IS01
z/VSE Version 5 Update

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Ingolf's z/VSE Blog: https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse

IBM

z/VSE Roadmap

Quality

Connectivity

z/OS Affinity

Capacity

z/VSE Statement of Direction (SOD)
CICS Explorer update, Channels & Containers,
new CICS TS for z/VSE release,
next z/VSE release: ALS to z10 or higher

z/VSE 5.2 *Ann: 04/07/2014, GA 04/25/2014*
zEnterprise exploitation, device support
Tapeless installation, networking / security enhancements

z/VSE 5.1 *11/2011, end of service 06/30/2016*
64 bit virtual, zEnterprise exploitation, z9 or higher
z/VSE 5.1.1 06/2012: CICS Explorer, LFP in LPAR, database connector
z/VSE 5.1.2 06/2013: TS1140, 64 bit I/O, openSSL, db connector enhancements

z/VSE 4.3 *11/2010, end of service 10/31/2014*
Virtual storage constraint relief, 4 digit cuus, z/VSE 4.3.1 08/2011

z/VSE 4.2 *October 2008, end of service 10/31/2012*
*M*ore tasks, more memory, EF for z/VSE 1.1, CPU balancing, SCRT on z/VSE
z/VSE 4.2.1 07/2009 - PAV, EF for z/VSE 1.2, **z/VSE 4.2.2** 04/2010 - IPv6/VSE 05/2010
CICS/VSE end of service 10/31/2012

z/VSE 4.1 *March 2007, end of service 04/30/2011*
z/Architecture only, 64 bit real addressing, MWLC – full and sub-capacity pricing

IBM

z/VSE 5.1.2

- z/VSE 5.1.2 includes z/VSE V5.1 - Additional enhancements: Ann 03/02/2013, GA 06/14/2013
  Latest Recommended Service Level (RSL): June 2014
  z/VSE 5.1 End of Service: June 30, 2016

  - Support of zEC12, zBC12
    - o Configurable Crypto Express4S
    - o OSA Express4S / OSA Express5S (1000BASE-T)
  - Support of IBM System Storage
    - o IBM System Storage TS1140 (3592 E07)
    - o IBM System Storage TS7700 Virtualization Engine
    - o IBM System Storage DS8870
    - o IBM System Storage Storwize V7000

  - 64-bit input/output (I/O) processing for applications
  - HiperSockets configurable input buffers

IBM

z/VSE 5.1.2 …

- z/VSE 5.1.2 includes z/VSE V5.1 - Additional enhancements …

  - System dump support for memory objects
  - z/VSE Database connector enhancements
  - OpenSSL update
  - IPv6/VSE V1.1 enhancements
    - o Secure Sockets Layer (SSL) for secure data transmission
    - o Layer 2 support for OSA Express devices for IPv4 links

  – Statement of general direction (SOD) of April announcement:
    - IBM intends
      - o in the future to enhance IBM CICS Explorer for IBM CICS Transaction Server for VSE/ESA to provide updates to CICS resources.
      - o to add functionality that allows initial installation of z/VSE without requiring a physical tape.

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

z/VSE 5.2 – Quick Overview

- Announcement: 04/07/2014, GA: 04/25/2014
  Latest Recommended Service Level (RSL): June 2014

- Hardware support
  - IBM System z Enterprise support
  - Device support - Tape, ECKD and FCP-attached SCSI disks

- 64 bit virtual exploitation
  - Virtual disk in memory objects

- Networking enhacements
  - IPv6 support for selected z/VSE functions

z/VSE 5.2 – Quick Overview ...

- Security enhancements
  - Basic Security manager (BSM) and VSE/POWER audit enhancements

- Ease of use
  - Tapeless installation from ECKD devices
  - Stacking tape support

- Fast Service Upgrade (FSU) from z/VSE 4.3 and z/VSE 5.1

- Pricing
  - z9, z10, z196, zEC12: Midrange Workload License Charge (MWLC) pricing with sub-capacity option
  - z114, zBC12: Advanced Entry Workload License Charge (AEWLC) pricing with sub-capacity option

IBM

z/VSE 5.2 – Hardware Support

Hardware support

- Support for IBM zEnterprise EC12 and IBM zEnterprise BC12

  – Configurable Crypto Express4S feature
  – OSA-Express5S features
  – HMC based configuration for OSA-Express4 and OSA-Express5S (OSA/SF)

- Support for IBM System Storage

  – Tape support
    • Systems Managed Encryption with IBM System Storage TS1140
    • IBM System Storage TS7700 Virtualization Engine Release 3.1

  – ECKD / FCP-attached SCSI disk support
    • IBM System Storage DS8870 Release 7.2
    • Upgrade of the z/VSE support for the Parallel Access Volume (PAV) feature (ECKD)

  – FCP-attached SCSI disk support
    • IBM Storwize V5000 Midrange Disk
    • IBM Storwize V3700 Entry Disk

Hardware / z/VM support

- z/VSE V5 supports IBM System z servers:

    - IBM zEnterprise EC12 (zEC12)
    - IBM zEnterprise BC12 (zBC12)
    - IBM zEnterprise 196 (z196)
    - IBM zEnterprise 114 (z114)
    - IBM System z10 (z10 EC, z10 BC)
    - IBM System z9 (z9 EC, z9 BC)

    ... and z/VSE V5 can run in an LPAR or as a z/VM guest on all supported z/VM releases
    ... in uni- or multiprocessor mode

    z/VM V5.4 support (August 5, 2014 announcement):
    - z/VM 5.4 withdrawn from service December 31, 2016 or until z9 processors are withdrawn from support, whichever is later. Replacement product: z/VM V6.
    - The zEC12 and zBC12 are planned to be the last System z servers supported by z/VM V5.4 and the last System z servers that will support z/VM V5.4 running as a guest (second level).

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IBM

VSE Support for IBM System z

VSE Release	z800 / z900	z890 / z990	System z9 / z10 / z196 / z114 / zEC12 / zBC12	VSE EoS
z/VSE V5.2	No	No	Yes	tbd
z/VSE V5.1	No	No	Yes	06/30/2016
z/VSE V4.3	Yes	Yes	Yes	10/31/2014
z/VSE V4.2	Yes	Yes	Yes	10/31/2012
z/VSE V4.1	Yes	Yes	Yes	04/30/2011
z/VSE V3.1	Yes	Yes	Yes	07/31/2009
VSE/ESA V2.7	Yes	Yes	Yes	02/28/2007
VSE/ESA V2.6	Yes	Yes	Yes	03/2006
VSE/ESA V2.5	Yes	No	No	12/2003
VSE/ESA V2.4	Yes	No	No	06/2002
VSE/ESA V2.3	No	No	No	12/2001

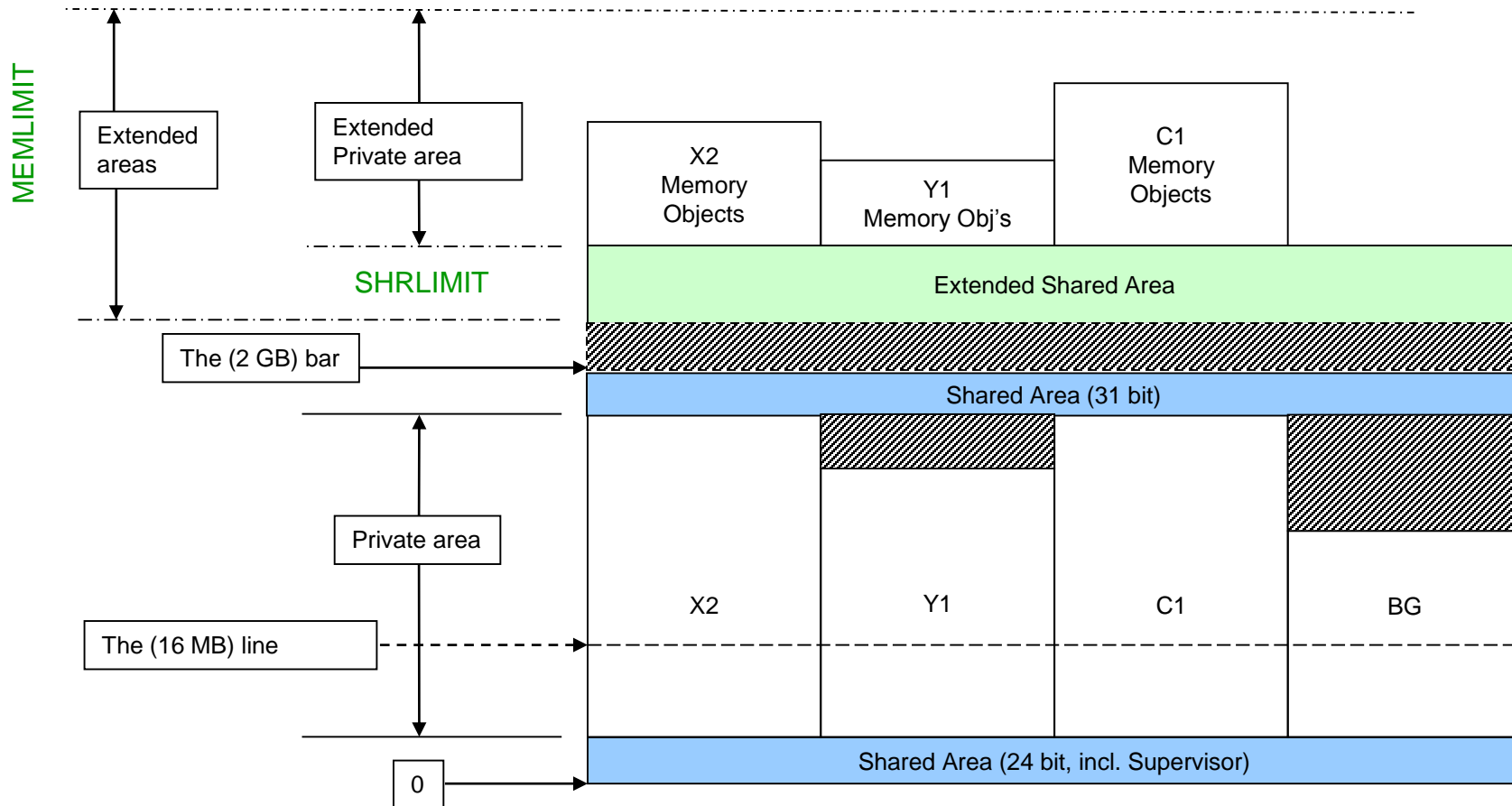# IBM zEnterprise exploitation

- 64 bit real addressing - up to 32 GB (System z), 64 bit virtual addressing – up to 90 GB

- Large page support (z10, zEnterprise)
- Dynamic add / remove of logical CPs (z10, zEnterprise)

- OSA-Express 3, OSA-Express 4, OSA-Express 5S support
- HiperSockets Completion Queue on z196, z114, zEC12, zBC12 (z/VSE 5.1.1 and higher)
- Linux Fast Path (LFP) in z/VM mode LPAR (z10, zEnterprise)
- Exploitation of the z/VSE z/VM IP Assist (zEnterprise)

- zEnterprise and zEnterprise BladeCenter Extension (zBX) support
  – Intra Ensemble Data Network (IEDN)
  – Virtual LAN support, Layer 2 support
  – IEDN communication using the z/VM VSWITCH

- 4096-bit RSA key support with configurable Crypto Express3 (z10, zEnterprise)
  …. and Crypto Express4S (zEC12, zBC12) – z/VSE V5 only

- Static power save mode supported for SCRT (z196, zEC12)

- **zEC12 / zBC12 do not support ESCON channels**

IBM

z/VSE 5.2 – 64 bit virtual exploitation

10/16/2014

64 bit virtual

- Introduced with z/VSE 5.1

- Support 64 bit virtual addressing

- 64 bit area can be used for **data only**
    - No instruction execution above the bar

- **z/OS affinity:** APIs (IARV64 services) - to manage memory objects – compatible with z/OS
    - Private memory objects for use in one address space
    - Shared memory objects to be shared among multiple address spaces

- Maximum VSIZE still limited to 90 GB

- Advantages:
    - Eases the access of large amounts of data
        - E.g. compared to data spaces
    - Reduces complexity of programs
        - Data contained in primary address space
    - Chosen design has no dependencies to existing APIs, minor impact on existing system code

64 bit virtual - Address Space Layout

MEMLIMIT

Extended areas

Extended Private area

SHRLIMIT

The (2 GB) bar

Private area

The (16 MB) line

0

X2 Memory Objects

Y1 Memory Obj's

C1 Memory Objects

Extended Shared Area

Shared Area (31 bit)

X2

Y1

C1

BG

Shared Area (24 bit, incl. Supervisor)

10/16/2014

64 bit virtual I/O for applications

- Available with z/VSE 5.1.2 and z/VSE 5.2
- SYSCOM bit IJBIO64E in IJBIOFL1, if 64 bit virtual I/O support available

- I/O buffers can now be created above the bar (above 2 GB)
- I/O buffers in **private memory objects** supported only
- I/O control blocks to be allocated below the bar (in 31 bit storage)

- Supported for ECKD devices

- CCB macro with a new parameter: IDAW=FORMAT2
- CCB points to a Format-0 or Format-1 CCW
- CCW with IDA-flag and data address point to a single Format-2 IDAW containing a 64 bit virtual address.

- I/O buffer will be TFIXed by I/O Supervisor, not necessary to PFIX the I/O buffer

- Not supported for FBA / SCSI / tape devices, LIOCS

Virtual Disk in Shared Memory Objects

- A Virtual Disk
  - is emulating a FBA disk device;
  - may be used for temporary data, such as
    - temporary files and libraries,
    - temporary VSE/VSAM space and user catalogs
  - „lives" until the next IPL
  - has to fit into the availabe virtual storage (VSIZE)

- A Virtual Disk may be created in
  - a Data Space or
  - a shared memory object (z/VSE 5.2)
- If there is enough space available in the extended shared area, the Virtual Disk will be created in a shared memory object; otherwise in a Data Space.
- Maximum Virtual Disk size, if allocated in
  - Data Space: up to 2 GB
  - Shared memory object: up to 4 GB

- Virtual Disks are defined with the VDISK command

Memory Objects enhancements

System Dump

- System dump may be taken in case of abnormal termination dependent on JCL options
    - New JCL option MODUMP, NOMODUMP
- If program running in 64 bit mode and registers hold 64 bit addresses
    - The dump routine will take 4K on either side of this address
- Partitions dumps will be written to dump library or SYSLST dependent on OPTIONs
- May be processed with IUI Storage Dump dialog

Standalone Dump

- New standard option: STDOPT SADMPSMO=YES|NO
    - Controls, if standalone dump should include **shared memory objects**
- (Standard) option STDOPT SADUMP=(n,m,o)
    - Controls, if standalone dump should include **private memory objects (o)**
      (n= priority of partitions, m= priority of data spaces)

IUI dialog Display Storage Layout

- Displays system values MEMLIMT and SHRLIMIT

z/VSE 5.2 – Ease of Use

Tapeless installation

- Initial installation of z/VSE from physical tape or bootable installation disk

- z/VSE provides tools to create an installation disk

- Installation disk is supported
  - for LPAR and z/VM guest environments
  - on ECKD devices, not on FBA / SCSI devices
  - for initial installation only

- Installation disk
  - contains the **z/VSE base tape** in AWS format, a boot program and the VTOC
  - created on LPAR may be used by a z/VM guest or vice versa
    - LPAR: create installation disk by using the DVD with the HMC or SE Load function

- Installation from installation disk possible on ECKD, FBA and FBA-SCSI

- Files required for the creation of the installation disk delivered on DVD or via the Internet

Tapeless installation ...

- System requirements

    - Installation disk space
        - LPARs and z/VM guest: 500 cylinders on 3390 disk device
        - z/VM guest: additional 400 cylinders (CMS disk) in addition for the tools and AWS file

    - Minimum processor storage
        - 64 MB (general z/VSE 5.2 requirement)
        - LPAR: 512 MB to create the installation disk

Stacking Tape Support

- Standard labeled tape of type 3592, where several tape images (files) can be stored
- Based on z/VSE's Virtual Tape (VTAPE) support
- Contains multiple virtual tape files

- Job Control VTAPE command extended to support stacking tape
- Writing to a stacking tape
    - VTAPE INIT to initialize a stacking tape
    - VTAPE START with WRITE opens a new tape file
    - VTAPE STOP closes the tape file
- VTAPE function LIST to list the contents of a stacking tape
- VTAPE START with READ positions to the requested tape file

Stacking Tape Support ...

- Reasons to use stacking tape support:
  - Useful for tape migration of older tapes, such as 3480 and 3490
  - Exploit the capacity of modern tape volumes, such as TS1140
  - May reduce cost
  - ...

- Restrictions
  - No alternate tape support,
  - tape file can not be accessed via MTC command,
  - concurrent tape file access not supported,
  - existing tape files can not be deleted, modified or replaced
    However, new tape files can be appended

z/VSE 5.2 – Networking

TCP/IP Connectivity for z/VSE

- TCP/IP connectivity for IPv4 communication
  - IBM TCP/IP for VSE/ESA 1.5F – licensed from CSI International
  - IBM IPv6/VSE – licensed from Barnard Software, Inc. (BSI)
  - Linux fast path (LFP)

  - EZA socket interface, new function calls
  - LE/C socket API

- TCP/IP connectivity for IPv6 communication
  - IPv6/VSE
  - Linux Fast Path

  - EZA socket interface, new function calls

- All TCP/IP options can run concurrently within one z/VSE system

TCP/IP Connectivity for z/VSE – New with z/VSE 5.2

- IPv6 support in for z/VSE components, such as
  - z/VSE Connectors
    - Connector server & client, script server & client,
    - VSAM Redirector, HTTP & SOAP client, LDAP client, Monitoring agent & trap client
  - Virtual Tape (VTAPE)

- CICS listener
  - Enhanced listener support
  - Configuration dialog enhancements (selection: TCP/IP stack, standard / enhanced listener)
  - IPv6 support

- LE/C multiplexer
  - Controls access to TCP/IP C-socket API depending on SYSID
  - New parameter: SSLPHASE allows to select openSSL independent on TCP/IP stack

- IPv6/VSE V1.1 enhancements
  - Secure Sockets Layer (SSL) for secure data transmission, exploits openSSL provided by z/VSE V5

- IBM TCP/IP for VSE/ESA in separate AF sublibrary PRD2.TCPIPC

Linux Fast Path (LFP)

- Routes IPv4 or IPv6 socket request to Linux on System z
  - Without using the local TCP/IP stack

- LFP on z/VM
  - Uses an IUCV connection between z/VSE and Linux on System z
  - Both – z/VSE and Linux – need to be z/VM guests of the same z/VM

- Linux Fast Path using z/VSE z/VM IP Assist (VIA)
  - Both – z/VSE need to be a z/VM guests

- Linux Fast Path in LPAR
  - LFP daemon on Linux forwards the socket request to the Linux TCP/IP stack

- LFP is transparent to IBM socket APIs
  - Supported APIs: LE/C socket API, EZA socket / EZASMI interface, …
  - Transparent to IBM applications (DB2 client, Connectors, Power PNET)
  - No standard TCP/IP applications (Telnet, FTP, …) provided
  - IPv6/VSE: TCP/IP applications can exploit LFP

- Provided with the z/VSE base product – no additional charge

IBM

z/VSE 5.2 – Security

10/16/2014

OpenSSL

- openSSL support for z/VSE is available since z/VSE 5.1

- openSSL code level: openSSL 1.0.1e (updated)
    - Supports Transport Layer Security (TLS) 1.2
- z/VSE supports a subset of openSSL functions

- IPv6/VSE and Linux Fast Path exploit openSSL

- z/VSE supports the GSK (z/OS SSL API) and openSSL API

- New APAR available since end of August 2014: APAR DY47561 (PTF UD54054)

Security enhancements

- Basic Security Manager (BSM) / IUI enhancements
    - Separation of auditor from administration function
        - New user type AUDITOR
    - Extension of IUI security dialog for MQ classes
    - Unique group (GRP) and user id (UID) names ensured

- Key store conversion to manage multiple key stores
- (openSSL) LE multiplexer to separate SSL function from TCP/IP API

- LDAP batch tools to support search, add, modify, delete

- Monitoring agent security enhancement through IP filter support
    - Checks if incoming source IP / packet matches the information in the configuration file

- VSAM IDCAMS security
    - IDCAMS protected via RACROUTE

z/VSE 5.2 – Further Enhancements

z/VSE Component Enhancements

- VSE/VSAM

    - Chaining VSAM requests (chained RPL support) – reduces system overhead

        - Whole RPL chain released when error detected

    - Remove duplicate VOLSERs on DEFINE CLUSTER

        - Eliminates duplicate VOLSERs automatically

    - SHOWCB macro enhancements

    - New catalog management trace

    - CISIZE definition on DLBL statement for VSAM files

    - VSAM IDCAMS security

- VSE/POWER

    - Extended generation messages (XEM)

        - Generated for created, altered or deleted Q-entries

        - May be retrieved by SAS users

    - Delete SLI member after reading (DEL=YES/NO keyword in SLI statement)

z/VSE Component Enhancements

- z/VSE Connectors
    - SOAP enhancements
    - VSE/POWER XEM messages may be retrieved by Java applications
    - DDNAME support for redirector SNAP trace

- Language Environment
    - Easy activation of Run-unit work area (RUWA) tracing (CRUT transaction)
        - Can help to debug and monitor CICS program storage requirements

- IUI dialogs
    - Display VTOC dialog – sort by VOLID
    - Updated device information dialog

- Base install without VTAM terminals (with TCP/IP terminal instead)

- Duplicate volumes are detected during installation and set to device down

- FCOPY performance improvements
    - new OPTIMIZE=5 parameter to read 15 tracks per I/O

IBM

z/VSE 5.2 – Statement of Direction (SOD)

z/VSE Statement of Direction (SOD) in z/VSE 5.2 Announcement

- IBM intends to provide

  new capability in a future release of IBM CICS Transaction Server for z/VSE, to provide:
  - (i) Updates to CICS resources for CICS Explorer, and
  - (ii) Channels and Containers to enable the transfer of large amounts of data between CICS applications.

- IBM intends to rename

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

- 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.

- Stabilization of support and discontinued functions:
  - CICS DDM: 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.

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CICS Explorer for z/VSE

- Announced 04/03/2012, GA 06/15/2012

- CICS Explorer – The new face to CICS

    - System management framework for CICS TS
    - Consists of CICS Explorer client and a CICS TS server extension
    - CICS Explorer client
        - Read-only capabilities
        - Eclipse-based user interface on workstation
        - Connects to CICS TS via TCP/IP - Communication via HTTP requests
    - CICS Explorer server extension
        - Delivered as PTF for CICS TS for VSE/ESA 1.1.1
        - z/VSE V5 only

- Statement of direction (SOD)

    - IBM CICS Explorer to provide updates to CICS resources
        - Update resources as you would do with transactions on your CICS terminal
        - Enable / disable CICS resources
        - Change selected CICS definitions
        - ….

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z/VSE Requirements

- You may submit requirements at conferences (GSE, zUniversity, …)

- **z/VSE** requirements via the Request for Enhancements (RFE) database:
    - http://www.ibm.com/developerworks/rfe/

    ➢ Please select the following for z/VSE requirements
    - *Brand = Servers and System Software*
    - *Product family = zSeries Software*
    - *Product = z/VSE*
    - *Component = General, z/VSE, VSE/AF, VSE/VSAM, VSE/POWER, VSE Unique Code, ...*
    - *Operating system = IBM z/VSE*
    - *Source = Share, IBM user group, IBM Conference, ..., Other*

- **CICS Transaction Server** requirements via the Request for Enhancement (RFE) database:
    - http://www.ibm.com/developerworks/rfe/

    ➢ Please select the following for z/VSE-CICS requirements:
    - *Brand = WebSphere*
    - *Product family = Transaction Processing*
    - *Product = CICS Transaction Server*
    - *Component = Runtime or Explorer*
    - *Operating system = IBM z/VSE*

Migration to a supported z/VSE Version 5 release

- Please migrate to a supported z/VSE release

    to get the latest software service, hardware exploitation and functionality

- z/VSE 4.3 end of service is October 31, 2014.

- After October 31, 2014, the only supported releases are z/VSE 5.1 and z/VSE 5.2.
    - z/VSE Version 5 supports z9 or higher

- z/VSE 5.1 had end of marketing in May 2014.
    - That is z/VSE 5.1 can no longer be ordered.
- Consider the single version charging requirements.
    - IBM System z software pricing: http://www-03.ibm.com/systems/z/resources/swprice/reference/

- z/VSE 5.1 end of service announced: effective June 30, 2016.

IBM

End of service announcements
August 5, 2014

- **z/VSE 5.1** withdrawn from service June 30, 2016.
  - Replacement product: z/VSE 5.2.

- **WebSphere MQ for z/VSE 3.0** withdrawn from service September 30, 2015.
  - Replacement product: none.
  - Individual service extension contracts can be requested for service beyond September 30, 2015 for a period of at least 3 years.
  - The WebSphere MQ Client for VSE will still be available.

- **Emulation Program (EP) 1.14** withdrawn from service December 31, 2015.

- **z/VM 5.4** withdrawn from service December 31, 2016 or until z9 processors are withdrawn from support, whichever is later.
  - Replacement product: z/VM V6.
  - The zEC12 and zBC12 are planned to be the last System z servers supported by z/VM V5.4 and the last System z servers that will support z/VM V5.4 running as a guest (second level).

Price change(s) for selected IBM software products
Announced: August 12, 2014

- Monthly license charges (MLC) on select middleware software programs and their features will increase on January 1, 2015

- 4% price increase depending on the features selected
    - DB2 Server for VSE&VM V7
    - IBM C FOR VSE/ESA VERSION 1
    - IBM C/370 Compiler Version 2
    - IBM COBOL VSE/ESA
    - IBM PL/I VSE/ESA
    - Rational COBOL RT for zVSE
    - IBM HIGH LVL ASSEMBLER MVS,VM,VSE V1
    - MQ SERIES FOR VSE/ESA V2R1
    - WEBSPHERE MQ FOR Z/VSE V3
    - IBM Compiler for REXX/370
    - IBM Library for REXX/370

- approximate 7% price increase on all software billing metrics
    - CICS TS for VSE/ESA 1.1.1

Documentation related to z/VSE

- z/VSE documentation page - http://www-03.ibm.com/systems/z/os/zvse/documentation/
  – New books are uploaded: z/VSE 5.2 TCP/IP Support, z/VSE 5.2 Diagnosis Tools, z/VSE 5.2 Guide for Solving Problems, z/VSE 5.2 Supervisor Diagnosis Reference, z/VSE Hints & Tips

- z/VSE Collection Kit - April 2014
  – Available for download in IBM Publication Center
  – Electonic 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

- IBM Redbooks
  – Redbook page with new IBM System z mainframe Redboooks
    • zEC12 / zBC12 Technical Guide, SG24-8049 / SG24-8138
    • IBM System z Connectivity Handbook, SG24-5444
  – More IBM Redbooks information on next pages

- Technical articles: http://www-03.ibm.com/systems/z/os/zvse/documentation/documents.html#articles
  – z/VSE SCSI Support and Migration Options
  – SHOWCB enhancements in z/VSE 5.1
  – z/VSE z/VM IP assist
  – Parallel Access Volume (PAV) white paper

More Information

… on VSE home page: http://ibm.com/vse

- Ingolf's z/VSE blog: https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse

- New: Hints and Tips for z/VSE 5.2:
  - http://www.ibm.com/systems/z/os/zvse/documentation/#hints

- 64 bit virtual information:
  - IBM z/VSE Extended Addressability,   Version 5
  - IBM z/VSE System Macro Reference, Version 5

- 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
  - New: Enhanced Networking on IBM z/VSE
    http://www.redbooks.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg248091.html?Open

- Please contact z/VSE: https://www-03.ibm.com/systems/z/os/zvse/contact/contact.html
  or me – Ingolf Salm – salm@de.ibm.com – for any questions

IBM

Questions ?