Preview announcement of z/VSE V6, and more

Klaus Goebel

z/VSE 50 years of innovation

http://www.ibm.com/zVSE

http://twitter.com/IBMzVSE

The cat turned 50 !

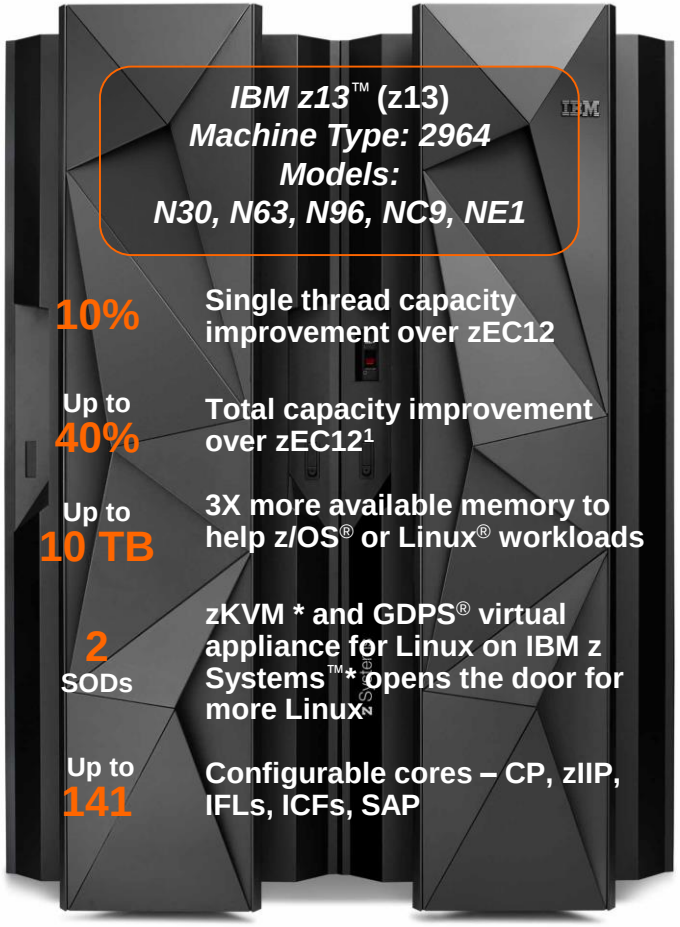
z/VSE 50

50 years of innovation

Agenda

- **IBM z13**
- **z/VSE V6.1**
- **Statements of Direction**
- **Summary**

The IBM z13 – The mainframe optimized for the digital era



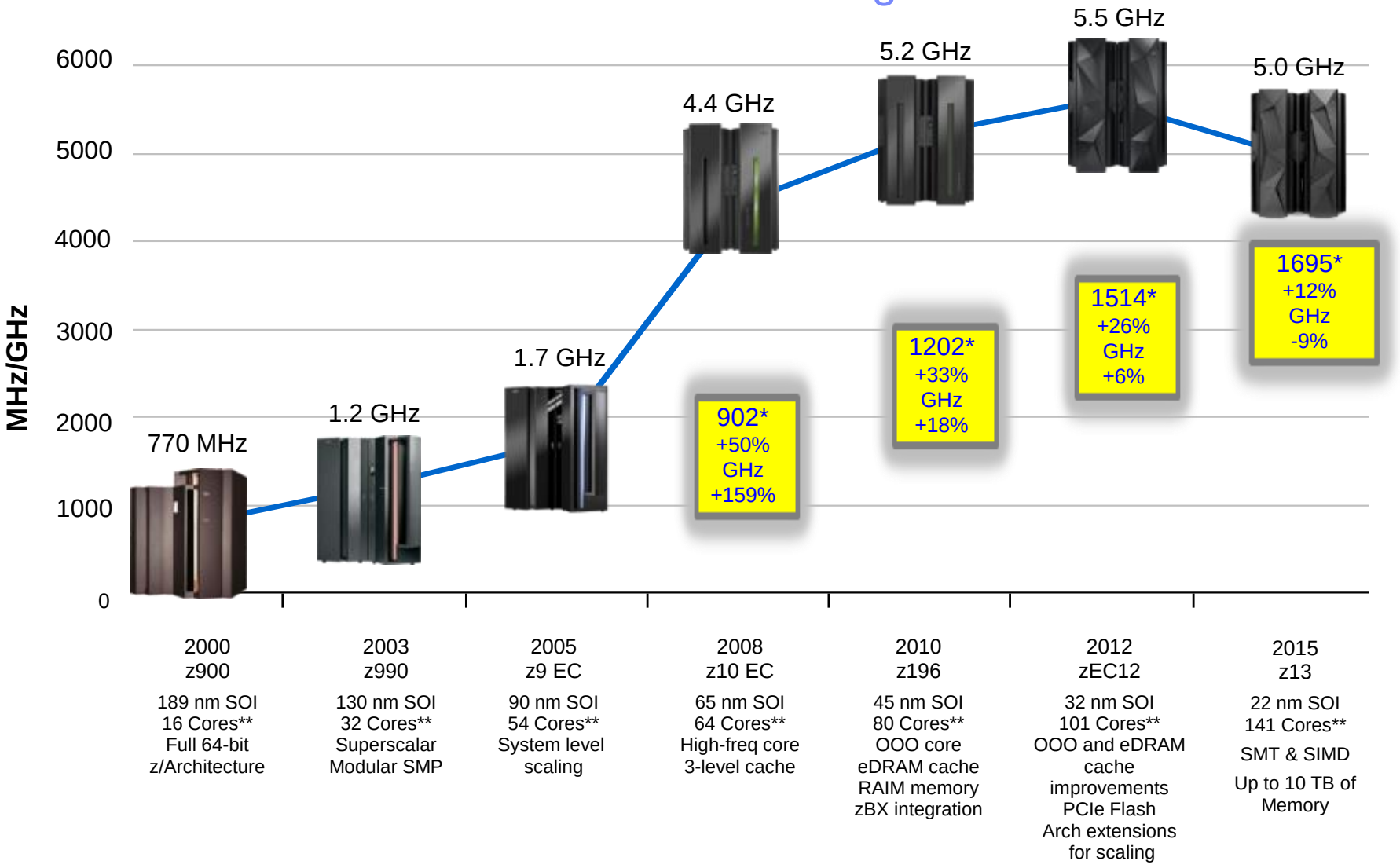
- Performance, scale, intelligent I/O and security enhancements to support transaction growth in the mobile world
- More memory, new cache design, improved I/O bandwidth and compression help to serve up more data for analytics
- Enterprise grade Linux solution, open standards, enhanced sharing and focus on business continuity to support cloud

Upgradeable from IBM zEnterprise® 196 (z196) and IBM zEnterprise EC12 (zEC12)

[1] Based on preliminary internal measurements and projections. Official performance data will be available upon announce and can be obtained online at LSPR (Large Systems Performance Reference) website at: https://www-304.ibm.com/servers/resourcelink/lib03060.nsf/pages/lsprindex?OpenDocument . Actual performance results may vary by customer based on individual workload, configuration and software levels

* All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

z13 continues the CMOS mainframe heritage



* MIPS Tables are NOT adequate for making comparisons of z Systems processors. Additional capacity planning is required.
** Number of PU cores for customer use.

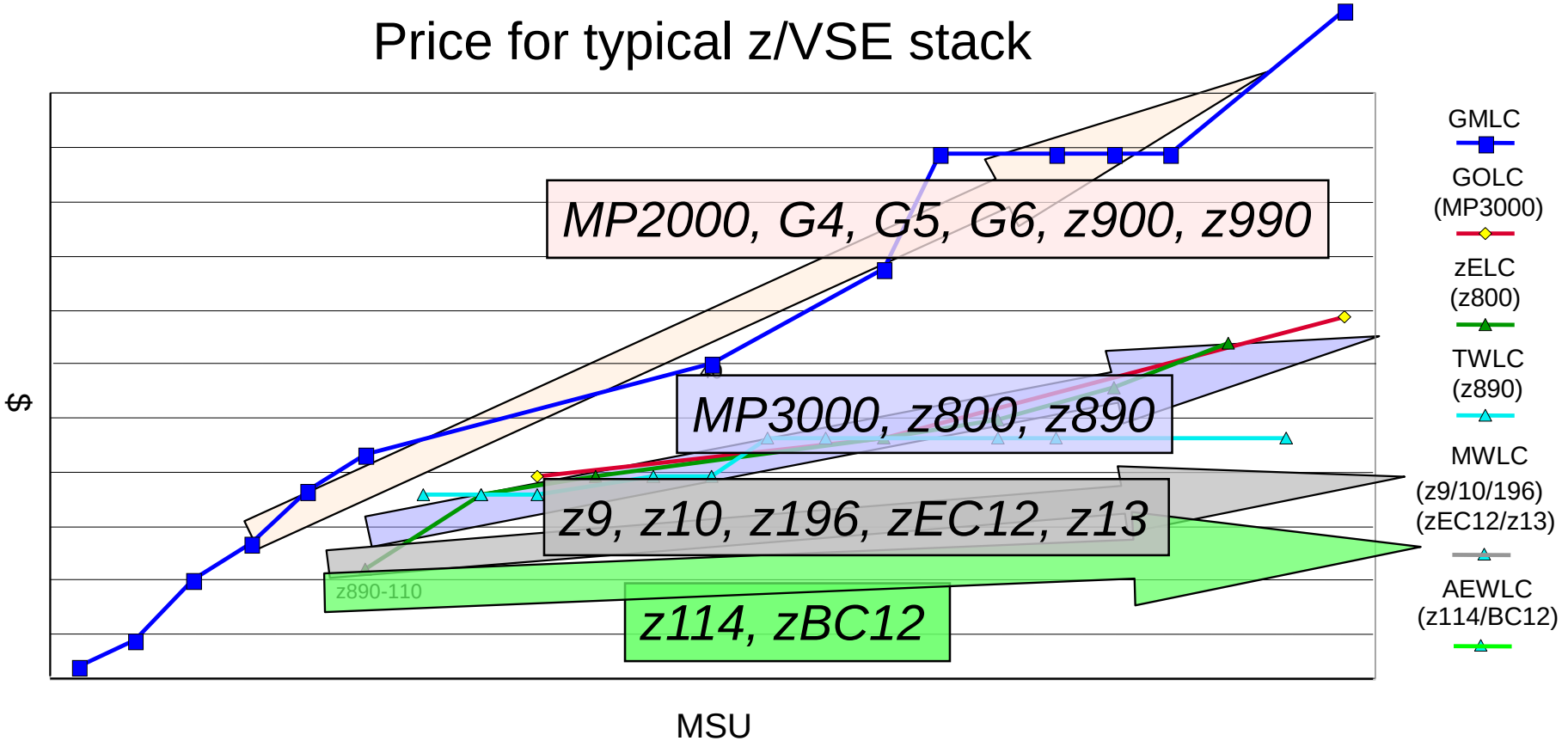
z/VSE hardware support status (as of May 2015)

IBM z Systems	z/VSE V6.1 (planned)	z/VSE V5.2	z/VSE V5.1	z/VSE V4.3 (EoS)	z/VSE V4.2 (EoS)
IBM z13	✔	✔	✔	✔	✔
IBM zEnterprise EC12 & BC12	✔	✔	✔	✔	✔
IBM zEnterprise 196 & 114	✔	✔	✔	✔	✔
IBM System z10 EC & z10 BC	✔	✔	✔	✔	✔
IBM System z9 EC & z9 BC	✘	✔	✔	✔	✔
IBM eServer zSeries 990 & 890	✘	✘	✘	✔	✔
IBM eServer zSeries 900 & 800	✘	✘	✘	✔	✔

z/VSE on IBM z13

- **IBM z13 Toleration / Exploitation:**
  - Together with the **GA of z13** we delivered toleration **PTFs for z/VSE 5.1 and 5.2**
  - **z/VSE**
    - can run in **more LPARs (85)**
    - supports **new Crypto Express5S** in coprocessor and accelerator mode
    - supports **more than 16 domains** with the new Crypto Express5S
    - supports **new FICON Express16S**
      - FICON-attached devices
      - FCP-attached SCSI disks
    - supports existing **OSA Express4S and 5S**
    - supports **newest version of SCRT**

z/VSE software pricing metrics



Typical z/VSE stack consists of z/VSE Operating System, LE, CICS TS, VTAM, TCP/IP, DB2

Agenda

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z/VSE continues to demonstrate IBM's commitment

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

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

+ SoD: CICS Explorer, LFP in LPAR

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

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

+ SoD: CICS Explorer Update, DVD Install, IPv6/VSE price reduction

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

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

Announced on April 7, 2014, jointly with Mainframe50 anniversary

z/VSE V6.1 - 4Q2015
- z13 exploitation
- ALS to System z10
- CICS TS for z/VSE V2.1 incl CICS Explorer update, support for channels & containers
- TCP/IP for z/VSE V2.1
- IPv6/VSE V1.2

+ SoD: Secure z/VSE Software Delivery

Announced on May 11, 2015, 50 years after DOS/360

z/VSE V6.1 – Exploitation of IBM z13 technology

- **Configurable Crypto Express5S – new with z13**
  - Support for both, IBM Common Cryptographic Architecture (CCA) coprocessor and accelerator mode
    - PKCS#11 (EP11) coprocessor is not supported
  - Can be used in both, LPAR and z/VM guest environment
    - z/VM PTF is required
  - More than 16 domain support allows a Crypto Express5S adapter to be shared across more than 16 domains, up to the maximum number of LPARs on the system
    - Provides the flexibility of mapping individual LPARs to unique crypto domains or continuing to share crypto domains across LPARs
  - The Crypto Express4S card cannot be used with a z13.

- **FICON Express16S – new with z13**
  - For FICON-attached devices as well as FCP-attached SCSI disks
  - Supports a link data rate of 16 Gbps
  - Autonegotiation to 4 or 8 Gbps for synergy with existing switches, directors, and storage devices
    - 2 Gbps control units cannot be attached

- **OSA Express4S and OSA Express5S**
  - Reuse of existing card from zEC12 and/or zBC12
    - Both cards can be configured with OSA/SF in HMC

z/VSE V6.1 – Exploitation of IBM System Storage

- **IBM System Storage TS7700 Virtualization Engine Release 3.2**
  - Supports back-end physical tape attachments to a TS7720 with logical volume sizes up to 25 GB
  - Copy Export function can be used for disaster recovery purposes
  - Multi-Cluster Grid Support enables disaster recovery or high availability solutions

TS7700

- **FCP-attached SCSI disks can be used with:**
  - IBM Storwize® V7000 Midrange Disk System
  - IBM Storwize® V5000 Midrange Disk System
  - IBM Storwize® V3700 Entry Disk System
  - IBM XIV® Storage System
  - IBM SAN Volume Controller
  - IBM FlashSystem™ V840

FlashSystem 840

- **IBM System Storage DS8870 Release 7.4**
  - Newest member of the IBM System Storage DS8000 series
  - Supports FICON-attached ECKD and FCP-attached SCSI disks

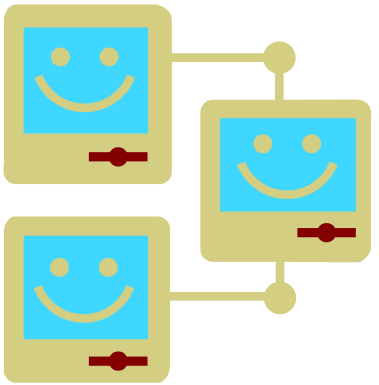
Storwize V7000

z/VSE V6.1 – CICS TS for z/VSE V2.1

- **New CICS TS version for z/VSE**
  - The first major CICS TS update since 1999
- **Only available for z/VSE V6.1 and later, replaces CICS TS for VSE/ESA V1.1.1**
  - CICS TS for VSE/ESA V1.1.1 still delivered with z/VSE V5.2
- **New CICS TS build includes:**
  - CICS Explorer update & control capability
    - Update resources as you would do with transactions on your CICS terminal
    - Enable / disable CICS resources
    - Change selected CICS definitions
  - Channel & Container support
    - New API, ported from CICS TS for z/OS V3.1
    - Allows users to transfer any amount of data up to the size of the CICS partition
    - Lifts the 32k COMMAREA limitation
    - Language support for C, COBOL, HLASM and PL/I
  - CICS requirements
    - More current cypher suites (AES128/256) to CICS Web Support
    - Support for EXEC CICS INQUIRE SYSTEM OSLEVEL
    - Millisecond support in EXEC CICS ASKTIME and EXEC CICS FORMATTIME

z/VSE V6.1 – Networking enhancements

- **TCP/IP for z/VSE V2.1**
  - A new version of CSI's TCP/IP stack
  - Levelset based on TCP/IP for VSE/ESA 1.5F
  - New white-list firewall feature
  - Internal processing improvements
    - Cross memory services for external partition socket requests
    - New utilities for automation and TN3270 services
    - Enhanced TLS/SSL cryptography

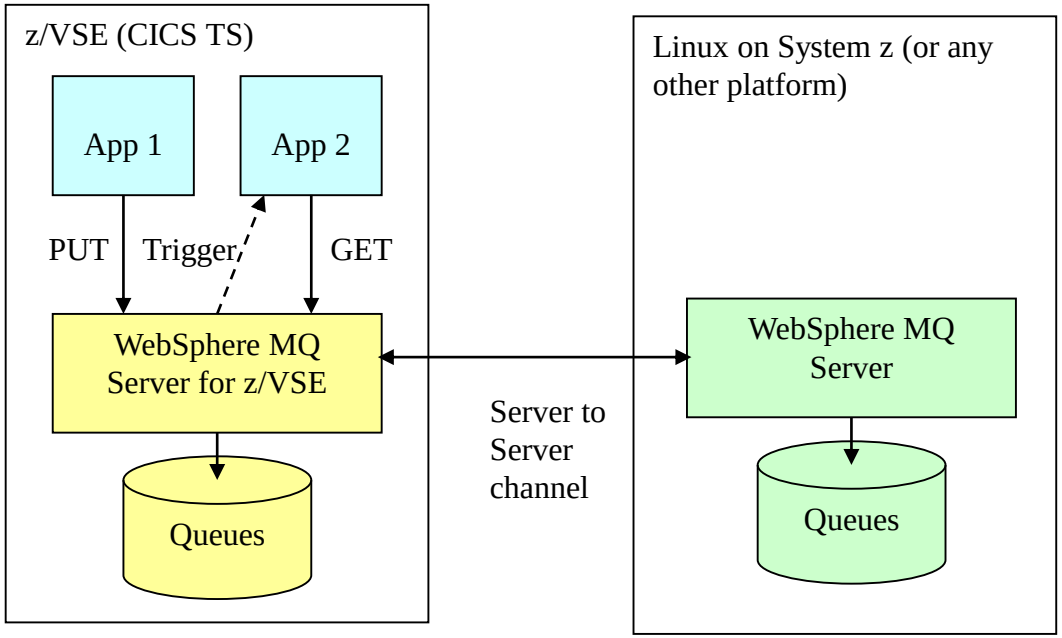


- **IPv6/VSE V1.2**
  - A new release of BSI's TCP/IP stack
  - Basic firewall support
  - Automated OSA Express failover using hot swap devices for high availability
  - Improved stack CPU optimization
  - Improved SSL support including TLS 1.2 and DH/ECC sockets
  - Virtual IP address support using virtual network devices

WebSphere MQ Server for z/VSE – Withdrawn

- **End of Marketing Announcement**
  - IBM WebSphere MQ for z/VSE 3.0 (5655-U97) announced EoM on June 3, 2014
  - EoM effective since Sep 8, 2014

- **End of Service Announcement**
  - WebSphere MQ for z/VSE 3.0 announced EoS on Aug 5, 2014
  - EoS planned to become effective by Sep 30, 2015
  - Individual service extension contracts can be requested for service beyond Sep 30, 2015 for a period of at least 3 years.

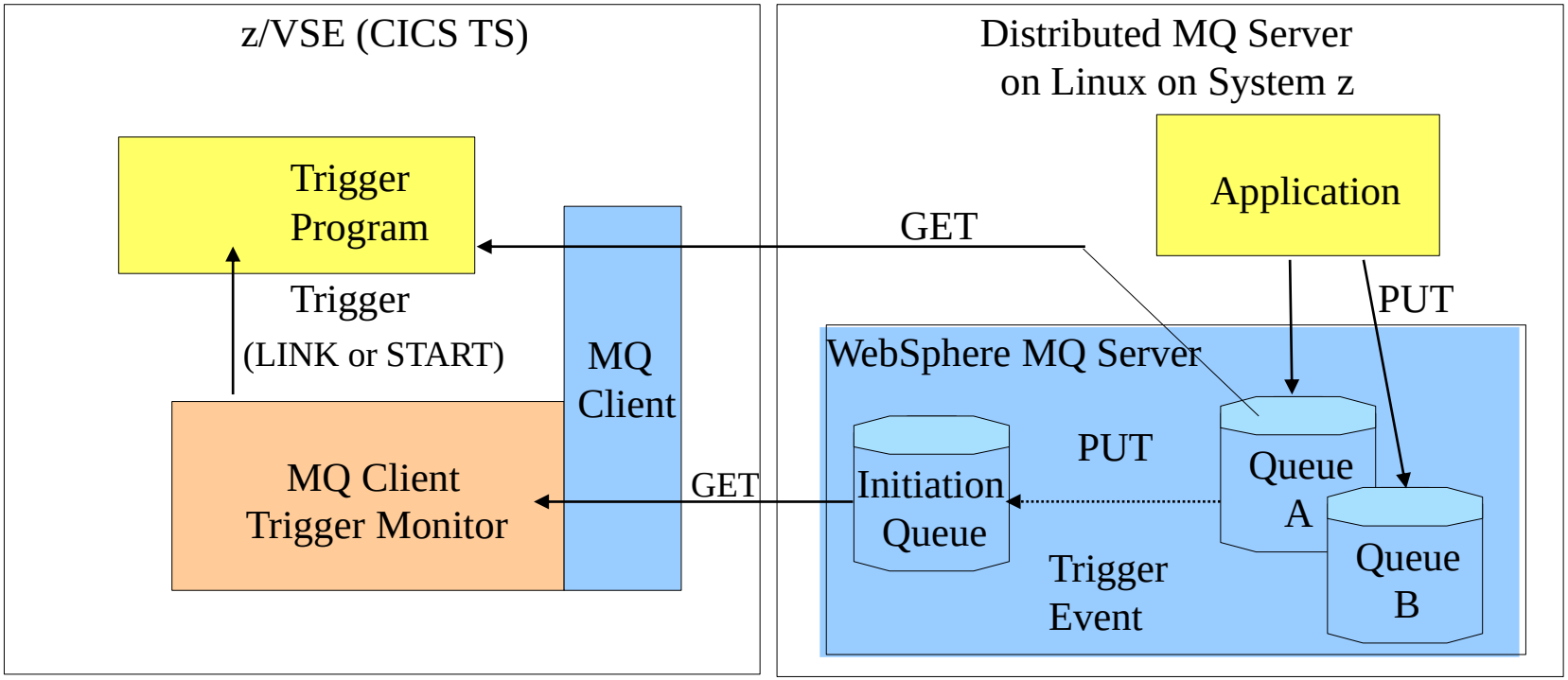


- **WebSphere MQ Client for z/VSE continues to be available**
  - No EoM / EoS planned for the WebSphere MQ client for z/VSE

- EoM: http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS914-104
- EoS: http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS914-150

z/VSE V6.1 – Trigger monitor for WebSphere MQ client

- **Trigger z/VSE CICS TS programs with z/VSE MQ client**
- **Similar to how an MQ server on z/VSE would trigger a program**



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z/VSE Central Function becomes z/VSE

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

- SOD launched in 4/2014
- Fulfilled with z/VSE V6.1 in 4Q2015

- Today:
  - z/VSE CF V7 is contained in z/VSE V3
  - z/VSE CF V8 is contained in z/VSE V4
  - z/VSE CF V9 is contained in z/VSE V5
- Future:
  - z/VSE CF Vx is eliminated and renamed into z/VSE V6

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CICS DDM stabilization

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.

- SOD launched in 4/2014
- Fulfilled with z/VSE V6.1 in 4Q2015

- Most likely no effect on z/VSE customers because no known user of DDM

Secure z/VSE software delivery

IBM plans to remove support for unsecured FTP connections used for z/VSE software and service delivery. It is planned that new z/VSE software (products and service) downloads will require the use of HTTPS (Hypertext Transfer Protocol Secure, supporting the TLS and SSL cryptographic protocols) or Download Director with encryption.

- SOD launched in 5/2015

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Product delivery of z/VM on DVD / Electronic only

Product Delivery of z/VM on DVD/Electronic only: z/VM V6.3 will be the last release of z/VM that will be available on tape. Subsequent releases will be available on DVD or electronically.

- SOD launched in 1/2015
- No more tapes for z/VM product delivery for future z/VM releases
- Allows testing resources to be spent else where
- Watch out for z/VSE announcements

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GDPS / PPRC Multiplatform resiliency capability

In the first half of 2015, IBM intends to deliver a GDPS/Peer to Peer Remote Copy (GDPS/PPRC) multiplatform resiliency capability for customers who do not run the z/OS operating system in their environment. This solution is intended to provide IBM z Systems customers who run z/VM and their associated guests, for instance, Linux on z Systems, with similar high availability and disaster recovery benefits to those who run on z/OS. This solution will be applicable for any IBM z Systems announced after and including the zBC12 and zEC12.

- SOD launched in 1/2015
- Fulfilled as an IBM services offering on 04/30/2015

- Lower the skill expense of running a GDPS environment, particularly for those customers with little, or no, z/OS background
- Might be applicable for VM/VSE customers, too

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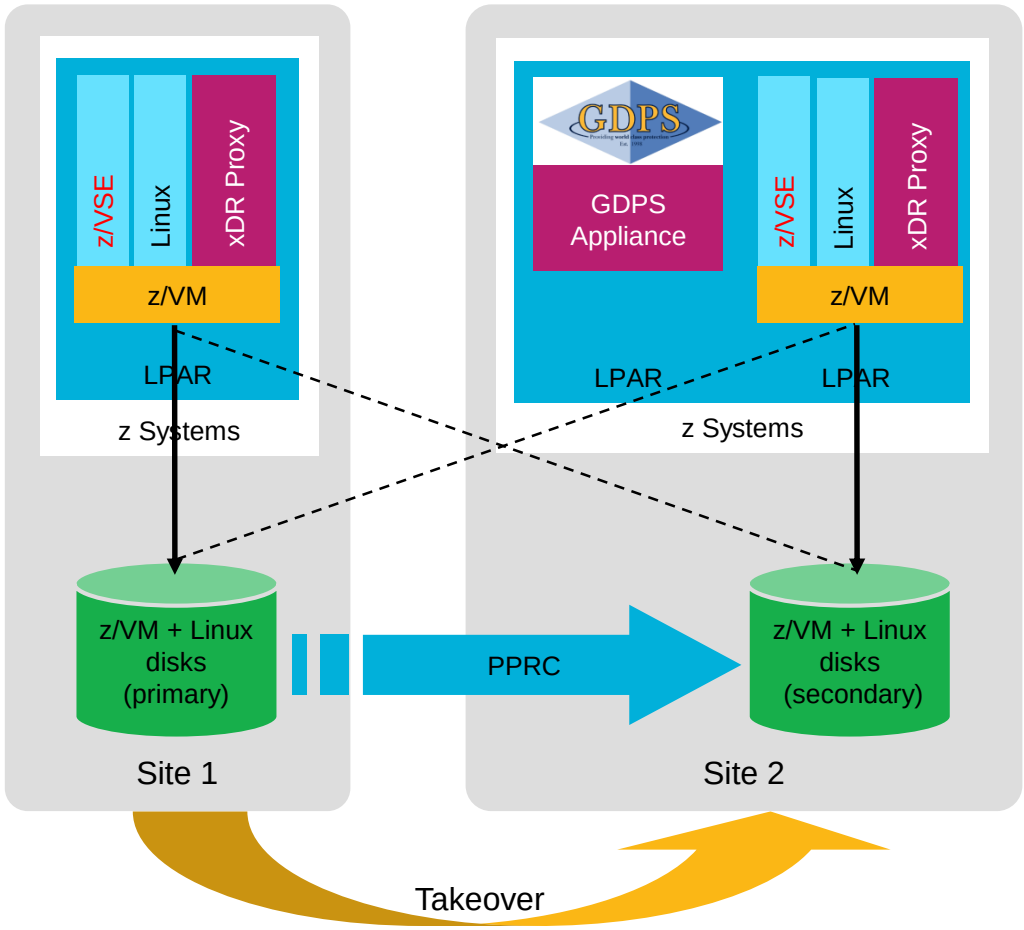
Disaster recovery for Linux on z Systems and z/VSE

- Single point of control and automation reduces the need for highly specialized skills to handle recovery and planned site switches
- Manages remote copy environment and keeps data available and consistent for operating systems and applications.
- HyperSwap® function protects against failures to disk subsystems.
- Monitoring and automation to ensure reliable and rapid recovery via automated processes
- GDPS Virtual Appliance requires:
  - General purpose engine
  - z/VM and Linux on z Systems
  - ECKD Disk



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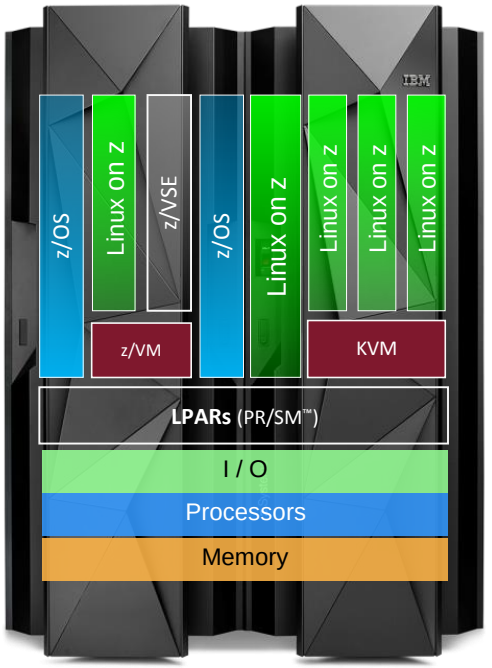
KVM offering for IBM z Systems

In addition to the continued investment in z/VM, IBM intends to support a Kernel-based Virtual Machine (KVM) offering for z Systems that will host Linux on z Systems guest virtual machines.

The KVM offering will be software that can be installed on z Systems processors like an operating system and can co-exist with z/VM virtualization environments, z/OS, Linux on z Systems, z/VSE, and z/TPF.

The KVM offering will be optimized for z Systems architecture and will provide standard Linux and KVM interfaces for operational control of the environment, as well as providing the required technical enablement for OpenStack for virtualization management, allowing enterprises to easily integrate Linux servers into their existing infrastructure and cloud offerings.

- SOD launched in 1/2015



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z/VSE continues to deliver customer value

z/VSE V6.1 Preview 2Q15, GA 4Q15
- ALS to System z10 (and higher), z13 exploitation
- CICS TS for z/VSE V2.1 incl. CICS Explorer update, channels & containers
- TCP/IP for z/VSE V2.1, IPv6/VSE V1.2

z/VSE V5.2 April 25, 2014
- zEC12 / zBC12 exploitation, DVD base install
- Networking & security enhancements
- SoD for CICS TS enhancements, z/VSE Vnext

z/VSE V5.1.2 Jun 14, 2013
- 64-bit I/O, security & DBCLI enhancements
- SoD for IPv6/VSE pricing, DVD base install

z/VSE V5.1.1 Jun 15, 2012
- CICS Explorer Monitoring
- LFP in LPAR, DBCLI connector

z/VSE V5.1 Nov 25, 2011
- z196 / z114 exploitation
- ALS to System z9 (and higher)
- 64-bit virtual addressing, LFP w/ z/VM
- SoD for CICS Explorer, LFP in LPAR

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

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

Protect
Integrate
Extend

Hardware Support
Capacity
Quality
z/OS Affinity
Interoperability

[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

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

Meet the z/VSE team and celebrate 50 years of innovation !

- **Edge2015 in Las Vegas (Nevada)**
  - **May 11-15, 2015**

- **IBM z Systems Technical University in Dublin (Ireland)**
  - **May 18-22, 2015**

No WAVV anymore

- **VM Workshop in Binghamton (New York), incl z/VSE & Linux on z Systems**
  - **June 25-27, 2015**

- **IBM z Systems Technical University in Orlando (Florida)**
  - **Oct 5-9, 2015**

- **GSE European Working Group in Boeblingen (Germany)**
  - **Oct 19-21, 2015**

z/VSE

50 years of innovation

IBM

Thank You

Please forward your questions or remarks to
zvse@de.ibm.com
kgoebel@de.ibm.com

z/VSE Live Virtual Classes

z/VSE @ http://www.ibm.com/zvse/education/

LINUX + z/VM + z/VSE @ http://www.vm.ibm.com/education/lvc/

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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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