

Aktuelles rund um z/VSE



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Agenda



- **z/VM**



- **z/VSE**

- z/VSE V6.1

- z/VSE NEXT

- Übersicht & Preismodelle



z/VM Release Status Summary (as of February 2016)



z/VM Level	GA	End of Service	End of Marktg.	Minimum Processor Level	Maximum Processor Level	Security Level
6.4	Q4/2016 ^[4]			IBM System z114, z196		
6.3	7/2013	12/2017 ^[3]		IBM System z10 [®]		EAL 4+ OSPP-LS
6.2	12/2011	6/2017 ^[2]	7/2013	IBM System z10 [®]	z13s ^[4]	-
6.1	10/2009	4/2013	12/2011	IBM System z10 [®]	zEC12	EAL 4+ OSPP-LS
5.4	9/2008	12/2016 ^[1]	3/2012	IBM eServer zSeries 800& 900	zEC12	-
5.3	6/2007	9/2010	9/2010	z800, z900	z196	EAL 4+ CAPP/LSP

^[1] Or later until z9 EOS (Announced August 6, 2014)

^[2] Extended from original date (Announced revised February 2, 2016)

^[3] Announced February 3, 2015

^[4] Preview announced February 16, 2016

Marketed & Serviced

Serviced, but not Marketed

End of Service & Marketing

EAL - Evaluation Assistance Level

z/VM Version 6 Release 3

Making Room to Grow Your Business

Product General Availability

z/VM support for zEDC Express and 10GbE RoCE Express features Available, CPU Pooling

January 14
z13 and z/VM Enhancements Announcement

Feb 13
Base z13 & Crypto support Available

March 13
SMT and Scalability Support Available

June 26
Multi-VSwitch Link Aggregation Available

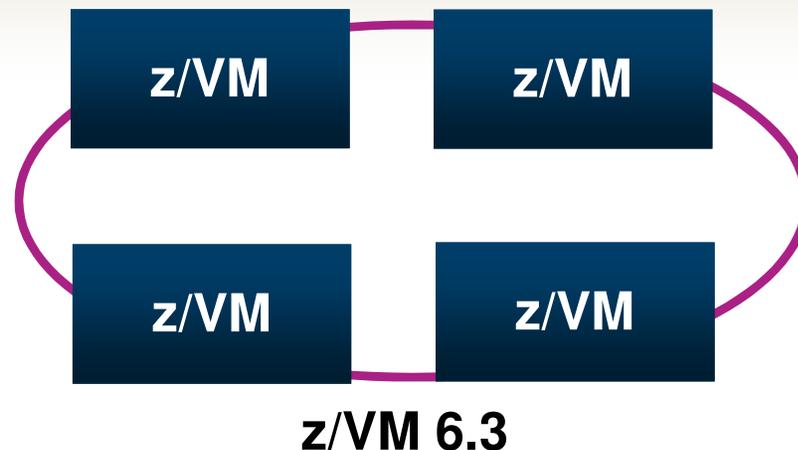
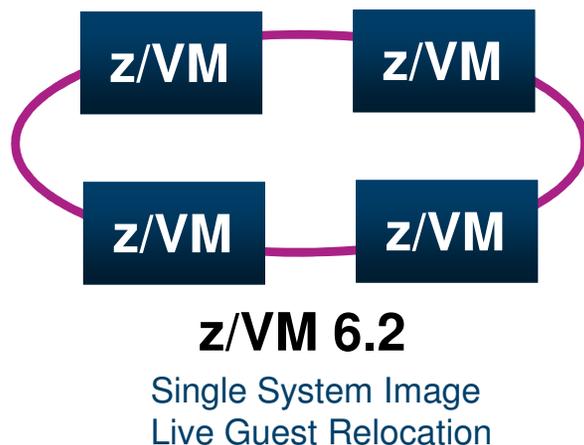
September 15
RACF enhancements, Prorated Core time

January 14
dynamic PDR migration, SIMD support

Q4/16
z/VM6.4 GA



See <http://www.vm.ibm.com/zvm630/>



Preview IBM z/VM 6.4

- Preview announcement 216-009, dated February 16, 2016
 - <http://www.vm.ibm.com/zvm640/index.html>
- Planned availability date **Fourth Quarter 2016**
- A release born from customer feedback
- **Key components:**
 - Enhanced technology for improved scaling and total cost of ownership
 - Increased system programmer and management capabilities
- New Architecture Level Set (ALS) of **z196 and higher**
- **Electronic and DVD install**
 - No tapes



Preview IBM z/VM 6.4: Improved Scalability and TCO



- Use of **HyperPAV** when available
 - to increase bandwidth for paging and
 - allow for more efficient memory management of over-committed workloads.
 - Exploitation for Paging, Spooling, z/VM user directory and minidisk pools that are mapped to z/VM data spaces.

- **Guest large page support** (1 MB)
 - Enhanced DAT facility to allow guests to take advantages of 1MB pages
 - Decreases memory and overhead required to perform address translation.

- Memory scalability improvements
 - **Enhanced** algorithms to further improve the efficiency of **memory management**
 - Provide a foundation for future enhancements in scaling and efficiency

- **FlashSystem** support for FCP-attached SCSI disks
 - Allows **directly attachment** and removes requirement of a San Volume Controller (SVC) to use FlashSystems for z/VM system volumes and EDEVs

- ...

Preview IBM z/VM 6.4: System Programmer & Management Capability

Ease of use improvements:



- QUERY SHUTDOWN command
 - Allows **better understanding of state of the system**
 - Allows for increased programmable management of the system

- CP environment variables
 - New framework to allow information to be set and queried **for automatic processing**
 - Example: Indicate system is being started for Production or DR Test or Actual DR

- New management **queries for SCSI** environment.
 - Allows **SCSI detailed information** to be gathered for emulated devices (EDEVs)
 - Provides a **clearer end-to-end view of storage configuration**

Preview IBM z/VM 6.4: System Programmer & Management Capability...

Ease of use improvements:



- CMS Pipelines (**PIPE**) enhancements
 - Pipelines is a powerful programming construct available in the CMS environment
 - Objective is to make available, with the product, many of the advances made to Pipelines since it was last updated in the product
 - **Allows use of various tools and programming without the need to download additional code**

- DirMaint to RACF Connector
 - Modernizes the Connector with a collection of functional enhancements
 - Brings processing in line with modern z/VM practices
 - **Allows better passing of directory information to RACF**
 - Facilitates proper security policy in environment managed by IBM Wave for z/VM or OpenStack

- ...

Agenda

- **z/VM**



- **z/VSE**

- z/VSE V6.1

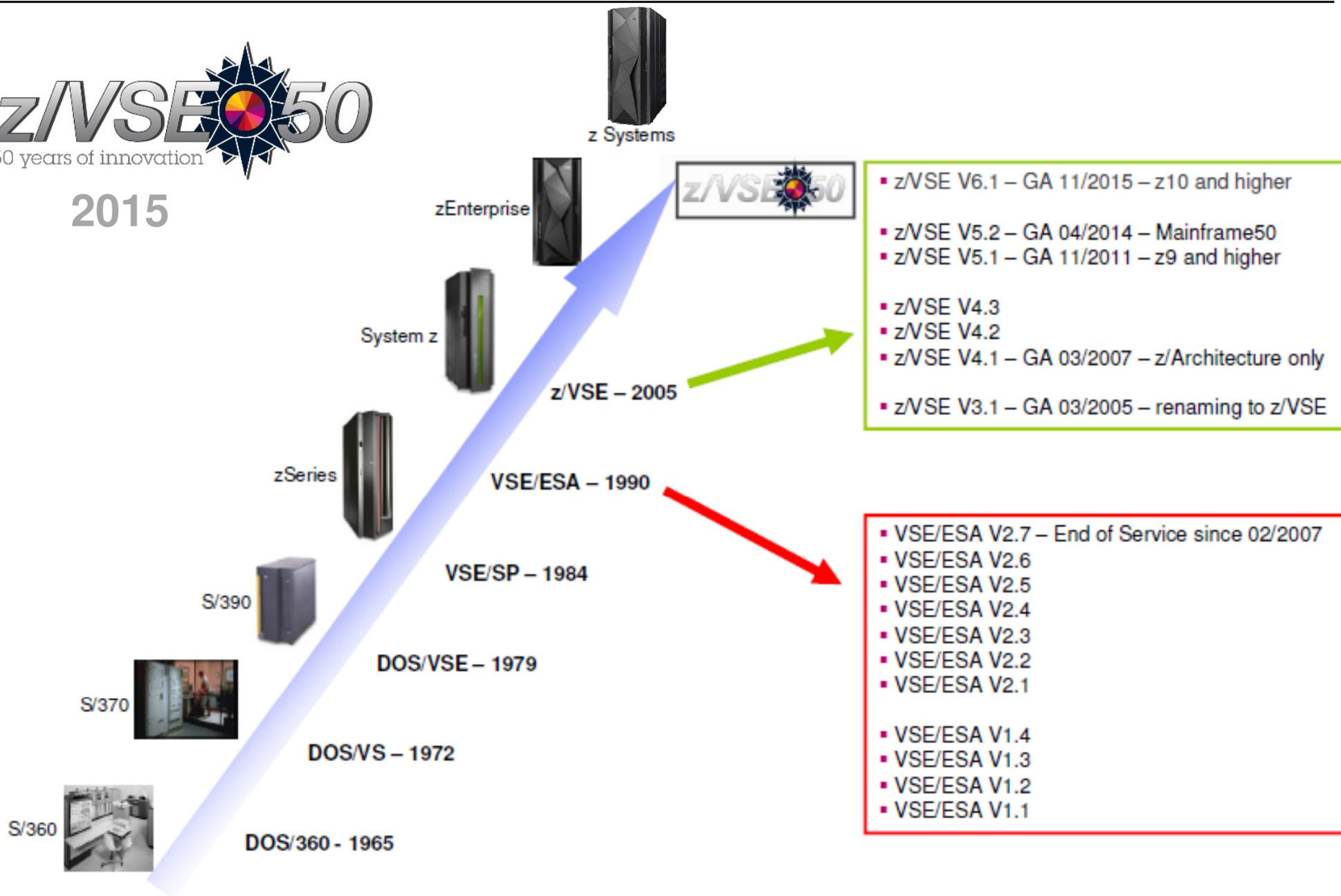
- z/VSE NEXT

- Übersicht & Preismodelle





2015



z/VSE V6.1



*Preview: May 11, 2015, GA Announcement: 10/05/2015, GA: 11/27/2015
and Enhancements Announcement: 04/12/2016*

- **Exploitation of innovative IBM z13 and IBM z13s** technology
 - Configurable Crypto Express5S for data encryption and SSL acceleration
 - FICON Express16S supporting a link rate of 16 Gbps
- **New version of CICS TS for z/VSE V2.1**
 - Update and control capabilities to CICS resources for the CICS Explorer system management tool
 - New API to enable the transfer of large amounts of structured data between CICS applications to meet the needs of growing workloads ([Channel & Container](#))
- **IBM TCP/IP for z/VSE V2.1** (new version) designed to include firewall functionality
- **IBM IPv6/VSE V1.2** (new release) will provide firewall functionality, increased network availability, and other enhancements
- ...

- Architectural Level Set (ALS) to **IBM System z10** or later
- z/VSE V6.1 requires an initial installation
 - Fast Service Upgrade (FSU) from z/VSE V5.x is not supported

z/VSE V6.1



*Preview: May 11, 2015, GA Announcement: 10/05/2015, GA: 11/27/2015
and Enhancements Announcement: 04/12/2016*

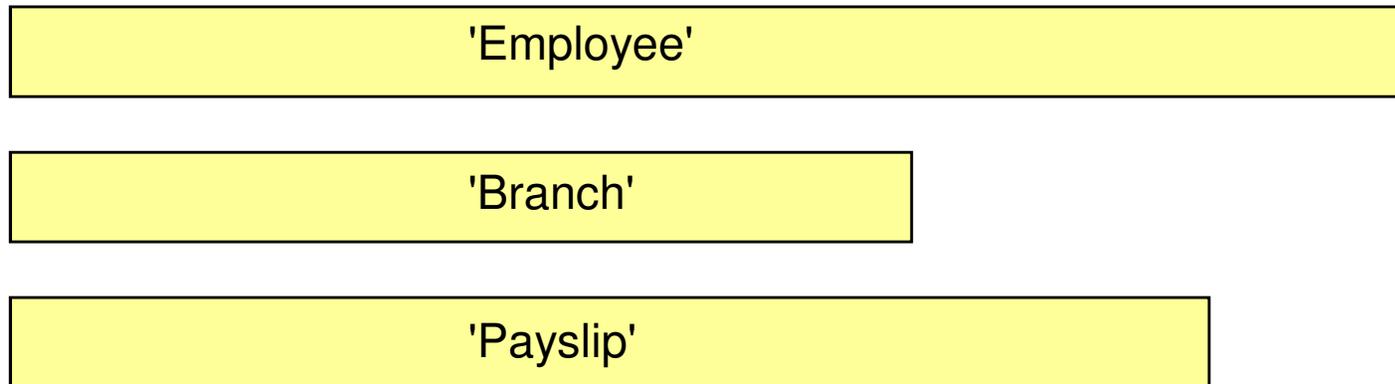
- Architectural Level Set (ALS) to **IBM System z10** or later

- Support of IBM z13 and IBM z13s technology like
 - Configurable **Crypto Express5S** for data encryption and SSL acceleration
 - **FICON Express16S** - new with IBM z13
 - **z/VSE V5 and later transparently support the FICON Express16S for**
 - FICON-attached devices
 - FCP-attached SCSI disks

- IBM System Storage Support
 - IBM System Storage TS7700 Virtualization Engine Release 3.3
 - IBM System Storage DS8870 Release 7.5, DS8880 (**DS8884**, DS8886)
 - As ECKD and FCP-attached SCSI disks
 - IBM FlashSystem V9000 for use with FCP-attached SCSI disks.

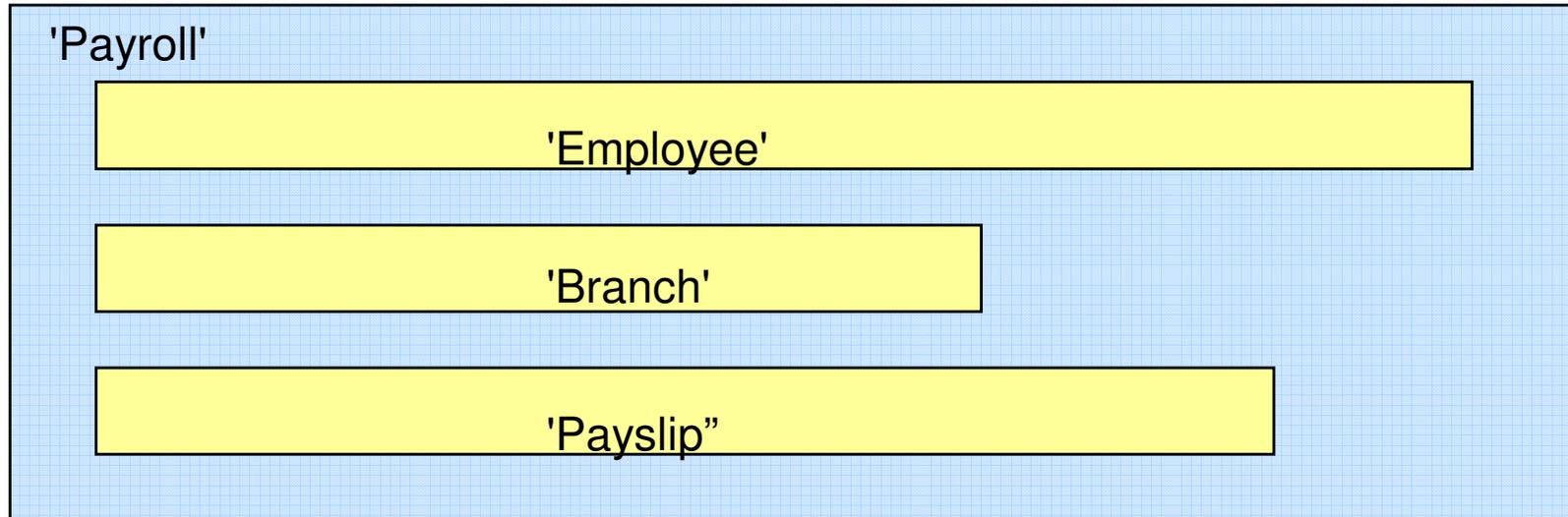


Containers



- To solve the 32K COMMAREA problem a new construct will be provided
- **Named block of data** designed for passing information between programs
 - Like named COMMAREAs
- CONTAINER API
 - Created using (EXEC CICS) PUT CONTAINER, defines the size of the container
 - Read using (EXEC CICS) GET CONTAINER
 - Delete using (EXEC CICS) DELETE CONTAINER, to free storage, if no longer required
- No CICS enforced size limitation
 - Containers are stored within the CICS EDSA (31 bit partition virtual storage)

Channels



- A group of Containers
 - No limit on the number of Containers in a Channel
- A Channel is a sort of program interface
 - Passed on LINK, XCTL, pseudoconversational RETURN, and START commands
- Non-persistent
 - Non-recoverable resource similar to COMMAREAs

z/VSE V6.1 - CICS TS for z/VSE V2.1 (new version)

Preview: May 11, 2015, GA Announcement:10/05/2015, GA: 11/27/2015

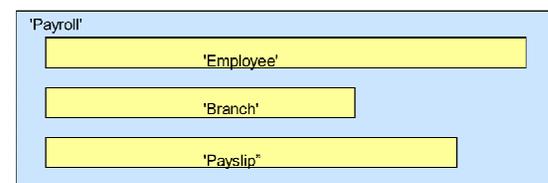


- New APIs for Channel & Container (C&C) support

- **lifts the 32K limit of COMMAREA**

- Large amount of structured data can be exchanged
 - Support for programs and transactions - local and remote (MRO,ISC)

```
EXEC CICS LINK PROGRAM [CHANNEL | COMMAREA]
EXEC CICS XCTL PROGRAM [CHANNEL | COMMAREA]
EXEC CICS RETURN TRANSID [CHANNEL | COMMAREA]
EXEC CICS START TRANSID CHANNEL
```



- Executable in 24-bit or 31-bit addressing mode (AMODE)
 - Support is provided for C, COBOL, HLASM and PL/I

- Channels and Containers limitations:

- In 31 bit virtual storage only
 - No support for

External CICS Interface (EXCI), External Call Interface (ECI),
CICS Web Support (CWS), [Business Transaction Services (BTS)]

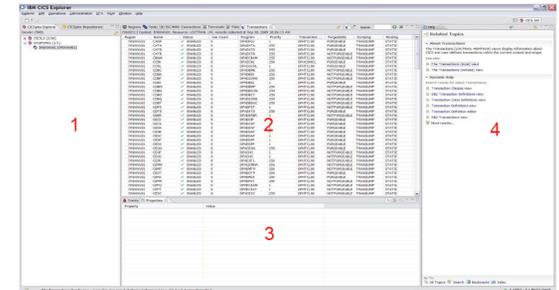
→ see SOD from 04/12/2016

z/VSE V6.1 - CICS TS for z/VSE V2.1 (new version) ...

Preview: May 11, 2015, GA Announcement:10/05/2015, GA: 11/27/2015



- CICS Explorer update and control capabilities
 - CICS Explorer server extension integrated into CICS TS for z/VSE 2.1
 - Provides updates to CICS resources
 - Update and control CICS resources as you would do with transactions on your CICS terminal
 - Enable / disable CICS resources, change selected CICS definitions,...
- 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
 - Millisecond option to EXEC CICS FORMATTIME



- Documentation in **CICS TS for z/VSE V2.1 Enhancement Guide**

<http://publibfp.dhe.ibm.com/epubs/pdf/iescte00.pdf>



z/VSE V6.1 - CICS TS for z/VSE V2.1 (new version) ...

- Das neue CICS TS for z/VSE
 - Interne Struktur vom CICS TS for VSE/ESA 1.1.1 ist geblieben
 - **Verschiedene interne Kontrollblöcke wurden geändert**
 - Änderungen sind **transparent für EXEC CICS API** Interface
 - Kein Recompile und Relink notwendig für EXEC CICS-Programme, die unter CICS TS 1.1.1 kompiliert wurden
 - Programme, die CICS interne Kontrollblöcke oder das **Global User Exit Programming Interface** verwenden, **müssen** im CICS TS 2.1 mit den Macros aus PRD1.BASE im z/VSE V6.1 **umgewandelt werden**.
 - Ebenso die User-Replaceable Programme: DFHCNV und DFHUCNV
- Hinweise zur CICS TS Migration finden Sie:
 - **CICS TS for z/VSE V2.1 Enhancement Guide, Part 9**
 - GSE-Vortrag vom April: „**Erste Erfahrungen mit z/VSE V6.1**“
ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/gse2016/berlin/VS02-Erste_Erfahrungen_mit_zVSE_V6.1.pdf



z/VSE V6.1 - IBM TCP/IP for z/VSE V2.1 (new version) ...

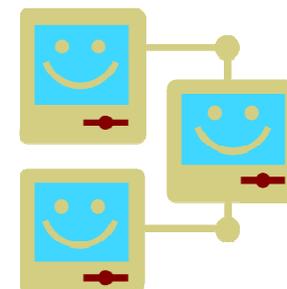
- New white-list firewall feature

- Access denied unless an IP address is specifically allowed to communicate with the VSE system.
- Firewall shield loaded during TCP/IP startup (in fail or warn mode - for logging only)
- Firewall configuration phase (list of IP addresses) can be reloaded
 - To each IP address range you may specify VSE ports (TCP or UDP) and if ICMP (Ping) is allowed, for example:
FIREWALL ALLOW,IPV4BEG=039.101.062.131,IPV4END=039.101.062.131,
TCPPOINTS=PORTGRPA,UDPPORTS=NONE,ICMP=YES



- Internal processing improvements

- Cross memory services for external partition socket requests
 - Socket requests allocated in partition GETVIS instead of system GETVIS
 - TCP/IP partition uses cross memory services (XPCC) to process socket request
 - New program (\$B SOCKET) loaded into partition to process external socket request
- New utilities for automation and TN3270 services
 - [TN3270 improved recovery](#)
 - [External TN3270 server](#), outside the TCP/IP partition (SERV3270 utility)
 - Multiple TN3270 servers can run at the same time
- Enhanced TLS/SSL cryptography



z/VSE V6.1 - IBM TCP/IP for z/VSE V2.1 (new version) ...

- Entspricht dem IBM TCP/IP for VSE/ESA V1.5F **Application Pak** (PID 5686-A04)
 - TCP/IP Protocol Stack
 - Socket Application Programming Interface (API)
 - TN3270 server and Telnet/TN3270 client
 - FTP server and client
 - Web server (HTTP daemon)
 - Line Printer Requestor (LPR) and Line Printer Daemon (LPD)
 - **Secure Sockets Layer (SSL) for VSE**
 - + **CSI Firewall Shield**
- Documentation: TCP/IP for VSE 2.1 CSI-books, z/VSE V6.1 TCP/IP Support (IBM)
- Wird **nur** von z/VSE V6.1 unterstützt, nicht im z/VSE V5.1, V5.2
- IBM TCP/IP for VSE/ESA V1.5F wird in z/VSE V6.1 **nicht** unterstützt
- Hat als neue Version eine neue Produktnummer (**PID 5686-CS1**) bekommen
- Braucht **neue IBM Lizenz + neuen KEY**
- Keine neuen Version beim **IBM General Print Server (GPS) Feature** (PID 5686-A04)
d.h. **bisherige Lizenz und bisheriger KEY** gelten auch weiterhin auf z/VSE V6 !



IBM TCP/IP for z/VSE V2.1

- Neue Dokumentation
 - z/VSE TCP/IP Support (von IBM)
 - TCP/IP for VSE 2.1 Installation Guide
 - TCP/IP for VSE 2.1 User Guide
 - TCP/IP for VSE 2.1 Command Reference
 - TCP/IP for VSE 2.1 Programmer's Guide
 - TCP/IP for VSE 2.1 Messages
 - TCP/IP for VSE 2.1 Optional Features
 - u.a. [Details zur Firewall](#)

z/VSE V6.1 ...

- Hier nur die neuen Versionen CICS TS for z/VSE V2.1 und TCP/IP for z/VSE V2.1 gestreift - es gibt noch wesentlich mehr.
- Eine Übersicht über alle neue Funktionen/Erweiterungen finden Sie im

z/VSE V6.1 Release Guide

- **Außerdem noch ganz wichtig:**

- **Umstieg auf z/VSE V6.1:**

Kein Fast Service Upgrade (FSU) → **Basisinstallation !**



- **Vorgängerprodukte werden NICHT mehr unterstützt werden!**

- CICS TS for VSE/ESA V1.1.1
- IBM TCP/IP for VSE/ESA V15F



z/VSE V6.1 - Basisinstallation

- Installation von z/VSE V6.1 muss über **Basisinstallation** erfolgen!
 - Installation des vordefinierten z/VSE V6.1 (mit ausgelieferten System-Defaults)
 - **Anschließende Anpassung & Migration** , u.a.
 - der **User-Daten** (VSAM-Kataloge, Libraries) und **(Startup-)Jobs**
 - **User Definitionen und Security-Dateien**
 - CICS TS V1.1.1 – DFHCSD (Programme, Transaktionen)
 - Tabellen neu umwandeln,....



Planen Sie für die Migration auf z/VSE V6.1 **und den Test**
genügend Zeit ein !



- Hilfestellungen zur Migration finden Sie
 - im z/VSE V6.1 Planning und z/VSE V6.1 Administration,
 - im CICS TS for z/VSE V2 R1 CICS Enhancements Guide, Part 9
 - Eine allgemeine Übersicht bietet auch das White-Paper „z/VSE Release and Hardware Upgrade“
 - GSE-Vortrag „Erste Erfahrungen mit z/VSE V2.1“ (April 2016)

Agenda

- **z/VM**



- **z/VSE**

- z/VSE V6.1



- z/VSE NEXT



- Übersicht & Preismodelle

z/VSE Version 6 announcement – what will be next ?

- Announced April 12, 2016
- Support of IBM z13s, u.a. z/VSE Network Appliance
- Support of IBM System Storage DS8880 (ECKD and FCP-attached SCSI devices)
- Migration Pricing Option for z/VSE 6.1, CICS TS for z/VSE 2.1 and IBM TCP/IP for z/VSE 2.1
- **Statement of general direction (SOD)***
 - Hardware support
 - High Performance FICON (zHPF)
 - Tapeless initial installation from SCSI installation disk
 - Standalone dump using a SCSI dump disk
 - DL/I VSE V1.12 enhancement
 - New Partitioning function for HD databases

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

z/VSE Version 6 announcement – what will be next ? ...

SOD*: CICS TS for z/VSE V2.1 enhancements

- Plan for a future release of CICS TS for z/VSE

- CICS Explorer enhancements
 - Definiton of new CICS resources (programs, files, transactions)
 - Change / delete existing CICS resources
 - Defintion view of client for selected CICS resources

 - Monitor and control or update
 - Dynamic storage areas
 - Global temporary storage queue statistics

- Channel and Container enhancements
 - Support UTF-8 and UTF-16 in code page conversion using channels and containers
 - Add the APPEND parameter for PUT CONTAINER
 - to append the specified data to existing data in a container
 - Add the BYTEOFFSET parameter for GET CONTAINER
 - to retrieve data beginning at a specified offset in a container

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

z/VSE Version 6 announcement – what is next ?

SOD*: ...

- Enhancements related to CICS TS for z/VSE – web services
 - z/VSE SOAP engine to exploit Channels and Containers
 - new z/VSE Representational State Transfer (REST) engine with JSON support
 - Allows clients to provide RESTful web services running in a CICS environment
 - JSON and XML supported
- Security enhancements
 - Basic Security Manager (BSM) enhancement
 - IUI dialog for batch resources (DTSECTAB security)
- Product delivery of z/VSE on DVD and electronically only for future z/VSE
- ...

Details are here:

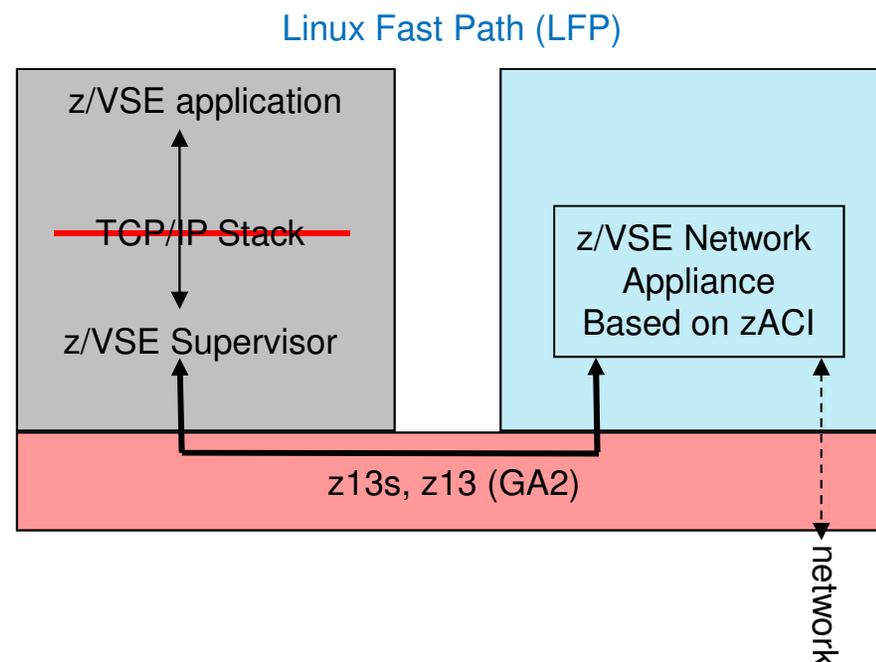
[https://www.ibm.com/developerworks/community/blogs/vse/entry/New announcement for z VSE Version 6 What will be next?lang=en](https://www.ibm.com/developerworks/community/blogs/vse/entry/New_announcement_for_z_VSE_Version_6_What_will_be_next?lang=en)

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z/VSE Network Appliance (VNA)



- New with z13 GA2 / z13s, available June 30, 2016
 - VNA acts as a router for z/VSE
 - TCP/IP application uses Linux Fast Path (LFP) and connects through HiperSockets to VNA
 - Based on z Appliance Container Infrastructure (zACI) delivered with z13s and z13 GA2
 - z/VSE is first exploiter of zACI (Software)
-
- No Linux license,
No TCP/IP stack required on z/VSE,
No z/VM required to connect to the network
 - Supported on z/VSE 6.1, 5.2 and 5.1
 - VNA for LPAR only
 - zVSE - z/VM IP Assist (VIA) for z/VM environments



Documentation related to z/VSE

- z/VSE documentation page - <http://www-03.ibm.com/systems/z/os/zvse/documentation/>
- z/VSE Collection Kit - November 2015
 - Available for download in IBM Publication Center
 - Electronic only, not on physical DVD
- Documentation of z/VSE releases - z/VSE Internet Library on <http://www.ibm.com/systems/z/os/zos/bkserv/vse.html>
- z/VSE Knowledge Center: http://www.ibm.com/support/knowledgecenter/SSB27H/zvse_welcome.html
- CICS TS for z/VSE Knowledge Center: http://www.ibm.com/support/knowledgecenter/SSECAB_2.1.0/welcome.html
- IBM Redbooks
 - Redbook page with new IBM System z mainframe Redbooks
 - zEC12 / zBC12 / z13 / z13s Technical Guides
 - IBM System z Connectivity Handbook, SG24-5444
 - More IBM Redbooks information on next page
- Technical articles: <http://www-03.ibm.com/systems/z/os/zvse/documentation/documents.html#articles>
 - z/VSE release & hardware upgrade
 - z/VSE SCSI Support and Migration Options
 - z/VSE z/VM IP assist
 - Parallel Access Volume (PAV) white paper

More Information

... on VSE home page: <http://ibm.com/vse>

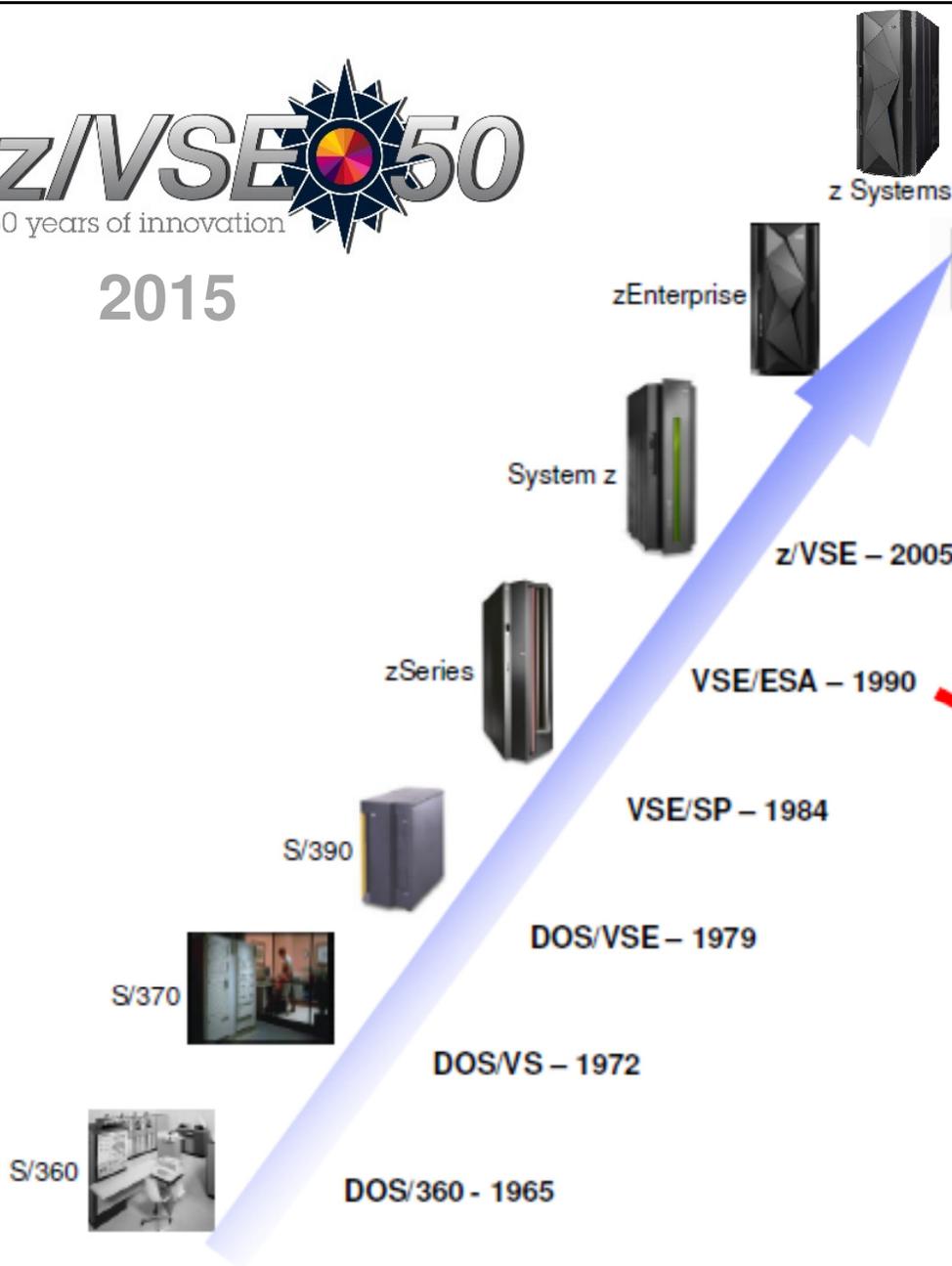
- z/VSE Live Virtual Classes: <http://www.ibm.com/zvse/education/>

- Ingolf's z/VSE blog: <https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse>
- Hints and Tips for z/VSE 6.1:
 - <http://www.ibm.com/systems/z/os/zvse/documentation/#hints>
- CICS Explorer: <http://www.ibm.com/software/htp/cics/explorer/>

- IBM Redbooks:
 - Introduction to the New Mainframe: z/VSE Basics
<http://www.redbooks.ibm.com/abstracts/sg247436.html?Open>
 - Security on IBM z/VSE – updated
 - <http://www.redbooks.ibm.com/Redbooks.nsf/RedbookAbstracts/sg247691.html?Open>
 - z/VSE Using DB2 on Linux for System z
 - <http://www.redbooks.ibm.com/abstracts/sg247690.html?Open>
 - Enhanced Networking on IBM z/VSE
<http://www.redbooks.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg248091.html?Open>



2015



z/VSE next Ann: 04/12/2016
 z13s support, z/VSE Network Appliance
 SOD: SOAP-Support of C&C, JSON Support

- z/VSE V6.1 – GA 11/2015 – z10 and higher
- z/VSE V5.2 – GA 04/2014 – Mainframe50
- z/VSE V5.1 – GA 11/2011 – z9 and higher
- z/VSE V4.3
- z/VSE V4.2
- z/VSE V4.1 – GA 03/2007 – z/Architecture only
- z/VSE V3.1 – GA 03/2005 – renaming to z/VSE

- VSE/ESA V2.7 – End of Service since 02/2007
- VSE/ESA V2.6
- VSE/ESA V2.5
- VSE/ESA V2.4
- VSE/ESA V2.3
- VSE/ESA V2.2
- VSE/ESA V2.1
- VSE/ESA V1.4
- VSE/ESA V1.3
- VSE/ESA V1.2
- VSE/ESA V1.1

Agenda

- **z/VM**



- **z/VSE**

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- z/VSE NEXT



- Übersicht & Preismodelle

z/VSE Software Support Status (as of April 2016)

VSE Version and Release	Marketed	Supported	End of Support
z/VSE V6.1 requires z10 or newer system	✓	✓	tbd
z/VSE V5.2 requires z9 or newer system	✓	✓	tbd
z/VSE V5.1 requires z9 or newer system	✗	✓	06/30/2016
z/VSE V4.3 requires z900 or newer system	✗	✗	10/31/2014
z/VSE V4.2 incl. CICS/VSE V2.3, DL/I V1.11	✗	✗	10/31/2012
z/VSE V4.1 ²⁾	✗	✗	04/30/2011
z/VSE V3.1 ¹⁾	✗	✗	07/31/2009
VSE/ESA V2.7	✗	✗	02/28/2007

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 Support for IBM Mainframe Servers

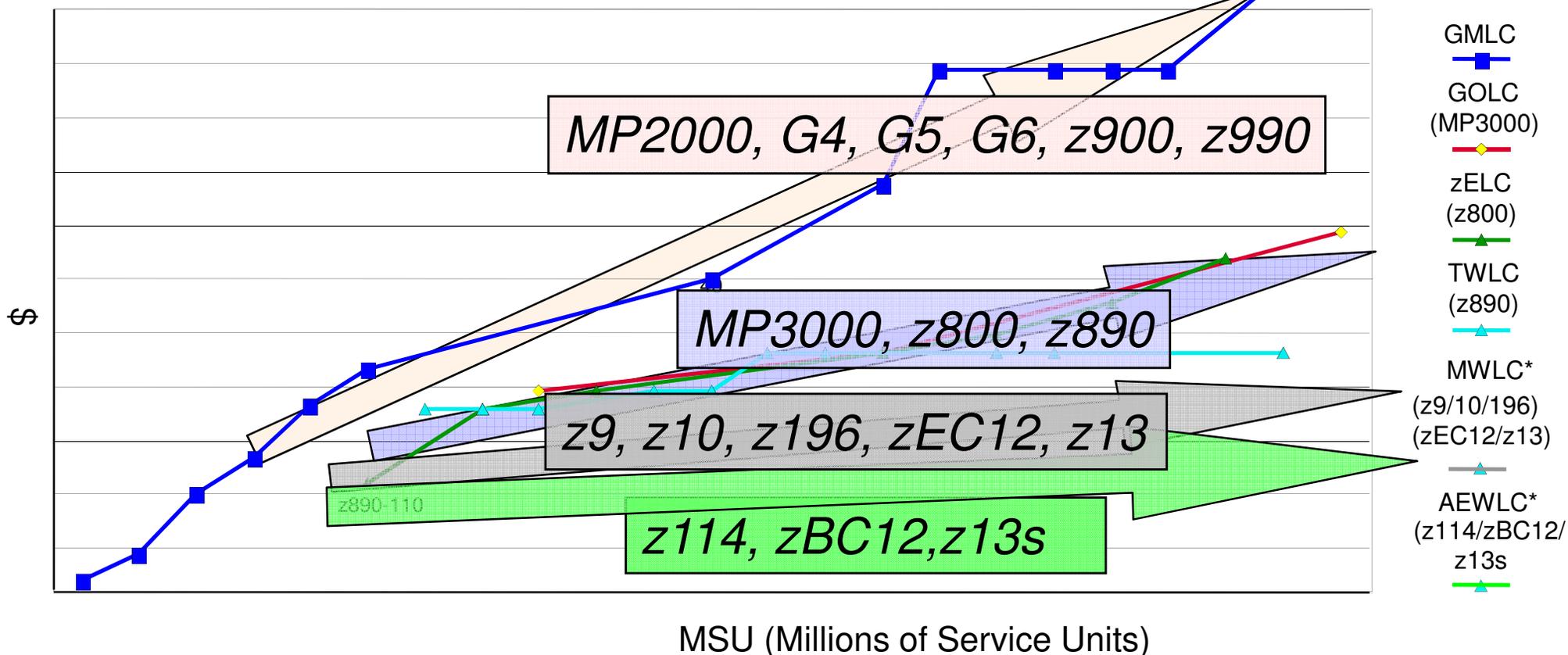
IBM Servers	z/VSE V6.1	z/VSE V5.2	z/VSE V5.1 EoS 06/30/2016	z/VSE V4.3 EoS 12/31/2014
IBM z13 & IBM z13s (z13 & z13s)	✓	✓	✓	✓
IBM zEnterprise EC12 & BC12	✓	✓	✓	✓
IBM zEnterprise 196 & 114	✓	✓	✓	✓
IBM System z10 EC & z10 BC	✓	✓	✓	✓
IBM System z9 EC & z9 BC	✗	✓	✓	✓
IBM eServer zSeries 990 & 890	✗	✗	✗	✓
IBM eServer zSeries 900 & 800	✗	✗	✗	✓

Notes:

- z/VSE 4.3 End of Service: 12/31/2014
- **z/VSE Development will IPL out-of-service z/VSE, VSE/ESA releases too. This should allow for staged migration support (e.g. HW upgrade first). However, IBM will only announce supported z/VSE releases.**
 - Contact z/VSE Development for questions related to old VSE releases
- 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.

z/VSE software pricing metrics

Price for typical z/VSE stack



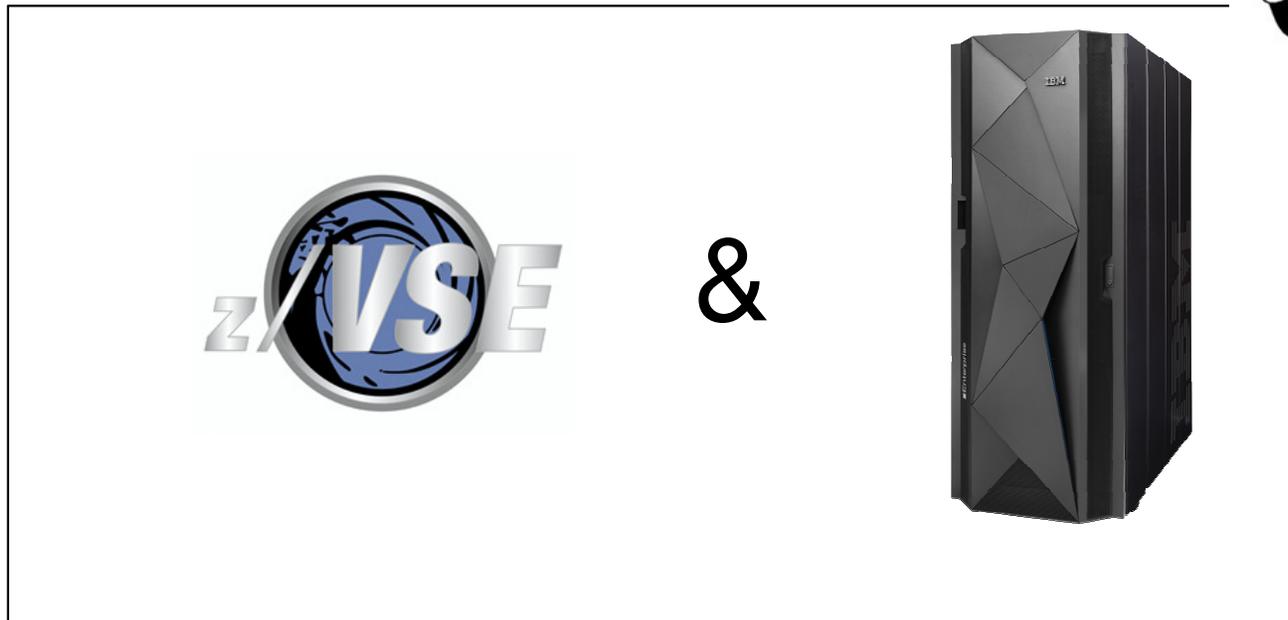
Typical z/VSE stack consists of z/VSE Operating System, LE, CICS TS, VTAM, TCP/IP, DB2

*** Note:**

- available with z/VSE V4 or later with Sub-Capacity-Option
- Entry models of these servers, capacity settings A01 or 110, are priced using [zELC](#).
- MWLC - Midrange Workload License Charge
- AEWLC – Advanced Entry Workload License Charges

Beim Umstieg auf neue IBM z System Server verringern sich oft die monatlichen SW-Preise für z/VSE („technische Dividende“)

→ So auch jetzt bei der IBM z13s



z/VSE-SW-Preise* bei den Kapazitätsstufen sind gleich geblieben

- zELC-Pricing für Entry-Modell:

z13s-A01 (80 MIPS = 10 MSUs) ~ zBC12-A01 (50 MIPS= 6 MSUs)

- **AEWLC-Pricing** für alle anderen Modelle

z13s-B01 (88 MIPS = 11 MSUs) ~ zBC12-B01 (59 MIPS= 7 MSUs)

mit **Sub-Capacity-Option** (Minimum 3 MSUs) auch für „kleinere“ Kunden u.U. interessant:

Listenpreise für IBM*			zBC12		z13s		
3 MSUs = 26 MIPS			MSUs	2828-B01	MSUs	2965-B01	
5686CF9	z/VSE Central Functions V9	AEWL	3	2.023,50	3	1.853,10	
5655VSE	CICS TS for z/VSE V2	AEWL	3	1.768,90	3	1.619,94	
5686065	ACF/VTAM V4 VSE MultiDomain	AEWL	3	953,80	3	873,48	
5697F42	DB2 Client Edition VSE - Primary	AEWL	3	380,95	3	348,87	
5686A04	TCP/IP Application Pak	AEWL	3	557,65	3	510,69	
5686A04	TCP/IP GPS	AEWL	3	289,75	3	265,35	
5686068	IBM COBOL VSE/ESA	AEWL	3	305,90	3	280,14	
5648099	DITTO/ESA FOR VSE	AEWL	3	182,40	3	167,04	
5696234	High Lvl Ass. VSE Only	AEWL	3	171,95	3	157,47	
				System Monthly Price	6.634,80		6.076,08
				Ersparnis gegenüber Vorgänger:			558,72

* Preise ohne Mehrwertsteuer, Stand: 29.05.2016

Es gelten die allgemeinen Geschäftsbedingungen der IBM Deutschland GmbH

→ Reduzierung der monatlichen z/VSE-Gebühren um ca. 8,4 % !

z/VSE V5 Listenpreise* bei 24 MSU = 193 MIPS: zBC12 – z13s

monatliche Listenpreise *			zBC12			z13S	
24 MSUs = 193 MIPS			MSUs	2828-N01	MSUs	2965-H01	
5686CF9	z/VSE Central Functions V9	AEWL	24	2.866,05	24	2.624,70	
5648054	CICS TS for VSE/ESA	AEWL	24	2.500,40	24	2.289,84	
5686065	ACF/VTAM V4 VSE MultiDomain	AEWL	24	1.346,15	24	1.232,79	
5697F42	DB2 Client Edition VSE - Primary	AEWL	24	537,89	24	492,59	
5686A04	TCP/IP Application Pak	AEWL	24	805,69	24	737,85	
5686A04	TCP/IP GPS	AEWL	24	419,42	24	384,10	
5686068	IBM COBOL VSE/ESA	AEWL	24	435,57	24	398,89	
5648099	DITTO/ESA FOR VSE	AEWL	24	260,87	24	238,90	
5696234	High Lvl Ass. VSE Only	AEWL	24	239,78	24	219,59	
					9.411,82		8.619,25
							792,57

→ Umstieg bei gleicher Prozessorleistung von zBC12 auf z13s ergibt eine Reduzierung der monatlichen z/VSE-Kosten um ca. 8,4 % !

* Preise ohne Mehrwertsteuer, Stand: 29.05.2016

Es gelten die allgemeinen Geschäftsbedingungen der IBM Deutschland GmbH

z/VSE V5 Listenpreise* bei 24 MSU= 193 MIPS: z10 – z13s

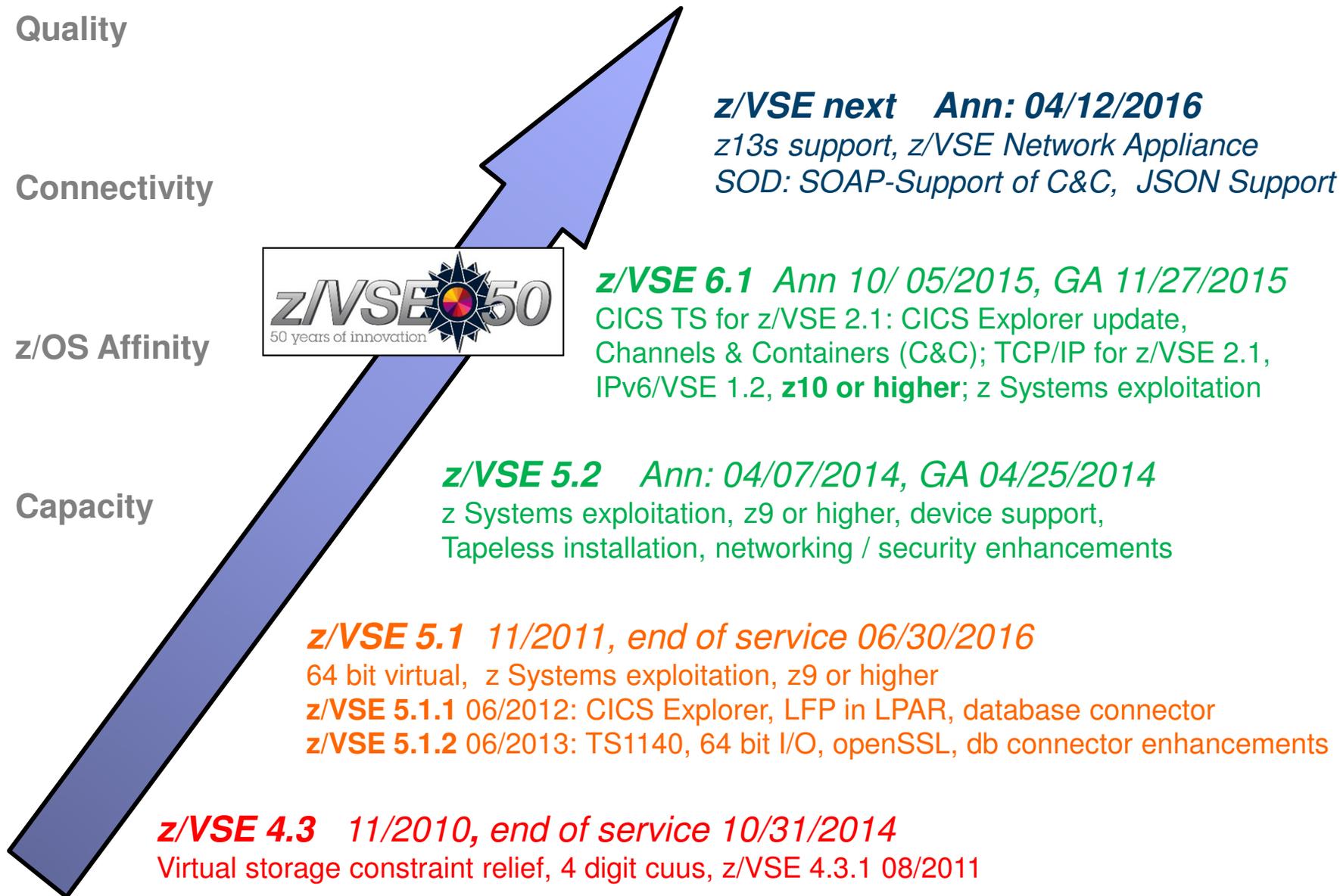
monatliche Listenpreise*				z10		z114				
24 MSUs = 193 MIPS				MSUs	2098-001			MSUs	2818-001	
5686CF9	z/VSE Central Functions V9	MWLC	24	3.173,00	AEWL	24	3.016,90			
5648054	CICS TS for VSE/ESA	MWLC	24	2.758,00	AEWL	24	2.632,00			
5686065	ACF/VTAM V4 VSE MultiDomain	MWLC	24	1.494,00	AEWL	24	1.417,00			
5697F42	DB2 Client Edition VSE - Primary	MWLC	24	597,00	AEWL	24	566,20			
5686A04	TCP/IP Application Pak	MWLC	24	895,00	AEWL	24	848,10			
5686A04	TCP/IP GPS	MWLC	24	466,00	AEWL	24	441,50			
5686068	IBM COBOL VSE/ESA	MWLC	24	483,00	AEWL	24	458,50			
5648099	DITTO/ESA FOR VSE	MWLC	24	290,00	AEWL	24	274,60			
5696234	High Lvl Ass. VSE Only	MWLC	24	265,00	AEWL	24	252,40			
System Monthly Price						10.421,00				9.907,20
Ersparnis gegenüber Vorgänger:										513,80

monatliche Listenpreise*				z114		zBC12		z13S	
24 MSUs = 193 MIPS				MSUs	2818-001	MSUs	2828-N01	MSUs	2965-H01
5686CF9	z/VSE Central Functions V9	AEWL	24	3.016,90	24	2.866,05	24	2.624,70	
5648054	CICS TS for VSE/ESA	AEWL	24	2.632,00	24	2.500,40	24	2.289,84	
5686065	ACF/VTAM V4 VSE MultiDomain	AEWL	24	1.417,00	24	1.346,15	24	1.232,79	
5697F42	DB2 Client Edition VSE - Primary	AEWL	24	566,20	24	537,89	24	492,59	
5686A04	TCP/IP Application Pak	AEWL	24	848,10	24	805,69	24	737,85	
5686A04	TCP/IP GPS	AEWL	24	441,50	24	419,42	24	384,10	
5686068	IBM COBOL VSE/ESA	AEWL	24	458,50	24	435,57	24	398,89	
5648099	DITTO/ESA FOR VSE	AEWL	24	274,60	24	260,87	24	238,90	
5696234	High Lvl Ass. VSE Only	AEWL	24	252,40	24	239,78	24	219,59	
System Monthly Price					9.907,20		9.411,82		8.619,25
Ersparnis gegenüber Vorgänger:							495,38		792,57

* Preise ohne Mehrwertsteuer, Stand: 29.05.2016

Es gelten die allgemeinen Geschäftsbedingungen der IBM Deutschland GmbH

z/VSE continues to deliver customer value



Thank You

Questions



Please forward your questions or remarks to
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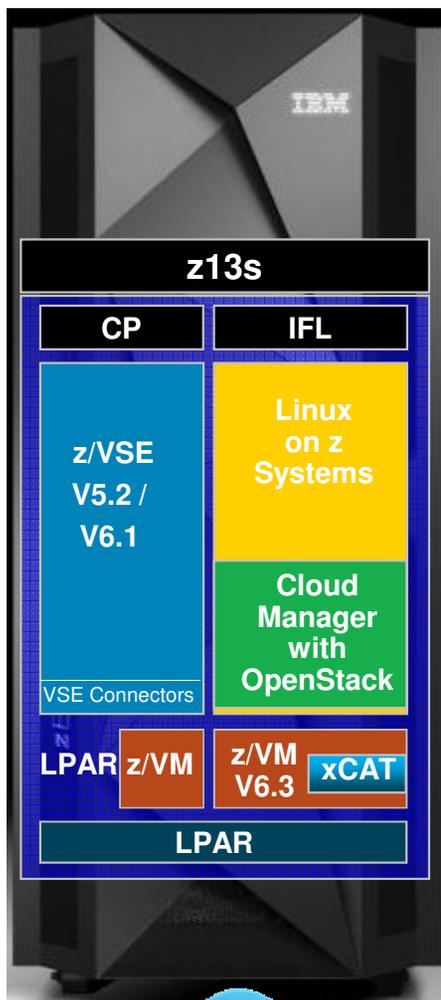
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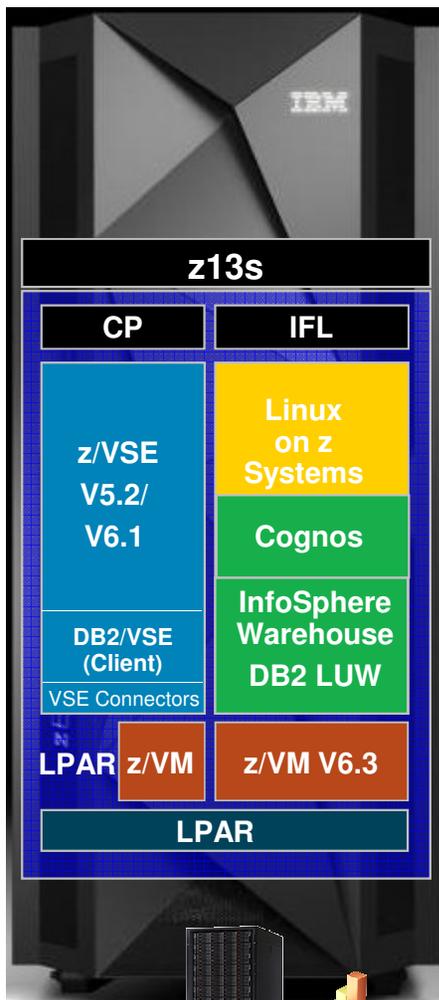
Anhang

z/VSE und Linux – CAMS Anwendungsbeispiele

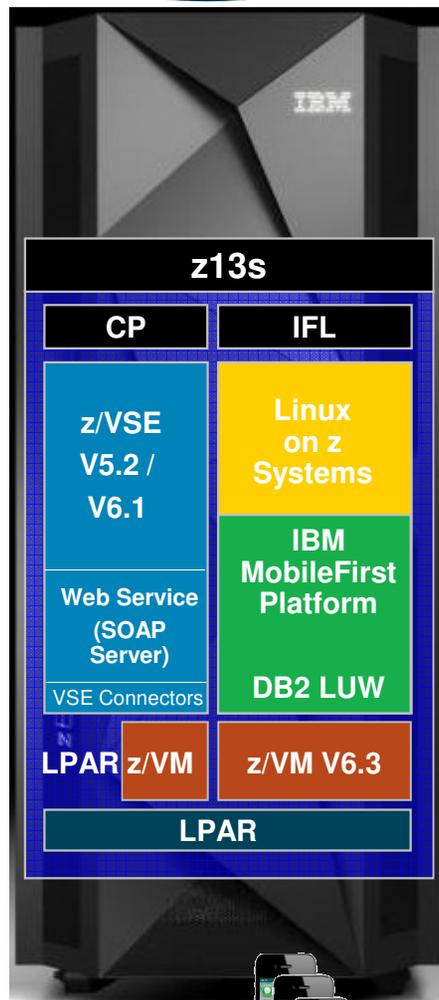
Cloud



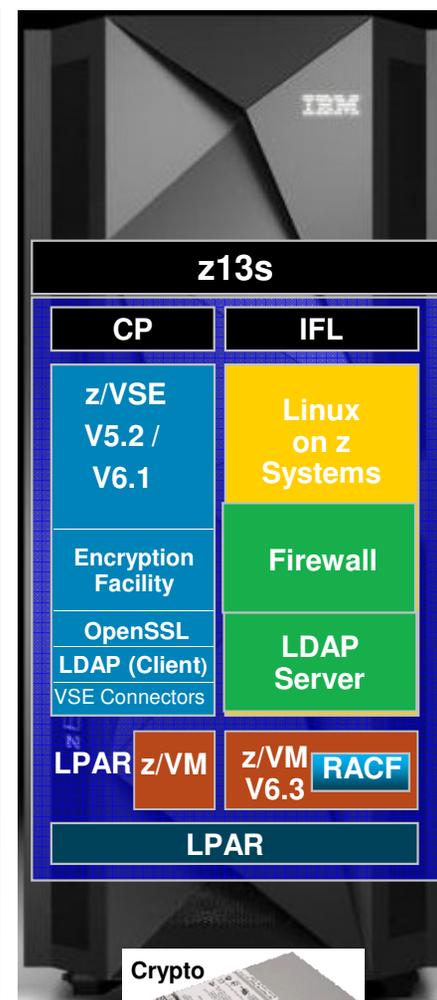
Analytics



Mobile

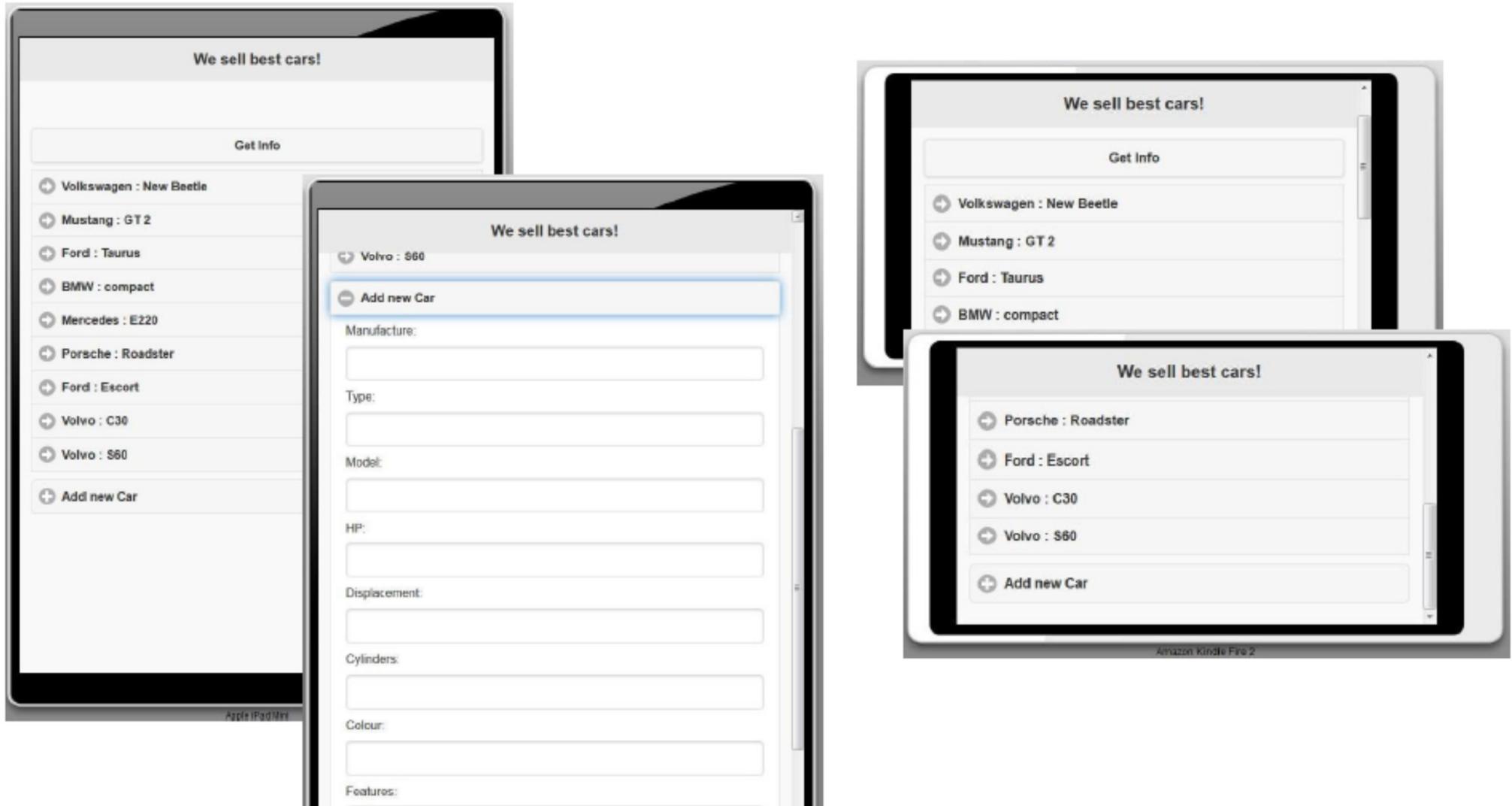


Security



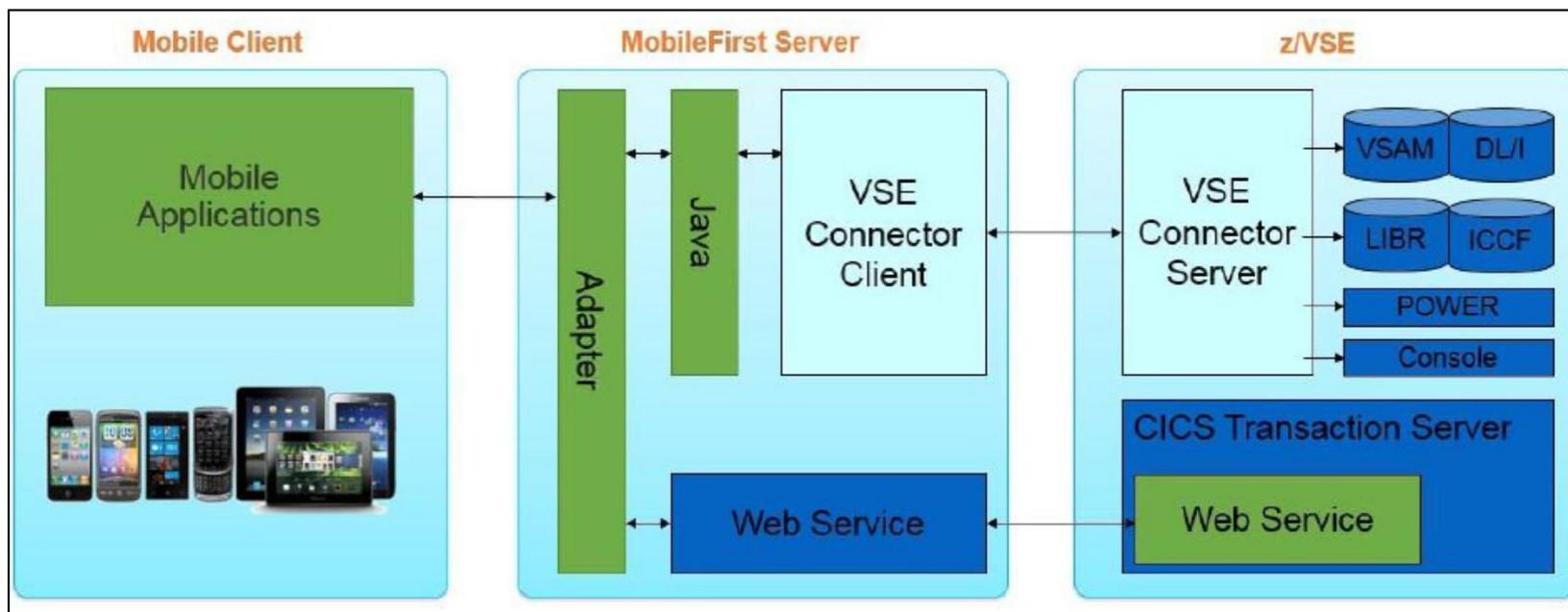
and many more
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Mobile – Anwendung mit z/VSE (VSAM-Daten)



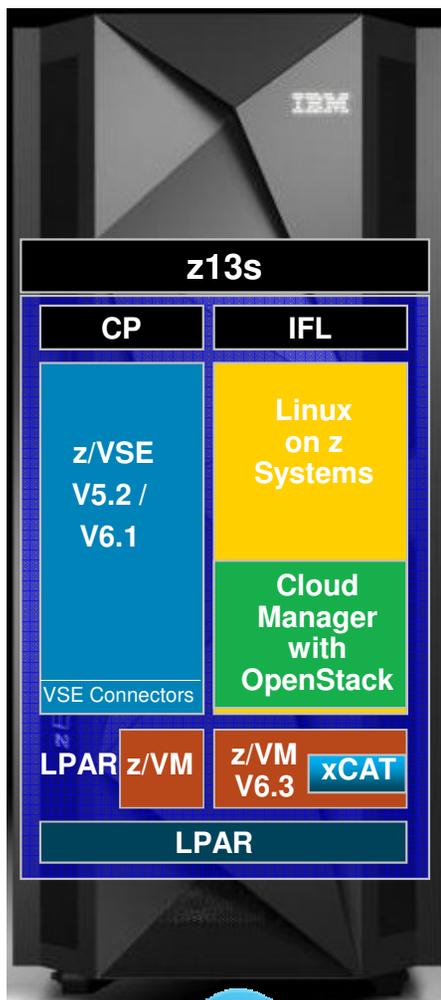
Mobile – Anwendung mit z/VSE

- Live Virtual Class: <http://www-03.ibm.com/systems/z/os/zvse/education/>
 - “Mobile access to the existing z/VSE application” (February 24, 2015)
- eine Anleitung: „Getting started with mobile development for z/VSE”
 - <http://www-03.ibm.com/systems/z/os/zvse/documentation/documents.html>
 - z/VSE - Anwendung über IBM MobileFirst Server (Teil der IBM MobileFirst Platform)
 - HTTP Adapter (Connector Client Library)
 - SOAP/HTTP Adapter (Web Service für bestehende Anwendung)

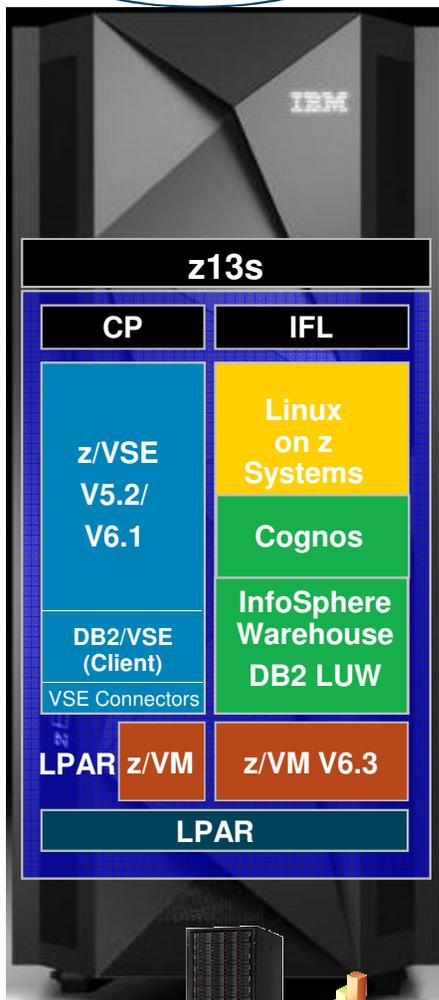


z/VSE und Linux – CAMS Anwendungsbeispiele

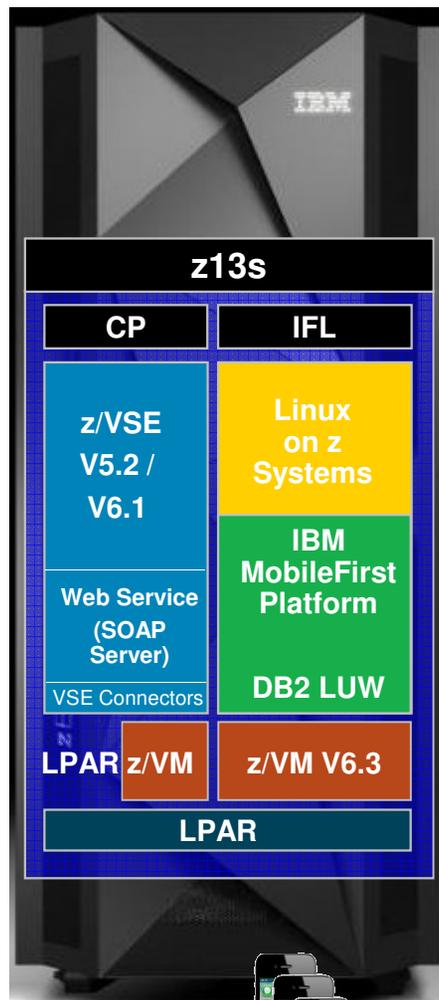
Cloud



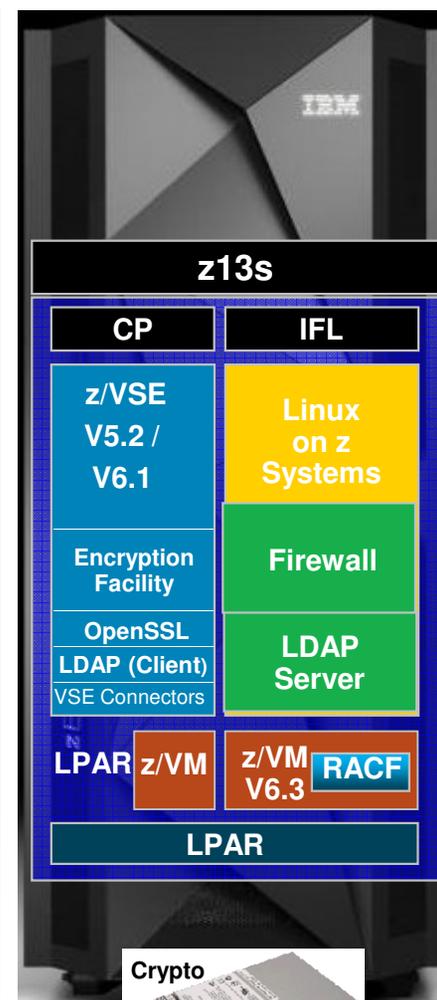
Analytics



Mobile



Security



and many more
....

What is Hadoop ?



- **Apache Hadoop is an open source software project**
- Enables distributed **processing of large data sets across clusters** of commodity servers.
- It is designed to scale up from a single server to thousands of machines, with very high degree of fault tolerance.
- Rather than relying on high-end hardware, the **resiliency** of these clusters comes from the software's ability to detect and handle failures at the application layer.

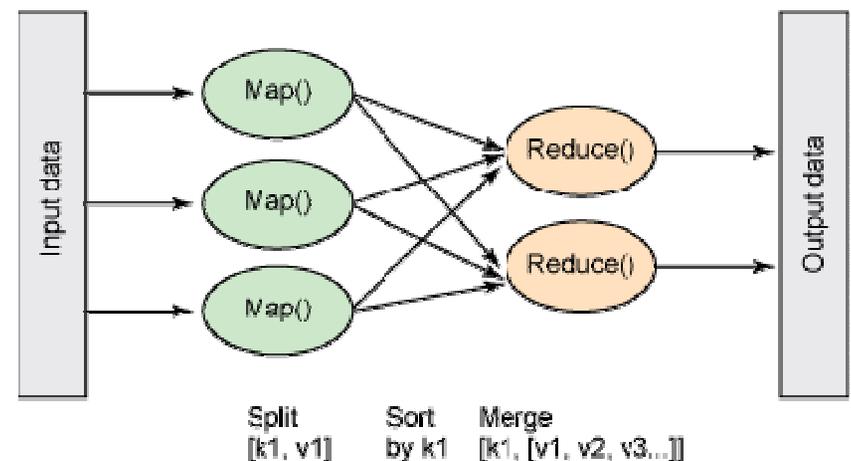
- **The project includes these modules:**
- **Hadoop Common:** The common utilities that support the other Hadoop modules.
- **Hadoop Distributed File System (HDFS):** A distributed file system that provides high-throughput access to application data.
- **Hadoop YARN:** A framework for job scheduling and cluster resource management.
- **Hadoop MapReduce:** A YARN-based system for parallel processing of large data sets.

What is MapReduce?



▪ MapReduce is the heart of Hadoop

- It is this programming paradigm that allows for massive scalability across hundreds or thousands of servers in a Hadoop cluster.
- The term **MapReduce** actually refers to two separate and distinct tasks that Hadoop programs perform.
- The **map job**
 - takes a set of data and converts it into another set of data
 - where individual elements are broken down into tuples (key/value pairs).
- The **reduce job**
 - takes the output from a map as input
 - combines those data tuples into a smaller set of tuples.
- As the sequence of the name MapReduce implies, the reduce job is always performed after the map job.



MapReduce Example



- Assume you have 5 files
- Each file contains two columns (a key and a value in Hadoop terms) that represent
 - a city
 - the corresponding temperature recorded in that city

➤ We want to find the maximum temperature for each city across all of the data files

Toronto	20
Whitby	25
New York	22
Rome	32
Toronto	4
Rome	33
New York	18

- Using the MapReduce framework, we can break this down into 5 map tasks
 - Each mapper works on one of the 5 files
 - The mapper task goes through the data and returns the maximum temperature for each city.
- The results produced from one mapper task for the data above looks like this:

(Toronto, 20) (Whitby, 25) (New York, 22) (Rome, 33)

MapReduce Example (cont'd)



- **Let's assume the other four mapper tasks produced the following intermediate results:**

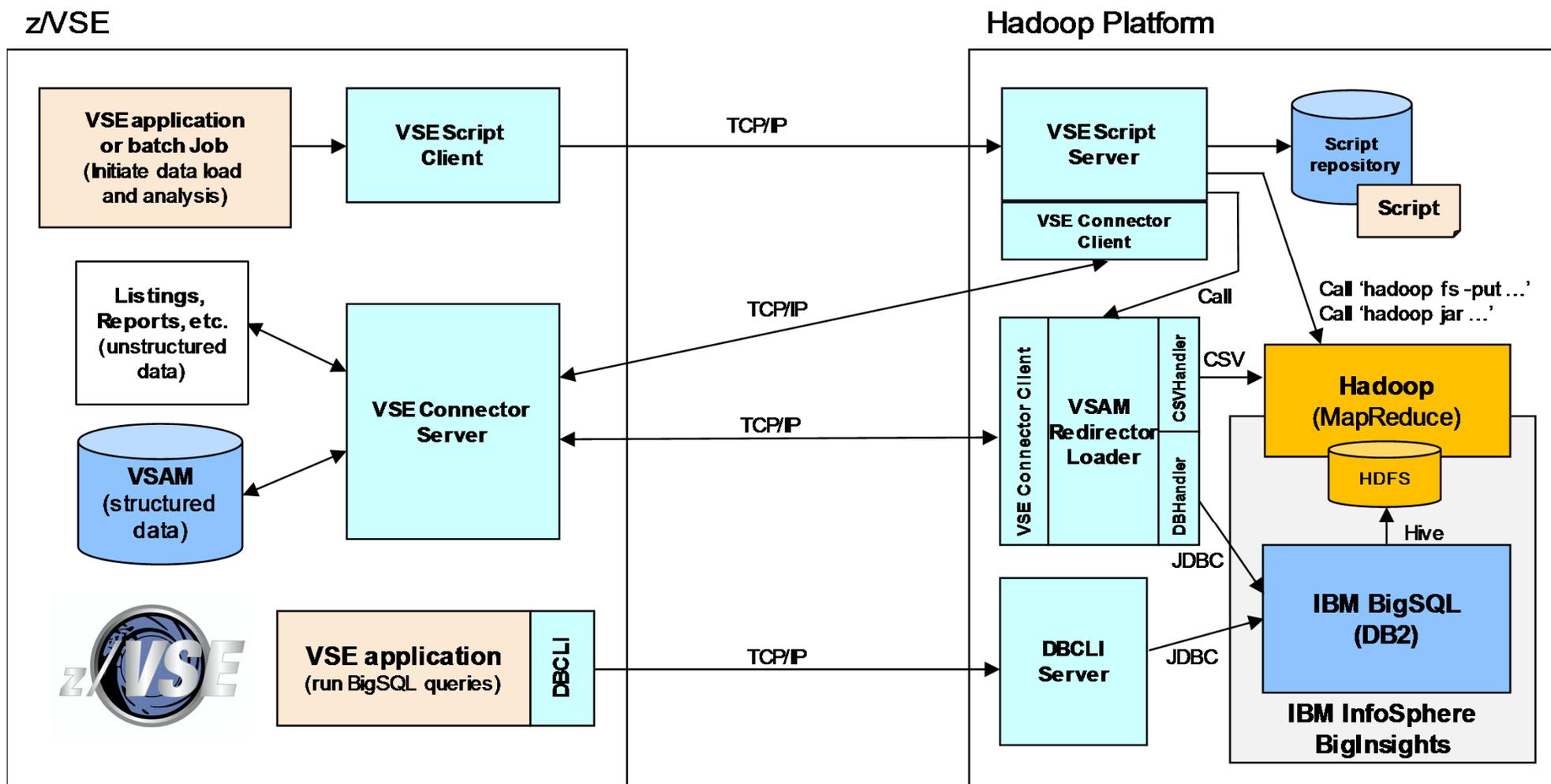
```
(Toronto, 18) (Whitby, 27) (New York, 32) (Rome, 37) (Toronto, 32)
(Whitby, 20) (New York, 33) (Rome, 38) (Toronto, 22) (Whitby, 19)
(New York, 20) (Rome, 31) (Toronto, 31) (Whitby, 22) (New York, 19)
(Rome, 30)
```

- **All five of these output streams are fed into the reduce tasks**
 - Sorted by City
 - Which combine the input results
 - Output a single value for each city

- **This produces the final result set as follows:**

- (Toronto, 32) (Whitby, 27) (New York, 33) (Rome, 38)

Using the z/VSE Connectors to analyze VSE data with Hadoop



Whitepaper: Big Data and Hadoop with z/VSE

ftp://public.dhe.ibm.com/eserver/zseries/zos/vse/pdf3/BigData_with_zVSE.pdf

Dank u
Dutch

Merci
French

Спасибо
Russian

Mercés
Catalan

Gracias
Spanish

شكراً
Arabic

감사합니다
Korean

Tack så mycket
Swedish

धन्यवाद
Hindi

תודה רבה
Hebrew

Obrigado
Brazilian
Portuguese

谢谢
Chinese

Dankon
Esperanto

Thank You

ありがとうございます
Japanese

Trugarez
Breton

Danke
German

Tak
Danish

Grazie
Italian

நன்றி
Tamil

ขอบคุณ

go raibh maith agat
Gaelic

děkuji
Czech

ณ
Thai