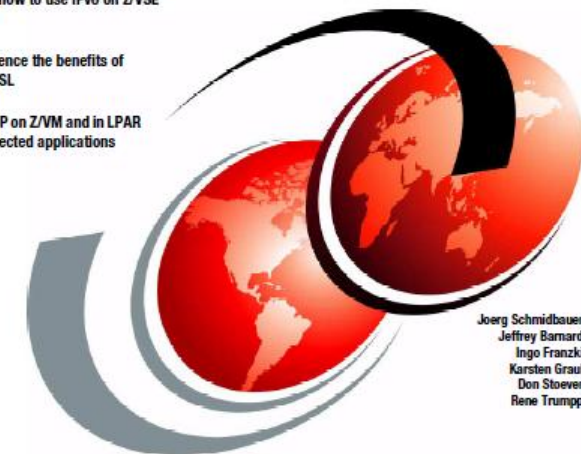
Joerg Schmidbauer
Jeffrey Barnard
Ingo Franzki
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Agenda

§ **z/VSE**

➡ § **z/VM**

§ **Linux on System z**

§ **IBM Wave for z/VM**

§ **CAMS Offering**

z/VM Release Status Summary (as of April 2014)

z/VM	Level	GA	End of Service	End of Marketing	Minimum Processor Level	Security Level
Version 6	Release 3	7/2013	4/2017		IBM System z10®	EAL 4+[2] OSPP-LS
	Release 2	12/2011	12/2016[3]	3Q/2013	IBM System z10®	-
	Release 1	10/2009	4/2013	12/2011	IBM System z10®	EAL 4+ OSPP-LS
Version 5	Release 4	9/2008	12/2014[1]	3/2012	IBM eServer zSeries 800&900 (z800, z900)	-
	Release 3	6/2007	9/2010	9/2010	z800, z900	EAL 4+ CAPP/LSPP

[1] Or later (Announced August 7, 2012)
[2] Targeted Security Level in V6.3 SOD
[3] Extended from original date (Announced February 4, 2014)

Marketed & Serviced

Serviced, but not Marketed

End of Service & Marketing

Extended support contracts are available.

Stabilization of z/VM 5.4 Support – SOD announced July 23, 2013

The IBM zEnterprise EC12 and IBM zEnterprise BC12 are planned to be the last System z servers supported by z/VM V5.4 and the last System z servers that will support z/VM V5.4 running as a guest (second level). z/VM V5.4 will continue to be supported until December 31, 2014, or until the IBM System z9® Enterprise Class (z9 EC) and IBM System z9 Business Class (z9BC) are withdrawn from support, whichever is later. Refer to Withdrawal Announcement 912-144, (RFA56762) dated August 7, 2012.

- While support will continue to the later date of December 31, 2014, or until the z9 processors are withdrawn, support for new function and processors is being stabilized.

- z/VM 5.4 will not be supported on processors after the zEC12 and zBC12.
  - This includes running as a guest of a supported z/VM Version 6 release.

- Plan now to avoid a migration which would involve both hardware and software at the same time.

CPU Pooling in z/VM 6.3 – announced Feb 24, 2014

§ Fine grain CPU limiting for a group of virtual machines

§ Define one or more pools in which a limit of CPU resources is set

§ Two flavors of limits:
- LIMITHARD - Percentage of system
- CAPACITY – Number of CPUs

§ Coexists with individual limit shares
- More restrictive limit applies

§ Support details:
- z/VM 6.3 with APAR VM65418 – June 27, 2014

DB2 WAS	DB2		DB2	DB2	WAS	WAS
Linux 1 3 vIFL	Linux 2 3 vIFL		Linux 3 4 vIFL	Linux 4 6 vIFL	Linux 5 1 vIFL	Linux 6 2 vIFL
Pool 1: 3 IFLs		Pool 2: 1 IFL	Pool 3: 8 IFLs		Pool 4: 4 IFLs	
LPAR zVM1: 4 dedicated IFLs			LPAR zVM2: 12 shared IFLs			
System z CEC – 16 IFLs						

Environment Information Interface – announced Feb 24, 2014

§ New interface allows guest to capture execution environment
- Configuration and capacity information
- Various levels:
  - Machine, logical partition, hypervisor, virtual machine

§ New problem statement instruction: Store Hypervisor Information (STHYI)

§ Includes support for CPU Pooling enhancement

§ Foundation for future software licensing tools

§ Support details:
- z/VM 6.3 with APAR VM65419 – June 27, 2014

zEC12/zBC12 Exploitation with z/VM 6.3 – announced Feb 24, 2014

10GbE RoCE Express Feature

§ Support for RDMA over Converged Ethernet for z/VM guests

§ Based on new hypervisor PCIe support

§ Designed to support z/OS's Shared Memory Communications-Remote Direct Memory Access (SMC-R) in z/OS V2.1

§ Helps reduce CPU resource consumption

zEDC Express Feature

§ Guest support for zEDC Express Feature

§ High performance, low latency, low CPU consumption compression

§ Possible disk utilization reduction

Support details:

– IBM zEC12 or zBC12 with appropriate millicode (driver 15)

– z/VM 6.3 with APAR VM65417 – June 27, 2014

– z/OS 1.12, z/OS 1.13, z/OS 2.1 with APAR OA43256 and/or OA44482, respectively

– Fulfills 2013 Statement of Direction

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Agenda

§ **z/VSE**

§ **z/VM**

➡ § **Linux on System z**

§ **IBM Wave for z/VM**

§ **CAMS Offering**

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Linux Distributions - Status as of April 2014

- § **SLES 10 SP4**
  - **Available since 04/2011**
- § **SLES 11 SP3**
  - **Available since 07/2013**
- § **SLES 12**
  - **Announced at SuseCon in 11/2013**
  - **Expect ALS (Architecture Level Set) to IBM z196**

- § **RHEL 5.10**
  - **Available since 10/2013**
- § **RHEL 6.5**
  - **Available since 11/2013**
- § **RHEL 7**
  - **Announced and available as Beta since 12/2013**
  - **Expect ALS (Architecture Level Set) to IBM z196**

10 SP4

04/2011

11 SP3

07/2013

5.10

10/2013

6.5

11/2013

Oracle Database 12c R1

§ **Available for Linux on System z since Jan 2014**

www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html

Mobile Architecture Overview for System z

Aktuelles aus z/VSE, z/VM und Linux auf System z

Agenda

§ **z/VSE**

§ **z/VM**
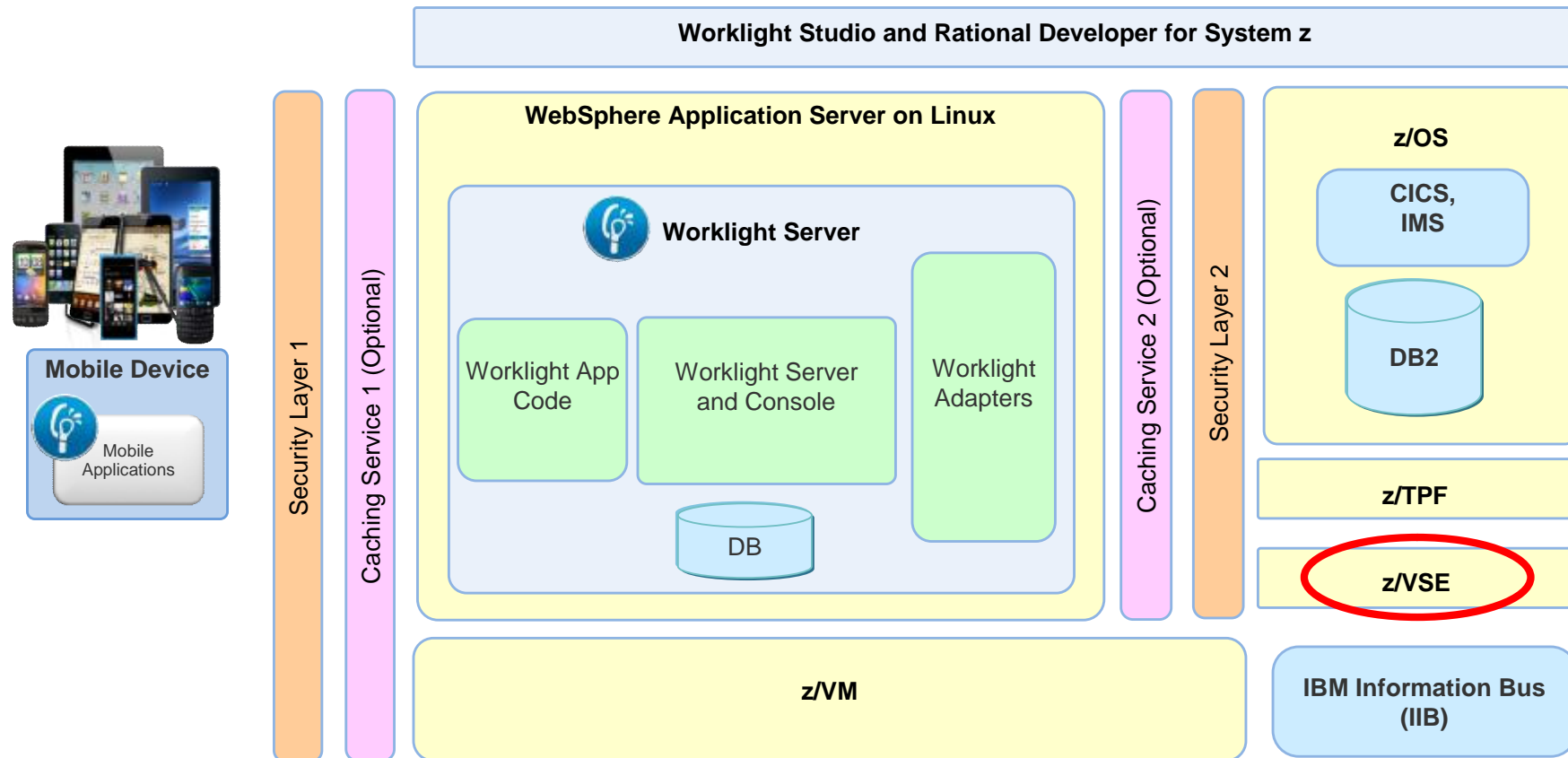
§ **Linux on System z**

➡ § **IBM Wave for z/VM**

§ **CAMS Offering**

IBM Wave for z/VM V1.1
IBM Web Administration VM Environment

5648-AE1 1.1. IBM Wave for z/VM
5648-AE2 1.1. IBM Wave for z/VM S&S

Supported IBM System z® processors: IBM System z10® Enterprise Class (z10 EC™), IBM System z10 Business Class™ (z10 BC™) and later

Supported z/VM versions/releases:
§ z/VM 6.3
§ z/VM 6.2
§ z/VM 5.4

– IBM Wave is a new virtualization management product for z/VM® and Linux® virtual servers that uses visualization to dramatically automate and simplify administrative and management tasks

– Enhanced Enterprise Linux Server (ELS*) solution is also available with IBM Wave for z/VM

– New! Jumpstart Services to help customers get started with IBM Wave

– Read the announcement here!

– Announced: February 24th, 2014

– General availability: February 28th, 2014

Enterprise Linux Server is an integrated solution comprised of Hardware, Hypervisor, Memory, Easy to Use Virtualization Management and 3 years Service and Support designed to get customers including FIEs started with low cost scalable computing environment

IBM Wave for z/VM V1.1 – Overview

IBM Wave simplifies and helps automate management and administration of z/VM and Linux virtual servers, jumpstarting the steps needed to get to cloud. With its content rich interface IBM Wave extends the reach of your staff and lets you manage z/VM and Linux intuitively and cost effectively, reducing reliance on deep expert skills.

§ **Monitors** and **manages** virtual servers and resources from a single **graphical interface**

§ **Simplifies** and **automates** administration and management tasks

§ **Provisions** virtual resources (guests, network, storage)

§ Supports advanced z/VM capabilities such as Single System Image (**SSI**) and Live Guest Relocation (**LGR**)

§ Allows **delegation** of administrative capabilities to the appropriate teams
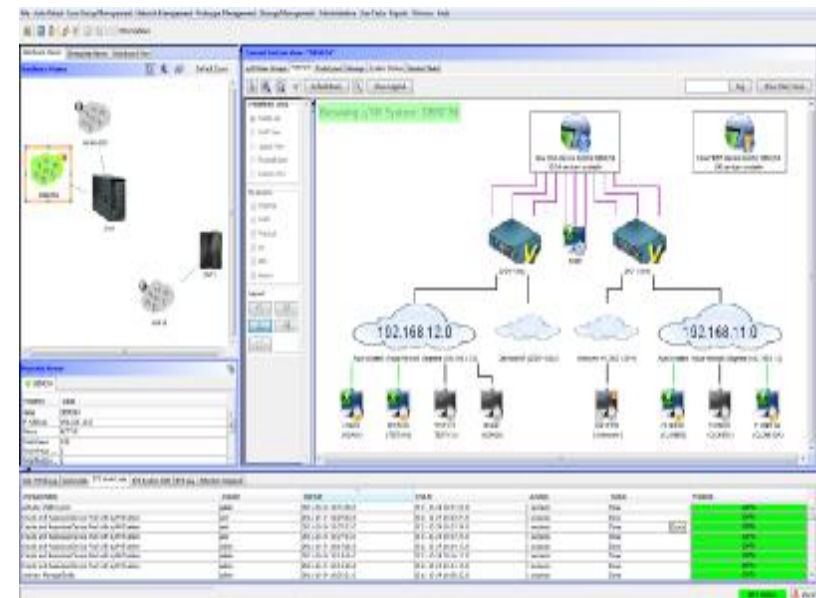
A simple, intuitive graphical management, provisioning, and automation tool to help you fully leverage the power of System z virtualization on z/VM.

New Redbook

IBM Wave for z/VM - Installation, Implementation and Exploitation

Table of Contents:

1. Introduction to IBM Wave for z/VM
2. IBM Wave for z/VM architecture
3. Planning and design
4. Installation and configuration
5. How to manage and operate the user interface environment
6. How to manage z/VM
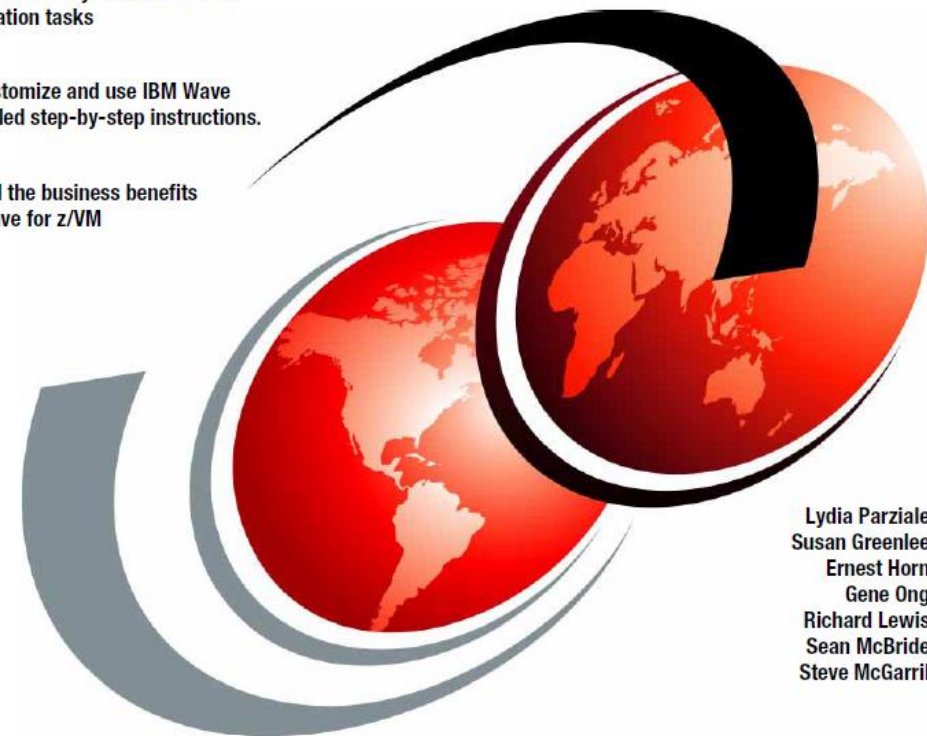7. How to manage the Linux virtual machines

http://www.redbooks.ibm.com/abstracts/sg248192.html

Simplify Linux on System z and z/VM administration tasks

Install,customize and use IBM Wave with detailed step-by-step instructions.

Undertand the business benefits of IBM Wave for z/VM

Lydia Parziale
Susan Greenlee
Ernest Horn
Gene Ong
Richard Lewis
Sean McBride
Steve McGarril

Redbooks

ibm.com/redbooks

ELS and SEEL now feature IBM Wave for z/VM

Enterprise Linux Server includes IBM zEnterprise hardware, hardware maintenance, IBM virtualization and management software components and software subscription & support

§ **Hardware options**
- IBM zEnterprise server
- 32 GB memory
- Connectivity
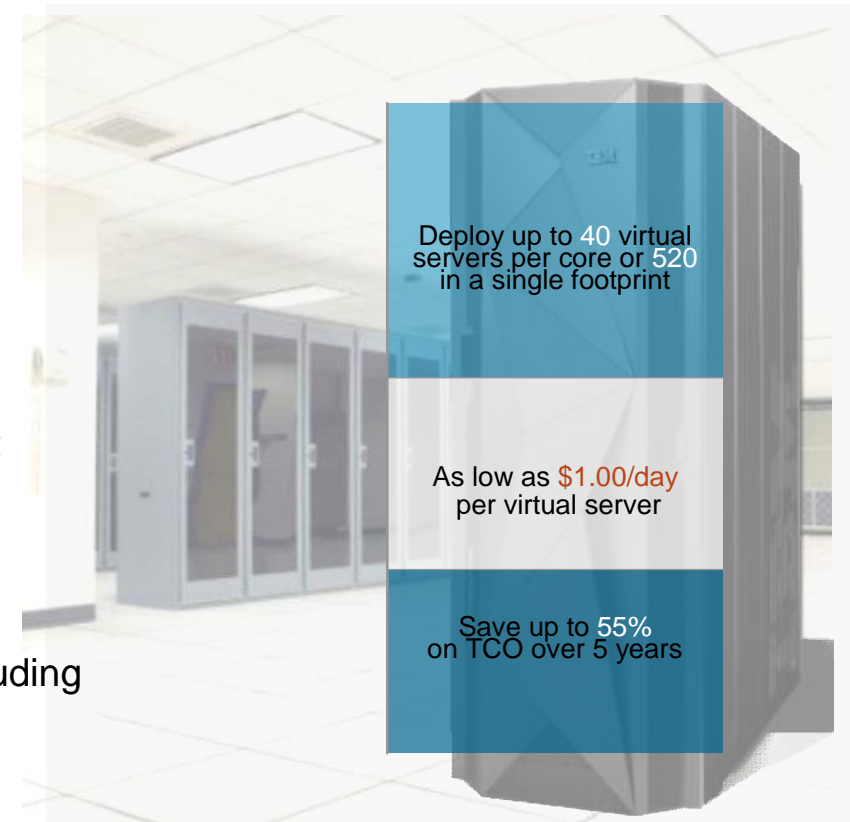- Maintenance

§ **Virtualization software**
- IBM z/VM Version 6
- z/VM basic features:
  - Dirmaint, RACF®, Performance Toolkit for z/VM, RSCS
- **NEW! IBM Wave for z/VM** included, can be snapped out
- 3-5 years Subscription & Support
- Note: Linux ordered from Red Hat or SUSE

§ **Enterprise Linux Server (ELS)**
- Includes IFLs, memory, I/O adapters, z/VM software including 3-5 years of subscription & support, and maintenance

§ **Solution Edition for Enterprise Linux (SEEL)**
- Add incremental IFLs, memory, z/VM software and 3-5 years of subscription & support, and maintenance to existing zEnterprise server

Deploy up to 40 virtual servers per core or 520 in a single footprint

As low as $1.00/day per virtual server

Save up to 55% on TCO over 5 years

[1] 28-32 GB memory on zBC12, 24 GB memory per core up to 5 IFLs on z114.

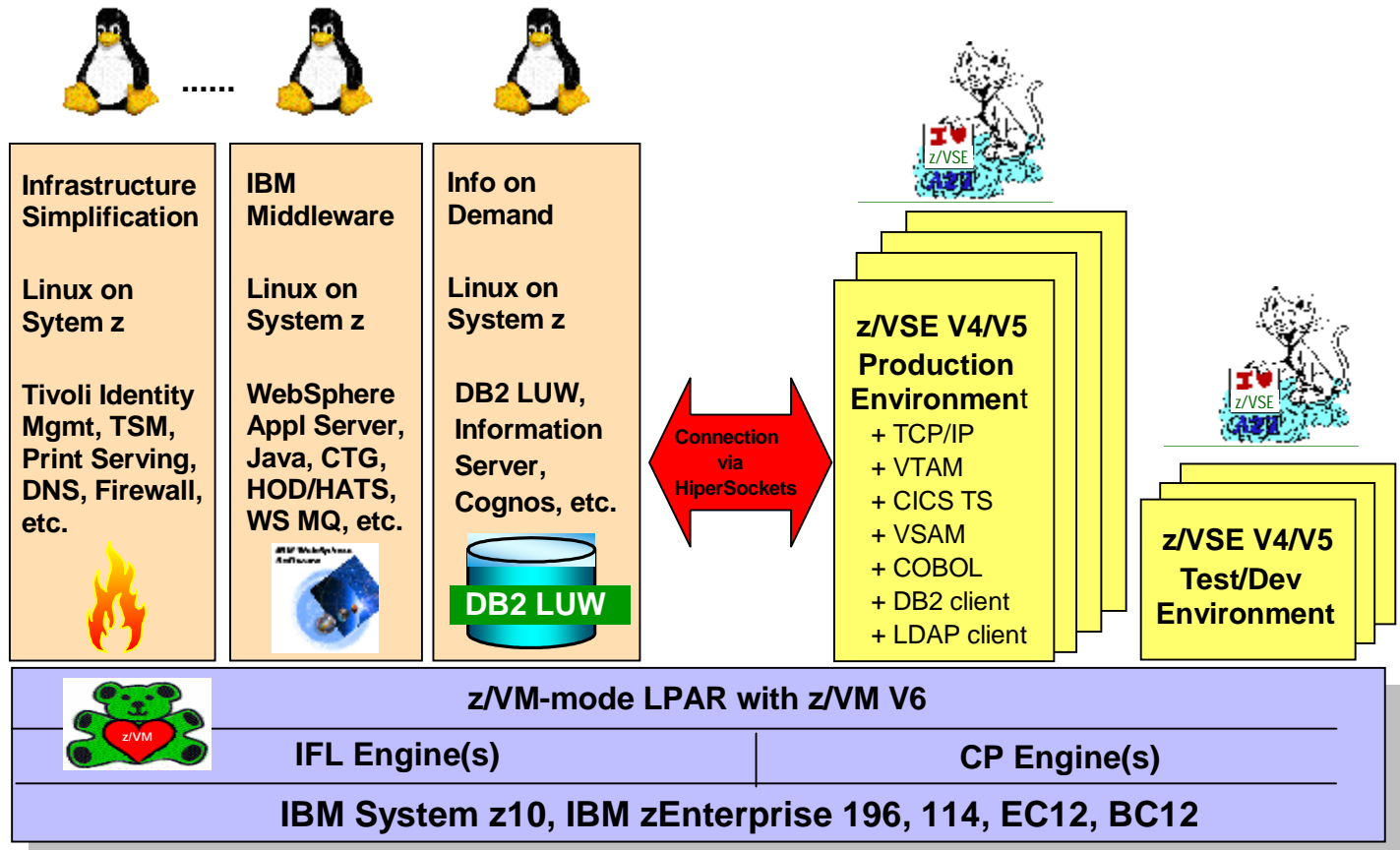# Agenda

§ **z/VSE**

§ **z/VM**

§ **Linux on System z**

§ **IBM Wave for z/VM**

⇨ § **CAMS Offering**

z/VSE strategy with Linux on z
Hybrid Environment leveraging z/VSE, z/VM, and Linux on System z

Protect existing z/VSE investments
Integrate using middleware and z/VSE connectors
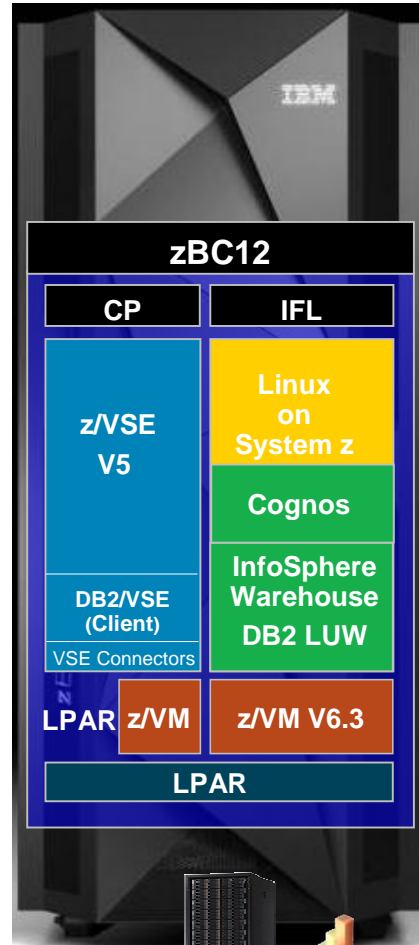**E**xtend with Linux on IBM System z technology & solutions

Infrastructure Simplification

Linux on Sytem z

Tivoli Identity Mgmt, TSM, Print Serving, DNS, Firewall, etc.

IBM Middleware

Linux on System z

WebSphere Appl Server, Java, CTG, HOD/HATS, WS MQ, etc.

Info on Demand

Linux on System z

DB2 LUW, Information Server, Cognos, etc.

DB2 LUW

Connection via HiperSockets

z/VSE V4/V5 Production Environment
+ TCP/IP
+ VTAM
+ CICS TS
+ VSAM
+ COBOL
+ DB2 client
+ LDAP client

z/VSE V4/V5 Test/Dev Environment

z/VM-mode LPAR with z/VM V6

IFL Engine(s)	**CP Engine(s)**

IBM System z10, IBM zEnterprise 196, 114, EC12, BC12
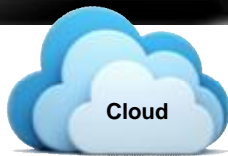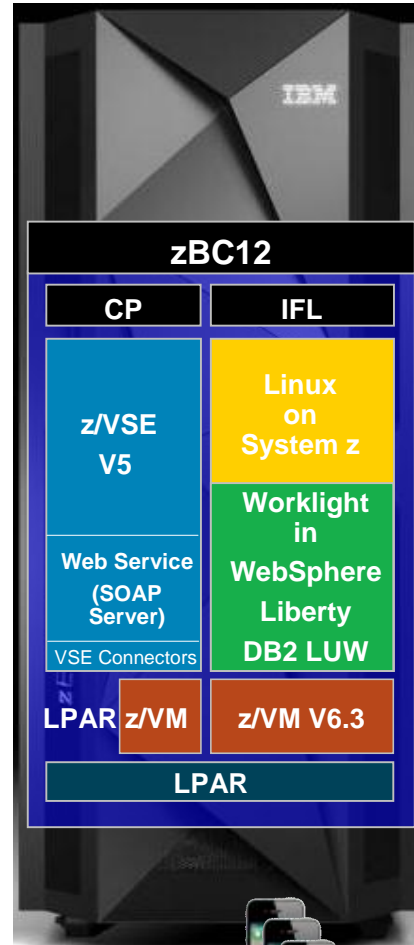
z/VSE Linux Growth Offering – CAMS Solution Examples

Cloud   **A**nalytics   **M**obile   **S**ecurity

Cloud panel: zBC12 — CP / IFL — z/VSE V5 — Linux on System z — IBM Wave for z/VM — VSE Connectors — LPAR z/VM — z/VM V6.3 xCAT — LPAR — Cloud

Analytics panel: zBC12 — CP / IFL — z/VSE V5 — Linux on System z — Cognos — InfoSphere Warehouse DB2 LUW — DB2/VSE (Client) — VSE Connectors — LPAR z/VM — z/VM V6.3 — LPAR — XIV, DS8000

Mobile panel: zBC12 — CP / IFL — z/VSE V5 — Linux on System z — Worklight in WebSphere Liberty DB2 LUW — Web Service (SOAP Server) — VSE Connectors — LPAR z/VM — z/VM V6.3 — LPAR — Mobile

Security panel: zBC12 — CP / IFL — z/VSE V5 — Linux on System z — Firewall — LDAP Server — Encryption Facility — OpenSSL — LDAP (Client) — VSE Connectors — LPAR z/VM — z/VM V6.3 RACF — LPAR — Crypto

and many more ....

Questions?