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

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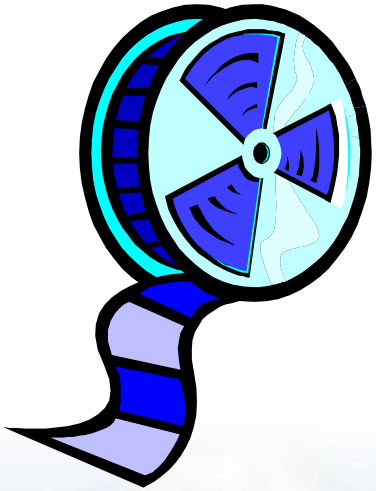
Topics

- 45-Year Mainframe Anniversary
- Dynamic Infrastructure
- Linux on System z
- z/VM
- z/VSE
- Summary

Video: 45-Year Mainframe Anniversary



System z: The right technology ...

45 years of market leadership

Just in Time Capacity

Permanent capacity for non-disruptive growth

Temporary capacity for fluctuating workloads

Interim capacity for continued operation

Policy based automation capabilities

Offerings can be replenished dynamically

Secure and Resilient

Mitigate the risk of security breaches

Dedicated cryptographic processors

Industry leadership capabilities and certification

Where mean time between failure is measured in decades

World-Class Virtualization

Large scale consolidation for savings of up to 80% in total cost of ownership compared to distributed platforms

Deploy servers, networks, and solutions fast

Support for multiple operating systems

Dynamically optimize resources according to business priorities

IBM System z

The world's most powerful enterprise computing platform

Improved price/ performance

100s of Capacity choices for the right size server

Business Resilience

LOW COST OF OWNERSHIP

Leadership capabilities with IBM Systems software

The future runs on System z and the future begins today

System z Strategy

1. *Innovate to address the IT infrastructure challenges of today and the future*

Further simplify, consolidate and reduce the costs of an IT infrastructure

Integrate, virtualize and coherently manage the multiple and varied elements of business applications

Scale up and leverage System z strengths in data serving

2. *Extend strengths of System z*

Invest for continued leadership in System z: performance, virtualization, enterprise security, enterprise business continuity

Extend System z best of breed capabilities to a broader set of workloads

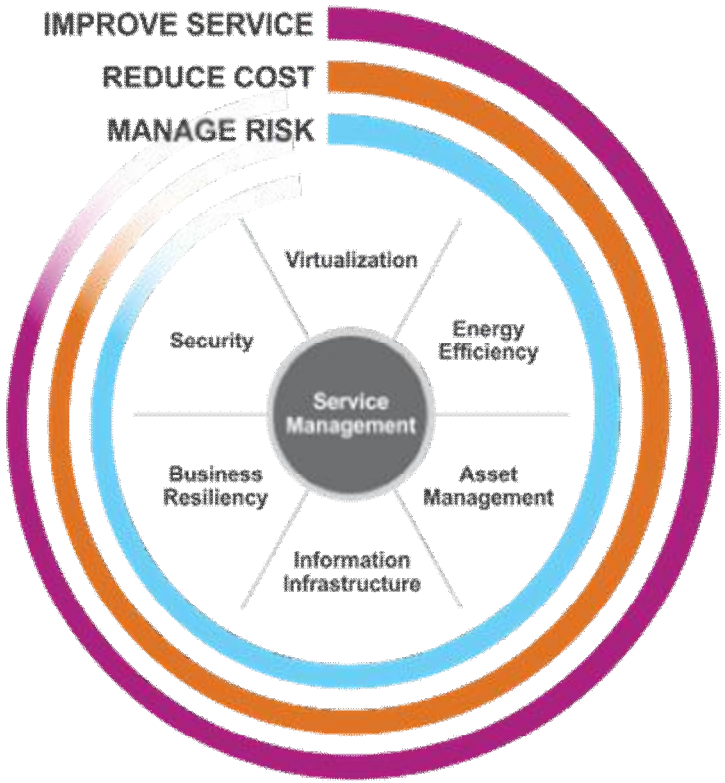
Deploy optimized technologies for specific applications or components

3. *Expand the ecosystem and support core applications that our clients want*

Recruit new solutions and solution providers and integrators

Expand skills and capabilities across the globe

IT Infrastructure Challenges



IMPROVE SERVICE

- Dynamic, policy based, and automated SOA infrastructure
- Adapt and respond quickly to changing business imperatives

REDUCE COST

- Industry-leading virtualization, energy efficiency, and scale

MANAGE RISK

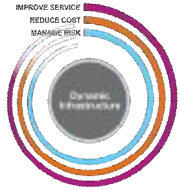
- Secures your business, reduces risk, builds trust and confidence
- Superior qualities of service allows clients to run their businesses reliably

A Dynamic Infrastructure® …

… is highly optimized to achieve more with less ...

VIRTUALIZATION + ENERGY EFFICIENCY + SECURY & RESILIENECY + AUTOMATION = Reduced Cost

… leveraging virtualization, energy efficiency, security & resiliency and automation to free up operational budget for new investment.



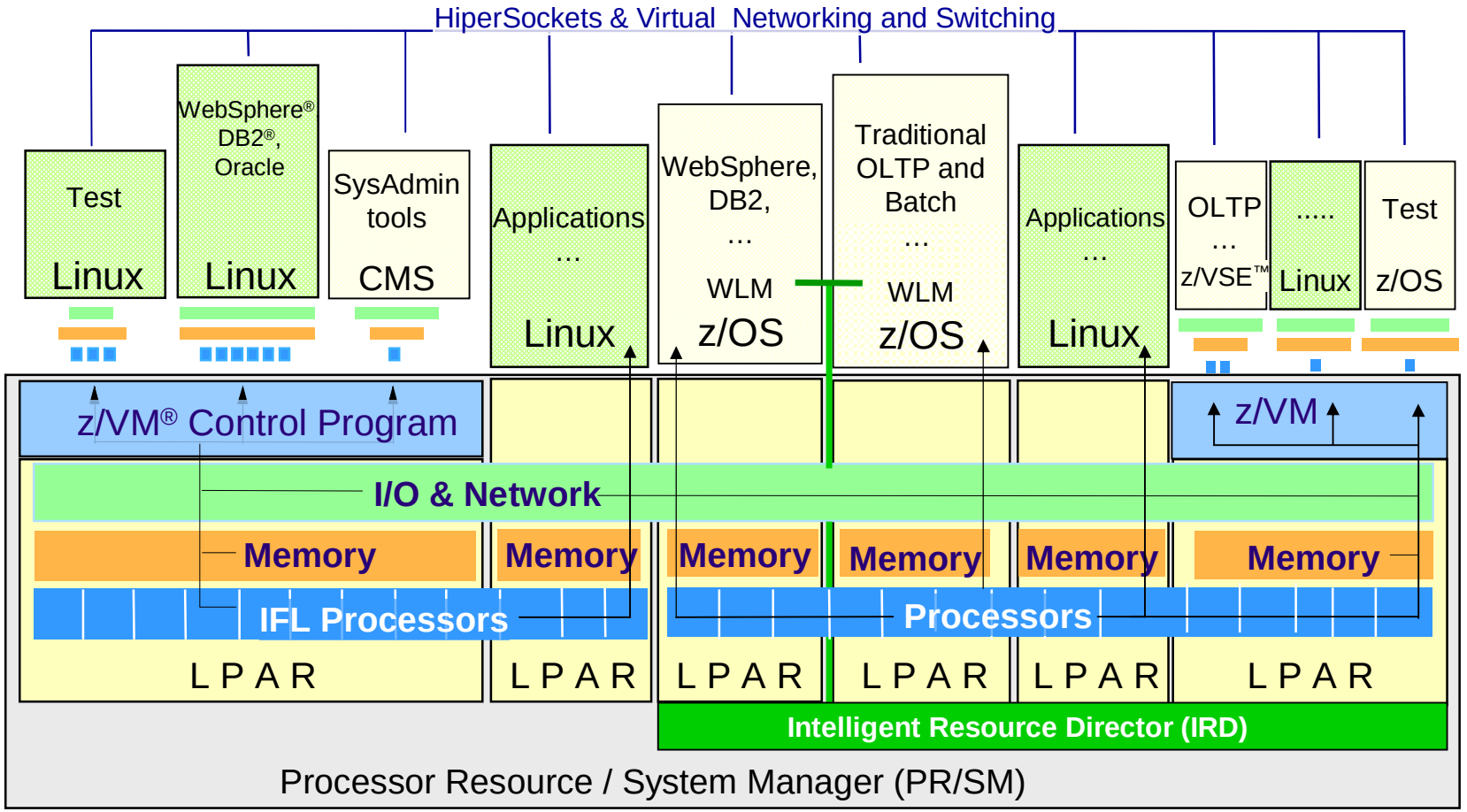
Linux® on IBM System z®

matches the attributes

and provides unique values

VIRTUALIZATION

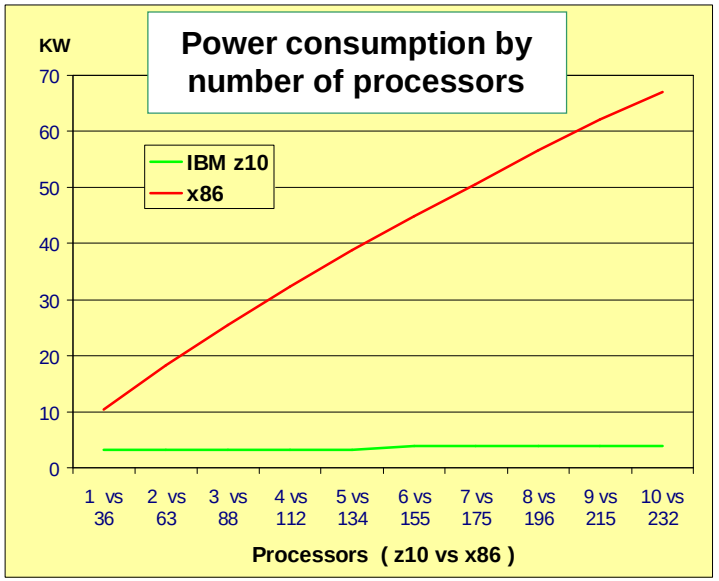
Matching the attributes of a Dynamic Infrastructure:
IBM System z Virtualization Architecture



ENERGY EFFICIENCY

Matching the attributes of a Dynamic Infrastructure:
Meeting IT needs through Energy Efficiency

- **Highest level support of consolidation in the industry**
- **Designed to run many applications at high utilization rates**
- **Isolation of production, test, training and development environments**
- **Very fast virtual server provisioning**
- **Virtual servers, build on resource pool for processors, I/O and disk space; resources are returned**
- **Quad-core processor up to 4.4 GHz, and up to 1.5 TB of memory**
- **Utilization management to drive maximum use of system including efficient memory management**



"The IBM System z platform can be configured to require 1/12th the electricity as a distributed server farm with equivalent processor capability."

IBM System z: Platform Star for Linux and Open Source Software, Ptak, Noel & Associates

SECURITY & RESILIENCY

Matching the attributes of a Dynamic Infrastructure:
Security features built into all platform layers

Consolidation and simplification of security management

Industry leadership certification – EAL5 for System z LPAR, EAL4+ for z/VM hypervisor, EAL4+ for Linux on System z

Dedicated cryptographic processors

HiperSockets provide physical security

Encryption options for protecting sensitive data

- Asymmetric Algorithm
- Symmetric Instructions - DES, TDES, AES-128, AES-192, SHA-512 and SHA-384
- Secure key cryptography

System z platform synergy

- Public Key Infrastructure (PKI)
- Centralized Authentication
- Demilitarized Zone (DMZ)

Linux on System z - the power of industry-leading security and the simplicity of centralized management

AUTOMATION

Matching the attributes of a Dynamic Infrastructure:
Improve service with Linux

… underpinned by z/VM virtualization and System z performance, security, and resiliency

Resources deployed "on the fly" according to business priority:	Visibility, automation and control for the enterprise:	Centralized secure database serving, warehousing and BI for the enterprise:	Complete solutions for people, process and information:
z/VM virtualization and resource management	*Tivoli® Service Management for Linux on System z*	*Cognos® BI, DB2, Oracle DB, Informix®, Information Server, DB2 Connect™, …*	*SOA, Web 2.0, Web services, collaboration*

Integrated, enterprise-wide, hub for the efficient management of business and IT services

Reduced Cost

Matching the attributes of a Dynamic Infrastructure:
Harness the unique value of the Integrated Facility for Linux

IFL prices have remained constant yet deliver more capacity

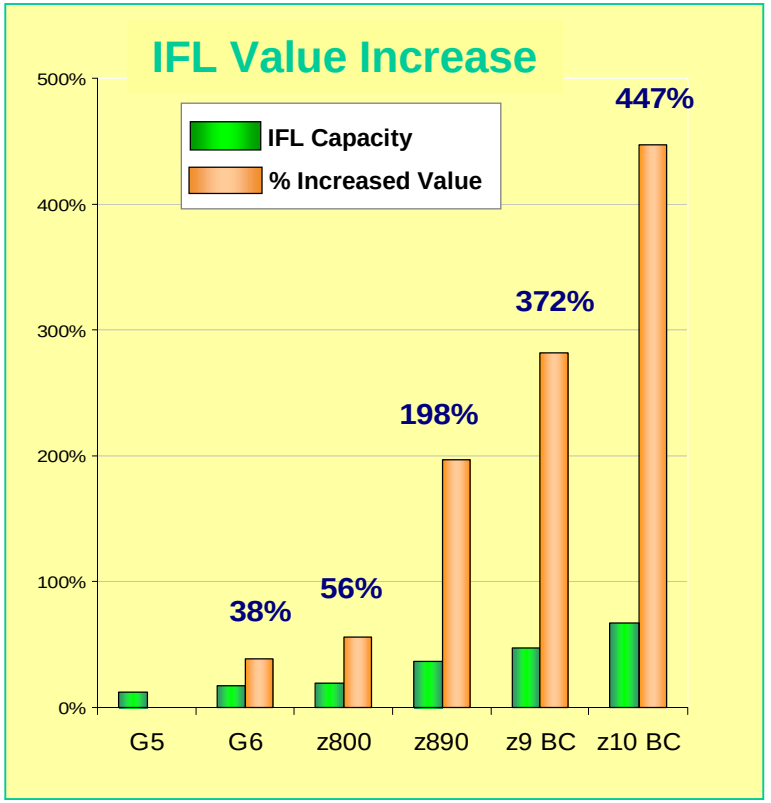
- Up to 40% more capacity from IBM System z9® Business Class (z9® BC)
- Lower price on IBM System z10 Business Class™ (z10 BC™) => $47.5k[1]

Lower memory costs for IFL enabled workloads on z10™ => $2250 per GB[1,2]

IFL upgrades typically move with NO charge[3]

Distributed server model over same time

- 3 Technology refreshes, meaning 3 times new hardware installations
- 3 System migrations



An investment that continues to deliver value, generation to generation.

1 - Prices in USD, may vary by country, 2 – Limited to 16GB per engine, 3 - except for IFL server and short path upgrades

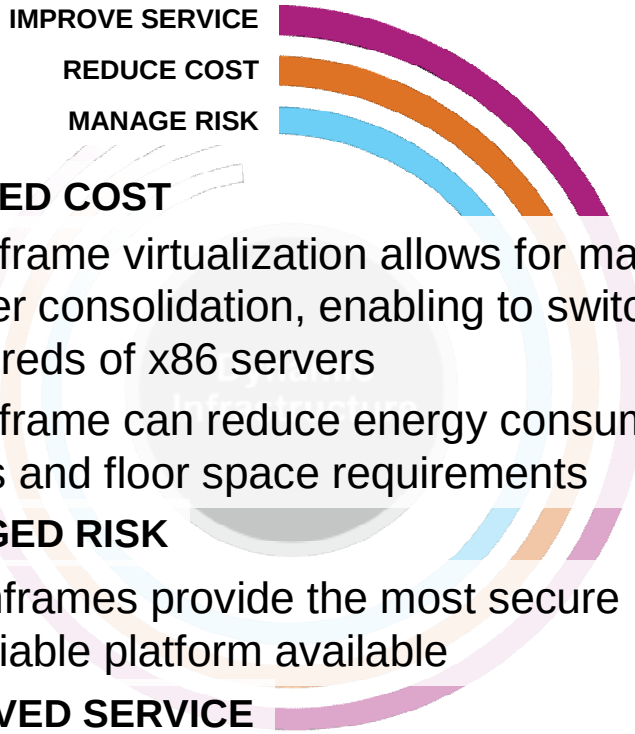
Leveraging the values of a Dynamic Infrastructure:
Proven results

VIRTUALIZATION	ENERGY EFFICIENCY	SECURY & RESILIENECY	AUTOMATION
Bank of Russia ***"Using virtualization to consolidate more than 200 distributed servers on just four IBM System z9 mainframes is a great advantage in terms of hardware licensing and energy costs",*** *Mikhail Senatorov, Deputy Chairman*	**Dundee City Council** ***"Instead of 50 under-utilised boxes, all with their own power supplies and air conditioning requirements, we have two physical machines hosting 50 virtual servers",*** *Tim Simpson, IT Support Manager*	**Wessels+Müller AG** ***"… the mainframe proved itself as an absolutely reliable operating system that was both stable and secure and became easier and easier to administrate",*** *Johannes Schlentzek, IT Manager*	**gkd-el** ***"Despite the ever-increasing workload and the addition of new SAP functionality, we continue to require just 8 of our 84 employees to run the SAP landscape on IBM System z",*** *Dieter Schiffer, Head of IT*
Payment processing costs have been reduced by 95%, saving US$400 million per year.	***Reducing operational costs and carbon footprint.***	***The simplified infrastructure reduces operating costs.***	***Total cost of ownership has been reduced by 30% with the help of zIIP and IFL technology.***

Reduced Cost

Dynamic Infrastructure with Linux on System z

Linux on System z is matching the attributes of a dynamic infrastructure
- exploiting the leading z/VM and System z capabilities to run multiple, mixed mission-critical & infrastructure workloads concurrently



REDUCED COST

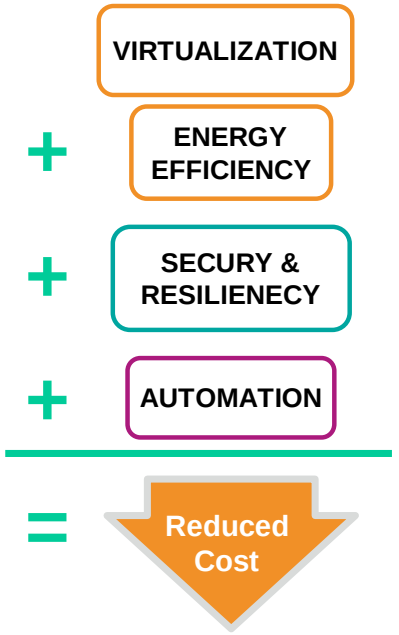
- Mainframe virtualization allows for massive server consolidation, enabling to switch-off hundreds of x86 servers
- Mainframe can reduce energy consumption costs and floor space requirements

MANAGED RISK

- Mainframes provide the most secure & reliable platform available

IMPROVED SERVICE

- Mainframes automate management for high value services



Linux on System z

Topics

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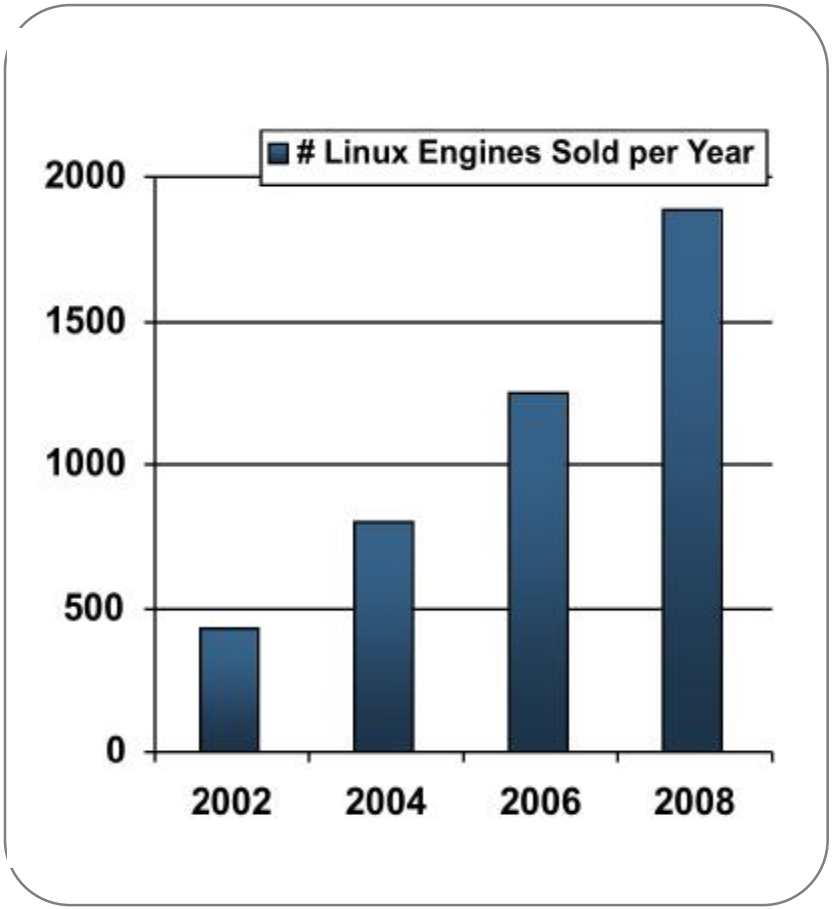
- § Dynamic Infrastructure
- § Linux on System z
- § z/VM
- § z/VSE
- § Summary

System z Linux: The fastest growing server platform.

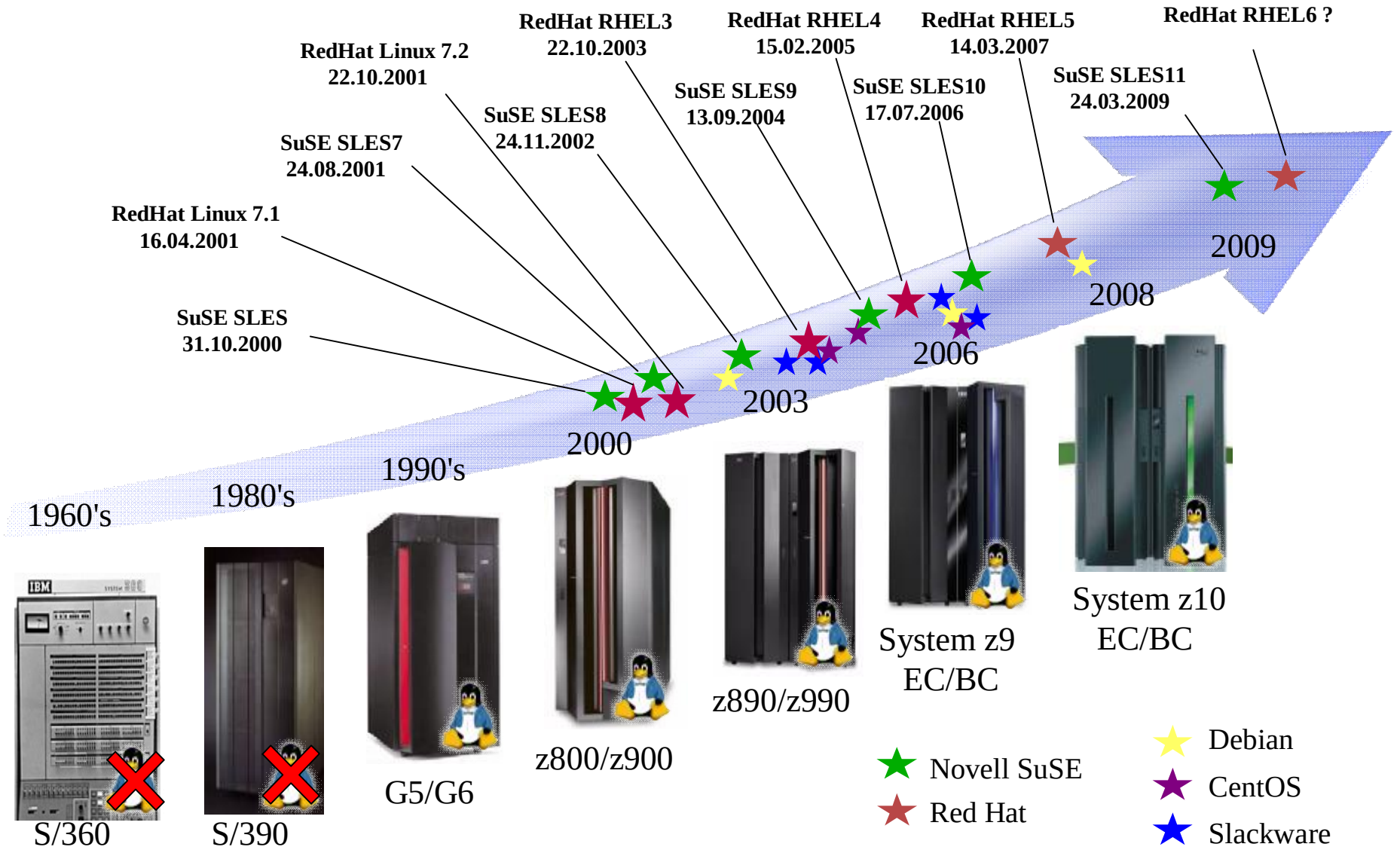
2008 New Linux Capacity on System z = ~40-60,000 x/86 cores!

2008:

- **77% increase in System z Linux MIPS**
- **22 of 54 new System z clients installed Linux on System z**
- **Approximately 1,300 System z customers are now using Linux on System z**
- **Linux is ~15% of the customer System z install base (MIPS)**



Linux on System z Distributions



Open Source Code Drop for Linux on System z

4Q08 Code drop content (Nov 25, 2008)

- Toolchain support for z9 + z10 instructions with GCC + binutils
- Automatic CPU detection
- Support for HiperSockets multiwrite SBALs on output queues
- Toolchain support for decimal floating point (DFP) with GCC, binutils + GDB
- Server time protocol (STP) support for clock synchronization
- HiperSockets IPv6 support for Layer 3
- Enable to attach and use standby memory that is configured for a logical partition or z/VM guest
- Dynamic memory attach/detach

Exploitation of z/VM 5.4 features:
- Expanded shared memory addressability:
  Linux on System z can now use discontiguous Saved Segments (DCSS) above 2047 MB (2 GB) of virtual storage
- Capability to dump Linux guests to SCSI disks

Other enhancements:
- Processor-type safety-check, preventing a kernel to run a processor if it was compiled to exploit instructions of a newer machine
- New IPL tools
- zipl can dump on multiple ECKD DASD devices
- Enhanced zfcp trace facility
- zfcp performance data collection
- zfcp Host Bus Adapter application programming interface
- glibc support for 31/64-bit compatible utmp (glibc-2.8-utmp-compat)

2Q09 Code drop content (May 2009)

HW Exploitation:
- Standby memory add via SCLP
- Kernel vdso support

Toolchain:
- z10 new instruction support
- Provide hardware decimal floating point (DFP) accelerated libgcc

Virtualization:
- Linux support for dynamic memory attach/detach
- Extra kernel parameter via VMPARM
- TTY terminal server over IUCV

Network:
- HiperSockets enhanced SIGA
- Secondary unicast addresses for qeth layer2 devices

Storage:
- FCP performance data reports
- FCP LUN discovery tool
- DS8000 disk encryption
- DS8000 support: Large Volume support
- High Performance FICON

Security:
- Enablement for next generation Crypto cards
- Crypto Device Driver use of Thin Interrupts

RAS:
- FCP SCSI error recovery hardening
- Large image dump on DASD
- Shutdown actions tool
- Automatic IPL after dump

This list shows the Top 20 enhancements only.
There is much more to come!

Novell SLES11 – available since March 24, 2009

Summary of new features:

- **IBM System z9 and z10 full hardware exploitation**
  - ALS (Architecture Level Set) implemented, i.e. SLES11 is not supported on older System z technology
- **z/VM 5.4 exploitation and easy of use**
- **FICON/ECKD enhancements**
  - HyperPAV, High Performance FICON infrastructure
- **FCP/SCSI enhancements to ease configuration**
- **Network enhancements**
  - OSA Express3 installer support, HiperSockets IPv6 layer3 support for z/OS communication
- **New Security/Crypto hardware support**
  - Long random numbers, new HW Crypto enablement
- **Customer Service/Analysis enhancements**
  - Kernel message catalog, Call Home data, automatic Shutdown/Restart/Dump, large image dump on DASD, FCP trace and performance analysis
- **Web 2.0 Open Source stack support**
- **SLES 11 specific device drivers book**

Novell

SUSE Linux Enterprise Mono Extension

- **A .NET application framework that allows you to run .NET-based applications on SUSE Linux Enterprise Server**
  - Run .NET applications on Linux (including ASP.NET)
  - Mainframe support for .NET applications
  - Performance and scalability advantages over Windows
  - Target Linux from Visual Studio
- **Develop anywhere – Deploy anywhere**
  - Includes a tool chain for Linux
  - Runtime is binary-compatible with .NET on Windows
- **A complete and modern development platform for Linux**
- **The necessary software to develop and run .NET client and server applications across platforms on Linux, Solaris, MacOS X, Windows, and Unix**
- **A thriving open source project with a growing community**
- **What can you do with Mono?**
  - Migrate Microsoft .NET desktop and server applications to Linux without significant investment in rewriting code
  - Target multiple platforms and increase addressable market
  - Leverage existing expertise in computer languages for more efficient development

Novell

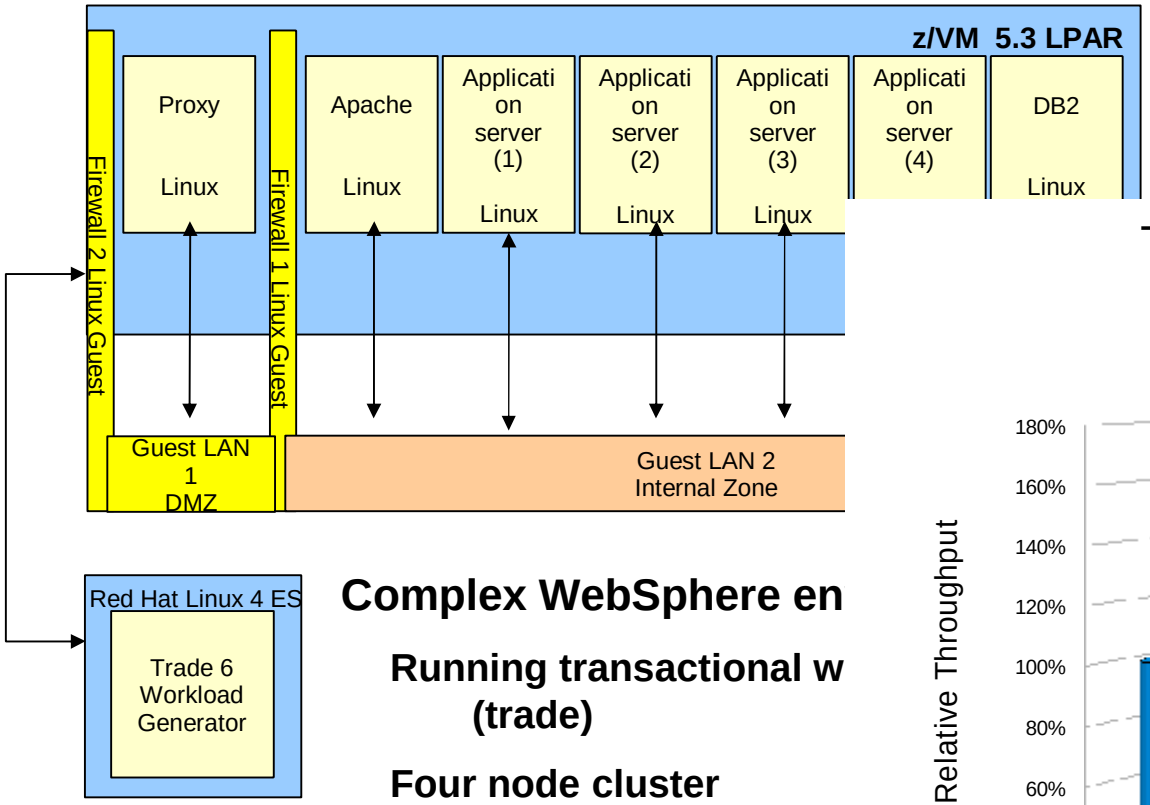
Source: Mark Post, Technical Support Engineer, Novell

OpenSolaris: Current Port Status

SINE NOMINE ASSOCIATES

- Latest currently available for download (build 100)
- Complete system and compiler array
- Complete install image in System z formats
  “DDR and Go”
- Includes Sun IPS package support
- Includes large library of open source tools and packages
- Java runtime in discussion with Sun and IBM
  - Zero-assembler OpenJDK
  - Sun Java, not IBM Java
- All source and object integrated into opensolaris.org
- Full services and training support available

WebSphere Application Server Cluster - Performance



Complex WebSphere en

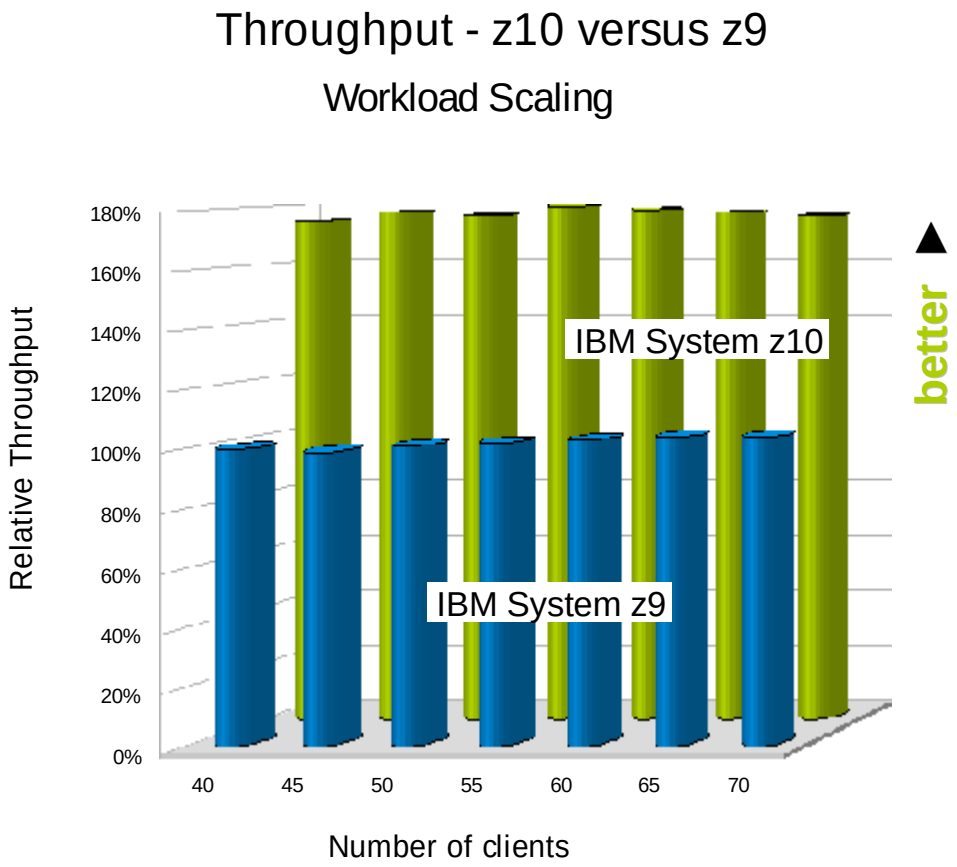
Running transactional w (trade)

Four node cluster

Using a secure environm secures the internal

Increasing the workload monitoring throughpu

IBM System z10 constantly provides about 80% higher throughput than z9 !



Source: http://www.ibm.com/developerworks/linux/linux390/perf/tuning_pap_websphere.html#wascc

Topics

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VIRTUALIZATION

z/VM Version 5 Release 4 New Function Highlights

Available since September 12, 2008

- **Processor support**
  - System z10 processor instruction exploitation
  - DAT table performance enhancements
  - **Dynamic LPAR memory upgrade**
- **Virtualization support**
  - Dynamic virtual machine memory upgrade
  - **z/VM-mode LPAR support**
  - Virtual CPU SHARE redistribution
  - DCSS addressability above 2 GB
  - Guest FCP dump
  - OSA-Express3 Four-Port Connectivity
  - Virtual Switch networking management
- **Networking**
  - z/VM TELNET IPv6 support
  - Path MTU discovery
  - TCP/IP OSD Layer 2 support
- **Security**
  - LDAP upgrade
  - RACF change logging and password/phrase enveloping
  - SSL server re-host
- **Systems management**
  - z/VM system management API enhancements
  - Linux-on-z/VM installation using the Hardware Management Console (HMC)
  - Service and installation improvements
  - Performance Toolkit and DirMaint support enhancements
  - LE, C/C++, and Binder upgrades
  - System SHUTDOWN verification
- **Withdrawn**
  - 3480 tapes no longer supported as product distribution media

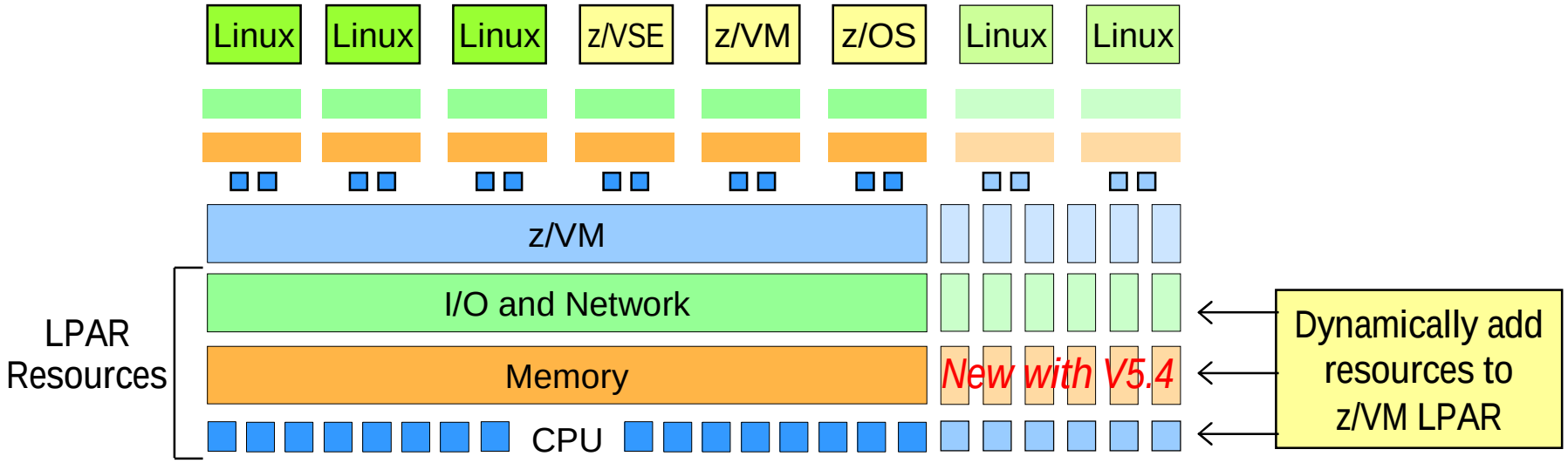
Refer to announcement letter: 208-249 (US), AP08-0242 (AP), A08-1178 (CAN), ZP08-0349 (EMEA)

VIRTUALIZATION

z/VM Dynamic Memory Upgrade

New z/VM V5.4 Function Enhances System Availability

- **Users can non-disruptively add memory to a z/VM *LPAR***
  - Additional memory can come from: *a)* unused available memory, *b)* concurrent memory upgrade, or *c)* an LPAR that can release memory
  - Memory *cannot* be non-disruptively removed from a z/VM LPAR
- **z/VM virtualizes this hardware support for *guest machines***
  - Currently, only z/OS and z/VM support this capability in a virtual machine environment
- **Complements ability to dynamically add CPU, I/O, and networking resources**

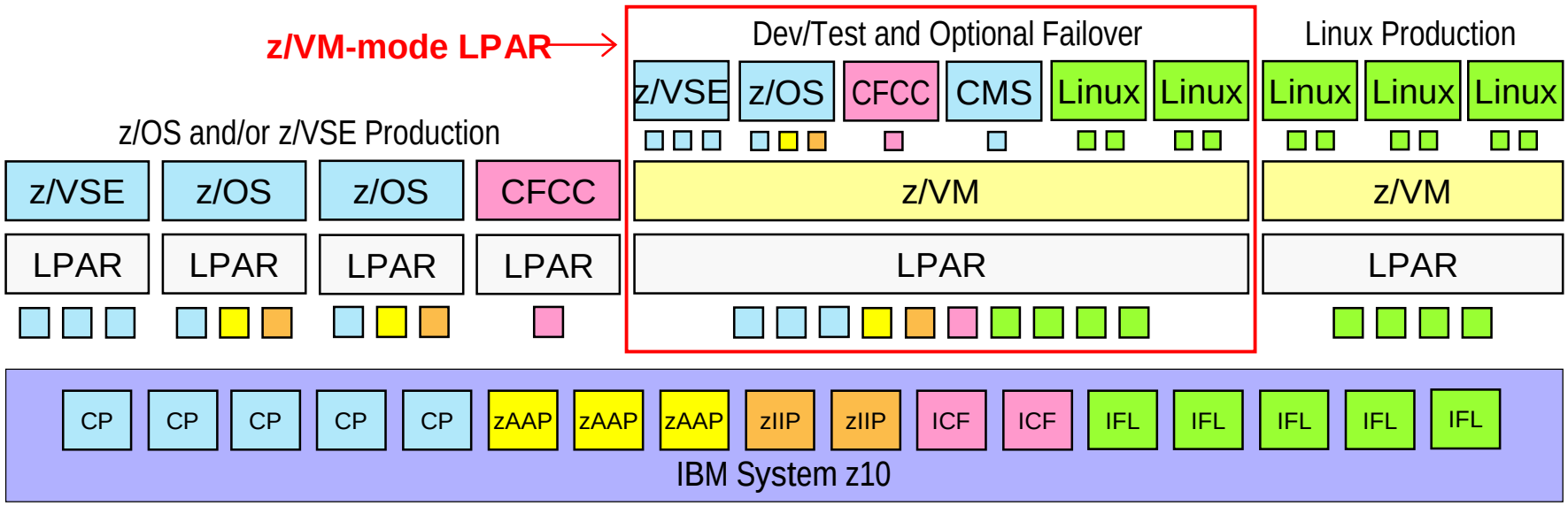


Smart economics: non-disruptively scale your z/VM environment by adding hardware assets that can be shared with every virtual server

VIRTUALIZATION

z/VM-Mode LPAR Support for IBM System z10

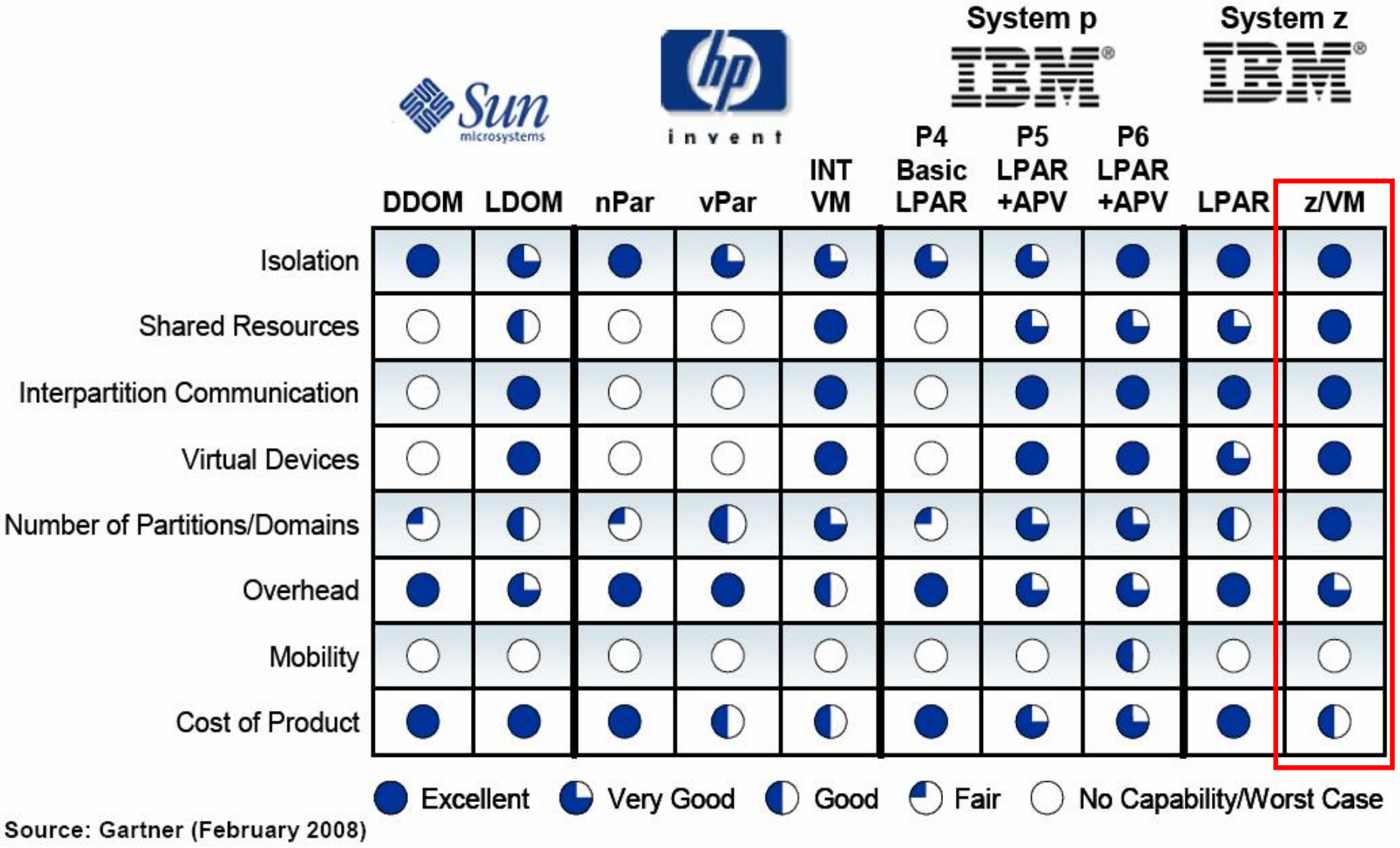
- **New LPAR type for IBM System z10: *z/VM-mode***
  - Allows z/VM V5.4 users to configure all CPU types in a z10 LPAR
- **Offers added flexibility for hosting mainframe workloads**
  - Add *IFLs* to an existing standard-engine z/VM LPAR to host Linux workloads
  - Add *CPs* to an existing IFL z/VM LPAR to host z/OS, z/VSE, or traditional CMS workloads
  - Add *zAAPs* and *zIIPs* to host eligible z/OS specialty-engine processing
  - Test integrated Linux and z/OS and z/VSE solutions in the same LPAR
- **No change to software licensing**
  - Software continues to be licensed according to CPU type



Excerpt from Gartner Research Brief

VIRTUALIZATION

"Partitioning Virtualization on UNIX and IBM Mainframe Platforms..."



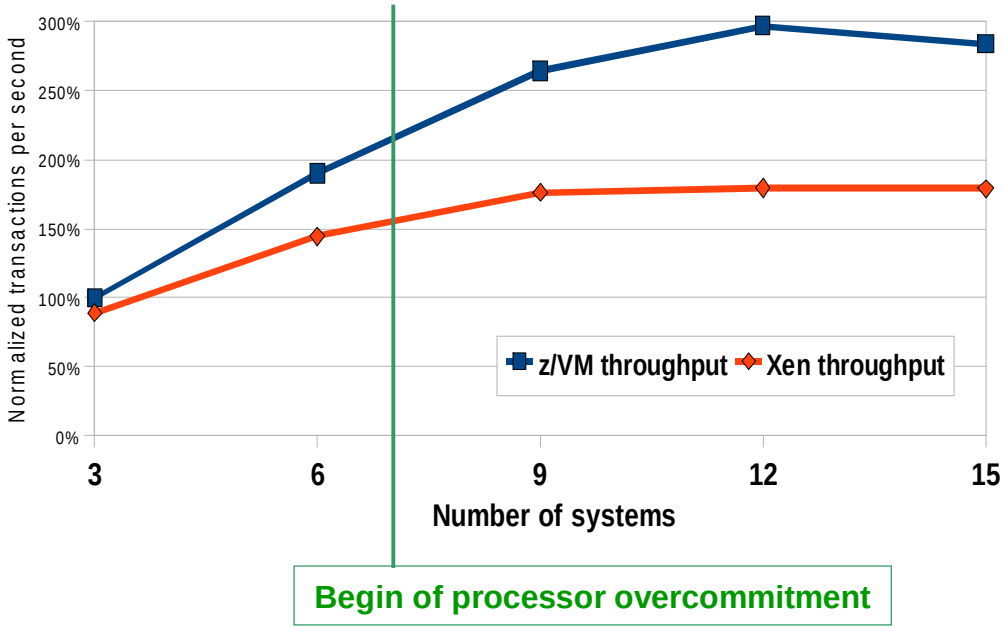
Source: Gartner (February 2008)

VIRTUALIZATION

z/VM and Xen Virtualization

Processor Overcommitment

- **Throughput rate with z/VM® is significantly higher – measured on IBM System z9®**
  - z/VM* scales very well, even when the processors are overcommitted
    - Xen* flattens when reaching the processor overcommitment
  - z/VM* scales up to a processor overcommitment ratio of 3 : 1
    - Xen's* ratio is 1.5 : 1



- **z/VM handles processor overcommitment very efficient.**
- This will show even better results when running on an IBM System z10™ Enterprise Class (z10™ EC) because z10 EC™ offers up to 50% increase in specialty engine capacity.

Source: z/VM and Xen Virtualization Performance, Jan 2009
http://download.boulder.ibm.com/ibmdl/pub/software/dw/linux390/perf/ZSW03051USEN.PDF

* Transaction throughput under z/VM or Xen

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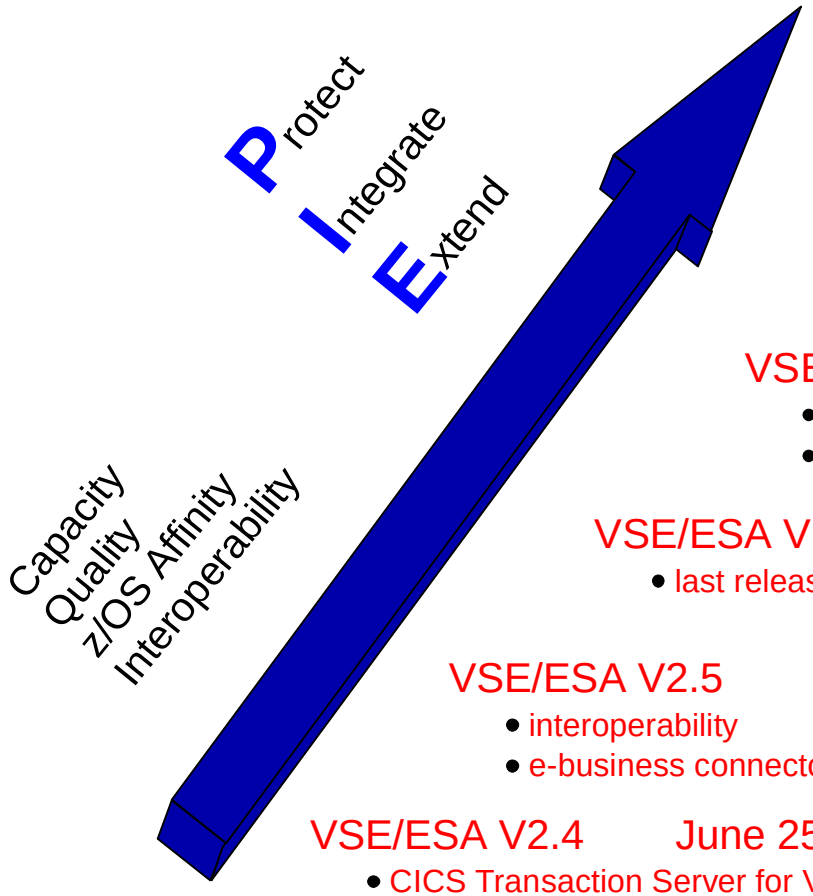
z/VSE Evolution

z/VSE V4.2 Oct 17, 2008
- **More tasks, PAV, LDAP Client, SVC**
- **SoD for CICS/VSE, EGL, WMQ**

z/VSE V4.1 March 16, 2007
- z/Architecture only / 64-bit real addr
- MWLC full & sub-cap pricing

z/VSE V3.1* March 4, 2005 → **End of Service planned for July 31, 2009**
- 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

VSE/ESA V2.5 Sept 29, 2000
- interoperability
- e-business connectors

VSE/ESA V2.4 June 25, 1999
- CICS Transaction Server for VSE/ESA
- e-business

•Note: z/VSE V3 can operate 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 support selected features of IBM System z hardware.

z/VSE V4.2 Contents

- **Servers**
  - IBM System z10 Enterprise Class (z10 EC) and **z10 Business Class (z10 BC)**
  - IBM System z9 Enterprise Class (z9 EC) and z9 Business Class (z9 BC)
  - IBM eServer zSeries 990, 890, 900, and 800
- **Scalability**
  - **Up to 512 tasks** (2x z/VSE V4.1)
  - **Up to 32 GB real processor storage** (4x z/VSE V4.1)
  - Turbo dispatcher enhancements (CP balancing)
  - Parallel Access Volume (PAV) feature of IBM System Storage DS8000 and DS6000 series
  - IBM System Storage DS8000 SE Flashcopy
- **Security**
  - **Lightweight Directory Access Protocol (LDAP) sign-on** support using a z/VSE LDAP client
  - IBM System z10 extensions to CP Assist for Cryptographic Function (CPACF)
  - SOA Message Layer and Transport layer security
  - IBM System Storage TS1130 and TS1120 're-keying' function
  - Basic Security Manager (BSM) improvements
  - **Encryption Facility for z/VSE V1.1** as an optional priced feature (also available for z/VSE V4.1)

z/VSE V4.2 Contents (continued)

- **Enhanced storage options**
  - IBM System Storage **SAN Volume Controller (SVC)** access to FCP-attached SCSI disks
  - IBM System Storage TS3400 Tape Library and TS7700 Virtualization Engine Release 1.4
  - IBM System Storage TS1130 Tape Drive
- **Pricing**
  - MWLC (full capacity or sub capacity options) eligible on z10 EC, z10 BC, z9 EC, and z9 BC
  - 'Traditional' price metrics for other servers
- **Migration**
  - Fast Service Upgrade (FSU) from z/VSE V4.1 and z/VSE V3.1
- **Virtualization**
  - Requires z/VM V5.2 or later if running under z/VM
- **Statement of Direction (SoD)****
  - z/VSE V4.2 will be the **last version/release of z/VSE to ship CICS/VSE V2.3**
  - New Enterprise Generation Language **(EGL) extension to Rational Business Developer**
  - New version of **WebSphere MQ for z/VSE**

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

New Red Book on z/VSE Security
(Draft version available on web)

Topics:

- BSM
- LDAP Sign-on
- Cryptography
- SSL
- CWS Security
- Connector Security
- TCP/IP Security
- Secure Telnet
- Secure FTP
- WMQ with SSL
- Security APIs

www.redbooks.ibm.com/redpieces/abstracts/sg247691.html

Press on z/VSE
Computer Zeitung: April 20, 2009

COMPUTER ZEITUNG

DOSSIERS — INFRASTRUKTUR — ANWENDUNGEN — PROZESSE — SICHERHEIT — MANAGEMENT — FORSCHUNG

BETRIEBSSYSTEME

IBM-Manager: „Anwender wollen ihr System z/VSE nicht mehr aufgeben"

Suche

Direkt zu

---Bitte wählen---

http://www.computerzeitung.de/articles/ibm-manager_anwender_wollen_ihr_system_zvse_nicht_mehr_aufgeben:/2009017/31918056_ha_CZ.html?thes=8008,10228,10234&tp=/ausrichtungen/infrastruktur&page=4

12 INFRASTRUKTUR & KOMMUNI

IBM-Manager Göbel: Bankkunden fordern integrierte Verschlüsselung

„Anwender wollen ihr System z/VSE nicht mehr aufgeben"

Seit zehn Jahren hat Klaus Göbel die weltweite Verantwortung für IBMs Mainframe-Betriebssystem z/VSE, dessen Entwicklung hauptsächlich in Böblingen stattfindet. Obwohl z/VSE quasi als Notlösung auf den Markt kam und Big Blue es bald wieder abschaffen wollte, wird es ständig weiterentwickelt.

CZ – Wie ist denn das z/VSE quasi als der kleine Bruder des Mainframe-Betriebssystems z/OS entstanden?
Göbel – Der für den Mainframe System/360 geplante Vorgänger von z/OS – das OS/360 – war ursprünglich als einziges Betriebssystem für diese Architektur geplant. Kurz vor dem Produktstart zeigte sich aber, dass OS/360 nicht in das Memory passte, das damals nur 16 Kilobyte groß war.

CZ – Und wie löste sich dieses Problem?
Göbel – Mit einer Interimslösung. Die Entwickler bauten eine abgespeckte OS/360-Version, die in das kleine Memory passt. Und dieses System war der Vorgänger von z/VSE. Unter der Bezeichnung DOS/360 wurde der kleine z/OS-Bruder dann 1965 als erstes IBM-Mainframe-Betriebssystem auf den Markt gebracht. Allerdings mit der Idee, es nach ein bis zwei Jahren wieder verschwinden zu lassen. Denn man konnte damals schon davon ausgehen, dass sich die Memory-Kapazität im Lauf der Zeit vergrößert und das z/OS schließlich hineinpassen würde.

CZ – z/VSE ist schließlich doch nicht verschwunden?
Göbel – Ja, denn nach kurzer Zeit haben schon so viele Kunden z/VSE genutzt, dass es IBM nicht einfach vom Markt nehmen konnte. Ab 1966 waren dann schon beide Betriebssysteme verbreitet, und seit dieser Zeit wurden dann auch beide Versionen weiterentwickelt.

CZ – Und weshalb ist das sogar bis heute so?
Göbel – Es gab zwar etliche Initiativen von IBM, die Anwender von z/VSE nach z/OS zu konvertieren, weil es betriebswirtschaftlich eigentlich wenig Sinn macht, zwei Systeme parallel weiterzuentwickeln – die ohnehin sehr viele Gemeinsamkeiten haben. Aber die Kunden haben sich mit Händen und Füßen gewehrt, von z/VSE wegzugehen.

mierte Java-Anwendungen, auf dem Linux-Prozessor im Mainframe verarbeiten, dem IFL – Integrated Facility for Linux. Damit haben wir die Forderung der Kunden erfüllt, mit ihrem z/VSE weiter wachsen zu können.

CZ – Wie erfolgt dabei die Verbindung von z/VSE und IFL?
Göbel – Alte Anwendungen auf z/VSE und neue Applikationen auf dem IFL können über Konnektoren in Echtzeit Daten austauschen. Neuere Applikationen laufen so zwar nicht direkt auf z/VSE, aber der Kunde hat keinerlei oder jedenfalls kaum Einschränkungen. In Version 4.2, die seit Oktober 2008 am Markt ist, haben wir diese Interaktion von z/VSE und Linux on System z weiter verbessert, um etwa z/VSE-Produktionsdaten und Linux-Anwendungen zu integrieren wie Data Warehouses, die DB2 UDB nutzen.

z/VSE-Systems Manager Göbel: „Mit Linux on System z lassen sich die Lizenzkosten deutlich reduzieren."

CZ – Das bringt großes Konsolidierungspotenzial ...
Göbel – Ja, zumal wir bei den IFLs gerade Ende 2008 erneut die Preise signifikant um 50 Prozent gesenkt haben. Und die Performance hat nun eine Größenordnung, mit der ein Kunde 30, 40 oder sogar 50 Intel-Server auf einem Linux on z-Prozessor ohne Einbuße konsolidieren kann. Daher rechnet sich das – nicht nur durch den geringeren Administrationsaufwand.

CZ – Wo spart man noch?
Göbel – Vieles vergessen Sie – Softwarelizenzen. Wenn Sie ein Windows-System, etwa NT, auf 50 Servern haben und auf Vista oder einen anderen Nachfolger migrieren müssen, dann nimmt Microsoft Geld dafür. Bei Hunderten oder gar Tausenden Servern können Sie mit Linux on System z erhebliche Einsparungen erzielen, in Einzelfällen sogar mehrere Millionen über drei Jahre.

CZ – Trotz Linux on System z gibt es doch auch bei z/VSE aktuelle Weiterentwicklungen?

Topics

- § 45-Year Mainframe Anniversary
- § Dynamic Infrastructure
- § Linux on System z
- § z/VM
- § z/VSE
- → § Summary

System z Strategy

1. *Innovate to address the IT infrastructure challenges of today and the future*

- Further simplify, consolidate and reduce the costs of an IT infrastructure
- Integrate, virtualize and coherently manage the multiple and varied elements of business applications
- Scale up and leverage System z strengths in data serving

2. *Extend strengths of System z*

- Invest for continued leadership in System z: performance, virtualization, enterprise security, enterprise business continuity
- Extend System z best of breed capabilities to a broader set of workloads
- Deploy optimized technologies for specific applications or components

3. *Expand the ecosystem and support core applications that our clients want*

- Recruit new solutions and solution providers and integrators
- Expand skills and capabilities across the globe

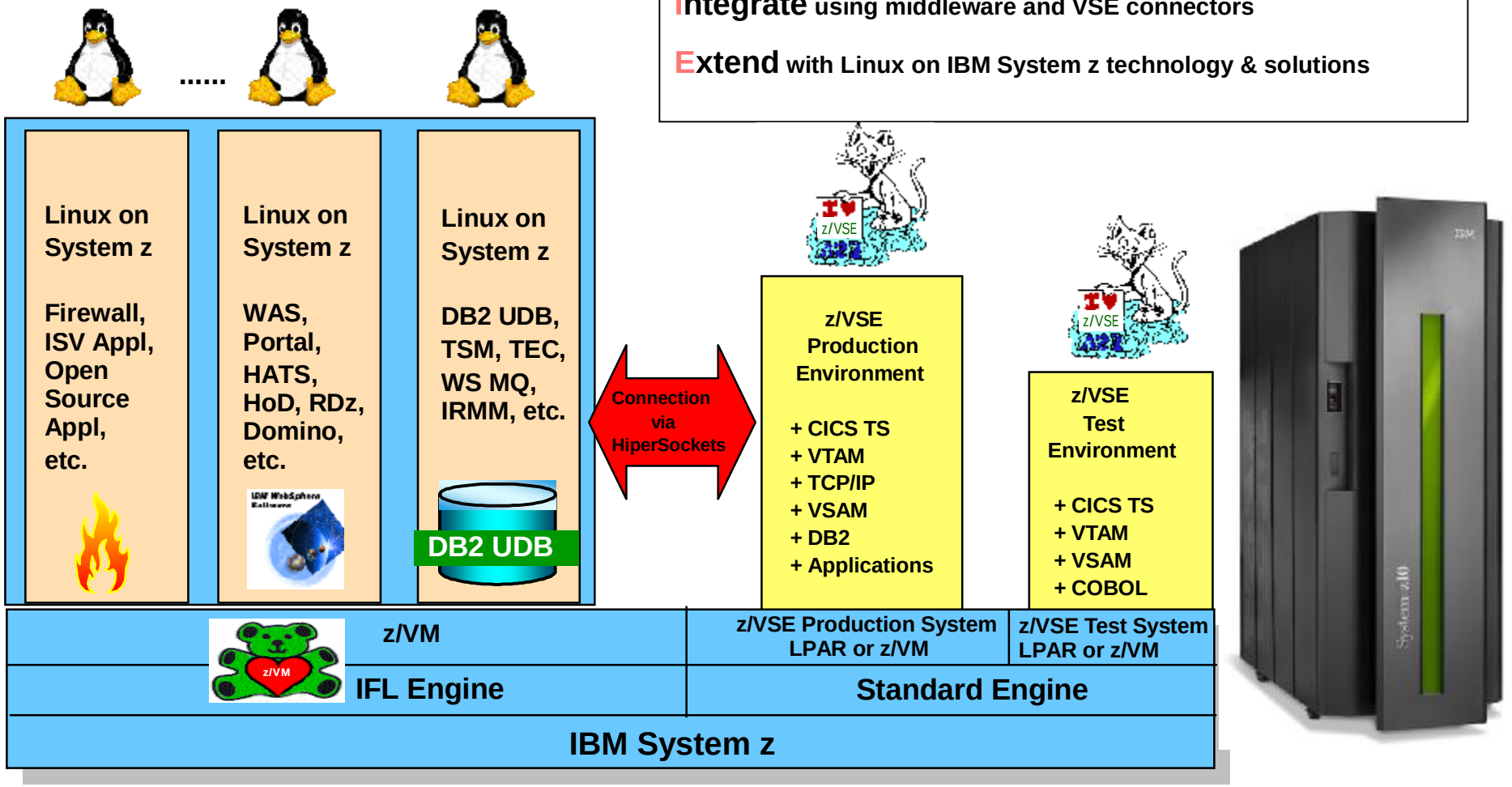
z/VSE's PIE Strategy with Linux on System z

A perfect Fit !

Protect existing VSE investments

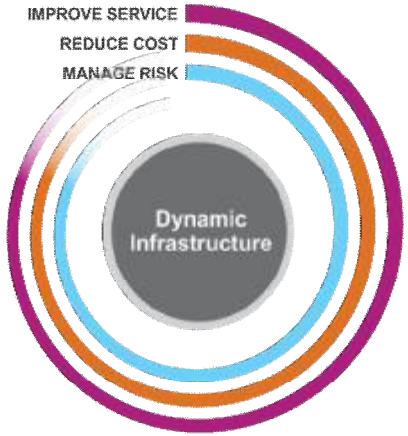
Integrate using middleware and VSE connectors

Extend with Linux on IBM System z technology & solutions



Leadership Capabilities for a Dynamic Infrastructure

Now …



Role of System z today:

- Secure and resilient enterprise data hub
- Enterprise server for mission critical applications requiring high levels of availability and security (e.g., OLTP)
- Highly efficient consolidation platform for exceptional cost savings

Mainframe Qualities:

- High application-level availability, not just Hardware or OS
- Iron-clad security (EAL5)
- Extreme scalability
- Integrated capabilities for workload management, provisioning, etc.
- Extensive monitoring and audit capabilities

Leadership Capabilities for a Dynamic Infrastructure

… and in the Future

Role of System z today:

- Secure and resilient enterprise data hub
- Enterprise server for mission critical applications requiring high levels of availability and security (e.g., OLTP)
- Highly efficient consolidation platform for exceptional cost savings

Role of System z tomorrow:

- An extremely cost-efficient platform across broader enterprise workloads
- Multi-tier business application host for a wider range of critical applications
- System z QoS (RAS) and management extended to heterogeneous platforms and applications

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

Questions ?

GSE
GUIDE SHARE EUROPE

Thank You !

IBM Technology – Made in Böblingen