



Aktuelles zu

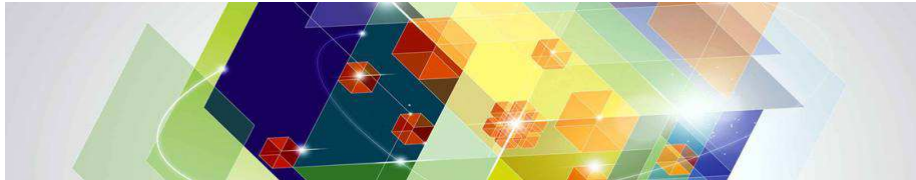
IBM zEnterprise System



und rund um



42. Course 2012 in Limburg an der Lahn



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Aktuelles zu

- IBM zEnterprise System



- z/VM



- z/VSE

- Entwicklung
- z/VSE V4.3
- z/VSE V5.1



IBM zEnterprise System

zEnterprise 196 (z196)



Angek.: Juli 2011
GA: Sept. 2011



IBM zEnterprise 114 (z114)

*zEnterprise 114 für mittelständische Geschäftsanforderungen
Neues I/O Subsystem – verbesserte Verbindungen, Sicherheitserweiterungen*

zEnterprise Unified Resource Manager

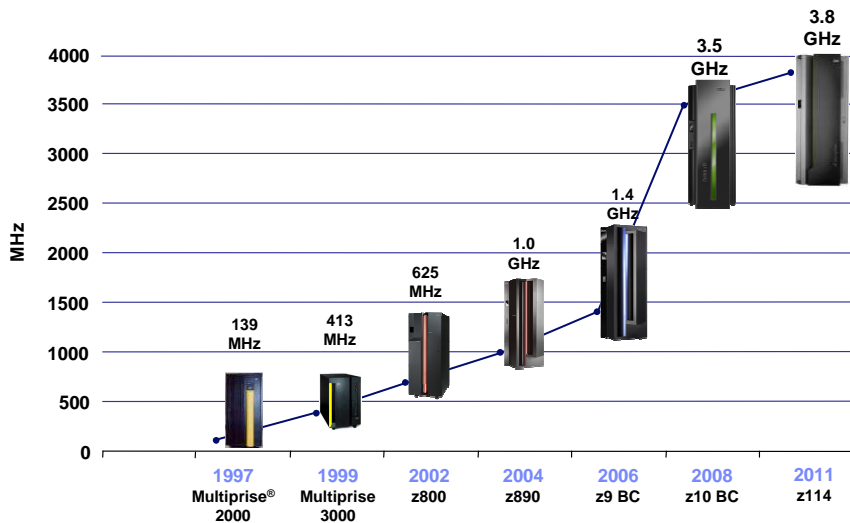
Neue APIs für den Unified Resource Manager um Daten aus externen Tools zu verarbeiten¹

zEnterprise BladeCenter Extension (zBX)

- *Ankündigung ausgewählter System x Blades für zBX*
- *Linux & Windows¹ Unterstützung für Anwendungen und Integration .*

¹ All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

z114 setzt die CMOS Mainframe-Generation fort



- Multiprise 2000 – 1st full-custom Mid-range CMOS S/390
- Multiprise 3000 – Internal disk, IFL introduced on midrange
- z800 - Full 64-bit z/Architecture®
- z890 - Superscalar CISC pipeline
- z9 BC - System level scaling
- z10 BC - Architectural extensions
- Higher frequency CPU
- z114 – Additional Architectural extensions and new cache structure

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z114: Flexibilität mit Wachstumsoption



	CP	IFL	zIIP	zAAP	ICF	Add'l SAP	Std SAP	Spare
M05	0-5	0-5	0-2	0-2	0-5	0-2	2	0
M10	0-5	0-10	0-5	0-5	0-10	0-2	2	2

Größer ↑ ↓ Kleiner	Z01	Z02	Z03	Z04	Z05
	Y01	Y02	Y03	Y04	Y05
	X01	X02	X03	X04	X05
	W01	W02	W03	W04	W05
	V01	V02	V03	V04	V05
	U01	U02	U03	U04	U05
	T01	T02	T03	T04	T05
	S01	S02	S03	S04	S05
	R01	R02	R03	R04	R05
	Q01	Q02	Q03	Q04	Q05
	P01	P02	P03	P04	P05
	O01	O02	O03	O04	O05
	N01	N02	N03	N04	N05
	M01	M02	M03	M04	M05
	L01	L02	L03	L04	L05
	K01	K02	K03	K04	K05
	J01	J02	J03	J04	J05
	I01	I02	I03	I04	I05
	H01	H02	H03	H04	H05
	G01	G02	G03	G04	G05
F01	F02	F03	F04	F05	
E01	E02	E03	E04	E05	
D01	D02	D03	D04	D05	
C01	C02	C03	C04	C05	
B01	B02	B03	B04	B05	
A01	A02	A03	A04	A05	
	1-way	2-way	3-way	4-way	5-way

- **Komplette Kapazitätsmatrix** (gleich für beide Modelle).
- **Granularitätslevel** an die z10 BC angelehnt um Aufrüstungen und schrittweises Wachstum zu ermöglichen
- **Höhere Verfügbarkeit** durch echte Spare-Prozessoren und 2-Einschub Technologie
- **Um- und Aufrüstungen**, CBU und On/Off CoD unterbrechungsfrei innerhalb der Modellgrenzen
- **Linux only** und ICF only Server möglich.

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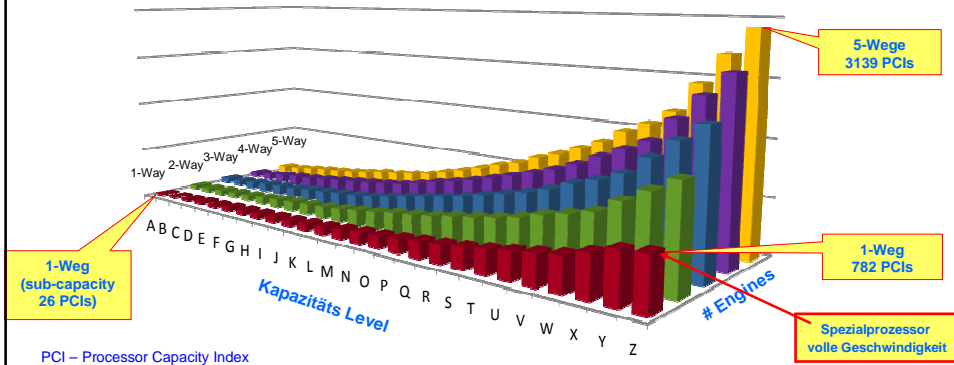
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z114 SubCapacity Prozessor Granularität



- Die z114 hat 26 CP-Kapazitätslevel ($26 \times 5 = 130$)
 - Bis zu 5 CPs
- 1:1 Regel für Spezialprozessoren zAAP und/oder zIIP pro CPs jedweder Geschwindigkeit.
 - Alle Spezialprozessoren laufen mit voller Geschwindigkeit (3.8 Ghz)
 - Software: Processor Unit Value für IFL = 100

Anzahl der z114 CPs	Base Ratio	Ratio z10 BC zu z114
1 CP	z10 BC Z01	1.18
2 CPs	z10 BC Z02	1.16
3 CPs	z10 BC Z03	1.14
4 CPs	z10 BC Z04	1.13
5 CPs	z10 BC Z05	1.12



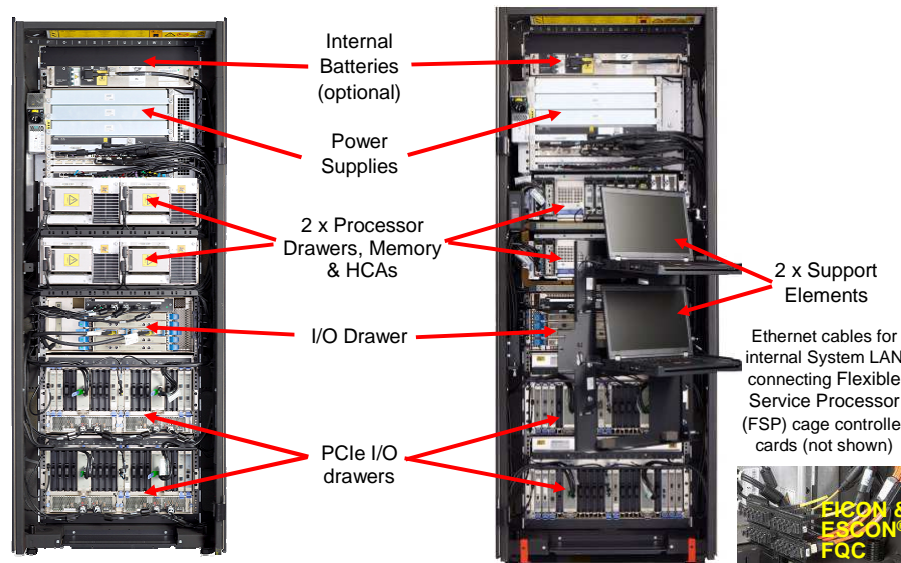
PCI – Processor Capacity Index

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z114 – Einsichten



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Vorderseite

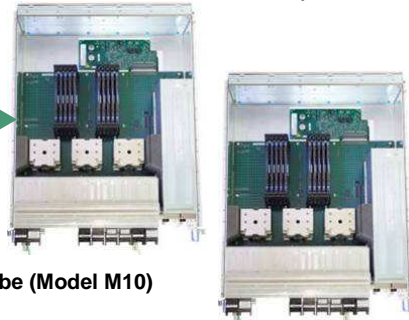
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Processor / Memory Subsystem Drawers (Modell M05 und M10)

Ein z10 BC Einschub



Zwei z114 Einschübe (Modell M10)



- Systemressourcen gesplittet auf 2 Einschübe (Model M10)
- Zweiter CEC Einschub (Model 10) für:
 - Mehr Spezialprozessoren
 - Mehr Memory
 - Mehr I/O Verbindungen
 - Mehr Coupling-Links als bei z10 BC
 - Mehr I/O Möglichkeiten als bei z10 BC
- **Achtung: add/remove/repair eines CEC Einschubs erfordert eine Serviceunterbrechung**

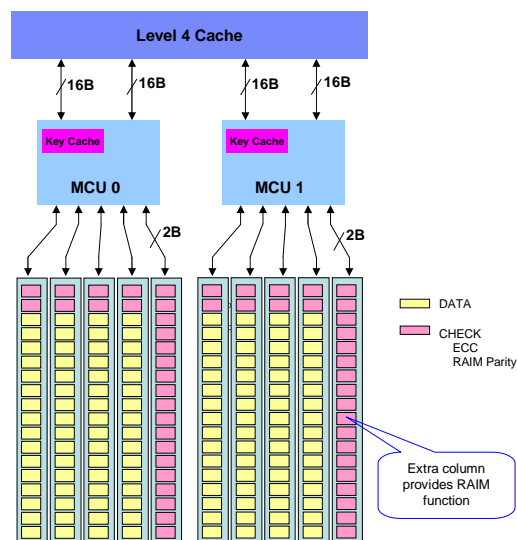
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z114 RAIM Memory

- Memory technology introduced on the z196 is used on the z114
 - Redundant Array of Memory (RAIM) which in the Disk industry is known as RAID
 - Protection from Unscheduled Incident Repair Actions (UIRAs) caused by a DIMM failure
 - DIMM failures include all components on the DIMM
 - Portions of the memory controller or card failure isolated to one memory channel
- Flexible memory option not available on z114
 - Used for Enhanced Book Availability on z196

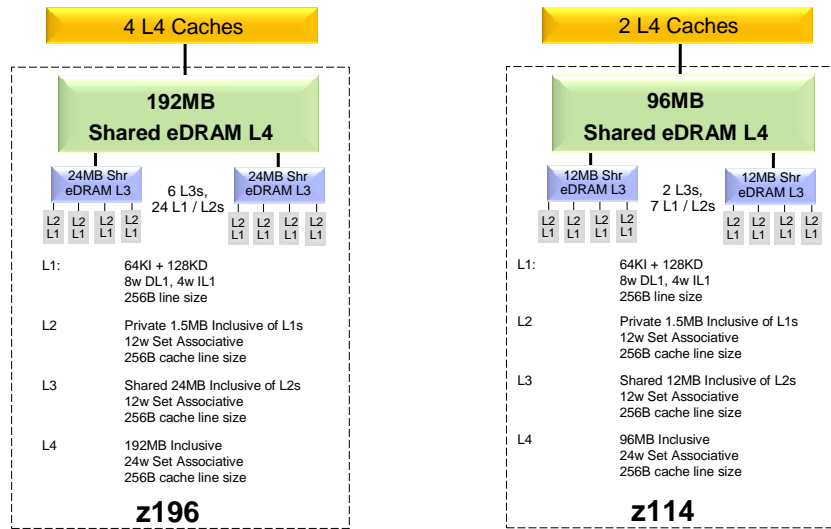


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Cache Hierarchy – z196 (4 books) vs. z114 (2 processor drawers) Comparison




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zEnterprise 114 (z114) – Übersicht der Funktionen



Zwei Hardware Modelle: M05, M10	Machine Type: 2818	Verdoppelte HiperSockets™ auf 32
Bis zu 10 Prozessoren konfigurierbar als CPs, zAAPs, zIIPs, IFLs, ICFs, oder optionale SAPs		Verdoppelte Coupling CHPIDs auf 128
Bis zu 26 Subcapacity Settings über die maximal 5 CPs		Neue 32 slot PCIe Based I/O Drawer
Bis zu 256 GB Redundant Array of Independent Memory (RAIM)		Erweiterte Granularität der I/O Adapter
Echte Ersatzprozessoren im Modell M10		Neuer Formfaktor der I/O Adapter - FICON® Express8S and OSA-Express4S
Stärkere Prozessorkapazität		Verbesserte PSIFB Coupling Link
Out of order instruction execution		Physical Coupling Links erhöht auf 72
Verbesserter Prozessor Cache Design		Optionale Hochvolt-Gleichstromanschlüsse
Neue und zusätzliche Instruktionen		Optionale Überkopf-I/O-Verkabelung
On Demand Verbesserungen		Energiezuführung optional von oben oder unten
CFCC Level 17 Erweiterungen		zBX Model 002 mit ISAOPT, POWER7, DataPower und IBM System x Blades
6 und 8 GBps Verbindungen		Platform Management von der HMC
STP Erweiterungen		

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IBM System z Business Class Comparison (1 von 2)



	z9 BC R07	z9 BC S07	z10 BC E10	z114 M05	z114 M10
Uniprocessor Performance	470 MIPS		673 MIPS	782 MIPS	
z/OS Capacity	26-172 MIPS	193-1748 MIPS	26-2760 MIPS	26 - 3139 MIPS	
Total System Memory	64 GB		256 GB	128 GB	256 GB
Configurable Engines	7	7	10	5	10
Dedicated Spares	0	0	0	0	2
Configurable CPs	1-3	0-4	0-5	0-5	
LPARS/LCSS	15/1	30/2	30/2	30/2	
HiperSockets	16		16	32	
I/O Cages/Drawers	1	1	Up to 4	Up to 3 ⁽¹⁾	Up to 3 ⁽¹⁾
I/O slots per Cage/Drawers	16	28	8	8/32 ⁽²⁾	
FICON® Channels	64	112	128	128 ⁽³⁾	
OSA Ports (10GbE/1GbE)	16/32	24/48	48/96	48/96	
ESCON® Channels	240	420	480	240 ⁽⁴⁾	
STI (z9), IFB (z10) Bandwidth	2.7 GB/sec		6.0 GB/sec	6.0 GB/sec 8.0 GB/sec	
PCIe (z114 BC) Bandwidth					
ICB-4/ISC-3/PSIFB	16/48/0		12/48/12	0 ⁽⁵⁾ /48/8 -16 ⁽⁶⁾	0 ⁽⁵⁾ /48/16 -32 ⁽⁷⁾
zIIP/zAAP Maximum Qty	3	3	5	2	5
IFL Maximum Qty	6	7	10	5	10
Capacity Settings	20	53	130	130	130
Upgradeable	Upgrade to z10 and z114		Upgrade to z114	Upgrade From M10 to z196 (M15, Air cooled only)	

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See next chart for foot notes

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Foot notes (2 of 2)



- (1) Up to 3 channel drawers standard, a combination of I/O drawers and PCIe I/O drawers as defined. Up to 4 I/O drawers via RPQ

M05		M10	
I/O Drawer	PCIe I/O Drawer	I/O Drawer	PCIe I/O Drawer
0	0	0	0
0	1	0	1
0	2	0	2
1	0	1	0
1	1	1	1
		1	2
2	0	2	0
2	1	2	1
3	0	3	0
4	0		

3rd and 4th I/O drawers are offered through via an RPQ

- (2) 8 card slots per I/O drawer, 32 per PCIe I/O drawer
 (3) FICON count is based on 2 PCIe I/O drawers or 4 I/O drawers
 (4) Limit of 240 ESCON channels is consistent with Statement of Direction
 (5) Limit of 0 ICB-4 links is consistent with Statements of Direction
 (6) 8 ports of 12x, 16 ports of 1x PSIFB links available on model M05 based on 4 HCA capabilities
 (7) 16 ports of 12x, 32 ports 1x PSIFB links available on model M10 based on 8 HCA capabilities

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z114 Funktionsvergleich mit z10 BC



Processor / Memory	<ul style="list-style-type: none"> Uniprocessor Perf. System Capacity Processor Design Models Processing Units (PUs) Granular Capacity Memory Fixed HSA 	<ul style="list-style-type: none"> Up to 1.18 performance improvement over z10 BC uniprocessor* Up to 1.12 times system capacity performance improvement over z10 BC 3.8 GHz processor chip for z114 vs. 3.5 GHz for z10 BC z114 has 2 and z10 BC has 1 model z114 has the same number of PUs as z10 BC i.e. 10. M10 has 2 dedicated spares z114 has the same number of capacity settings as z10 BC i.e. 130 z114 has the same number of System memory as z10 BC i.e. 256 GB z114 has the same fixed 8 GB HSA as the z10 BC
Virtualization and Alternative Processors	<ul style="list-style-type: none"> Virtualization zEnterprise BladeCenter Extension (zBX) 	<ul style="list-style-type: none"> zEnterprise Unified Resource Manager has "workload awareness" where workloads consist of virtual images across the hybrid. This awareness allows Unified Resource Manager to optimize resources according to business policies established for a workload. zEnterprise System is a truly integrated hardware platform that is able to span and intelligently manage workloads across mainframe and distributed technologies – including POWER7 and IBM System x Blades[®] Optimizers that are supported are IBM Smart Analytics Optimizer and IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise
Connectivity	<ul style="list-style-type: none"> HiperSockets FICON for SANs Total channels Internal I/O Bandwidth Enhanced I/O structure Coupling Cryptography LAN Connectivity 	<ul style="list-style-type: none"> Doubled the number of Hipersockets to 32 High Performance FICON for z (zHPF) enhancements New and improved family of FICON Express8S features for z114 – Up to 160 channels z114 can support up to 368 channels (2 x I/O Drawers and 2 x PCIe Drawer) z114 has industry standard 8 GBps PCIe interconnect Vs. z10 BC using 6 GBps InfiniBand interconnects PCIe I/O Drawer Improved coupling with host channel adapters using the 8 GBps interconnects Improved AES 192 and 256 and stronger hash algorithm with Secure Hash Algorithm (SHA-512) New family of OSA-Express4S features for z114
On Demand / RAS	<ul style="list-style-type: none"> Capacity Provisioning Mgr RAS Focus Just in Time deployment of Capacity Enhanced I/O structure 	<ul style="list-style-type: none"> z114 & z/OS (1.9) for policy based advice and automation z114 can help eliminate preplanning required to avoid scheduled outages Capacity on Demand offerings CBU and On/Off CoD plus new Capacity for Planned Events are resident on z114 z114 has 'hot-pluggable' I/O drawers
Environmentals	<ul style="list-style-type: none"> Monitoring 	<ul style="list-style-type: none"> z114 displays energy efficiency on SAD screens Utilizes IBM Systems Director Active Energy Manager for Linux on System z for trend calculations and management of other servers that participate

LSPR mixed workload average running z/OS 1.9 - z10 BC Z01 versus z9 BC Z01
 ** This is a comparison of the z10 EC 10-way and the z9 BC 7-way and is based on LSPR mixed workload average running z/OS 1.9

Summary: OSA-Express CHPID types to control operation



CHPID type	Purpose / Traffic	Operating Systems
OSD All OSA features z196, z114, z10, z9, zSeries	Supports Queue Direct Input/Output (QDIO) architecture TCP/IP traffic when Layer 3 (uses IP address) Protocol-independent when Layer 2 (uses MAC address)	z/OS, z/VM z/VE, z/TPF Linux on System z
OSE 1000BASE-T z196, z114, z10, z9, zSeries	Non-QDIO; for SNA/APPN/HPR traffic and TCP/IP "passthru" traffic	z/OS, z/VM z/VE
OSC 1000BASE-T z196, z114, z10, z9, z990, z890	OSA-Integrated Console Controller (OSA-ICC) Supports TN3270E, non-SNA DFT to IPL CPCs & LPs	z/OS, z/VM z/VE
OSM 1000BASE-T z196 and z114	OSA-Express for Unified Resource Manager Connectivity to intranode management network (INMN) from z196 or z114 to Unified Resource Manager functions	z/OS, z/VM Linux on System z
OSN GbE, 1000BASE-T z196, z114, z10, z9 No OSN support for OSA-Express4S GbE	OSA-Express for NCP Appears to OS as a device supporting CDLC protocol Enables Network Control Program (NCP) channel-related functions Provides LP-to-LP connectivity OS to IBM Communication Controller for Linux (CCL)	z/OS, z/VM z/VE, z/TPF Linux on System z
OSX 10 GbE z196 and z114	OSA-Express for zBX Connectivity and access control to intraensemble data network (IEDN) from z196 or z114 to zBX	z/OS, z/VM z/VE5.1 Linux on System z

Features	Offered As	Maximum # of features	Maximum channels	Increments per feature	Purchase increments
ESCON	NB	16	240 channels	1 - 15 active	4 channels
FICON					
FICON Express8S	NB	64	128 channels	2 channels	2 channels
FICON Express8	CF*	16	64 channels	4 channels	4 channels
FICON Express4	CF	16	64 channels	4 channels	4 channels
FICON Express4-2C	CF*	16	32 channels	2 channels	2 channels
ISC-3	NB	12	48 links	4 links	1 link
OSA-Express					
OSA-Express4S	NB	48	96 ports	1 (10 GbE) / 2 ports	1 feature
OSA-Express3 1000BASE-T	NB	16	64 ports	4 ports	1 feature
OSA-Express3 10 GbE, GbE	CF*	16	64 ports	2 (10 GbE) / 4 ports	1 feature
OSA-Express3-2P	CF	16	32 ports	2 ports	1 feature
OSA-Express2**	CF	16	32 ports	2 ports	1 feature
Crypto					
Crypto Express3	NB	8	16 PCIe adapters	2 PCIe adapters	2 features**
Crypto Express3-1P	NB	8	8 PCIe adapters	1 PCIe adapter	2 features**

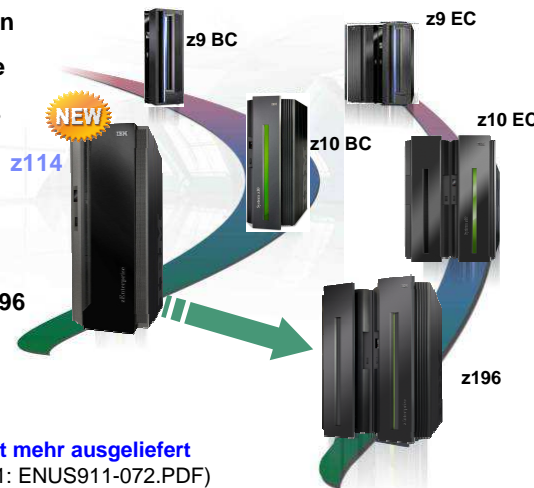
* Can be carried forward or ordered on MES using RPQ 8P2534
 ** OSA-Express2 10 GbE LR is not supported as a carry forward
 *** Two features initially, one thereafter

NB = New Build
 CF = Carry Forward

- **Bessere Performance und mehr Kapazität als eine z10 BC bei gleicher Energieaufnahme**
- **Raised floor und non-raised floor Konfigurationen**
- **Höhere Flexibilität durch Überkopf-Verkabelungsoption**
- **Reduzierte Bautiefe (ca. 23 cm) zur z10 BC**
- **Optionaler Hochvolt-Gleichstromanschluß**



- Aufrüstbar über 2 Generationen
- Erweiterbar in jeder Serverlinie
- Temporäres oder nachhaltiges Wachstum – je nach Bedarf
- **z114 bietet 2 Modelle:**
 - M05 und M10.
 - M05 ist aufrüstbar auf M10
- **z114 M10 ist aufrüstbar auf z196 M15** (nur luftgekühltes Modell)



IBM z10 BC / EC : ab 30.06.2012 nicht mehr ausgeliefert

(Ankündigung vom 12.07.2011: ENUS911-072.PDF)

- Physische HW-Erweiterungen sind nur noch bis zum **30.06.2012** bestellbar!
- µCode-Änderungen sind noch bis zum **30.06.2013 (1 Jahr länger)** bestellbar!

Temporäre CPU-Erweiterung möglich bis max. 100% der gekauften CPU-Leistung

▪ On/Off CoD - **klassisch / postpaid:**

- Man bestellt Records für gewisse CPU-Leistungen z.B. für 90 Tage, lädt diese auf das System und nutzt sie je nach Bedarf an einzelnen Tage.
 - nur die tatsächlich genutzten Tage müssen bezahlt werden
- Achtung bei SCRT-Messungen: SW-Preis erhöht sich für den Monat!
- Records sind 180 Tagen vom Zeitpunkt der Bestellung im Resource Link gültig.

▪ On/Off CoD - **prepaid:**

- Records werden sofort nach der Bestellung bezahlt und heruntergeladen.
- Keine Verfallsdauer -> gültig bis zur tatsächlichen Nutzung

On/OFF Capacity on Demand (On/Off CoD)



Voraussetzung:

- **Vertragsergänzung** müssen vereinbart werden
- **entsprechenden kostenlosen HW-Feature** müssen „enabled“ sein
 - **On/Off Capacity on Demand (CoD) authorization (Feature Code 9896)**
µ-Code, damit die HW bei Bedarf für “On/Off Capacity on Demand” vorbereitet ist
 - **On Line CoD Buying (Flag) (Feature Code 9900)**
Flag, damit über Recource Link die CoD-Records bestellt und heruntergeladen werden dürfen.
- Die Records müssen auf dem System für die tatsächliche Nutzung installiert sein

- IBM zEnterprise 196 /114 : On/Off CoD Tests sind möglich
- IBM System z10 BC/EC : nur noch bis 30.06.2013 möglich!
Alle Records, die zwar bis zum 30.6.2013 bestellt wurden, aber nicht bis spätestens dem 30.6.2013 geladen wurden, werden am 1.7.2013 gelöscht.

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Statements of Direction: ESCON Channels



▪ **ESCON channels - February 15, 2011:**

The IBM zEnterprise 196 (z196) will be the last high-end server to support ESCON channels: IBM plans not to offer ESCON channels as an orderable feature on high-end System z servers which follow the z196 (machine type 2817). In addition, ESCON channels **cannot be carried forward** on an upgrade to such a follow-on server.

Notes:

- This new Statement of Direction supersedes the previous ESCON SOD in Announcement letter 110-170 of July 22, 2010. It also confirms the SOD in Announcement letter 109-230 of April 28, 2009 that “ESCON Channels will be phased out.”
- **This SOD does NOT** say that the z10 BC will be the last midrange server to support ESCON channels or the last to offer ESCON channels as an orderable feature.

All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice. Any reliance on these statements of general direction is at the relying party's sole risk and will not create liability or obligation for IBM.

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Aktuelles zu

- IBM zEnterprise System



- z/VM



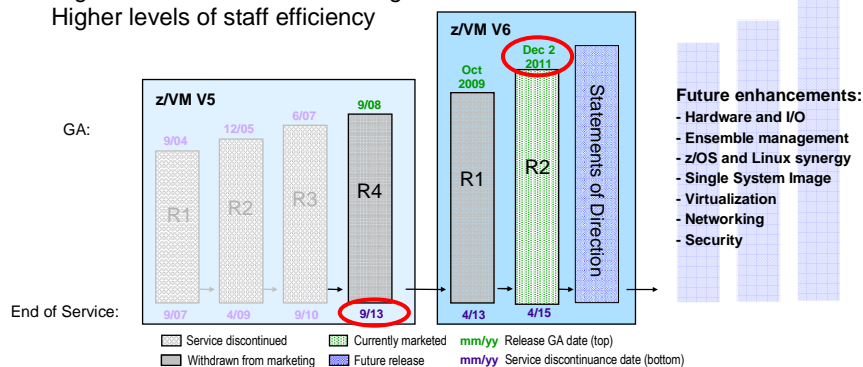
- z/VSE

- Entwicklung
- z/VSE V4.3
- z/VSE V5.1



z/VM: helping clients “do more with less”

- Higher core-to-core consolidation ratios
- Higher levels of resource sharing and utilization
- Higher levels of staff efficiency



IBM received EAL 4+ certification of z/VM V5.3 from the German Federal Office of Information Security (Bundesamt für Sicherheit in der Informationstechnik) for conformance to the Controlled Access and Labeled Security protection profiles (CAPP and LSPP) of the Common Criteria standard for IT security, ISO/IEC 15408.
z/VM V6.1 is currently undergoing evaluation against OSPP with the labeled security extension at EAL 4+.

IBM z/VM: Kurz notiert



z/VM V5.4

- Nicht mehr bestellbar seit 12.03.2012
- End of Service: 30.09.2013
- Unterstützt die IBM zEnterprise 114 mit entsprechendem Service Level und älter

z/VM V6.1

- Nicht mehr bestellbar seit GA von z/VM V6.2
- End of Service: 30.04.2013
- z/VM V6 erfordert mind IBM System z10 EC / BC und jünger
 - läuft mit Architectural Level Set (ASL) der IBM System z10



z/VM V6.2

- Verfügbar seit 02.12.2011 (Angekündigt am 12.10.2011)
- End of Service: 30.04.2015
- Single System Image
- Live Guest Relocation
 - Plattenlayout wurde erweitert!
- IBM Schulung: z/VM 6.2.0-Update Course – Course Code ZOVME2DE

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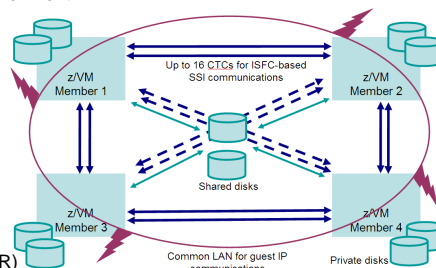
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z/VM V6.2



Single System Image, Clustered Hypervisor, Live Guest Relocation

- Provided as an **optional priced feature**
- Connect up to four z/VM systems as members of a **Single System Image (SSI)** cluster
- Provides a set of **shared resources** for member systems and their hosted virtual machines
 - Directory, minidisks, spool files, virtual switch MAC addresses
- Cluster members can be run on the same or different z10, z196, or z114 servers
- **Simplifies systems management** of a multi-z/VM environment
 - Single user directory
 - Cluster management from any member
 - Apply maintenance to all members in the cluster from one location
 - Issue commands from one member to operate on another
 - Built-in cross-member capabilities
 - Resource coordination and protection of network and disks
- Dynamically move Linux guests from one z/VM member to another with **Live Guest Relocation (LGR)**
 - Reduce planned outages; enhance workload management
 - Non-disruptively move work to available system resources **and** non-disruptively move system resources to work
 - When combined with Capacity Upgrade on Demand, Capacity Backup on Demand, and Dynamic Memory Upgrade, you will get the best of both worlds



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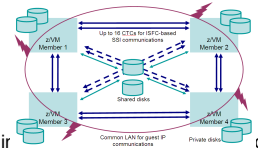
What is special about an SSI / LGR Cluster ?



- SSI provides for a set of **shared resources** that can be used by both CP and virtual machines, with full awareness of such sharing by CP
 - Directory, minidisks, spool files, virtual switches, dedicated devices
- User can **logon to any member** of the cluster
- Disconnected user can be **moved to any member** of the cluster while the user's virtual machine is running
- LGR is initiated by a **privileged command** in z/VM 6.2

Restrictions (examples):

- A guest is **not relocatable when ...**
 - It is anything other than Linux
 - It is using a resource that doesn't exist on the target system
 - It owns a resource that other users depend on and that would be irrelate
 - It is using a facility which is not relocatable (e.g., CFVM)
- **No long-distance** connections
- **3390** installation only
 - System state disk must be ECKD, post-installation use of SCSI is OK
- **IBM Director** does not support SSI and LGR
- zEnterprise **Unified Resource Manager** does not support SSI and LGR



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HiperSocket VSWITCH Integration with zEnterprise IEDN



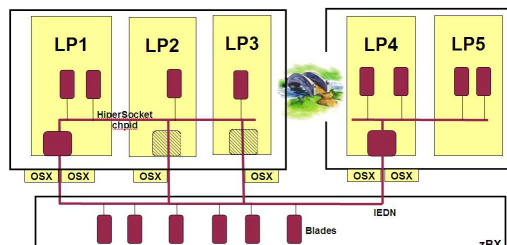
PM46988 – Available since April 13, 2012



- **Virtual Switch bridge between Ethernet LAN and HiperSockets**
 - zEnterprise IEDN (OSX) connections
 - Guests can use simulated OSA or dedicated HiperSockets
 - VLAN aware
 - One HiperSocket chpid only

- **Full redundancy**
 - Up to 5 bridges per CEC
 - One bridge per LPAR
 - Automatic takeover
 - Optionally designate one "primary"
 - Primary will perform "takeback" when it comes up
 - Each bridge can have more than one OSA uplink

Intra-CEC LPAR to LPAR communication



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Überblick



Aktuelles zu

- IBM zEnterprise System



- z/VM



- z/VSE

- Entwicklung
- z/VSE V4.3
- z/VSE V5.1



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z/VSE Entwicklung



PIE-Strategie:

Protect
Integrate
Extend

Quality

Connectivity

z/OS Affinity

Capacity

NEW! z/VSE 5.1.1 Q2/2012

CICS Explorer, LFP in LPAR,
Database connector

z/VSE V5.1 Nov. 25, 2011

- zEnterprise exploitation
- ALS to System z9 (and higher)
- 64-bit virtual addressing
- No CICS/VSE 2.3 Support

z/VSE V4.3 Nov. 26, 2010

- Virtual storage (24-bit) constraint relief
- 4-digit device addresses
- Security/crypto/networking enhancements

z/VSE V4.2 Oct. 17, 2008 (EoS: 10/2012)

- More tasks, PAV, LDAP Client,
- IPv6/VSE

z/VSE V4.1 March 16, 2007 (EoS: 04/2011)

- z/Architecture only, 64 bit real addressing,
- MWLC – full and sub-capacity pricing

z/VSE V3.1 March 4, 2005

- selected zSeries features, FCP/SCSI
- 31 bit mode only

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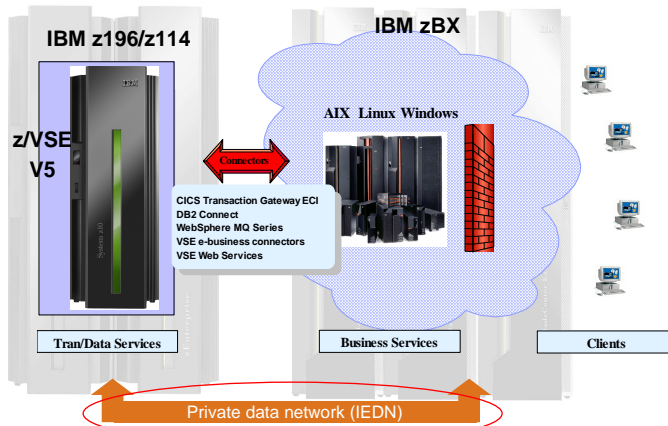
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z/VSE V5 - Strategie mit zEnterprise



IBM zEnterprise System

- alias**
- 3-tier Strategy
 - Hybrid Strategy**
 - Connector Strategy
 - Migration Strategy
 - Coexistence Strategy
 - Linux Surround Strategy
 - PIE Strategy**



- Protect** existing z/VSE investments
- Integrate** using middleware and z/VSE connectors
- Extend** with zBX or with Linux on z to access new applications & solutions

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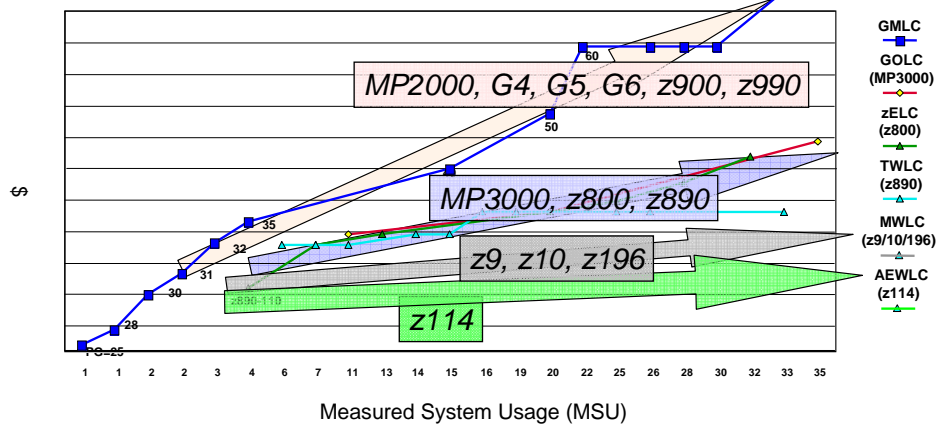
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AEWLC – Advanced Entry Workload License Charge on z114



Price for typical z/VSE stack



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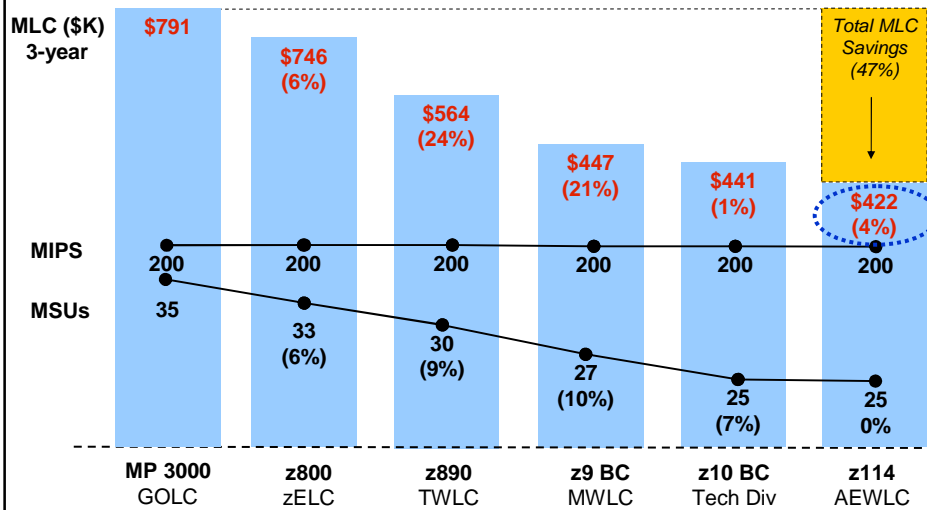
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MLC Price Performance across HW Generations for z/VSE



* 200 MIPS example for a typical z/VSE stack



* MLC savings will vary significantly by customer - actual customer configuration must be priced out to be accurate.
 * A typical z/VSE stack includes z/VSE CF, CICS TS, VTAM, TCP/IP, DB2, Ditto, Cobol, HLASM

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z/VSE Support for IBM Mainframe Servers



IBM Servers	z/VSE V5.1	z/VSE V4.3	z/VSE V4.2	z/VSE V4.1 (out of service)
IBM zEnterprise z196 & z114	✓	✓	✓	✓
IBM System z10 EC & z10 BC	✓	✓	✓	✓
IBM System z9 EC & z9 BC	✓	✓	✓	✓
IBM eServer zSeries 990 & 890	✗	✓	✓	✓
IBM eServer zSeries 900 & 800	✗	✓	✓	✓

On June 14, 2011, IBM announced withdrawal of service for Multiprise 3000 (7030-H30, -H50, -H70), to become effective December 31, 2012.

- Please note:**
- z/VM V6 requires System z10 technology (or higher)
 - SUSE SLES 11 requires System z9 technology (or higher)
 - Red Hat RHEL 6 requires System z9 technology (or higher)

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VSE Version and Release	Marketed	Supported	End of Support
z/VSE V5.1	✓	✓	tbd
z/VSE V4.3	06/25/2012	✓	tbd
z/VSE V4.2	✗	✓	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

On August 2, 2011, IBM announced withdrawal of service for CICS/VSE V2.3, DL/I DOS/VSE V1.10, and DL/I VSE V1.11, to become effective October 31, 2012.

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

CICS/VSE V2.3

CICS/VSE V2.3 und DL/I V1.10, DL/I V1.11, sowie **z/VSE V4.2**
sind ab **31.10.2012** nicht mehr im Service !

Bis dahin ist CICS/VSE V2.3 unter z/VSE V4.3 oder in älteren Releases noch im Service !

Besonderheiten im z/VSE V4.3:

- Es kann noch parallel zum CICS TS laufen, aber **nicht mehr im Coexistence-Environment**, sprich mit DL/I VSE:
Im z/VSE V4.3 läuft nur noch DL/I VSE 1.12:
DL/I VSE 1.10 (für CICS/VSE) und DL/I VSE 1.11 (für CICS TS) können nicht mehr gestartet werden
- Es wird nicht mehr mit ausgeliefert!
- **Es sollte u. a. wegen 31-Bit-Umstellungen besonders gut getestet werden – alte Vendorprodukte!**

Im **z/VSE V5.1** gibt es schon jetzt **keinen Service** mehr für CICS/VSE V2.3, **auch nicht bis zum 31.10.2012.**

→ **Daher sollten Sie bald Ihre Migration abschließen, am besten noch unter z/VSE V4.2!**

- Funktionsübersicht, siehe Course 2011
 - z/VSE V4.3 ist letztes Release auf IBM zSeries
 - Bietet
 - **weniger virtuelle Speicher-Beschränkungen**
Weitere System-Programme und –Puffer sind im 31-bit-Speicher,
z.B. in den Bereichen **VSE/VSAM, DL/I und z/VSE Supervisor**
 - **kein CICS Coexistence Environment** mehr
 - neues DL/I-Release V1.12
 - **Ausnutzen der IBM zEnterprise und z10 Technologie**
 - 1 MB-Page-Unterstützung für Data Spaces - transparent für Anwendungen
 - FICON Express8 und Crypto Express3 Support (ab z/VSE4.1)
 - LFP-Verbindung: „Fast Path“ von z/VSE zu Linux TCP/IP in einer z/VM-mode LPAR
- ... und vieles mehr → s. „z/VSE V4.3 Release Guide“

- Läuft mit VSE V4.3.1 + PTFs stabil
- **z/VSE V4.3.1 hat einen Service-Stand vom 20.06.2011**
- Testen Sie nur mit einem **möglichst aktuellen Service-Stand!**
 - **Jetzige Recommended Service Level (RSL) enthält alle PTFs bis zum 31.01.2012.**
 - **Tagesaktuelle HIPER-PTFs** z.B. per **PSP-Bucket** bestellbar
- Testen Sie Ihre Umgebung gründlich, besonders die Vendorprodukte

Sichern Sie sich z/VSE V4.3.1 bis zum **25.06.2012**



z/VSE V4.3 - 4Q2010

- > z196 toleration / exploitation
- > 4-digit device addresses
- > 24-bit virtual storage constraint relief
- > IPv6/VSE as optional product
- > Linux Fast Path (with z/VM)

+ SoD: 64-bit virtual support

z/VSE V5.1 - 4Q2011

- > 64-bit virtual memory objects
- > ALS to System z9 (and higher)
- > z196 / z114 exploitation
- > No CICS/VSE support

+ SoD: CICS Explorer & LFP in LPAR

z/VSE V5.1.1 - 2Q2012

- > 64-bit I/O for applications
- > CICS Explorer support
- > Linux Fast Path in LPAR
- > Database connector



Preview: 04/12/2011, Announcement: 10/12/2011, GA 11/25/2011

- 64-bit virtual addressing
- Introduces Architectural Level Set (ALS) that requires System z9 or later
- IBM zEnterprise 196 (z196) and IBM zEnterprise 114 (z114) exploitation
 - Support Static Power Save Mode for MWLC clients with subcapacity option (z196 only)
 - 4096-bit RSA keys with Crypto Express3 for enhanced security
 - Support of OSA-Express for zBX (CHPID OSX) to participate in an Intra Ensemble Data Network (IEDN) in z/VM guest or LPAR
- Exploitation of IBM System Storage options
 - Copy Export function of TS7700 Virtualization Engine for disaster recovery
 - Multi-Cluster Grid support of the TS7700 Virtualization Engine Series (TS7700)
 - IBM Storwize V7000 Midrange Disk System (z/VSE 4.2 and later)
 - IBM XIV (z/VSE 4.2 and later)
- Fast Service Upgrade (FSU) from z/VSE 4.2 and z/VSE 4.3
- Pricing
 - Midrange Workload License Charge (MWLC) pricing with sub-capacity option
 - z114: Advanced Entry Workload License Charge (AEWLC) pricing with sub-capacity option

z/VSE V5.1: Overview



- Networking enhancements
 - IPv6 support for Linux Fast Path
 - z/VSE z/VM IP Assist (VIA) exploitation
 - TCP/IP communication using Layer 2 (Data Link Layer)
 - Virtual Local Area Network (VLAN) support for OSA Express and Hipersockets
 - Global VLAN supported by TCP/IP for VSE/ESA and IPv6/VSE
 - General VLAN supported by IPv6/VSE
- IPv6/VSE
 - Large TCP window support, can increase throughput
 - 64 bit virtual exploitation, large TCP window storage allocated above the bar
 - Layer 2 support (OSA Express, IPv6 only)
 - VLAN support
- System management enhancements
 - SNMP Trap Client Extension monitoring – API
- High availability and disaster recovery enhancements
 - Copy Export function of TS7700 Virtualization Engine for disaster recovery
 - Multi-Cluster Grid support of the TS7700 Virtualization Engine Series (TS7700)
 - GDPS (Geographically Dispersed Parallel Sysplex) client (in a z/VM guest)
 - z/VSE supports heartbeat only
 - GDPS K-system can only monitor z/VSE
 - GDPS K-system can manage z/VM and therefore can manage z/VSE indirectly

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z/VSE V5.1 : Overview



- System enhancements
 - Language Environment enhancements
 - PL/I multitasking enhancements
 - C run-time socket API to include IPv6 related functions
 - Callable service sample for programs
 - Additions to system programmer C samples
 - Updated LE/C support for Librarian Members, and updates to the CEETRACE utility.
 - E-business connector enhancements
 - VSE Script Connector to support LIBR access
 - VSE/POWER
 - Token as new job attribute to address spooled output
 - VTAPE enhancements
 - VTAPE Auto Close at EOJ dependent on new SCOPE keyword
 - SCOPE= SYSTEM or JOB
 - TAPE UNLOAD at EOJ (TAPE UNL=EOJ)
- CICS - Statement of general direction (SOD):
 - IBM intends to provide CICS Explorer capabilities for CICS TS for VSE/ESA, to deliver additional value.

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

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z/VSE 5.1 Announcement (04/03/2012)



- IBM z/VSE V5.1 - Additional enhancements available
- Announcement content for
 - GA on June 15, 2012:
 - CICS Explorer for z/VSE
 - Linux Fast Path in LPAR
 - Linux Fast Path via z/VSE z/VM IP Assist (z/VSE VIA)
 - z/VSE database connector
 - VSE/POWER enhancement to ease job output handling
 - IBM System Storage Tape Controller 3592 Model C07
 - (new symbolic parameter IJBVMID containing the z/VM userid if running on z/VM)
 - Later PTFs (after June 15, 2012)
 - 64-bit input/output (I/O) processing for applications
 - IPv6/VSE V1.1 enhancements
 - Secure Sockets Layer (SSL) for secure data transmission
 - Layer 2 support for OSA Express devices for IPv4 links

z/VSE V5.1: 64 bit virtual addressing

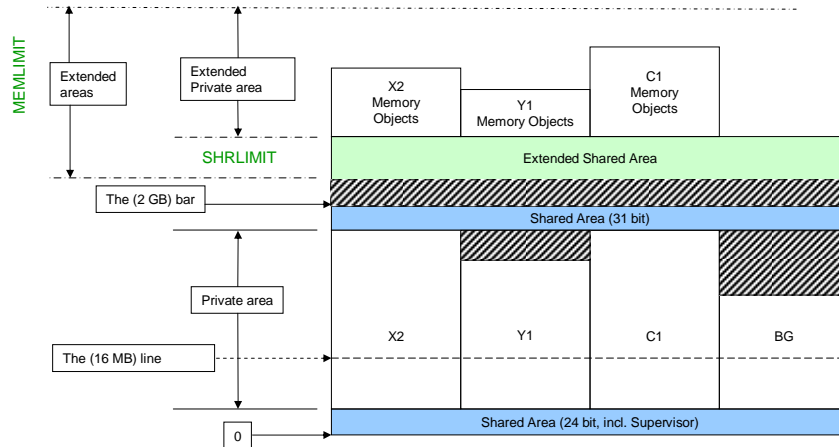


- Support 64 bit virtual addressing
- 64 bit area can be used for **data only**
 - No instruction execution above the bar
- **z/OS affinity:**
 - APIs (IARV64 services) - to manage memory objects – compatible with z/OS
 - Private memory objects for use in one address space
 - Shared memory objects to be shared among multiple address spaces
- Maximum VSIZE still limited to 90 GB
- Advantages:
 - Eases the access of large amounts of data
 - E.g. instead of using and managing 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

z/VSE V5.1: 64 bit virtual addressing



Address Space Layout



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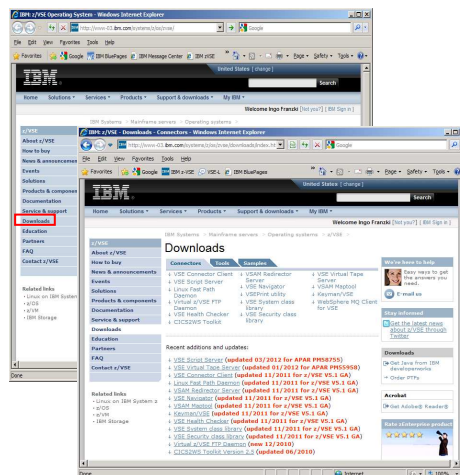
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z/VSE V5.1: z/VSE Tools - Overview



- IBM offers a huge set of tools available on the z/VSE Homepage <http://ibm.com/zvse/downloads>
- Most tools are 'as is', at no additional charge.
- Connector components (part of z/VSE and officially supported) are also available here



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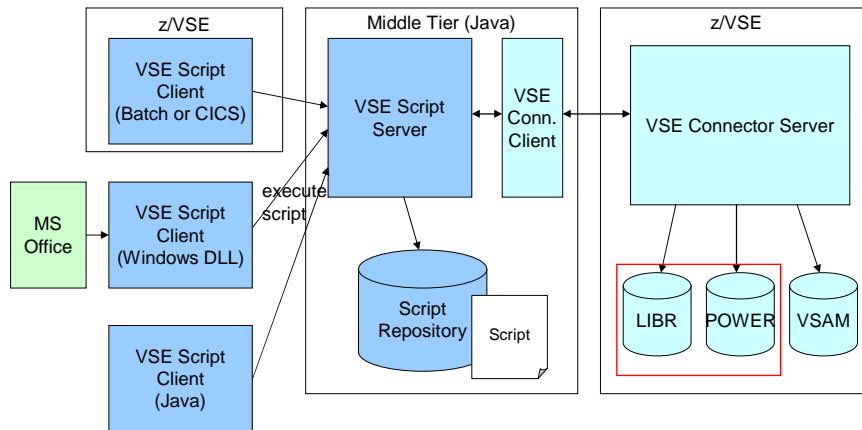
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z/VSE V5.1: VSE Script Connector



- Part of the z/VSE Connectors since z/VSE V3.1
- Allows remote access to z/VSE resources and data from **non-Java platforms**
- Enhancements in z/VSE V5.1:
 - SYSIPT Variables Support
 - New functions: LIBR-Support, POWER binary support
 - Logging of script input and output



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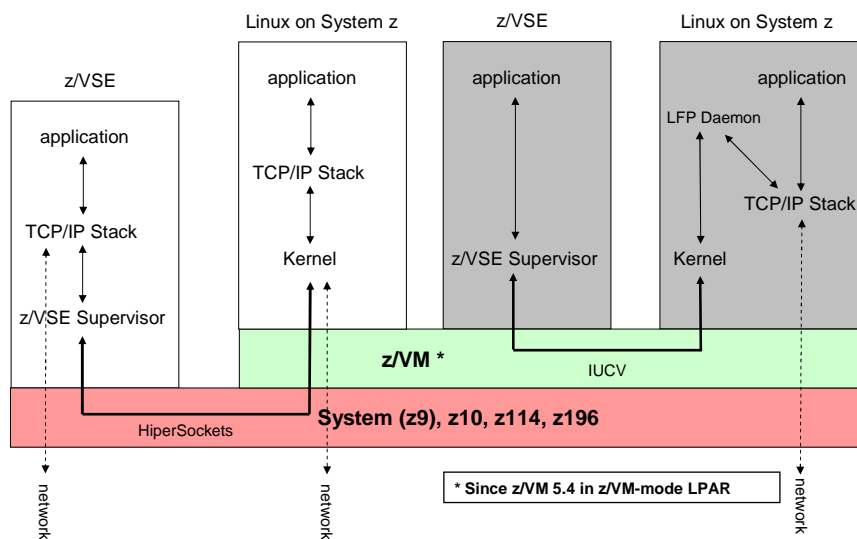
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Since z/VSE V4.3: Linux Fast Path in a z/VM-mode LPAR



Faster communication between z/VSE and Linux applications under z/VM

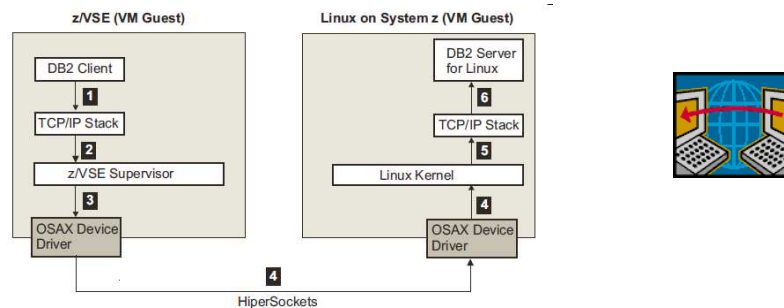


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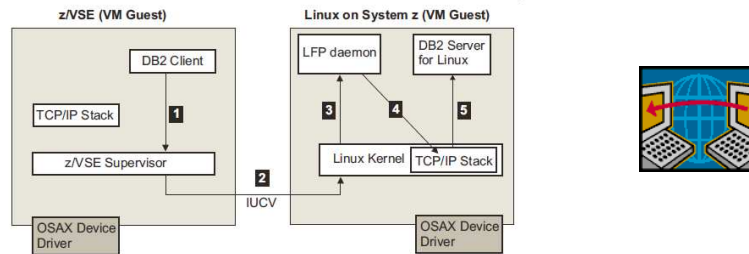
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- The Linux Fast Path uses an IUCV connection between z/VSE and Linux, where both systems run in the same z/VM-mode LPAR on IBM z10 or z196 servers
- It allows selected TCP/IP applications to communicate with the TCP/IP stack on Linux without using a TCP/IP stack on z/VSE
- All socket requests are transparently forwarded to a Linux on System z system running in the same z/VM
- On Linux on System z, the LFP daemon must run
 - This daemon fulfills all socket requests by forwarding them to the Linux TCP/IP stack
- The fast path to Linux on System z provides standard TCP/IP socket APIs for programs running on z/VSE:
 - LE/C socket API via an alternative \$EDTCPV.PHASE (JBLFPLE)
 - EZA SOCKET and EZASMI interface via an alternative EZA interface phase IJBLFPEZ
 - CSI's (Connectivity Systems, Incorporated) assembler socket interface via the SOCKET macro
 - Other than the basic socket API, no other tools are provided
- Possible performance increase due to:
 - Less overhead for TCP/IP processing on z/VSE (TCP, sequence numbers and acknowledging, checksums, resends, etc)
 - More reliable communication method (IUCV) compared to HiperSockets, which is a network device, with all its packet drops, resends, etc.



Communication using Linux Fast Path



1. The data to be sent is passed to the Linux Fast Path (LFP) stack running on z/VSE.
2. The LFP stack builds IUCV packets including the data, and sends the packets via the IUCV channel to the Linux image.
3. The Linux IUCV device driver receives the packets and passes them to the LFP Daemon running on the Linux image. The LFP Daemon then processes the data received from the IUCV channel, and translates it into a socket call.
4. The socket call is processed by the TCP/IP stack. Because the data is to be sent to an application that runs on the same Linux system, the TCP/IP stack simply forwards the data directly to the application (using a Unix pipe, thus no TCP/IP processing required).
5. The application receives the data and processes it.

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Prerequisites for using the Linux Fast Path



- If you use a z/VM-mode LPAR, **z/VM 5.4 or later**. Otherwise, any z/VM release that is supported by z/VSE
- If you use a z/VM-mode LPAR, **IBM System z10 or zEnterprise 196/114**. Otherwise, any server supported by z/VSE
- **z/VSE 4.3 or higher**
- **One of these Linux on System z operating systems:**
 - SUSE Linux Enterprise Server 10 Service Pack 3 together with security update kernel 2.6.16.60-0.57.1
 - SUSE Linux Enterprise Server 11 Service Pack 1
 - Red Hat Enterprise Linux 5 Update 5
 - Red Hat Enterprise Linux 6
- z/VSE and Linux on System z are configured as z/VM guests **within the same LPAR**
- The **IUCV** (“Inter-User Communication Vehicle”) is configured and enabled in both z/VM guests (z/VSE and Linux on System z)
- More Details on z/VSE Homepage <http://www-03.ibm.com/systems/z/os/zvse/>
i.e. <http://www-03.ibm.com/systems/z/os/zvse/documentation/presentations.html>

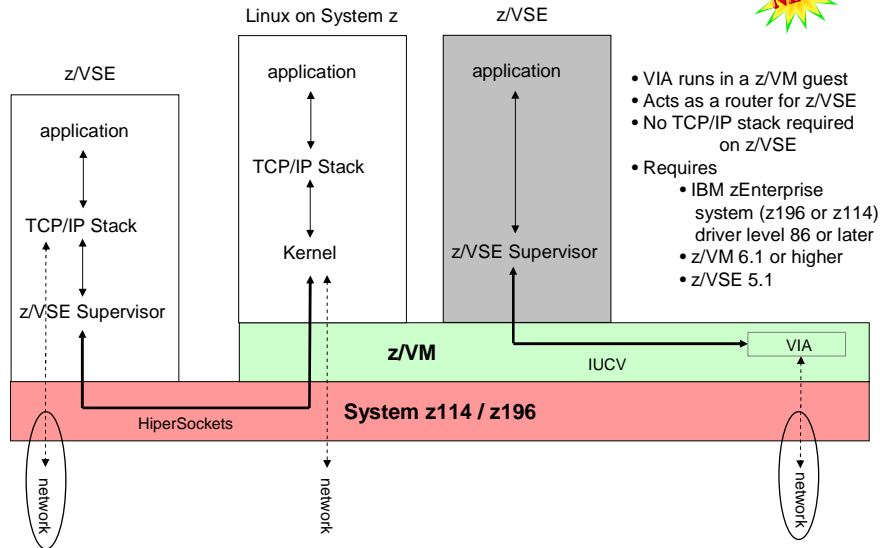


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z/VSE 5.1 + PTFs: LFP - z/VSE z/VM IP Assist (VIA)



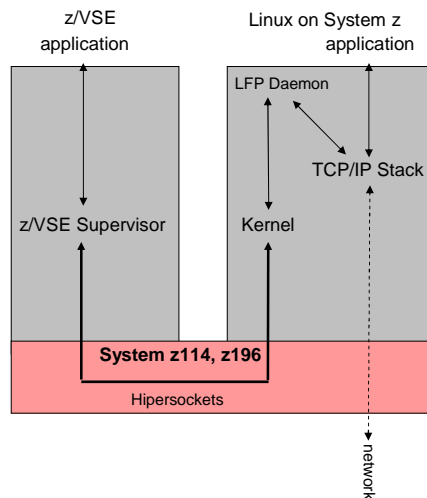
- VIA runs in a z/VM guest
- Acts as a router for z/VSE
- No TCP/IP stack required on z/VSE
- Requires
 - IBM zEnterprise system (z196 or z114) driver level 86 or later
 - z/VM 6.1 or higher
 - z/VSE 5.1

z/VSE 5.1 + PTFs: LFP - Linux Fast Path in LPAR



Exploits the HiperSockets Completion-Queue support of IBM zEnterprise (z196, z114)

- No TCP/IP stack required on z/VSE
- System requirements
 - Supported on z114 and z196
 - Exploits HiperSockets completion queue
 - Linux on System z distribution (RHEL, SLES)
 - z/VSE 5.1 + PTF
- Available June 15, 2012

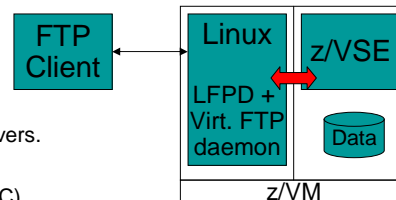


Since z/VSE V4.3: Virtual z/VSE FTP Daemon



- The Virtual z/VSE FTP Daemon can be installed on **any Java-enabled platform** and **emulates an FTP server**
 - The actual access to z/VSE resources is done using the **VSE Connector Server**.
- Download: <http://ibm.com/zvse/downloads>

→ Fits perfectly to Linux Fast Path



- The Virtual z/VSE FTP Daemon:
 - Handles all incoming FTP clients.
 - Connects to one or multiple VSE Connector Servers.
 - Is responsible for connection-handling.
 - Is responsible for data translation (ASCII-EBCDIC).
 - Is IPv6 ready
 - You can connect FTP clients using IPv6, the Virtual z/VSE FTP Daemon connects to the VSE Connector Server using IPv4.
 - Supports SSL
 - both for the FTP connection (between FTP client and Virtual z/VSE FTP Daemon, using implicit SSL (FTPS)),
 - and for the connection to the VSE Connector Server (between Virtual z/VSE FTP Daemon and z/VSE host).

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Options for using Databases with z/VSE applications

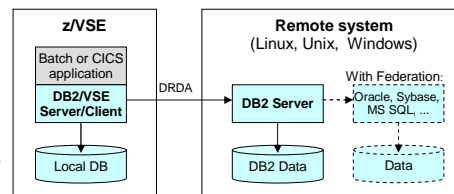


▪ DB2/VSE or DB2/VM Server

- Local database residing in z/VSE or z/VM
- Lacks support of modern SQL functionality
- Only quite old SQL level supported

▪ DB2/VSE Client Edition

- Remote database (on Linux, Windows, Unix)
- Communication via DRDA protocol
- Same old SQL level supported as DB2/VSE Server
- Can not use modern SQL functionality provided by DB2 LUW
- Can only access remote DB2 databases
 - Other databases (e.g. MS SQL Server, Oracle, etc) can only be accessed through IBM InfoSphere Federation Server



▪ VSAM Redirector

- Primarily used to keep Databases in sync with VSAM data
- Also allows migration from VSAM to database

▪ New: z/VSE Database Call Level Interface

- Allows z/VSE applications to access a relational database on any suitable database server IBM DB2, IBM Informix, Oracle, MS SQL Server, MySQL, etc.
- Utilize advanced database functions and use SQL statements provided by modern database products



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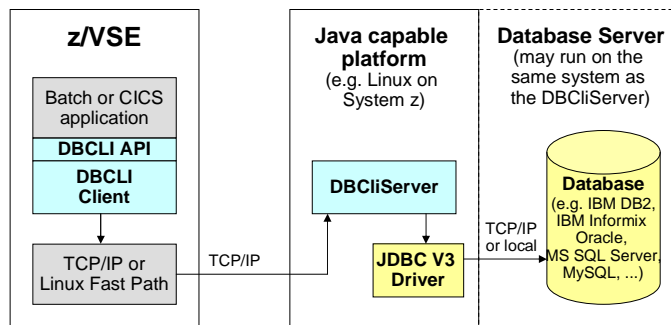
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z/VSE V5.1 + PTFs: z/VSE Data base connector



z/VSE Database Call Level Interface (DBCLI)

- 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
- DBCLI for HLASM, COBOL, PL/I, C or REXX applications
- Consists of
 - DBCLI client on z/VSE
 - DBCLiServer on any Java-capable platform



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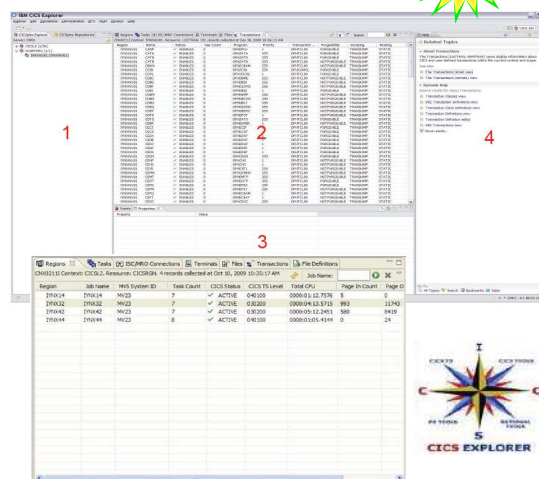
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z/VSE 5.1+ PTFs : z/VSE support for IBM CICS Explorer – The “new face of CICS Transaction Server for VSE/ESA“



CICS Explorer

- New systems management framework for CICS TS
- Consists of client and server part
- Based on the Eclipse Rich Client Platform (RCP)
- Provides integration platform
- Scalable and intuitive way to monitor CICS systems
- Can be extended via plug-ins
- Client part of CICS Explorer common for z/OS and z/VSE
- Server part requires CICS TS and z/VSE 5.1



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z/VSE support for IBM CICS Explorer



IBM CICS Explorer BETA - C:/CICS-Work

Server: CIC2 CN00211 Context: PRODCICS. Resource: CICSRRGN. 1 records collected at Apr 4, 2012 5:54:01 PM

Region	Job Name	MVS System...	Task Count	CICS Status	CICS TS Level	CICS Release	Total CPU	Page In Count	Page Out C...	LD Count
PRODCICS	CICS2	N/A	4	ACTIVE		V111	0000:00:00...	N/A	N/A	9507

IBM Connected user SYSA to host hvsalm1.boeblingen.de.ibm.com on port 27283

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z/VSE support for IBM CICS Explorer - Terminal



IBM CICS Explorer BETA - C:/CICS-Work

Server: CIC2 CN00211 Context: PRODCICS. Resource: TERMN.L. 65 records collected at Apr 4, 2012 6:09:00 PM

Region	Name	Network Name	Acquire Status	Service Status	ATI Status	TTI Status	Session Status	User ID	Transaction ID
PRODCICS	-AAA	TMPLATE1	RELEASED	INSERVICE	ATI	TTI	NOCREATE	CICSUSER	
PRODCICS	-AAB	TMPLATE1	RELEASED	INSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAC	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAD	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAE	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAF	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAG	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAH	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAI	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAJ	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAK	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAL	TMPLATE1	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAM	TMPLATE2	RELEASED	INSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAN	TMPLATE3	RELEASED	INSERVICE	ATI	TTI	NOCREATE	CICSUSER	
PRODCICS	-AAO	TMPLATE3	RELEASED	INSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAP	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAQ	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAR	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAS	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAT	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAU	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAV	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAW	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAX	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	-AAY	TMPLATE3	RELEASED	OUTSERVICE	ATI	TTI	CREATE	CICSUSER	
PRODCICS	CRPF	CRPF	RELEASED	INSERVICE	ATI	TTI	NOCREATE	CICSUSER	
PRODCICS	CERR		NOTAPPLIC	INSERVICE	NOATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CNSL		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CNSL	
PRODCICS	CO01		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO02		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO03		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO04		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO05		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO06		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO07		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO08		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO09		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO10		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO11		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO12		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	
PRODCICS	CO13		NOTAPPLIC	INSERVICE	ATI	TTI	NOTAPPLIC	CICSUSER	

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z/VSE support for IBM CICS Explorer - the 3270 Interface



```

STATUS: RESULTS - OVERTYPE TO MODIFY
Ter(A000) Tra(CEMT) Pri( 000 ) Pag Ins Ati Tti
  Net(D0010001) Acq Cre
Ter(CBRF) Pri( 000 ) Pag Ins Ati Tti
  Net(CBRF) Rel
Ter(CERR) Pri( 000 ) Pag Ins Tti
Ter(CNSL) Pri( 000 ) Pag Ins Ati Tti
Ter(C001) Pri( 000 ) Pag Ins Ati Tti
Ter(C002) Pri( 000 ) Pag Ins Ati Tti
Ter(C003) Pri( 000 ) Pag Ins Ati Tti
Ter(C004) Pri( 000 ) Pag Ins Ati Tti
Ter(C005) Pri( 000 ) Pag Ins Ati Tti
Ter(C006) Pri( 000 ) Pag Ins Ati Tti
Ter(C007) Pri( 000 ) Pag Ins Ati Tti
Ter(C008) Pri( 000 ) Pag Ins Ati Tti
Ter(C009) Pri( 000 ) Pag Ins Ati Tti
Ter(C010) Pri( 000 ) Pag Ins Ati Tti
Ter(C011) Pri( 000 ) Pag Ins Ati Tti
+ Ter(C012) Pri( 000 ) Pag Ins Ati Tti

RESPONSE: NORMAL          TIME
PF 1 HELP          3 END          7 SBH 8 SF

SYSID=CIC2 APPLID=PRDCCICS
TIME: 15.50.54 DATE: 03.23.12
PF 1 HELP          3 END          7 SBH 8 SFH 9 MSG 10 SB 11 SF          01/008
    
```

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z/VSE support for IBM CICS Explorer - Transaction



Region	Name	Status	Use Count	Program	Priority	Transaction...	Purgeability	Dumping	Routing
PRODCICS	cler	ENABLED	0	CELWTO	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	disc	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	email	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	ftp	ENABLED	0	FTP01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	icf	ENABLED	0	DTSICFC	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	ipr	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	newsc	ENABLED	0	EDCCNEWC	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	pmq	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	rexe	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	ropc	ENABLED	0	EDYCROP	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	teht	ENABLED	0	TEUNET01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	trac	ENABLED	0	CLIENT01	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	APIU	ENABLED	0	INWPCCOM	20	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	ARPS	ENABLED	0	DFHARPS	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CATA	ENABLED	1	DFHZATA	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CATD	ENABLED	1	DFHZATD	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CATR	ENABLED	1	DFHZATR	255	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CCIN	ENABLED	0	DFHZCN1	254	DFHCOMCL	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CDTS	ENABLED	0	DFHZATS	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEBR	ENABLED	0	DFHEDFBR	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CECI	ENABLED	0	DFHECIP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CECS	ENABLED	0	DFHECSP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEDA	ENABLED	0	DFHEDAP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEDB	ENABLED	0	DFHEDAP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEDC	ENABLED	0	DFHEDAP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEDF	ENABLED	0	DFHEDFP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEDX	ENABLED	0	DFHEDFP	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEGN	ENABLED	0	DFHCEGN	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEHP	ENABLED	0	DFHCHS	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CEHS	ENABLED	0	DFHCHS	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CEMS	ENABLED	0	DFHEHSP	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CEHT	ENABLED	0	DFHEHSP	255	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CEOS	ENABLED	0	DFHEHSP	1	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CEOT	ENABLED	0	DFHEOTP	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEPW	ENABLED	0	DFHPWOP	254	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CESC	ENABLED	0	DFHCESC	255	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CESF	ENABLED	0	DFHSPF	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CESN	ENABLED	0	DFHSPN	1	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CEST	ENABLED	0	DFHESTP	255	DFHTCL00	PURGEABLE	TRANLUMP	STATIC
PRODCICS	CETR	ENABLED	0	DFHCETRA	255	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC
PRODCICS	CFTS	ENABLED	0	DFHZATS	255	DFHTCL00	NOTPURGEA...	TRANLUMP	STATIC

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z/VSE support for IBM CICS Explorer - Program



IBM CICS Explorer BETA - C:/CICS-Work

Server: CIC2 QW0211 Context: PRODCICS, Resource: PROGRAM, 1,601 records collected at Apr 4, 2012 6:13:20 PM

Region	Name	Status	Use Count	Concurrent Use...	Language	Share Status	CEPF Status	NEWCOPI Status
PRODCICS	SEDCTCPM	ENABLED	0	0	C	N/A	CEPF	NOTREQUIRED
PRODCICS	SEDCTCPV	ENABLED	0	0	C	N/A	CEPF	NOTREQUIRED
PRODCICS	ARXITCPU	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	BSTADMII	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEBINT	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEBIATX	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEBDPI	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEBCCCS	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEBDATX	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECMI	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECOPT	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECRHP	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECXITA	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECXTAN	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEECZST	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDATE	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDATM	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDAYS	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDCOD	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDSHP	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDVAK	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDENW	ENABLED	0	0	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDV00	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV01	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV02	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV03	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDV04	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV05	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDV06	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV07	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV08	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV09	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED
PRODCICS	CEEDV10	ENABLED	1	1	ASSEMBLER	N/A	CEPF	NOTREQUIRED
PRODCICS	CEEDV11	ENABLED	0	0	NOTDEFINED	N/A	CEPF	REQUIRED

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z/VSE support for IBM CICS Explorer -Files



IBM CICS Explorer BETA - C:/CICS-Work

Server: CIC2 QW0211 Context: PRODCICS, Resource: LOCFILE, 14 records collected at Apr 4, 2012 6:14:54 PM

Region	Name	Status	Open Status	Add	Browse	Delete	Read	Update	LSR Pool ID	DS Name
PRODCICS	BSTCONL	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	0	VSE.BSTCN...
PRODCICS	DFHCSD	UNENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	CICS.CSD
PRODCICS	EZACACH	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	
PRODCICS	EZACONF	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	NOTUPDAT...	1	
PRODCICS	IESCNL	ENABLED	OPEN	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	VSE.CONTR...
PRODCICS	IESLUM	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	VSE.LOAP...
PRODCICS	IESPRB	ENABLED	OPEN	ADDABLE	NOTBROW...	NOTDELET...	READABLE	UPDATABLE	1	CICS.ZON...
PRODCICS	IESROUT	ENABLED	OPEN	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	VSE.MESSA...
PRODCICS	IESTRFL	ENABLED	OPEN	NOTADDABLE	NOTBROW...	NOTDELET...	READABLE	NOTUPDAT...	1	VSE.TEXT...
PRODCICS	INWFILE	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	PC.HOST.T...
PRODCICS	RFSDIR1	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	CICREX.FP...
PRODCICS	RFSDIR2	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	CICREX.FP...
PRODCICS	RFSPOL1	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	CICREX.FP...
PRODCICS	RFSPOL2	ENABLED	CLOSED	ADDABLE	BROWSABLE	DELETABLE	READABLE	UPDATABLE	1	CICREX.FP...

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Aktuelles zu IBM zEnterprise System und rund um z/VSE, Course 2012

- Extend z/VSE's 64 bit virtual support to 64 bit virtual I/O
- Ensures z/OS compatibility for EXCP interfaces
- DASD (ECKD) support only
- I/O can only be done for private memory objects
- Format 0 and Format 1 CCW with Format 2 IDAWs
 - New CCB parameter
- Not supported by VSAM, BAM (LIOCS)
- **Available via z/VSE 5.1 PTF some time after June 15, 2012**

- Biete viele neue Möglichkeiten und Verbesserungen (nicht nur Konnektoren):
Infos auf z/VSE-Homepage <http://www-03.ibm.com/systems/z/os/zvse/>
 - z/VSE 5.1 Release Guide unter <http://www-03.ibm.com/systems/z/os/zvse/documentation/>
 - Live Virtual Classes unter <http://www-03.ibm.com/systems/z/os/zvse/education/>
 - IBM GSE-Vorträge unter <http://www-03.ibm.com/systems/z/os/zvse/documentation/presentations.html>
- Läuft auf z/VM V5 und V6
- Läuft auf IBM System z9 und höher
- Gegenüber z/VSE V4 hat sich die Produktnummer der *z/VSE Central Functions* geändert und muss neu lizenziert werden
 - *z/VSE Central Functions* (Programm-Nr: 5686**CF9**) bei z/VSE V5.1
 - *z/VSE Central Functions* (Programm-Nr: 5686**CF8**) bei z/VSE V4.x
- Gleiche Lizenzgebühr wie bei z/VSE V4.
 - Um die *z/VSE Central Functions* nicht zusätzlich für das bisherige z/VSE V4 bezahlen zu müssen, sollten Sie für die Migrationszeit (ohne Begründung 6 Monate lang) **Single Version Charge (SVC)** nutzen → **explizit angeben!**
 - **SVC** wird bei den SubCapacity-Messungen berücksichtigt!

- Bestellung über Shopz ohne gültige Lizenz verzögern sich!
- z/VSE V5.1.0 wird mit einem Service-Stand vom **06.10.2011** ausgeliefert.
 - z/VSE V5.1.1 ist für Juni 2012 geplant (mit einem Service-Stand vom **16.04.2012**)
- **Testen Sie nur mit einem möglichst aktuellen Service-Stand!**
 - Jetzige Recommended Service Level (RSL) enthält alle PTFs bis zum **31.01.2012**.
 - Der nächste RSL mit Service Stand **von April** ist in Arbeit.
 - aktuellen HIPER-PTFs z.B. per PSP-Bucket bestellbar sind tagesaktuell !!
- **Testen Sie sorgfältig Ihre Umgebung**
 - besonders wenn Sie noch nicht z/VSE V4.3 hatten

Nicht nur z/VSE bietet viele neue Möglichkeiten.



→ **Spielen Sie mit und
nutzen Sie diese Möglichkeiten!**

Danke für Ihre Aufmerksamkeit !

Dagmar Kruse, IBM Deutschland GmbH, STG Technical Sales System z,
dkruse@de.ibm.com