z/VSE Technical Update
and z/VSE V6.2 Preview

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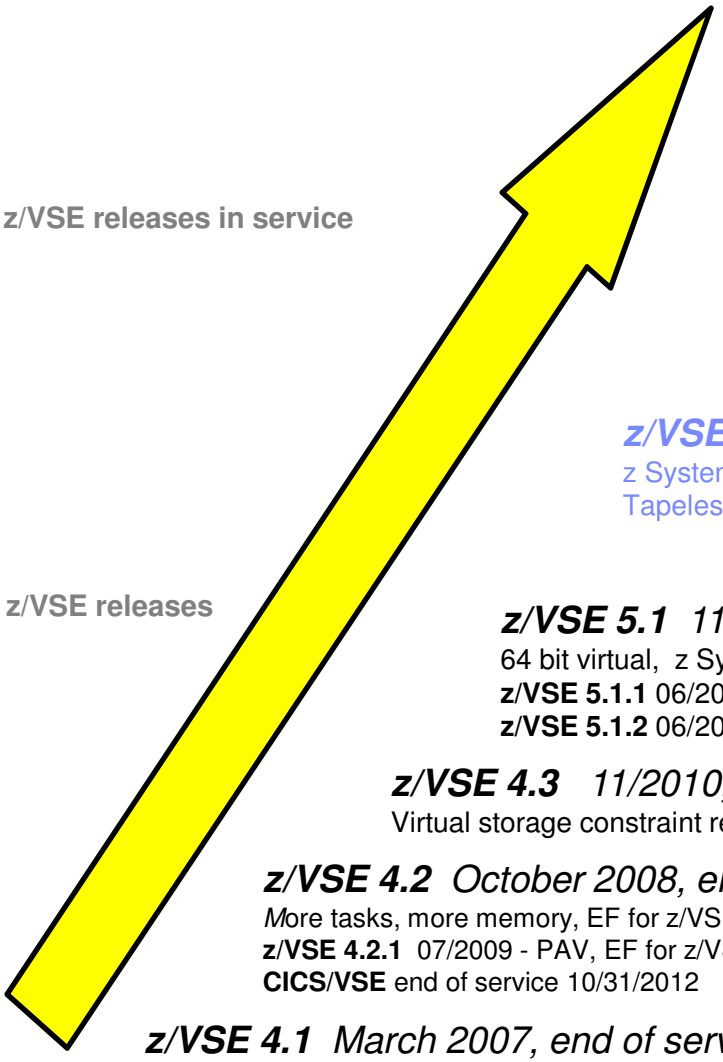
z/VSE Roadmap



z/VSE releases in service

Unsupported z/VSE releases

z/VSE 6.2 *GA planned for 4Q 2017*
z114 */* ***z196 or higher****, zHPF / SIMD support, Tapeless installation SCSI / ECKD, CICS TS for z/VSE 2.2, security and connector enhancements*

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 *04/2014, end of service 10/31/2018*
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

IBM z Systems server support

- IBM eServer zSeries z890 Server **end of service** October 31, 2016
  http://www-01.ibm.com/common/ssi/printableversion.wss?docURL=/common/ssi/rep_sm/1/897/ENUS2086-_h01/index.html

- zBC12 / zEC12 **end of marketing** announcement
  http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS916-037&appname=USN

- **Statement of general direction (SOD)**

  – z/VSE 6.1 last release planned to support **z10 server** family of servers
  http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS216-312

  – z13 / z13s will be the last z Systems servers to support running an operating system in **ESA/390 architecture mode**
    - all 24-bit and 31-bit problem-state application programs originally written to run on the ESA/390 architecture will be unaffected by this change. See z13 announcement January 2015:
      http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=an&subtype=ca&appname=gpateam&supplier=897&letternum=ENUS115-001

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IBM z Systems server support

VSE Release	z800 / z900 z890 / z990	z9	z10	z196 / z114 / zEC12 zBC12 / z13 / z13s	End of Marketing	End of Support
z/VSE V6.2	No	No	No	Yes	tbd	tbd
z/VSE V6.1	No	No	Yes	Yes	tbd	tbd
z/VSE V5.2	No	Yes	Yes	Yes	03/13/2017	10/31/2018
z/VSE V5.1	No	Yes	Yes	Yes	05/23/2014	06/30/2016
z/VSE V4.3	Yes	Yes	Yes	Yes	06/25/2012	10/31/2014
z/VSE V4.2	Yes	Yes	Yes	Yes	10/26/2010	10/31/2012
z/VSE V4.1	Yes	Yes	Yes	Yes	10/17/2008	04/30/2011
z/VSE V3.1	Yes	Yes	Yes	Yes	05/31/2008	07/31/2009
VSE/ESA V2.7	Yes	Yes	Yes	Yes	09/30/2005	02/28/2007
VSE/ESA V2.6	Yes	Yes	Yes	Yes	03/14/2003	03/31/2006

z/VSE release / hardware status: http://www-03.ibm.com/systems/z/os/zvse/about/status.html

z/VM support

- **z/VM End of Service Effective Dates:**
  - http://www.vm.ibm.com/techinfo/lpmigr/vmleos.html
- **z/VM 5.4 – End of Service December 31, 2017**
  https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS916-121&appname=USN
  - Operates on z800 / z900 or higher, up to zBC12 / zEC12, not supported on z13 / z13s
- **z/VM 6.2 - End of service June 30, 2017**
  - Supports z10 or higher
- **z/VM 6.3 - End of service December 31, 2017**
  - SOD: Last release planned to support z10 server family of servers
- **z/VM 6.4**
  - Available since November 11, 2016
  - Architectural Level Set (ALS) to z114 / z196
  - Availability announcement:
    https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS216-075&appname=USN

Announcements: z/VSE 5.2 End of Marketing / Service

- **z/VSE 5.2 End of Marketing was March 13, 2017**
  - After end of marketing products can no longer be ordered.

- **z/VSE 5.2 End of Service is planned for October 31, 2018**
  - The affected products are:
    - z/VSE 5.2
    - z/VSE Central Functions 9.2
    - CICS TS for VSE/ESA 1.1.1
    - IBM IPv6/VSE 1.1
    - IBM TCP/IP for VSE/ESA 1.5

- **End of Marketing Announcement:**
  - http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS916-094
- **End of Support Announcement:**
  - https://www-01.ibm.com/common/ssi/rep_ca/8/897/ENUS917-008/ENUS917-008.PDF

Multi-Version Measurement (MVM)

- **MVM replaces the Migration Pricing Option (MPO) and Single Version Charging (SVC)**
  - No time limits for running multiple eligible versions of a software program on the same machine
    - VSE/ESA V1 / V2, z/VSE 3.1, z/VSE V4, z/VSE V5, z/VSE V6, in any combination
  - E.g. systems with zELC, AEWLC and MWLC pricing are eligible for MVM
  - MVM only possible for versions within same machine. Multiple machines can not be combined

- **Full-capacity clients:**
  - No additional requirements
  - Need to request MVM, except SVC systems
  - If one non-subcapacity Version on machine, you will be billed at the highest version price as full capacity

- **Sub-capacity clients:**
  - Pay for the combined MSUs (concurrent peak) at the latest version price.
  - Sub-Capacity Reporting Tool (SCRT) requirement:
    - SCRT V24.2.0 (Classic) or SCRT V24.11.0 (Java™), or later required
    - Available since April 10, 2017.

- See web page for Monthly License Charge (MLC) programs http://www-03.ibm.com/systems/z/resources/swprice/reference/exhibits/mlc.html
- See MVM announcement letter for details: https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS217-093

z/VSE 6.1

- **Preview:** May 11, 2015
- **GA announcement:** October 5, 2015
- **GA:** November 27, 2015
  → Recommended Service Level (RSL) with cutoff December 31, 2016

- **Hardware support**
  - Architectural Level Set to IBM System z10 or later
  - IBM z13 / z13s support
  - z/VSE Network Appliance (VNA)
  - IBM System Storage options
    - Tape solutions
      - IBM TS7700 Virtualization Engine Release 4.0 (IBM TS7760)
    - Disk solutions
      - IBM System Storage DS8870 Release 7.5,
      - IBM System Storage DS8880 (DS8884, DS8886, DS8888)
        - As ECKD and FCP-attached SCSI disks
      - IBM FlashSystem V9000 for use with FCP-attached SCSI disks.

z/VSE 6.1 …

- **New CICS version: CICS TS for z/VSE 2.1**
  - CICS Explorer – monitor and update CICS resources
  - Channels & Containers to lift 32K Commarea limitation
- **Networking enhancements (firewall support)**
  - IBM IPv6/VSE 1.2 – new release
  - IBM 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 and follow-on releases are delivered in English only**

z/VSE 6.1 …

- **Statement of direction (SOD):**
  - IBM plans to deliver future upgrades of z/VSE on DVD or electronically only.
  - High Performance FICON (zHPF)
  - Install from DVD stage 2 (FBA / SCSI)
  - New CICS TS for z/VSE release
  - Web services (SOAP) enhancements (JSON support)
  - Security enhancements

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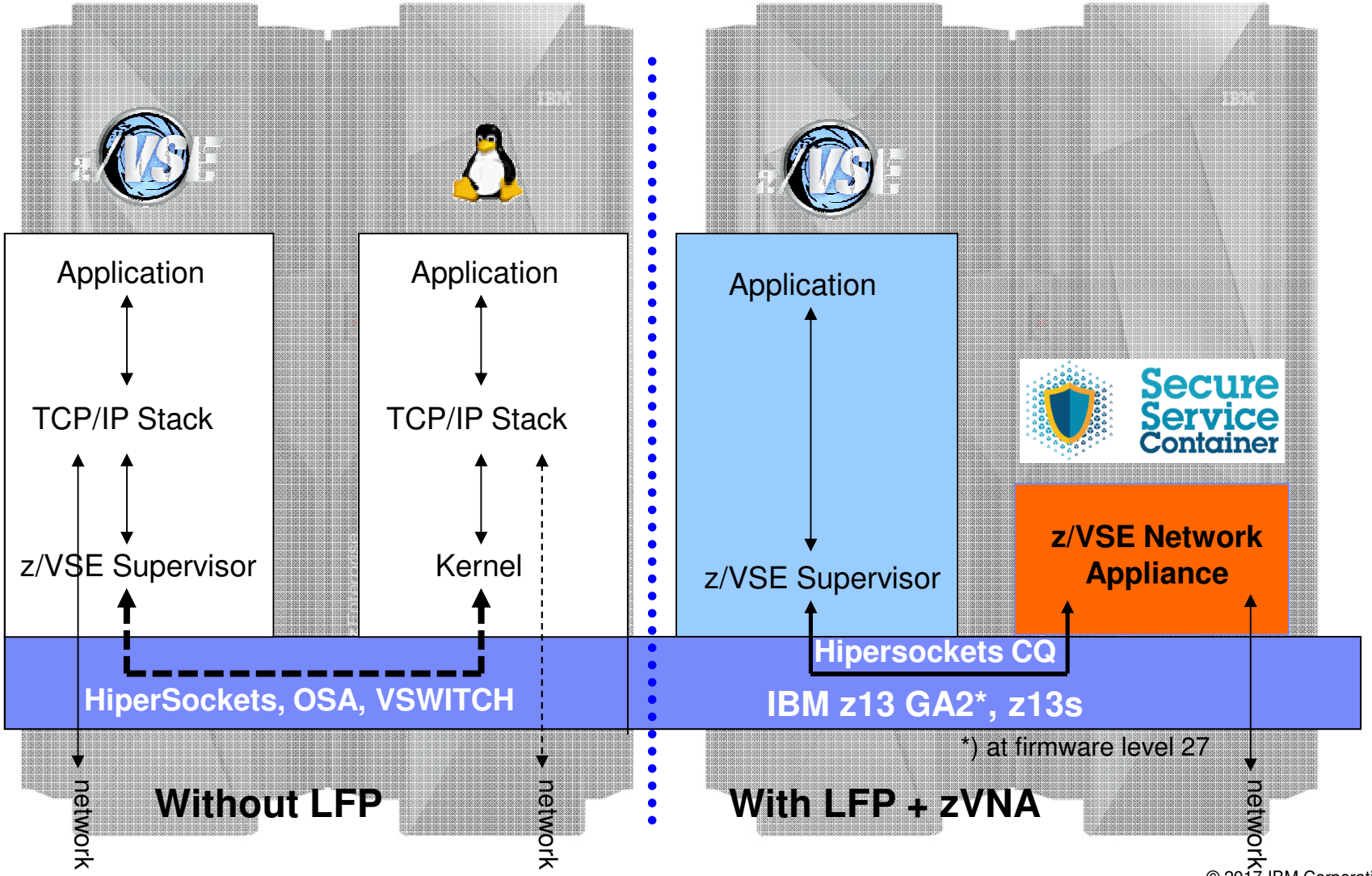
z/VSE Network Appliance (zVNA)

Exploits the IBM Secure Service Container introduced on the z13 platform



z/VSE 6.2 Preview

- **Preview: April 11, 2017**
  - GA planned for 4Q 2017
  - http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=an&subtype=ca&appname=GPA&htmlfid=897/ENUS217-091

- **Hardware support**
  - Architectural Level Set to IBM zEnterprise 114 (z114) or IBM zEnterprise 196 (z196) or later
  - Support for
    - High Performance FICON (zHPF)
    - z13 Vector Facility (Single Instruction Multiple Data - SIMD)
    - Elliptic Curve Cryptography (ECC) accelerated with CryptoExpress5S of z13 / z13s, exploited by OpenSSL
    - FlashCopy Space Efficient (SE) for Extent Space Efficient (ESE) volumes configured in an DS8880
  - Tape-less initial installation using SCSI or FBA disks
  - Support for stand-alone dump on SCSI disks

z/VSE 6.2 Preview …

- **CICS TS for z/VSE enhancements**
  - New CICS TS release – CICS TS for z/VSE V2.2
  - CICS Explorer enhancements (define programs, files, etc.)
  - Channels & containers enhancements
  - HTTP 1.1 upgrade for CICS Web Support (CWS)

- **Connector enhancements**
  - z/VSE SOAP engine to exploit Channels and Containers
  - New z/VSE REST (Representational State Transfer) engine with JSON (JavaScript Object Notation) support
  - z/VSE database connector enhancements

- **Security enhancements**
  - Basic Security Manager (BSM) enhancement
  - Interactive Interface dialog for batch resources (DTSECTAB security)

- **New TCP/IP releases**
  - IBM IPv6/VSE 1.3
  - IBM TCP/IP for z/VSE 2.2

- **Product delivery of z/VSE on DVD and electronically only**

z/VSE 6.2: High Performance FICON support

- **High Performance FICON (zHPF) for ECKD devices only**
  - Designed to improve the execution of small block I/O requests
  - Channel programs are translated to zHPF commands
  - Multiple channel commands are sent as a single entity to the control unit
  - May reduce overhead and increase I/O rates on the channel

- **z/VSE supports zHPF implementation phase 1**
  - Translates a subset of CCW commands (define extent, locate record, TIC, …)
  - I/O APIs will not change, translation occurs at low level I/O interfaces
  - If transport mode I/O results in an I/O error, or can not be translated to zHPF commands, the request will be retried in command mode
  - LPAR and z/VM guests supported (z/VM APAR may be required)

- **Interfaces**
  - SYSDEF SYSTEM command extended to start / stop the zHPF support
    - **`SYSDEF SYSTEM,ZHPF=START / STOP`**
  - zHPF support may be started, stopped or restarted any time
    - Can be used to verify, if the workload benefits from z/VSE‘s zHPF support
  - The **`SIR SMF,ZHPF`** command shows zHPF specific I/O counters

- **Benefits**
  - Transparent to applications
  - May improve I/O performance
  - Highly dependent on workload characteristics

z/VSE 6.2: z13 / z13s Vector Facility support

- **Vector Facility also called Single Instruction Multiple Data (SIMD)**
  - New set of vector instructions described in the z/Architecture Principles of Operation
  - Vector instructions work on 32 128-bit registers
  - Vector registers are partially shared with floating point registers

- **z/VSE support**
  - Instructions can be exploited by assembler applications
  - z/VSE uses 31-bit vector register save area to save / restore status
  - Application has to activate / deactivate vector register support via VECTOR macro
    - Activate allocates save area for task / partition, deactivate frees save area virtual storage
    - To save 31-bit virtual storage, if vector registers are not used
  - LPAR and z/VM guests supported (z/VM APAR may be required)

- **Benefits for applications, that exploit vector instructions**
  - May improve performance
  - Highly dependent on workload characteristics

z/VSE 6.2: Enhancements for SCSI device support

- **Tape-less installation**
  - Available since z/VSE 5.2 for ECKD
  - Tools provided to create an installation disk (supported for LPAR and z/VM guest)
  - Installation disk
    - Contains a boot program and the z/VSE base tape in AWS file format
    - 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
  - Tape-less 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
- **Stand-alone dump**
  - Can be created on tape or disk device
  - Currently only stand-alone dump to ECKD or FBA disks are supported
  - z/VSE 6.2 will support stand-alone dump to SCSI disk

CICS TS for z/VSE 2.2

- **Only available for z/VSE 6.2 and later, replaces CICS TS for z/VSE 2.1**
  - CICS TS for VSE/ESA 1.1.1 still delivered with z/VSE Version 5
  - CICS TS for z/VSE 2.1 still delivered with z/VSE 6.1

- **New CICS TS for z/VSE V2.2 includes**
  - Enhancements to the CICS Explorer to more easily manage CICS resources:
    - Define new CICS resources and modify or delete existing resources
    - Monitor, control, and update dynamic storage areas and global temporary storage queue statistics
    - Support "definitions" views for selected CICS resources
  - HTTP 1.1 Support for CICS Web Support:
    - Persistent connections, pipelining, and chunking
  - Enhancements to the CICS API to provide:
    - Support for UTF-8 and UTF-16 with the channels and containers API
    - Support for the APPEND parameter for PUT CONTAINER
    - Support for the BYTEOFFSET parameter for GET CONTAINER
    - Support for Internet-type date and time stamp formats
    - Support for Language Environment (LE) MAIN for Assembler applications.
  - Support for OpenSSL with CICS Web Support

CICS TS for z/VSE 2.2 – CICS Explorer

- **CICS Explorer "display only" 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 (like CEMT INQUIRE)
    - 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)**
  - Provides update capability to CICS resources (like CEMT SET)
    - Update resources as you would do with transactions on your CICS terminal
    - Enable / disable CICS resources, change selected CICS definitions, …

- **Integrated into CICS TS for z/VSE 2.2 (z/VSE 6.2)**
  - Define new CICS resources and modify or delete existing resources (like CEDA)
  - Monitor, control, and update dynamic storage areas and global temporary storage queue statistics.

Channels and Containers

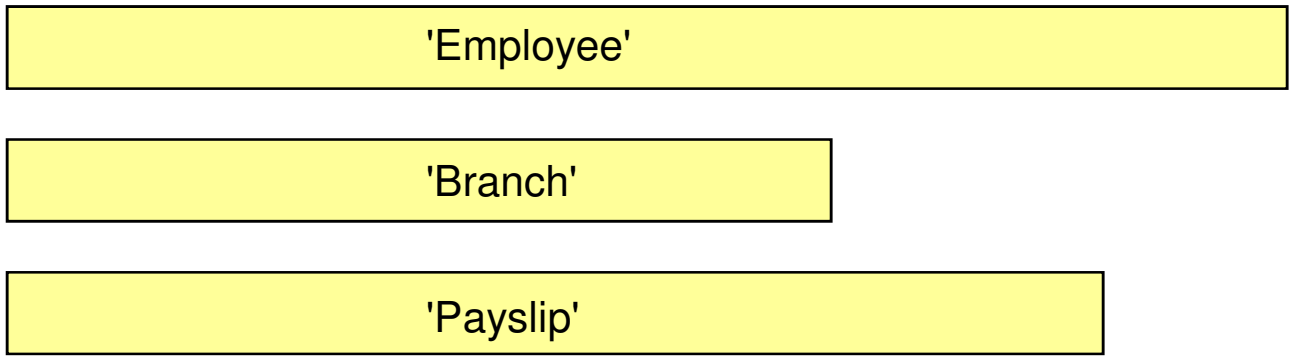
Already available in CICS TS for z/VSE 2.1 on z/VSE 6.1

- **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 transaction routing
  - START with data

- **z/VSE ported the channel and container APIs based on CICS TS for z/OS 3.1**
  - Language support is provided for C, COBOL, HLASM, and PL/I

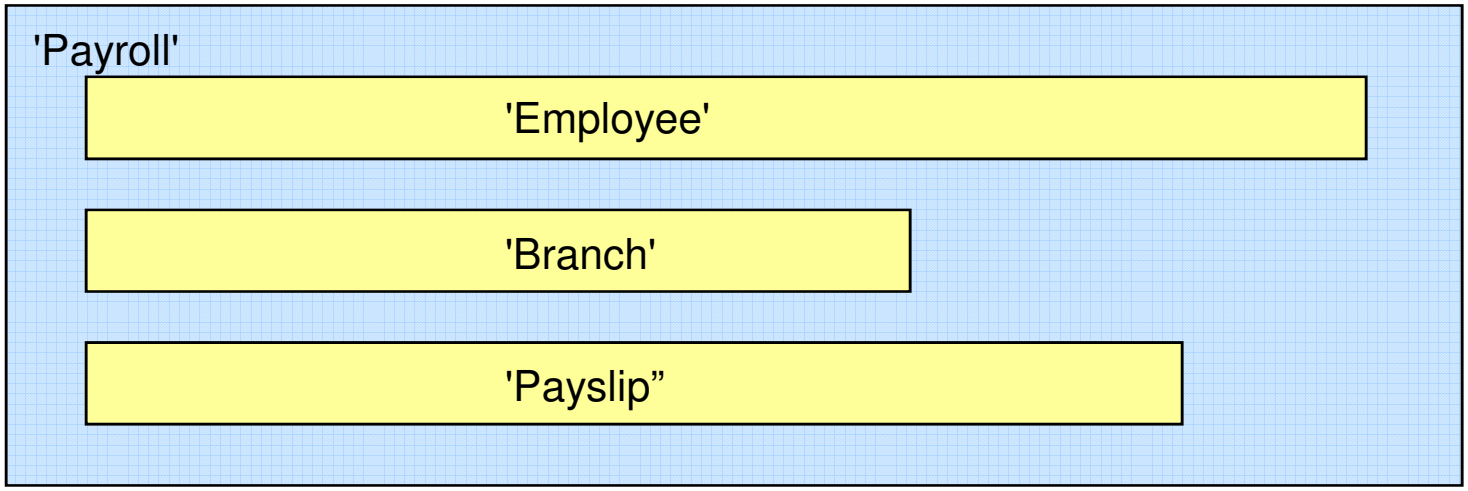
- **Channels and Containers limitations**
  - In 31 bit virtual storage only
  - No support for
    - External CICS Interface (EXCI), External Call Interface (ECI)
    - EXEC CICS WEB … commands to receive/send data directly into/from containers
    - Business Transaction Services (BTS)

Containers



- **To solve the 32K Commarea problem a new construct is 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, pseudo-conversational RETURN, and START commands
- **Non-persistent**
  - Non-recoverable resource similar to commareas

CICS TS for z/VSE 2.2 - HTTP 1.1 Support

- **CICS Web Support has been upgraded to comply with HTTP 1.1**
  - Provides support for the latest web browsers and applications
  - Ported from CICS TS for z/OS 3.1, CICS acting as a server
  - TCPIPSERVICE PROTOCOL(HTTP|ECI|USER)

- **New function has been added:**
  - **Persistent connections**
    - Allows to keep a connection open so that additional HTTP requests can flow over the same connection
    - Avoids connection establishment overhead for frequent requests
  - **Pipelining**
    - Allows to flow multiple HTTP requests over a single (persistent) connection
    - Subsequent request can be transmitted before the response of the first one has been received
    - Response must be returned in the same sequence as request was received
  - **Chunking**
    - Allows to send data in several smaller chunks, each with its own size and data
    - No longer need to know the complete size of the data before sending the data
  - **Support for additional HTTP methods:**
    - OPTIONS: To get capabilities of the server without requesting a resource
    - TRACE: Client can see what the other end received

CICS TS for z/VSE 2.2 – Misc. enhancements

- **Relative addressing instructions in Assembler programs (without base register)**
  - New operands added to DFHEIENT and DFHEIRET macros
  - Beneficial for translated programs that are greater than 4095 bytes

- **Common date and time stamp formats used on the internet**
  - Define correct date and time stamp in HTTP header
  - New CONVERTTIME command and new option for FORMATTIME

- **Language Environment (LE) MAIN for Assembler applications**
  - New translator option LEASM to enable LE functions and setup LE environment
  - Assembler programs translated with LEASM can be used as task-related user exits (TRUEs) or global user exits (GLUEs)

- **New SIT parameter: MAXSOCKETS**
  - Specifies the maximum number of TCP/IP sockets, that can be handled by CICS

z/VSE 6.2: Security Enhancements

- **OpenSSL component of z/VSE enhancements:**
  - The OpenSSL component of z/VSE (z/VSE Cryptographic Services) will be upgraded benefit from newer SSL/TLS functions
  - The OpenSSL component will transparently use hardware acceleration for Elliptic Curve Cryptography (ECC), if available

- **CICS TS V2.2 security enhancements:**
  - OpenSSL support for CICS Web Support will give clients more flexibility and allow them to take advantage of the OpenSSL security

- **EZA API enhancements:**
  - The EZA 'Multiplexer' and the EZA OpenSSL support will simplify the use of the EZA interface with any TCP/IP stack and allow to transparently use OpenSSL with EZA SSL-applications

- **VTAPE enhancements:**
  - Clients can use SSL/TLS connections for remote VTAPEs (virtual tapes) to protect sensitive data during network transfer

z/VSE 6.2: Security Enhancements …

- **Basic Security Manager (BSM)**
  - Repositories for online and batch security (VSE / BSM control file, DTSECTAB)
  - Batch resources protected via DTSECTAB phase
  - z/VSE 6.2 provides a common interface for online and batch resources via Interactive Interface dialogs
    - New dialogs generate the DTSECTAB

- **LDAP sign-on enhancements provide**
  - RESET option for LDAP user mapping tool to clear cached user password hash
    - Forces full LDAP sign-on at next user sign-on
  - Wildcard support for CHANGE and DELETE commands of user mapping tool

z/VSE 6.2: EZA API Enhancements

- **EZA Multiplexer**
  - With the EZASOKET and EZASMI interfaces you can specify which socket interface module to the TCP/IP partition is to be used
    - Default: EZASOH99 (for TCP/IP for z/VSE)
  - Select the EZA socket interface routine:
    - Via JCL statement: // SETPARM [SYSTEM,]EZA$PHA='phasename'
    - Via parameter ADSNAME on the EZAAPI/EZASOKET INITAPI call
  - It must be ensured that the correct socket interface modules are used with the configured Stack ID
    - If you for example try to use the IPv6/VSE socket interface module with the TCP/IP for z/VSE Stack, then this will fail
  - The EZA Multiplexer can be used to **ease the correct setup** of socket interface modules for the corresponding stack IDs.
    - The multiplexer allows you to perform a **one time setup** and to assign the corresponding socket interface modules to the stack IDs
    - The use of the multiplexer is transparent for your application

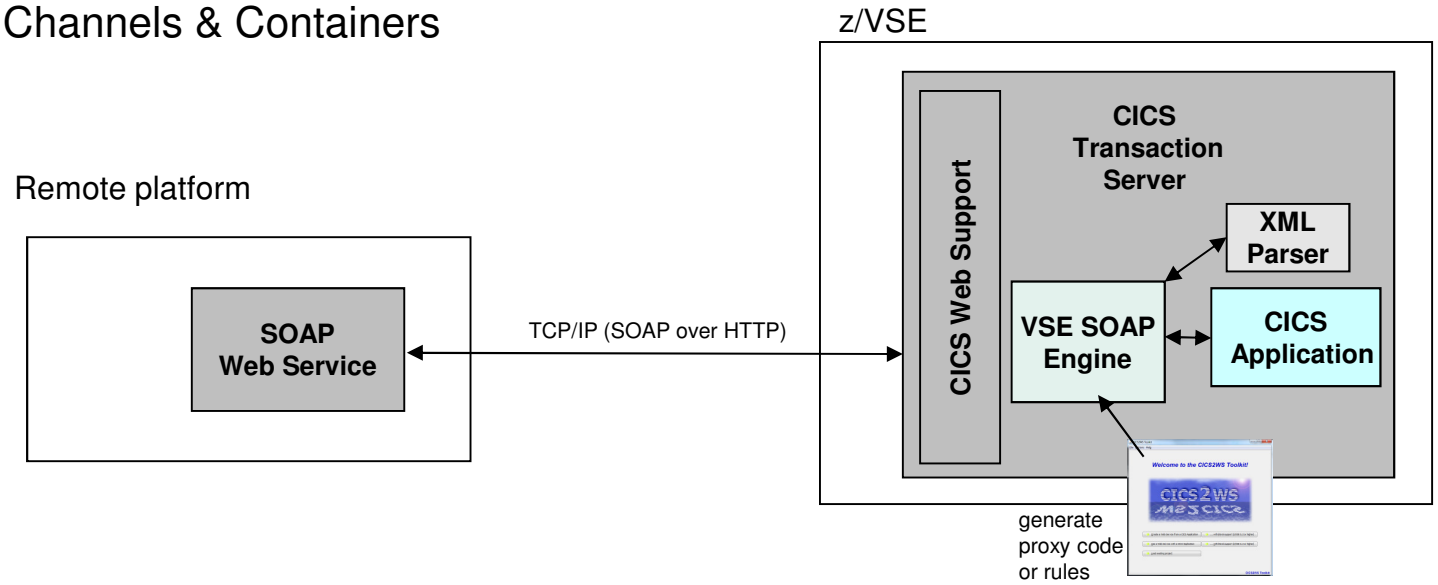
- **EZA OpenSSL Support**
  - Besides the EZA socket interface routine, the EZA Multiplexer also allows you to specify an alternative **EZA SSL interface** routine
    - Default: The same as the EZA socket interface routine
  - The new EZA SSL interface routine **IJBEZAOS** provides an interface to **z/VSE's OpenSSL implementation**
  - The use of an alternative EZA SSL interface routine is transparent for your application
    - OpenSSL uses different key and certificate formats (e.g .PEM instead of .PRVK, .ROOT, .CERT)

→ This makes z/VSE's OpenSSL support available for non-LE/C applications (i.e. COBOL, PL/1, HLASM)

z/VSE 6.2: Connector Enhancements

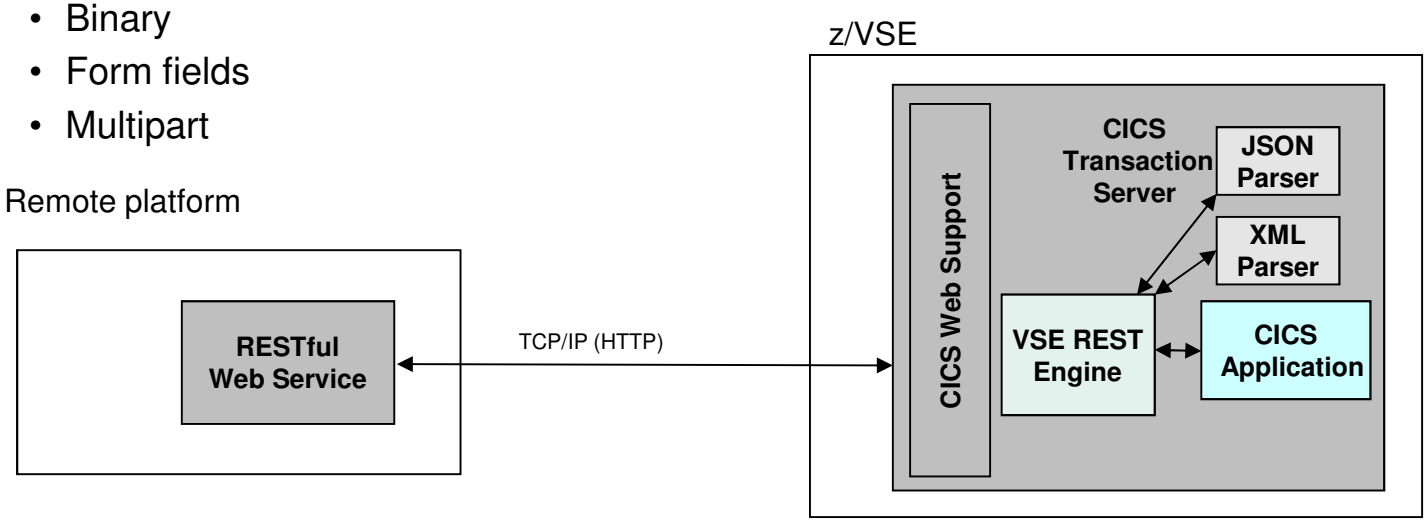
- **Web Service-enable z/VSE CICS applications**
  - Provide existing CICS applications as Web Service to the outside world
    - z/VSE as the SOAP server
  - Use/call external Web Services from within z/VSE CICS applications
    - z/VSE as the SOAP client
  - CICS2WS Tool is used to generate proxy code or mapping rules

- **New with z/VSE 6.2:** NEW!
  - z/VSE SOAP Engine now supports Channels & Containers



z/VSE 6.2: RESTful Web Services support

- **Use REST (Representational State Transfer) with CICS applications**
  - Provide existing CICS applications as RESTful Web Service to the outside world
    - z/VSE as the REST server
  - Use/call external RESTful Web Services from within z/VSE CICS applications
    - z/VSE as the REST client
  - Payload can be:
    - JSON (JavaScript Object Notation)
    - XML
    - Plain text
    - Binary
    - Form fields
    - Multipart



What is REST (Representational State Transfer)?

- Representational State Transfer (REST) is a **software architecture style consisting of guidelines and best practices** for creating web services
  - REST has gained widespread acceptance across the web as a **simpler alternative to SOAP** and WSDL-based web services

- RESTful systems typically communicate over the Hypertext Transfer Protocol (**HTTP**) with the same HTTP verbs (GET, POST, PUT, DELETE, and so on) used by web browsers
- The payload (message) transported by RESTful web services can be of various types (content types)
  - Commonly used is **JSON** as well as **XML**, but it can also be plain text, or even binary data

- A RESTful web service typically operates on a certain **'object'** on a server
  - The object is typically addressed through the URI (part of the URL), for example **http://example.com/resource**
- Actions on such resources are typically denoted by the HTTP request types:
  - **GET** would typically **read** the resource
  - **PUT** would typically **update/replace** the resource
  - **POST** would typically **create** the resource
  - **DELETE** would typically **delete** the resource

- RESTful web services are typically **stateless**
  - Each request from any client contains all the information necessary to service the request
  - The session state is therefore held in the client

→ As denoted by the term 'typically' in above descriptions, there is no hard requirement for any of the described properties

z/VSE 6.2: z/VSE Database Call Level Interface enhancements

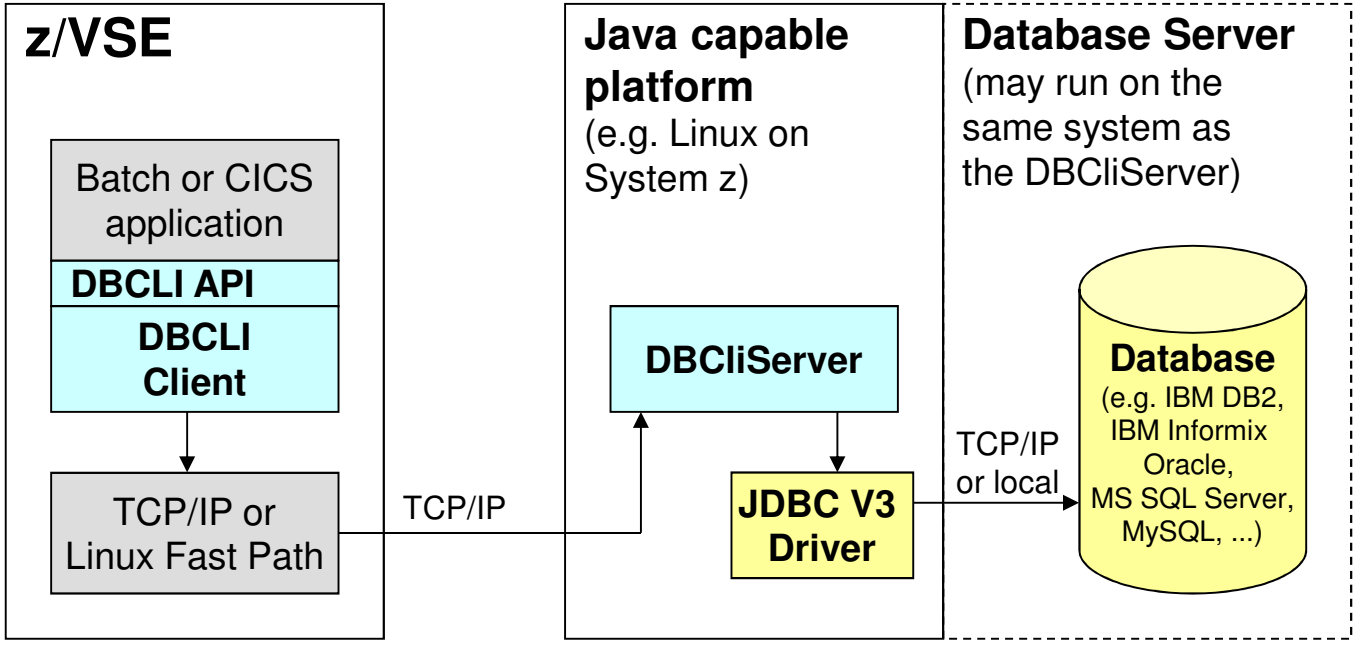
- **Allows z/VSE applications to access a relational database on any suitable database server**
  - IBM DB2, IBM Informix, Oracle, MS SQL Server, MySQL, etc.
    →The database product must provide a JDBC driver that supports JDBC V3.0 or later

→**Utilize advanced database functions and use SQL statements provided by modern database products**

  - Available since z/VSE 5.2

z/VSE 6.2:

- **Interactive Query Tool**
- **Batch Query Tool**
- **CICS REXX Support**



z/VSE 6.2: Networking Enhancements

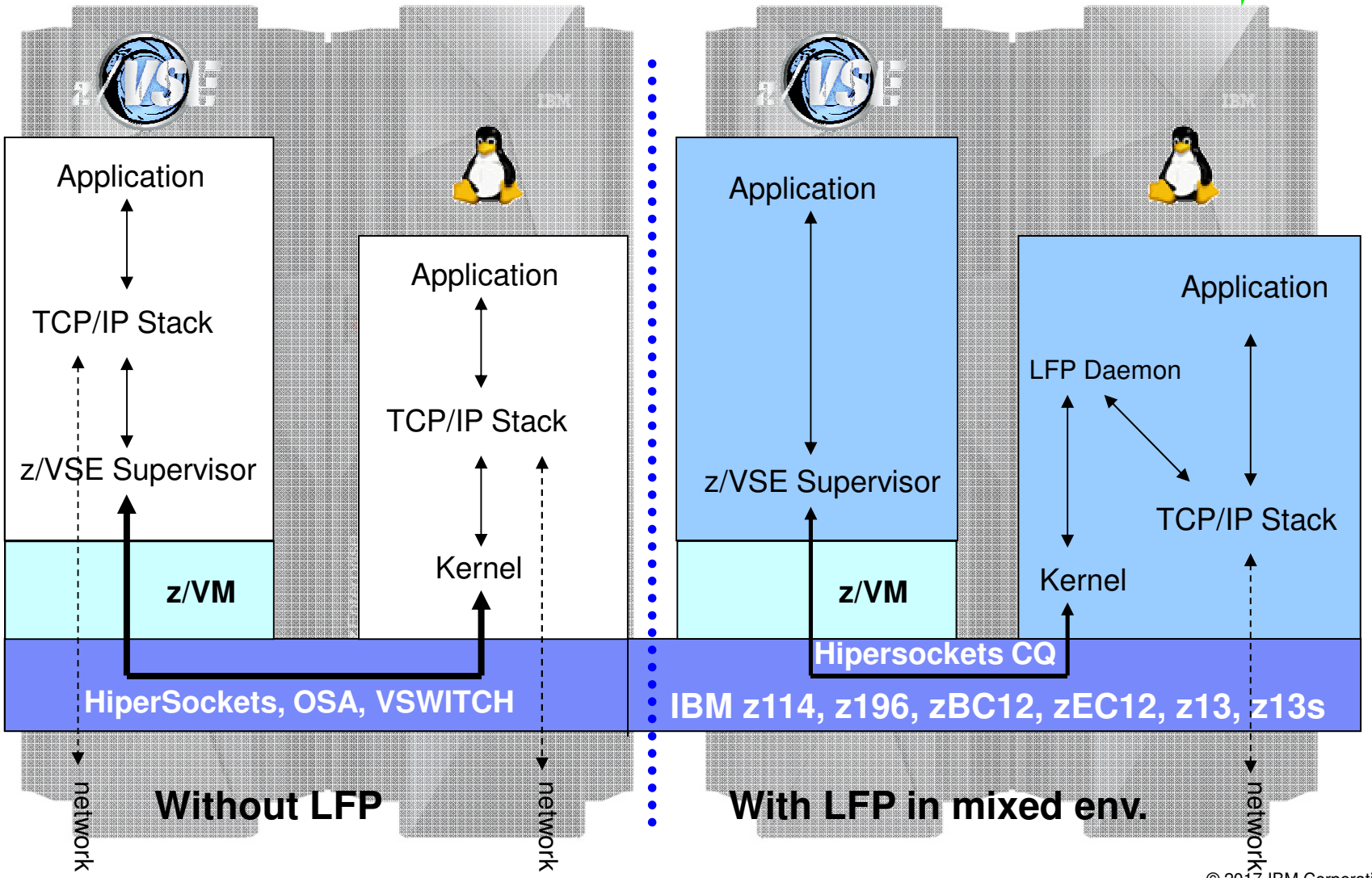
→ New TCP/IP releases

- **IBM IPv6/VSE 1.3**
  - New FTP server security interface
    - FTP access to z/VSE file system may be protected by Basic Security Mager (BSM) or External Security Manger (ESM) using the resource class FACILITY

  - SSH copy facility
    - Uses a Linux pass-through image for a SSL connection to a remote host
    - Secure file transfer via SSH to and from z/VSE
    - Compatible with IBM TCP/IP for z/VSE, LFP, z/VM IP Assist (VIA) and VNA
  - TXT2PDF generation facility
    - Based on open source txt2pdf
    - Converts a text file into a Portable Docment Format (PDF) file
- **IBM TCP/IP for z/VSE 2.2**
  - Provides TLS 1.2 support

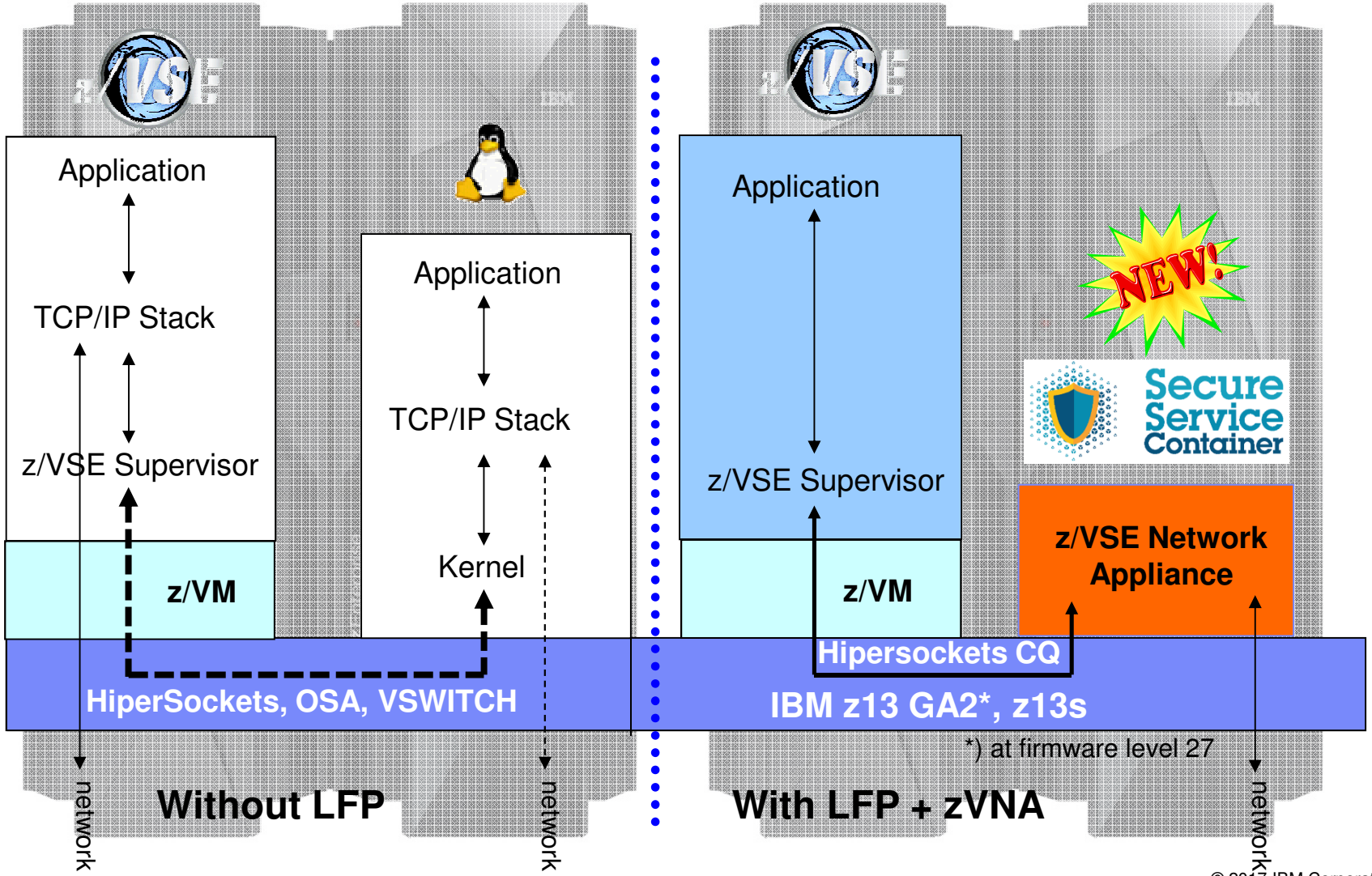
z/VSE 6.2: Linux Fast Path in an mixed environment

z/VSE running under z/VM can use LFP with a Linux running in LPAR mode



z/VSE 6.2: z/VSE Network Appliance (zVNA) with z/VSE under z/VM

Exploits the IBM Secure Service Container introduced on the z13 platform



z/VSE 6.2 Compatibility

- Architectural Level Set (ALS) to z114 / z196

- Tape delivery dropped with z/VSE 6.2
  - z/VSE will be delivered on DVD or electronically via Shopz
- Starting with z/VSE V6.1, z/VSE is shipped as English version only.

- z/VSE 6.2 can not be installed on 3380 disks (or 3390 in 3380 track compatibility mode)
  - 3380 disks still supported as data disks
- Upgrade to z/VSE 6.2 via Initial Installation or Fast Service Upgrade (FSU)
  - FSU from z/VSE 6.1 to z/VSE 6.2 only
  - FSU not supported from z/VSE V5 or if system disks are on 3380
  - z/VSE 6.2 upgrade will fail, if z/VSE not on z114 / z196 or higher

- CICS TS for z/VSE 2.2
  - Replaces CICS TS for z/VSE 2.1 (not supported on z/VSE 6.2)
  - All CICS tables from earlier releases need to be recompiled / relinked
  - TCPIPSERVICE need to be redefined
- CICS transactions no longer protected via DTSECTXN table
  - DTSECTXN table entries to be migrated to Basic Security Manager (BSM) control file

- IBM IPv6/VSE 1.3 replaces IBM IPv6/VSE 1.2 (not supported on z/VSE 6.2)
- IBM TCP/IP for z/VSE 2.2 replaces IBM TCP for z/VSE 2.1 (not supported on z/VSE 6.2)

Summary

- **z/VSE 6.2**
  - GA planned for 4Q 2017
  - Exploits innovative IBM z Systems and IBM System Storage technology
  - Runs on z196 / z144 or newer
  - Provides lots of new features and functions
  - Provides CICS TS for z/VSE 2.2
  - Provides new releases of IBM IPv6/VSE and TCP/IP for z/VSE

Questions ?