z/VSE Latest News

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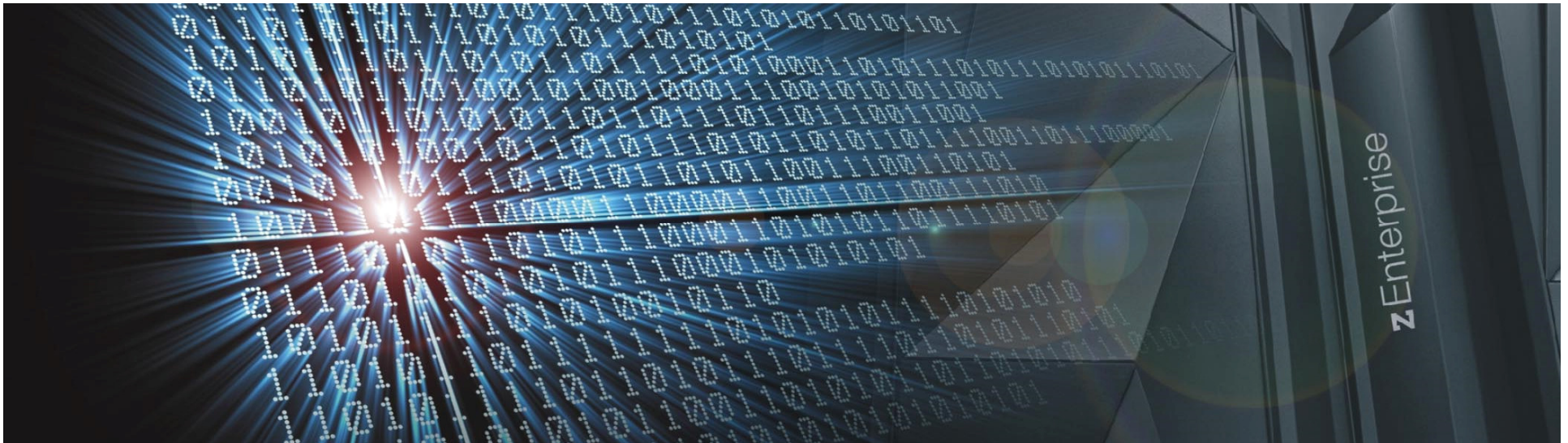
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z/VSE Roadmap

Quality

Connectivity

z/OS Affinity

Capacity

z/VSE next   Ann: 04/12/2016
z13s support, z/VSE Network Appliance

z/VSE 6.1   Ann 10/ 05/2015, GA 11/27/2015
CICS TS for z/VSE 2.1: CICS Explorer update,
Channels & Containers; TCP/IP for z/VSE 2.1,
IPv6/VSE 1.2, **z10 or higher**; z Systems exploitation

z/VSE 5.2   Ann: 04/07/2014, GA 04/25/2014
z Systems exploitation, z9 or higher, device support,
Tapeless installation, networking / security enhancements

z/VSE 5.1   11/2011, end of service 06/30/2016
64 bit virtual, z Systems 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
More 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

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z/VSE 6.1 Overview

- Preview: May 11, 2015, GA ann.: 10/05/2015, GA 11/27/2015

- Hardware support
  - Architectural Level Set to IBM System z10 or later
  - IBM z13 / z13s support
    - Configurable Crypto Express5S
      - More than 16 cypto domain support
  - FICON Express16S for ECKD, channel to channel or FCP-attached SCSI
  - z/VSE Network Appliance, planned availability June 30, 2016
  - IBM System Storage options
  - 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.

z/VSE 6.1 Overview …

- New CICS version: CICS TS for z/VSE 2.1 - fullfills Statement of Direction (SOD)

- Networking enhacements
    - IPv6/VSE 1.2 – new release
    - TCP/IP for z/VSE 2.1 – new version

- Connectors
    - MQ Client Trigger Monitor

- z/VSE 6.1 requires an initial installation,
  Fast Service Upgrade (FSU) from z/VSE V5 not supported

- z/VSE 6.1 will be delivered in English only

- Statement of direction:
  IBM plans to deliver future upgrades of z/VSE on DVD or electronically only.

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

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CICS TS for z/VSE 2.1

- A new CICS TS version for z/VSE - The first major CICS TS update since 1999
    - GA Announcement 10/05/2015, GA 11/27/2015
    - Based on CICS TS for VSE/ESA 1.1.1
    - A complete new build of CICS TS
    - Fully compatible with CICS TS for VSE/ESA 1.1.1
    - No recompile or re-link of CICS applications required
    - New APIs described in CICS Enhancements Guide
    - Migration considerations described in migration white paper available at z/VSE 6.1 GA

- Only available for z/VSE 6.1 and later, replaces CICS TS for VSE/ESA 1.1.1
    - CICS TS for VSE/ESA 1.1.1 still delivered with z/VSE Version 5

CICS TS for z/VSE 2.1 - Enhancements

- CICS Explorer update capability

- Channel & Container support - Lifts the 32K Commarea limitation

- 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

- CICS DDM (CICS Distributed Data Management) not supported

CICS Explorer

- Announced 04/03/2012, GA 06/15/2012, new enhancements in CICS TS for z/VSE 2.1

- CICS Explorer monitoring in z/VSE Version 5

  - 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
    - One CICS Explorer client for z/VSE and z/OS
  - CICS Explorer server extension
    - Delivered as PTF for CICS TS for VSE/ESA 1.1.1

- Integrated into CICS TS for z/VSE 2.1 (z/VSE 6.1)
  - 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, …
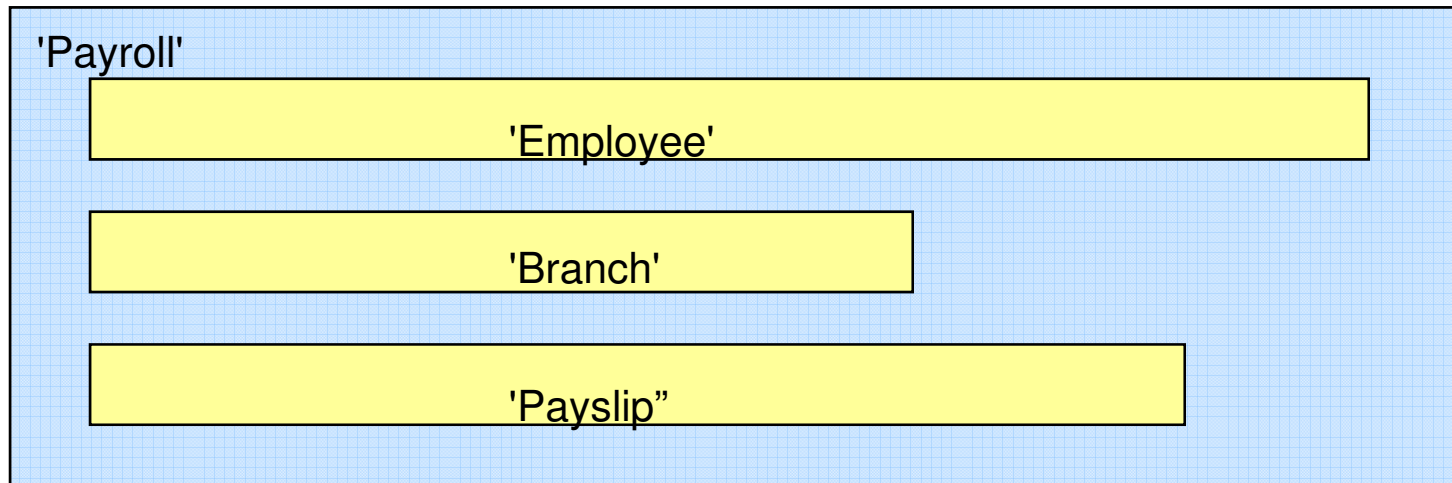
Channels and Containers

- z/VSE ported channel and container APIs from CICS TS for z/OS 3.1

- Channels and containers lift the 32K Commarea limitation
  - Applicable for both LINK and XCTL, Distributed Program Link (DPL)
  - Affects the exchange of data between CICS tasks
  - Local and transcation routing
  - START with data

- Language 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)

Containers

'Employee'

'Branch'

'Payslip'
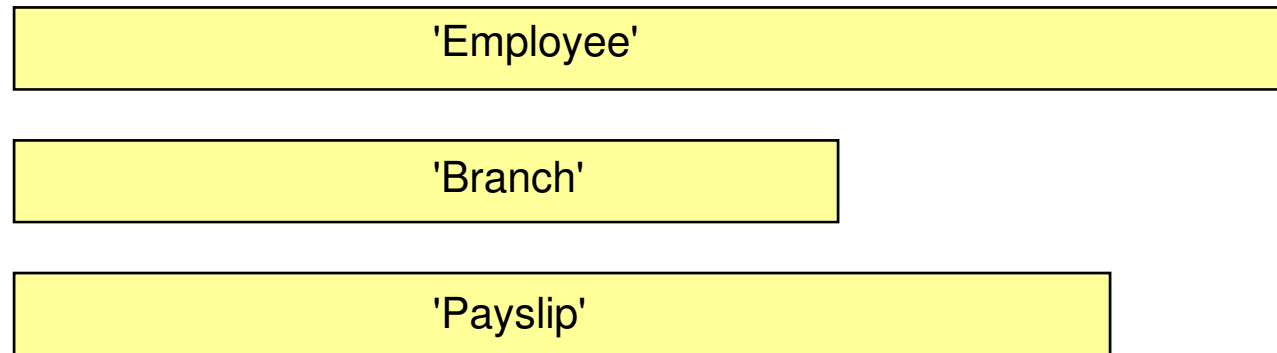
- To solve the 32K Commarea problem a new construct will be provided
- Named block of data designed for passing information between programs
  - Like named COMMAREAs
- CONTAINER API
  - Created using (EXEC CICS) PUT CONTAINER, defines the size of the container
  - Read   using (EXEC CICS) GET CONTAINER
  - 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)

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Channels

'Payroll'		
	'Employee'	
'Branch'		
'Payslip"		

- 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

TCP/IP Connectivity for z/VSE

- TCP/IP stacks are provided by ISVs

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

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

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

- IBM TCP/IP for VSE/ESA 1.5F and IBM IPv6/VSE 1.1 not supported on z/VSE 6.1

- Enhancements for for both TCP/IP stacks in z/VSE 6.1
  - IBM TCP/IP for z/VSE 2.1
  - IBM IPv6/VSE 1.2
  - Only supported on z/VSE 6.1

z/VSE 6.1 – IBM TCP/IP for z/VSE 2.1

- A new version of CSI's TCP/IP stack – only supported on z/VSE 6.1
  - Levelset based on TCP/IP for VSE 1.5F / 1.5G
  - Replaces IBM TCP/IP for VSE/ESA 1.5F on z/VSE 6.1
  - Requires a new license & key

- New white-list firewall
  - 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)
    - Configuration phase contains a list of IP addresses
      - Firewall configuration phase can be reloaded
      - To each IP address range you may specify VSE ports (TCP or UDP)
        and if ICMP (Ping) is allowed
      - Example:
        FIREWALL ALLOW,IPV4BEG=039.101.062.131,IPV4END=039.101.062.131,
        TCPPORTS=PORTGRPA,UDPPORTS=NONE,ICMP=YES
  - FIREWALL commands for administration
    - ON, OFF, LOAD PHASE=<phase name>
    - WARN, FAIL, DEBUGON | DEBUGOFF, MSGON | MSGOFF, REPORT

z/VSE 6.1 – IBM TCP/IP for z/VSE 2.1 …

- 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 ($BSOCKET) 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
  - RSA-SHA256 signatures supported
  - RFC5746 implemented to allow usage of
    TLS extensions to prevent the handshake renegotiation security exposure

- Internal processing improvements

z/VSE 6.1

z/VSE 6.1 – IBM IPv6/VSE 1.2

- A new release of BSI's TCP/IP stack – IBM IPv6/VSE 1.2 only supported on z/VSE 6.1

- New (basic) firewall
  - Examines IPv4 packets and IPv6 Ethernet frames
  - Enabled by default
  - VSE Librarian member contains the firewall rules table
    - To disable the firewall, just delete / rename the VSE Librarian member
  - Source IP address, packet protocol, TCP or UDP port, ICMP can be accepted / denied
    - Example: IN IP ALLOW IP 192.168.1.0 255.255.255.0
  - If a packet is denied, it is dropped. A message will be written to SYSLST
  - Default firewall rules allow all packets to be processed by the stack
  - Only Inbound (IN) rules are processed
  - Firewall commands via MSG <syslog id>
    - MSG <syslog id>,D=FIREWALL,RELOAD
    - MSG <syslog id>,D=FIREWALL,LIST
    - MSG <syslog id>,D=FIREWALL,LOGLEVEL n (0=no logging, 4=message to SYSLST)

z/VSE 6.1 – IPv6/VSE 1.2 …

- Automated OSA Express failover using hot swap devices for high availability
  - Automatically recover from OSA Express device failures by using a backup device

- Improved SSL support including TLS 1.2
  and Diffie Hellman (DH) / Elyptic Curve Cryptography (ECC) sockets
  - Update to the latest openSSL implementation
  - Support to establish up to 16 SSL sockets concurrently,
    can improve performance for applications that establish multiple connections
    to z/VSE including TN3270(E), CICS, and web services applications

- Virtual IP address support using virtual network devices
  - Multiple IP addresses can be defined for a single network interface
  - Virtual network interfaces share a single OSA Express device

- Improved stack CPU optimization

z/VSE 6.1 – Connector enhancements

- MQ trigger monitor
    - Extends the IBM WebSphere MQ Client for VSE functionality
    - It monitors an IBM WebSphere MQ server running on any platform.
    - If a message arrives on a WebSphere MQ server queue,
      the trigger monitor may start a CICS program.

- IBM WebSphere MQ for z/VSE V3.0 withdrawn from service since September 30, 2015
    - Service extensions possible
    - The WebSphere MQ Client for VSE togther with the MQ trigger monitor
      can be used as an alternative.

Upgrade to a supported z/VSE release

- Customers should upgrade to a supported z/VSE release
  to get the latest software service, hardware exploitation and functionality

- The only supported releases today are z/VSE 5.1, 5.2, 6.1
  - z/VSE 5.1, 5.2 require z9 or higher
  - z/VSE 5.1 end of service effective June 30, 2016.
  - z/VSE 5.2 can still be ordered after z/VSE 6.1 GA, end of marketing not announced yet
  - Fast Service Upgrade (FSU) to z/VSE 5.1, 5.2 supported
  - z/VSE 6.1 requires an initial installation

- Migration Pricing Option (MPO) for z/VSE 6.1,
  IBM TCP/IP for z/VSE 2.1, CICS TS for z/VSE 2.1
  http://www-03.ibm.com/systems/z/os/zvse/howtobuy/

- z/VSE release & hardware upgrade white paper available:
  http://www-03.ibm.com/systems/z/os/zvse/documentation/documents.html#articles

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

- Announced April 12, 2016

- Support of IBM z13s
  - z/VSE Network Appliance
  - Configurable Crypto Express5S
  - FICON Express16S

- 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)

  - Usability
    - Install from DVD stage 2 (FBA / SCSI)

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z/VSE Version 6 announcement – what is next ? ….

- Statement of general direction (SOD) …

  - CICS TS for z/VSE enhancements
    - CICS Explorer enhancements (define programs, files, etc.)
    - Channels & containers enhancements

  - 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

  - Security enhancements
    - Basic Security Manager (BSM) enhancement
      - o 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

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Migration Pricing Option (MPO)

- MPO can now be requested for all z/VSE 6.1 products with a new version
  - z/VSE 6.1 (available since GA), CICS TS for z/VSE 2.1, IBM TCP/IP for z/VSE 2.1

- In effect for SCRT reports submitted beginning of May 2016
  - With SCRT versions 23.7.2 or 23.13.2 or later
  - SCRT versions 23.7.2 and 23.13.2 now available
  - May reports to be submitted manually
  - Reports show combined concurrent peak MSUs for both versions in a row containg the name of the product with a suffix of „(ALL)",
    e.g. TCP/IP for z/VSE (ALL).

- MPO can be used while migrating to the new version, up to 18 month

- Customers pay for the combined MSUs at the new version price.

- See z/VSE's MPO web page for more details.
  http://www-03.ibm.com/systems/z/os/zvse/howtobuy/mpo.html

Linux Fast Path (LFP)

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

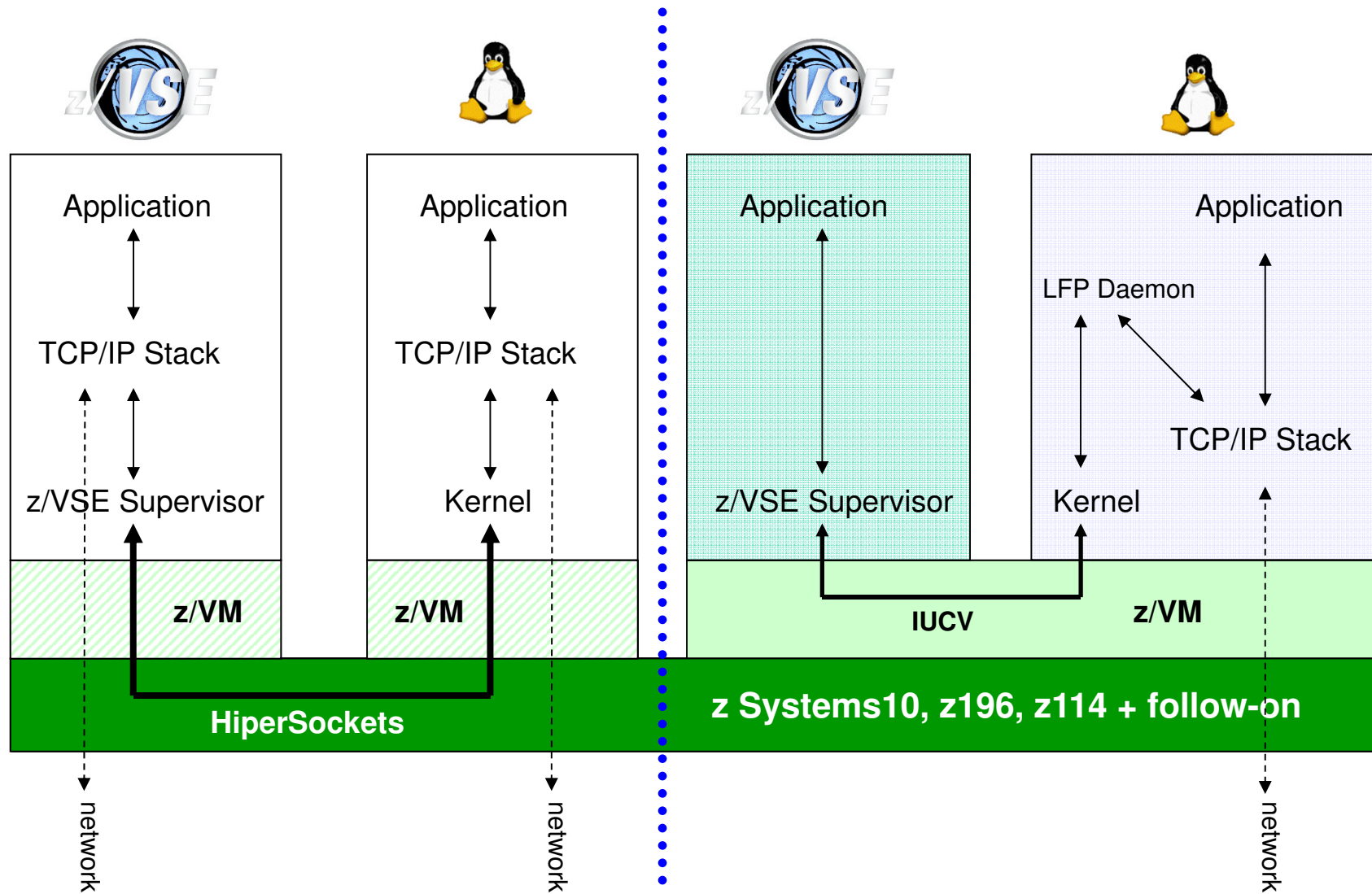- Included into the z/VSE base product – no additional charge

- 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

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Linux Fast Path in a z/VM-mode LPAR - z/VSE V5 and V6
Faster communication between z/VSE and Linux applications under z/VM

Application	Application	Application	Application
TCP/IP Stack	TCP/IP Stack		LFP Daemon
			TCP/IP Stack
z/VSE Supervisor	Kernel	z/VSE Supervisor	Kernel
z/VM	z/VM	IUCV	z/VM
HiperSockets		z Systems10, z196, z114 + follow-on	

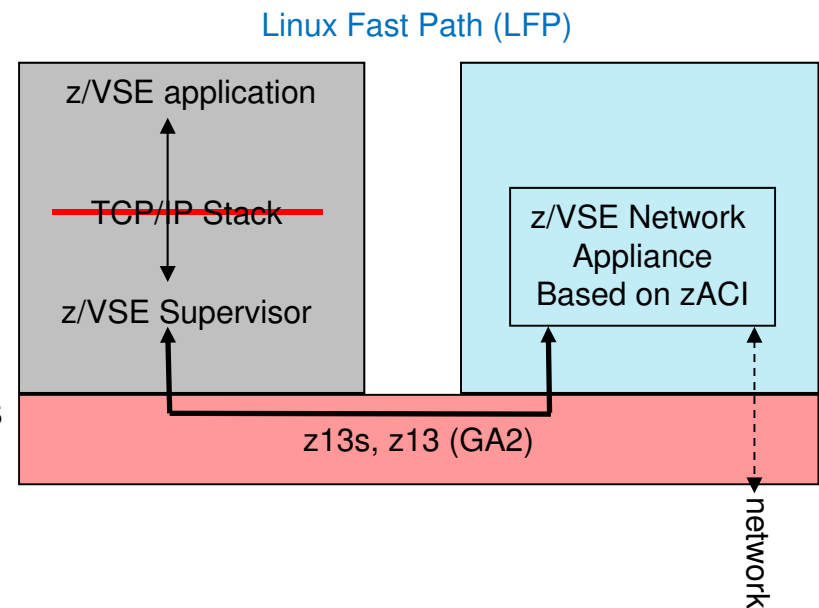network   network   network

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

- 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

Linux Fast Path (LFP)

z/VSE application

TCP/IP Stack

z/VSE Supervisor

z/VSE Network Appliance Based on zACI

z13s, z13 (GA2)

network

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SOD: High Performance FICON support in z/VSE

- High Performance FICON (zHPF) for ECKD devices only
  - Channel programs are translated to zHPF commands
  - Transparent to applications

- z/VSE
  - Supports zHPF implementation phase 1
  - Translates a subset of CCW commands (define extent, locate record, TIC, …)

  - If transport mode I/O results in an I/O error, the request will be retried in command mode
  - z/VM APAR to support phase 1 for z/VM guests

- Benefits
  - May improve I/O performance
  - Highly dependent on workload characteristics

SOD: Enhancements for SCSI device support

- **Tapeless installation**
  - Available since z/VSE 5.2 for ECKD
  - Tools provided to create an installation disk (supported in LPAR and z/VM guest)
  - Installation disk contains a boot program and the z/VSE base tape in AWS file format

  - Tapeless installation to be enhanced for installation disk on **FCP-attached SCSI devices**
  - Installation on ECKD, FBA and FCP-attached SCSI disks supported

  - Supports initial installation only

SOD: CICS TS for z/VSE 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

- CICS TS for z/VSE server 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

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SOD: Enhancements related to CICS TS for z/VSE

- z/VSE SOAP Engine to exploit channels and containers
  - Additional option to use channels and containers instead of CICS commarea
  - z/VSE as SOAP client
    - SOAP engine detects which area to be used
  - z/VSE as SOAP server
    - Commarea or channels & containers use dependent on
      - New option passed with message or in RULES
      - Default is Commarea

- New z/VSE REST Engine with JSON support
  - z/VSE implements Representational State Transfer (REST) engine
  - Allows clients to provide RESTful web services running in a CICS environement
  - JSON and XML supported

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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
    - 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

- z/VSE Knowlede 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 Redboooks
        - 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

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More Information

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

- 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
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- Requirements: https://www-03.ibm.com/systems/z/os/zvse/contact/requirement.html

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