

Aktuelles zu z/VM, z/VSE und Linux on System z

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ESCON*	Parallel Sysplex*	VTAM*
FICON*	RACF*	WebSphere*
GDPS*	Rational*	z/Architecture
HiperSockets	System i	z/OS*
IBM*	System z	z/VM*
	System z9	z/VSE
		zSeries*

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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.

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Agenda

§ Operating System Support for System z9

- z/OS, z/OS.e
- z/VM, Linux
- z/VSE

§ z/VM and Linux on System z

- LRS
- Oracle
- Tivoli
- VE
- CMM

§ z/VSE

- z/VSE V3 and V4
- Software Pricing
- Tape Encryption
- Strategy
- TCP/IP
- ... and more

System z9 EC and BC Operating System Support

Operating System	ESA/390 (31-bit)	z/Architecture (64-bit)
z/OS.e# Version 1 Release 4*, 5*, 6, 7, 8	No	Yes
z/OS Version 1 Release 4*, 5*, 6, 7, 8	No	Yes
Linux, 64-bit distribution	No	Yes
Linux, 31-bit distribution	Yes	No
z/VM Version 5 Release 1, 2	No	Yes
z/VM Version 4 Release 4**	Yes	Yes
z/VSE*** 3.1, VSE/ESA 2.7****	Yes	No
z/VSE V4***** (Preview – no GA announced)	No	Yes
z/TPF Version 1	No	Yes
TPF Version 4 Release 1 (ESA mode only)	Yes	No

z/OS.e - z800, z890 and z9 BC only

* Support for z/OS V1.4 and 1.5 will end March 31, 2007

** Support for z/VM V 4.4 has ended on September 30, 2006

*** z/VSE V3 can execute in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE V3 is designed to exploit select features of IBM System z hardware.

**** Support for VSE/ESA 2.7 will end February 28, 2007

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

Note: Please refer to the latest PSP bucket for latest PTFs for new functions/features.

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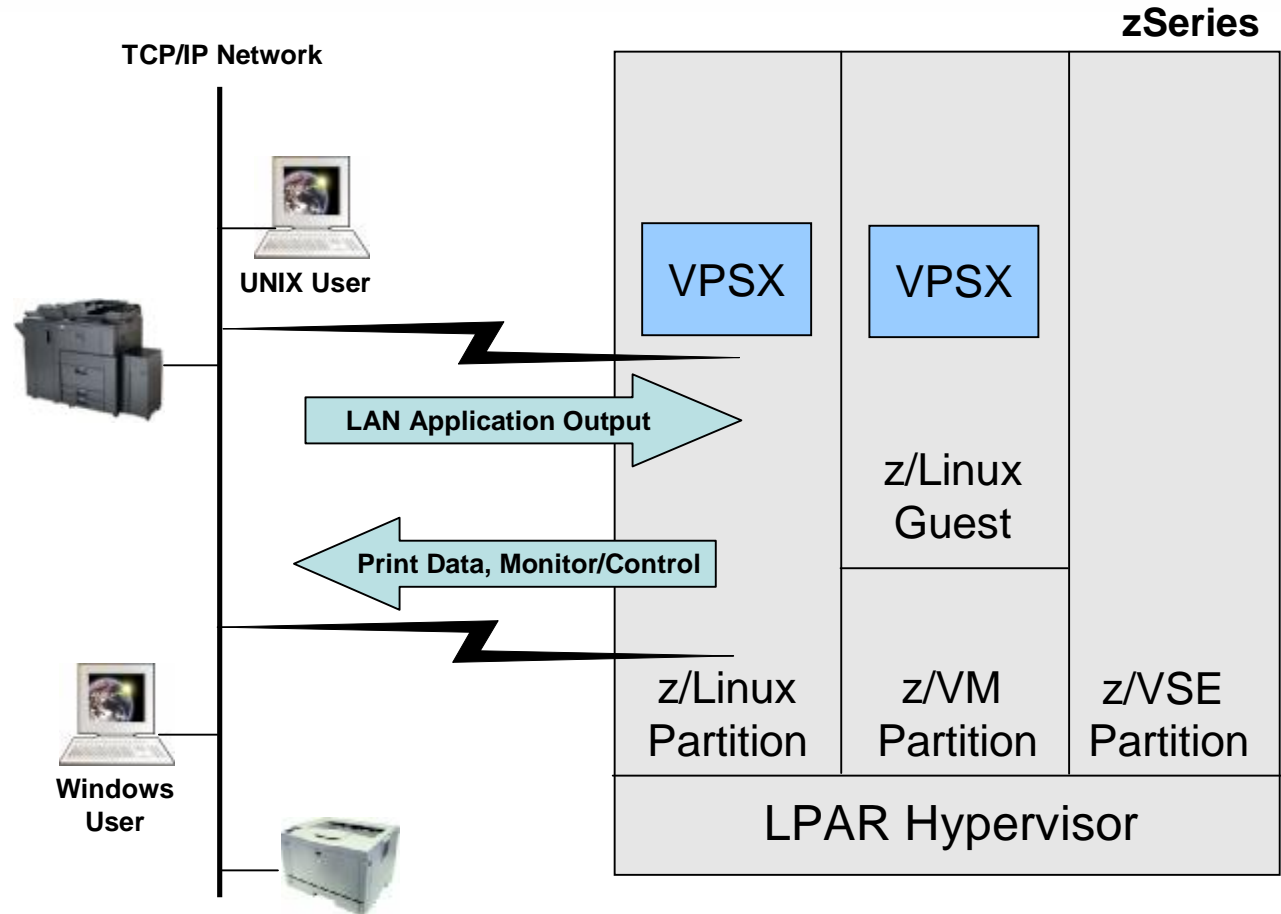


Consolidate Print Servers using VPSX and Linux for zSeries

ENTERPRISE OUTPUT MANAGEMENT

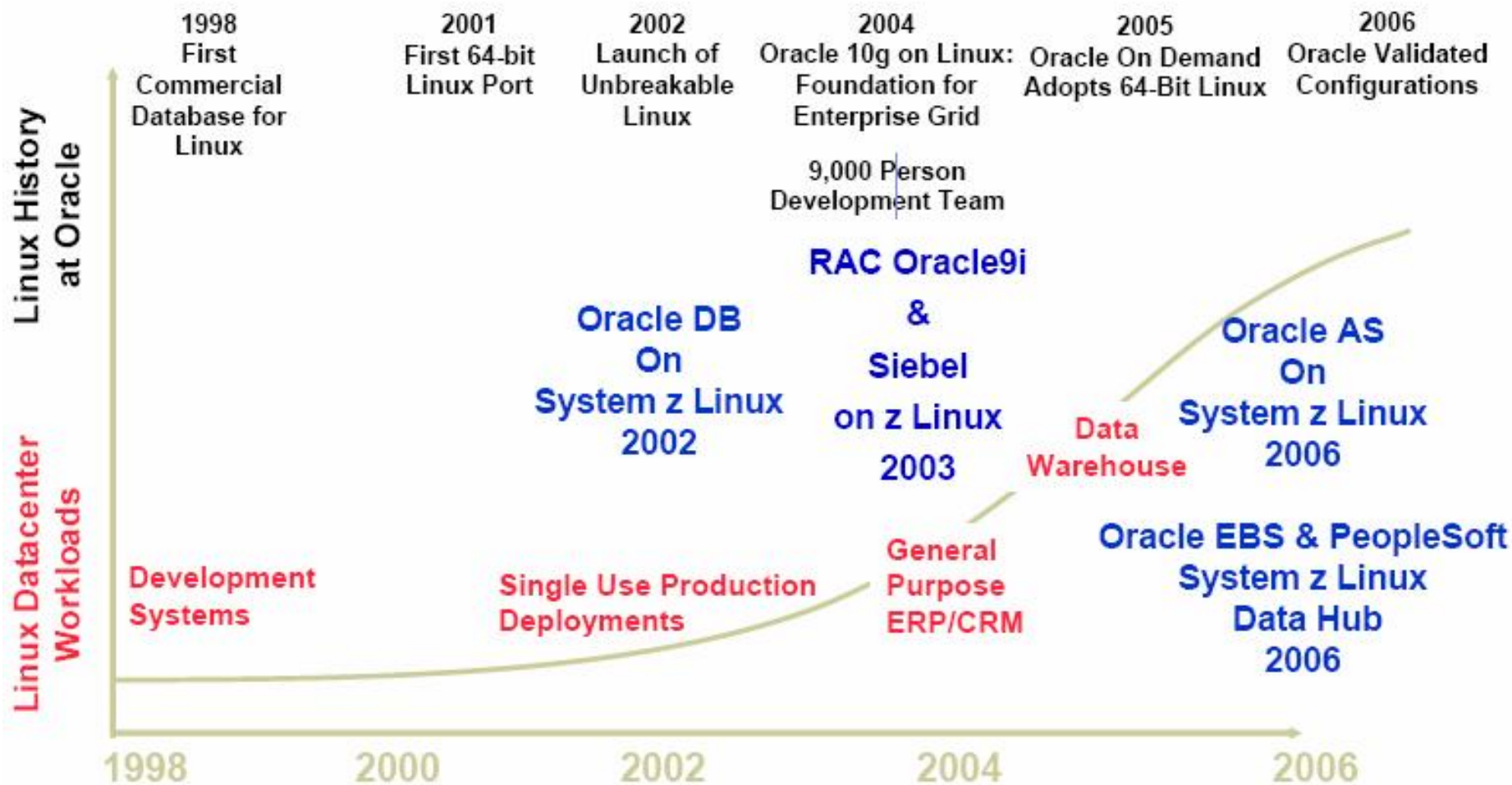
VPSX on Linux for zSeries

- Consolidate multiple Windows and UNIX print servers to VPSX print server on mainframe
 - Reduce workload of network and system administrators
 - Eliminate redundant hardware servers
 - Leverage scalability and robust nature of zSeries and VPSX
- Single point of control and management
- Enhanced job & device status notification
- Datastream conversions
- Supports wide variety of output devices



Levi, Roy & Sklar, Inc.

Oracle delivers on Linux ... and System z





IBM Director Console

Console Tasks Associations View Options Window Help

Groups

- All Groups
 - All Systems and Devices
 - Chassis and Chassis Mem
 - Clusters and Cluster Memb
 - Hardware Status Critical
 - Hardware Status Informatio
 - Hardware Status Warning
 - IBM Director Systems
 - Platforms and Platform Men
 - Systems with Linux
 - zVM Server Complexes
 - zVM Systems

All Systems and Devices : Server Complexes Me...

Status and Name ▲	TCP/IP
0000000000005152402.K4.OFERVM1	
Free guests	
LXEUI	9.60.60.67
scft016	9.60.60.35
Production	
Print Servers	
scft009	9.60.60.69
Web Servers	
scft006	9.60.60.70
scft007	9.60.60.68
Test	
T1	
scft011	9.60.60.71
scft012	9.60.60.72
Not Associated	
rhel4a.endicott.ibm.com	9.60.60.78

Tasks

- Event Action Plans
- Event Log
- External application launch
- File Transfer
- Hardware Status
- Inventory
- Microsoft Cluster Browser
- Network Configuration
- Process Management
- Remote Control
- Remote Session
- Resource Monitors
- Scheduler
- SNMP Browser
- Software Distribution
- All Software Distribution Packag
- System Accounts
- zVM Center
 - zVM Server Complexes
 - zVM Virtual Server Deployment

IBM Director is part of the IBM Virtualization Engine and Infrastructure Services for Linux on System z9 and zSeries

Learn more at: ibm.com/servers/eserver/xseries/systems_management/ibm_director/extensions/zvm.html



Ready

Host: ps-biran User ID: PS-BIRAN\biran

11:00 AM GMT

Linux and z/VM Technology Exploitation

Collaborative Memory Management

- § Problem scenario: virtual memory utilization far exceeds real memory availability
- § z/VM Control Program paging operations become excessive
- § Overall system performance and guest throughput suffers

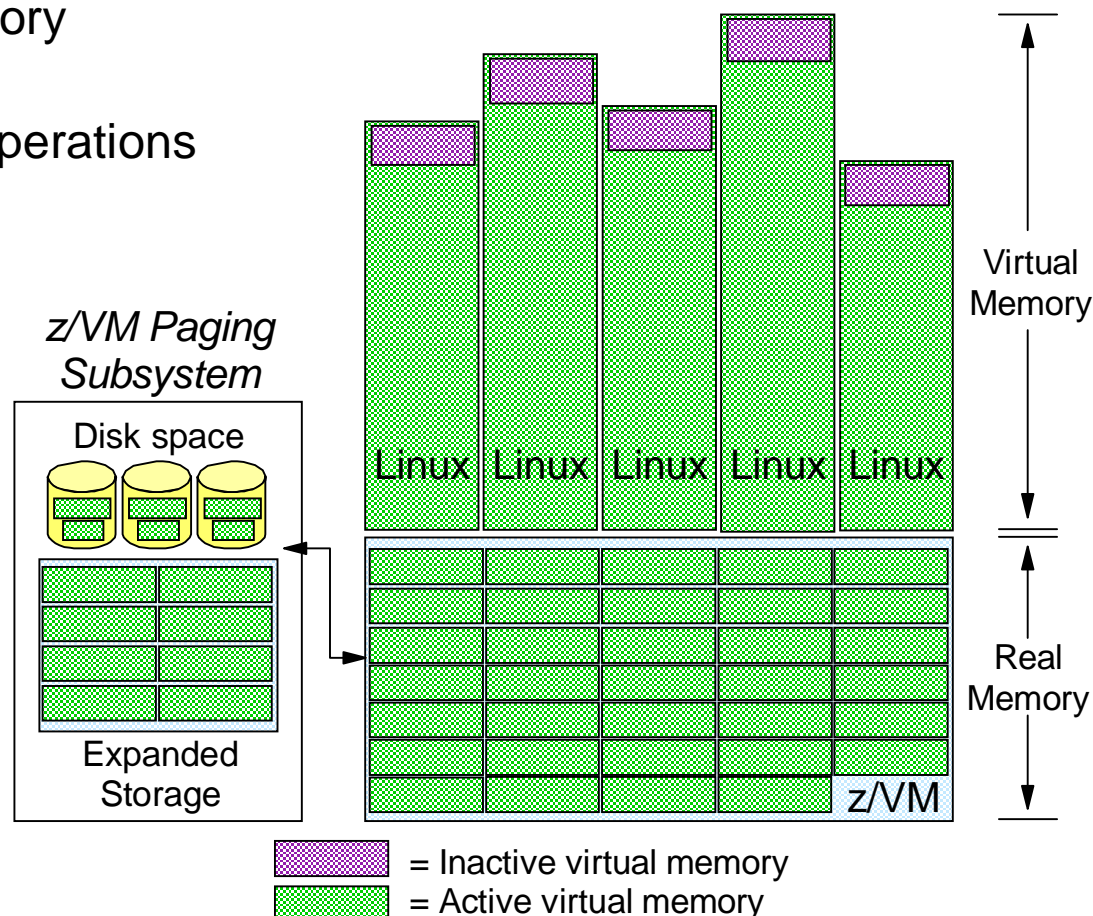


Chart 1 of 3

Linux and z/VM Technology Exploitation

VMMR Support for Collaborative Memory Management

- § Solution: real memory constraint detected and Linux images signaled to reduce virtual memory consumption
- § Linux memory pages are released
- § Demand on real memory and z/VM paging subsystem is reduced
- § Overall system performance and guest image throughput improves
- § z/VM V5.2 support available with PTF for APAR VM64085
- § Linux support available with SLES9 and RHEL4.5

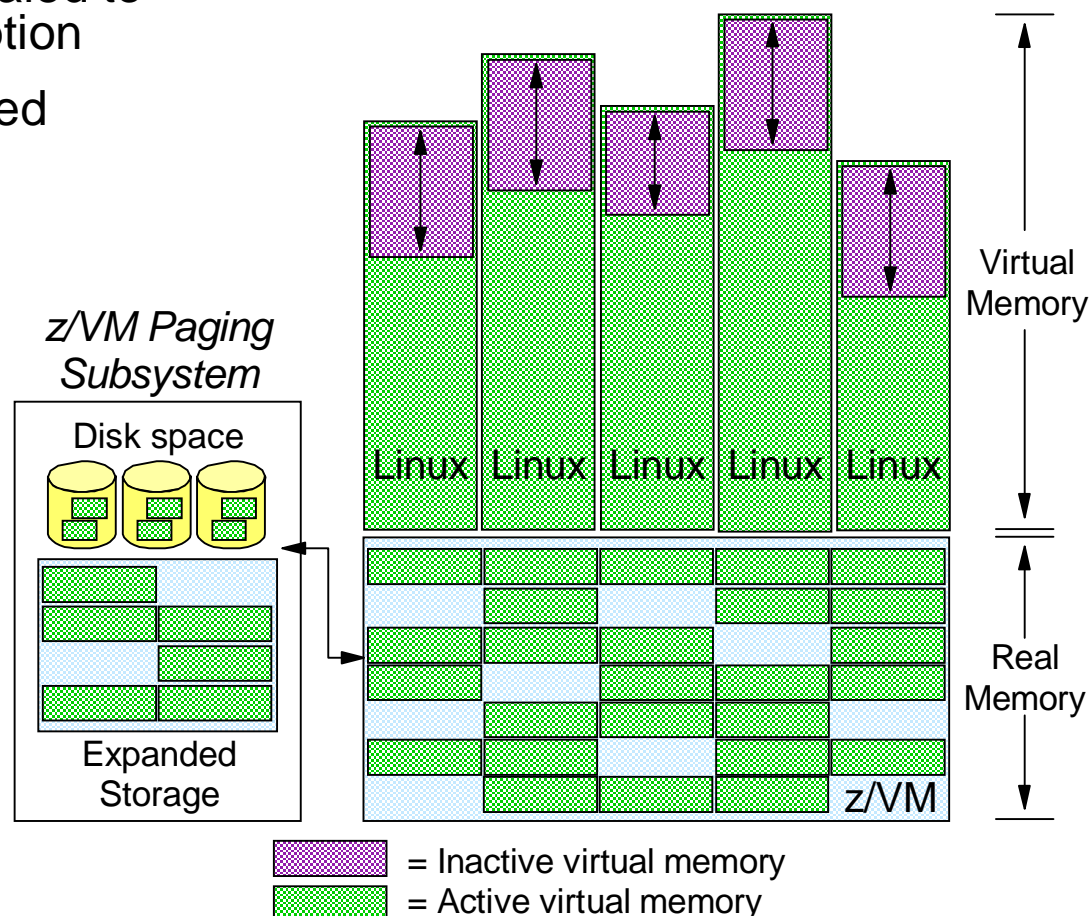


Chart 2 of 3

Linux and z/VM Technology Exploitation

System z9 Support for Collaborative Memory Management Assist

- § Solution: exchange page usage information between Linux guests and z/VM
- § Reclaim “unused” pages at higher priority
- § Bypass host page writes for unused and “volatile” pages (clean disk cache pages)
- § Signal exception if guest references discarded volatile page
- § Use host page management assist to re-instantiate pages for next use
- § Supported by System z9
- § z/VM V5.2 support targeted for 4Q06 (via PTF)
- § IBM is working with its Linux distribution partners for exploitation support

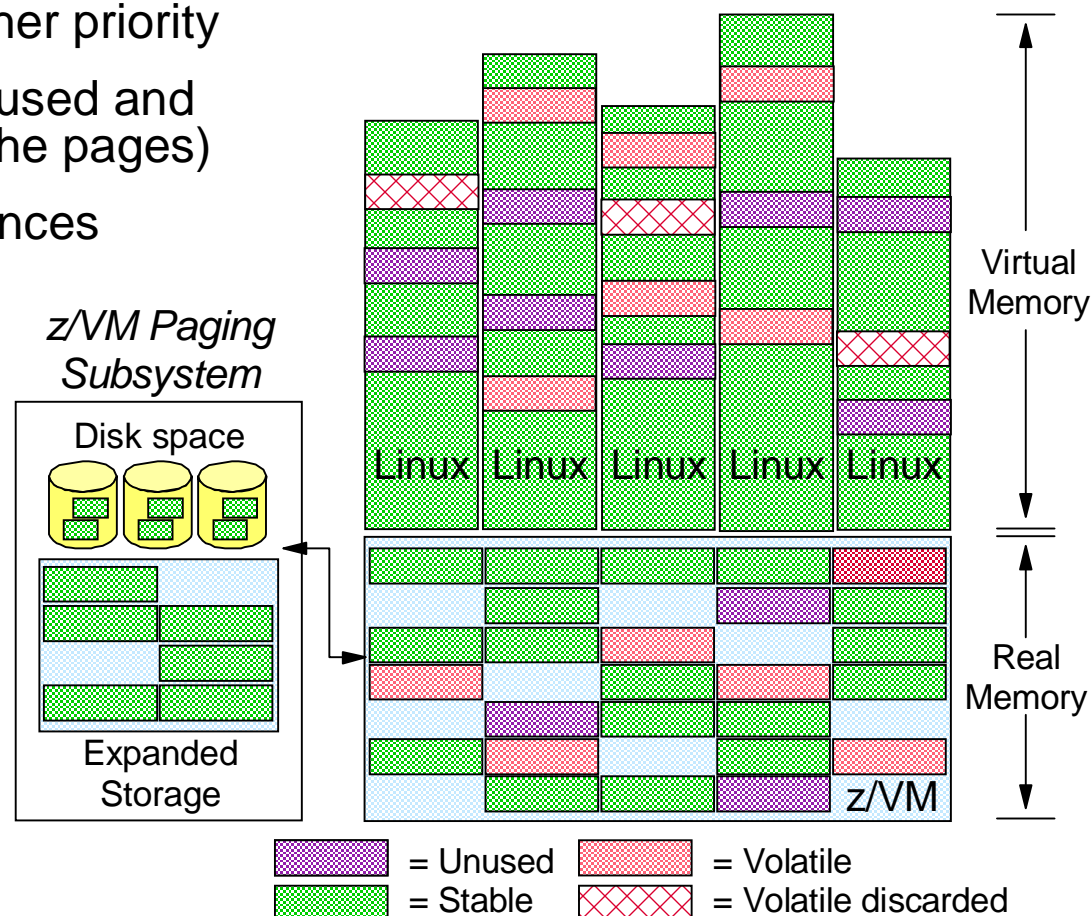


Chart 3 of 3

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→ § z/VSE

- z/VSE V3 and V4
- Software Pricing
- Tape Encryption
- Strategy
- TCP/IP
- ... and more



VSE Changes since mid-2005

- § 06/11/2005 - **VisualAge Generator** EGL Plug-in for VSE
- § 06/21/2005 - **WebSphere MQ** client for VSE (no charge)
- § 07/27/2005 - announced IBM System z9-109 including SoD for z/VSE **capacity measurement tool**
- § 08/02/2005 - announced EoS for **VSE/ESA V2.7** (effective 2/28/2007)
- § 10/06/2005 - **CICS2WS** tool (no charge) – supports VSE SOA web services
- § 11/01/2005 - z/VSE V3 **FCP/SCSI** qualification for DS6000 and DS8000
- § 11/25/2005 - **z/VSE V3.1.1** (hardware support, BSM, VSE/POWER, etc.) available
- § 01/01/2006 - withdrawal of **ESL** charge option
- § 01/15/2006 - S/390 SUF discontinued (replaced by **ShopzSeries**)
- § 02/07/2006 - announced EoS for **HLASM V1.4** (effective 4/7/2007)
- § 02/13/2006 - 31-bit I/O buffers in **VSE/VTAM** for z/VSE V3 available
- § 03/31/2006 - EoS for **VSE/ESA V2.6** effective
- § 04/27/2006 - announced IBM System z9 EC/BC and previewed **z/VSE V4** incl SoD for new SW pricing
- § 07/21/2006 - **z/VSE V3.1.2** (service refresh and consolidation) available
- § 08/29/2006 - announced SoD for **z/VSE V3+V4** support of TS1120 tape drive encrypting capability
- § 10/11/2006 - **TCP/IP V1.5** generally available from CSI

z/VSE

§ Current Product: z/VSE 3.1

- ▶ z/VSE V3.1 (GA 3/2005)
- ▶ ESA/390 (31-bit) mode only
 - up to 2 GB real processor storage
- ▶ supports
 - System z9 EC *and* z9 BC
 - eServer zSeries 990, 890, 900, 800
 - **Multiprise 3000 & S/390 G5/G6**
- ▶ HiperSockets
- ▶ CPACF
- ▶ Crypto Express2 (configurable)
- ▶ FCP/SCSI disks & NPIV
 - DS8000, DS6000, ESS
- ▶ FICON Express2 & 4
- ▶ OSA Express2
- ▶ 31-bit buffers for ACF/VTAM
- ▶ SOD for TS1120 encrypting tape

§ Future Product: z/VSE 4.1

- ▶ z/VSE V4.1 (Preview 4/2006)
- ▶ **z/Architecture (64-bit) mode only**
 - **up to 8 GB real processor storage**
- ▶ supports
 - System z9 EC *and* z9 BC
 - eServer zSeries 990, 890, 900, 800
- ▶ **New subcapacity pricing option (z9 only)**
- ▶ HiperSockets
- ▶ CPACF + **enhancements**
- ▶ Crypto Express2 (configurable)
- ▶ FPC/SCSI disk & NPIV + **point-to-point**
 - DS8000, DS6000, ESS
- ▶ FICON Express2 & 4
- ▶ OSA Express2
- ▶ 31-bit buffers for ACF/VTAM
- ▶ SOD for TS1120 encrypting tape



z/VSE V4 Statement of Direction

Statement of Direction announced as part of IBM System z9 announcement, July 2005:
"IBM intends to provide a software sub-capacity measurement tool for z/VSE."



§ **Fulfilled with z/VSE V4 Preview Announcement, April 2006:**

- ▶ LPAR based sub capacity monitoring tool



§ **New Statement of Direction, announced with z/VSE V4 Preview Announcement:**

SOD: It is IBM's intent to provide new software pricing for z/VSE V4 when running on select processors, subject to applicable terms and conditions. IBM expects this new software pricing metric to provide more granularity and a subcapacity pricing option.

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

IBM TS1120 Tape Drive Encryption

The industry's first comprehensive end-to-end tape encryption solution

- § **First encrypting tape drive - IBM System Storage TS1100 tape drive family**
 - ▶ Standard feature on all TS1120 Tape Drives
 - ▶ Chargeable upgrade feature for existing TS1120 Tape Drives
- § **A new, innovative IBM Encryption Key Manager component for the Java platform™ component supported on a wide range of systems including:**
 - ▶ z/OS, i5/OS, AIX, HP, Sun, Linux (incl System z), and Windows
- § **Integration with IBM tape systems, libraries**
- § **Enhancements to Tivoli Storage Manager to exploit TS1120 encryption**
- § **Integration with System z encryption key, policy management, security and cryptographic capabilities**
- § **Complements existing System z Encryption Facility for z/OS program product**
- § **New services and consulting for tape data encryption and key management**



TS1120
500 GB
100 MB/sec

**Encryption Key
Manager**



IBM TS1120 Tape Drive Encryption – SOD for z/VSE

SOD*: “z/VSE V3.1 support of the TS1120 Tape Drive with encryption is planned for first half 2007. It is also IBM's intent to support z/VSE V4.1 (when made available) using Systems Managed Encryption with the TS1120. z/VSE support will require the Encryption Key Manager component running on another operating system other than z/VSE using an out-of-band connection.”

Centralized key management

§ Help protect and manage encryption keys

§ Highly secure and available key data store

§ Long term key management

§ Disaster recovery capabilities

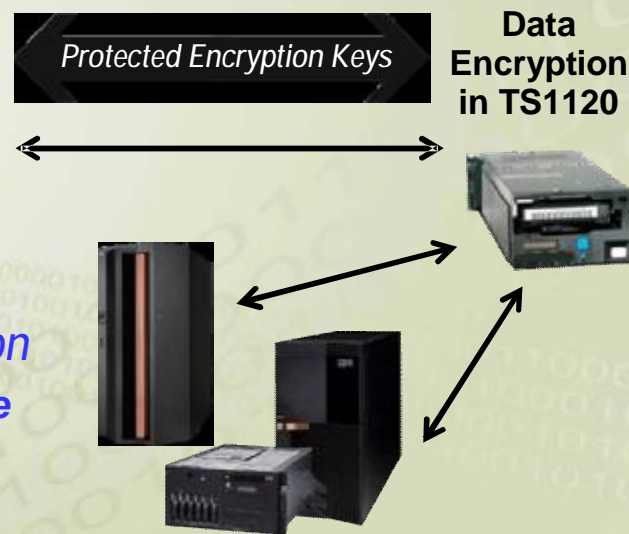
§ Single point of control

§ Non-VSE, Java-based platform

§ TCP/IP connection to tape control unit



Data Encryption in the Server



TS1120 encryption Enterprise scope

§ Highly secure

§ High performance archive encryption

§ Transparent to existing processes and applications

§ Can help provide audit compliance

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z/VSE Strategy – easy as ‘P I E’

Protect

existing investment

- § Existing core applications continue to run unchanged
- § Continuous follow-on development for HW and SW
 - from S/390 via zSeries to IBM System z9
 - from VSE/ESA to z/VSE
- § z/VSE is the platform of choice for transaction oriented core applications with CICS
- § Worldwide support from IBM Lab in Boeblingen
 - z/VSE dev and system ownership are located in Boeblingen
 - > deep skills available
 - PoC – Proof of Concept (customer individual)
 - Briefings (customer individual)

Integrate

with IBM middleware using connectors

- § Integration of VSE into heterogeneous environments
- § z/VSE is a very stable operating system that can easily be connected to open systems
 - Access to external data (e.g. on Linux) or programs (e.g. Java) via standard connectors or via free of charge VSE specific connectors
 - Exploitation of HiperSockets within the server – no physical network outside the box

Extend

with Linux on System z

- § Extension of existing solutions with Linux on System z
- § Cooperation and coexistence with Linux on System z and z/VM
- § z/VSE is open and connectable to various different client/server platforms



TCP/IP V1.5 went GA – J finally !

§ GA of TCP/IP V1.5 from CSI since Oct 11, 2006

- ▶ including documentation

§ Significant enhancements to

- ▶ Performance
- ▶ TCP/IP Stack
- ▶ FTP
- ▶ Security and SSL
- ▶ Message Logging
- ▶ Telnet
- ▶ eMail
- ▶ BSD/C Socket API

§ Expect product availability from IBM by YE'06

More News from z/VSE

IBM Confidential parts removed

- § z/VSE Basics Book in review
- § z/VSE as part of IBM Academic Initiative started
- § z/VSE skills build-up in Eastern Europe started
- § z/VSE Connector Workshops running
- § z/VSE on tour w/ Novell/Suse running
- § First of a kind VM/VSE European Manager Conference under evaluation
 - ▶ IT Managers and CIOs only
 - ▶ European wide audience
 - ▶ May 7-9, 2007, in Zürich
 - ▶ Simultaneous translation into NLS
 - ▶ Visit to IBM Rüschlikon Research Lab



For more information – z/VSE Web Site

Address: <http://www.ibm.com/servers/eserver/zseries/zvse/>

Links: IBM Business Transformation Homepage

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z/VSE

z/VSE

z/VSE is designed to help provide robust, cost-effective solutions for customers with a wide range of capacity needs, in most industries, worldwide. z/VSE is built on a heritage of ongoing refinement and innovation that spans four decades. It brings the value of innovative IBM eServer zSeries and IBM TotalStorage technology to VSE clients.

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- [News](#)
- [History of VSE](#)

We're here to help

Easy ways to get the answers you need.

E-mail us

Mark your calendar

Guide Share Europe
April 18-20, 2005
Berlin, Germany

Register

VSE-VM-Linux Splash
WAVV-World Alliance

WAVV conference
May 20-24, 2005
Colorado Springs, Colorado, USA

Catch the WAVV

Spotlights

- [IBM eServer zSeries](#)
- [Infrastructure simplification](#)
- [VSE Recommended Service Level](#)

Middleware

- [WebSphere software](#)
- [Information management software](#)

Related links

- [Linux on zSeries](#)
- [z/OS](#)
- [z/VM](#)
- [IBM Storage](#)
- [IBM Printing Systems](#)

Redesigned z/VSE homepage

You may have already noticed that the z/VSE home page has changed. We've redesigned this entire web site and included additional information. The objective is to provide you with a more useful business tool, as well as to offer you a more enjoyable experience. We encourage you to use, or to simply explore, the enhanced z/VSE web site. If you have questions, suggestions, or comments, please contact the [VSE team](#).

z/VSE Version3 Release 1

[z/VSE Version 3 Release 1 \(z/VSE V3.1\)](#) is designed to support:

- [IBM @server zSeries 890 and 990](#) (31-bit mode only)
- [SCSI disks attached to zSeries FCP channels](#)
- [OSA-Express2 and FICON Express2](#) adapters
- [Crypto Express2](#) and CP Assist for Cryptographic Function (CPACF)
- [IBM TotalStorage 3494 Virtual Tape Server](#)
- [improved support for IBM 3494 Tape Library](#)
- [IBM TotalStorage DS8000 and DS6000 series Storage Servers](#)
- [enhanced Advanced Copy support](#)

z/VSE is designed to enable network integration and infrastructure

F New Web presence:

ibm.com/servers/eserver/zseries/zvse/