z/VSE Trends & Directions

April 2013

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DB2 Connect	IBM eServer	Processor Resource/Systems Manager	WebSphere*
DirMaint	IBM e(logo)server*	RACF*	z/Architecture
e-business logo*	IBM logo*	Resource Link	z/OS*
ECKD	IMS	RMF	z/VM*
Enterprise Storage Server*	Language Environment*	S/390*	z/VSE
ESCON*	MQSeries*	Sysplex Timer*	zSeries*
FICON*	Multiprise*	System z9	
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www.ibm.com/systems/support/machine_warranties/machine_code/aut.html ("AUT").

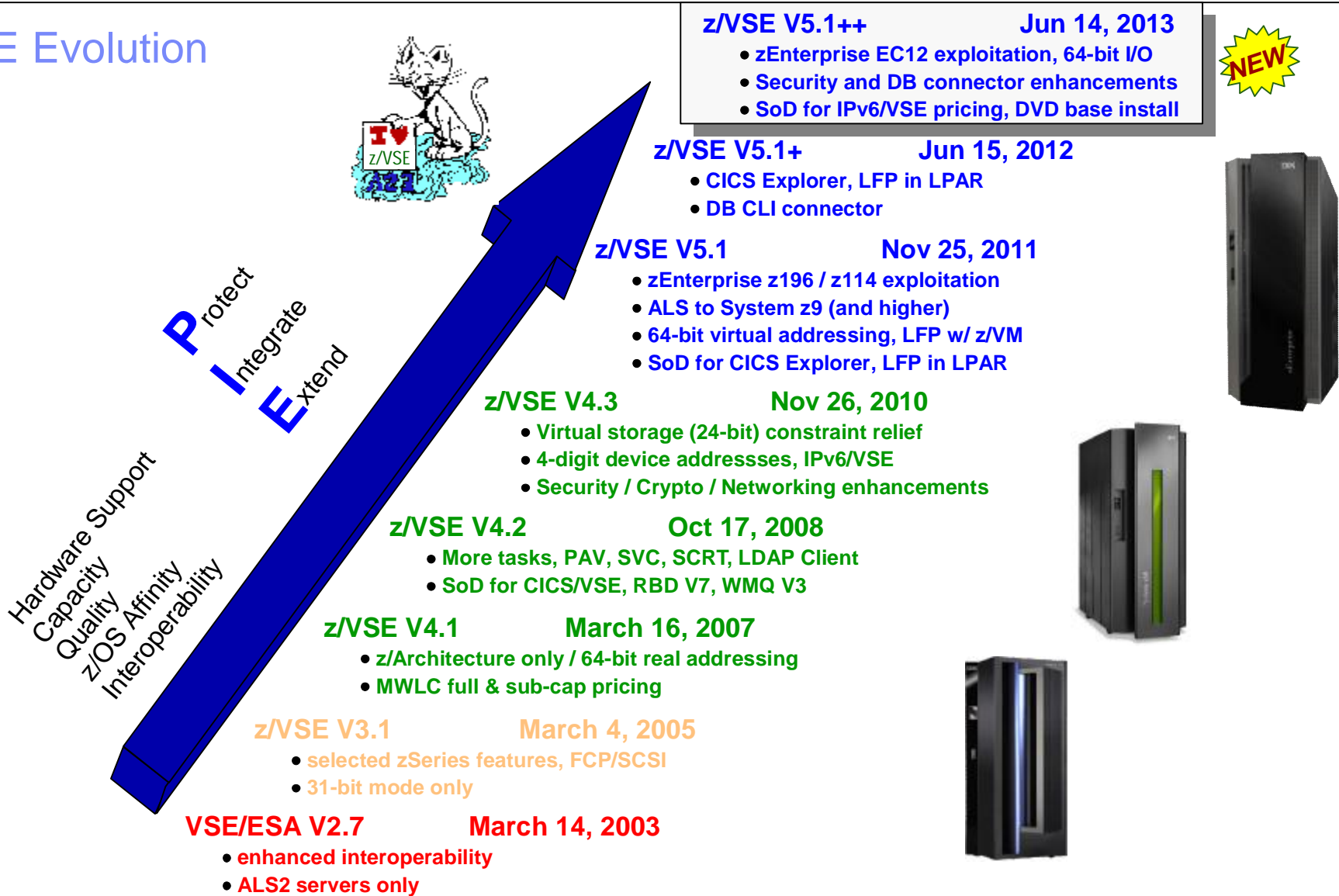No other workload processing is authorized for execution on an SE.

IBM offers SEs at a lower price than General Processors/Central Processors because customers are authorized to use SEs only to process certain types and/or amounts of workloads as specified by IBM in the AUT.

Agenda

§ **z/VSE Status & Support**

§ **z/VSE Strategy**

§ **z/VSE Modernization Options**

§ **z/VSE Software Pricing**

§ **z/VSE Functional Enhancements**

   – **z/VSE V5.1**

   – **z/VSE V5.1+**

   – **z/VSE V5.1++**

§ **Wrap-up**

z/VSE Evolution

z/VSE V5.1++   **Jun 14, 2013**
- zEnterprise EC12 exploitation, 64-bit I/O
- Security and DB connector enhancements
- SoD for IPv6/VSE pricing, DVD base install

NEW

z/VSE V5.1+   **Jun 15, 2012**
- CICS Explorer, LFP in LPAR
- DB CLI connector

z/VSE V5.1   **Nov 25, 2011**
- zEnterprise z196 / z114 exploitation
- ALS to System z9 (and higher)
- 64-bit virtual addressing, LFP w/ z/VM
- SoD for CICS Explorer, LFP in LPAR

z/VSE V4.3   **Nov 26, 2010**
- Virtual storage (24-bit) constraint relief
- 4-digit device addressses, IPv6/VSE
- Security / Crypto / Networking enhancements

z/VSE V4.2   **Oct 17, 2008**
- More tasks, PAV, SVC, SCRT, LDAP Client
- SoD for CICS/VSE, RBD V7, WMQ V3

z/VSE V4.1   **March 16, 2007**
- z/Architecture only / 64-bit real addressing
- MWLC full & sub-cap pricing

z/VSE V3.1   **March 4, 2005**
- selected zSeries features, FCP/SCSI
- 31-bit mode only

VSE/ESA V2.7   **March 14, 2003**
- enhanced interoperability
- ALS2 servers only

Protect
Integrate
Extend

Hardware Support
Capacity
Quality
z/OS Affinity
Interoperability

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

* IPv6/VSE is a registered trademark of Barnard Software, Inc.

z/VSE Support Status (as of April 2013)

VSE Version and Release	Marketed	Supported	End of Support
z/VSE V5.1	a	a	tbd
z/VSE V4.3	r	a	05/31/2014
z/VSE V4.2 incl CICS/VSE V2.3, DL/I V1.11	r	r	10/31/2012
z/VSE V4.1[2]	r	r	04/30/2011
z/VSE V3.1[1]	r	r	07/31/2009
VSE/ESA V2.7	r	r	02/28/2007

Service Extension Contracts available on request

[1] z/VSE V3 is 31-bit mode only. It does not implement z/Architecture, and specifically does not implement 64-bit mode capabilities. z/VSE is designed to exploit select features of IBM System z10, System z9, and zSeries hardware.

[2] z/VSE V4 is designed to exploit 64-bit real memory addressing, but will not support 64-bit virtual memory addressing

z/VSE Support for IBM Mainframe Servers (as of April 2013)

IBM Servers	z/VSE V5.1	z/VSE V4.3	z/VSE V4.2 (out of service)	z/VSE V4.1 (out of service)
IBM zEnterprise EC12	a	a	a	r
IBM zEnterprise 196 & 114	a	a	a	a
IBM System z10 EC & z10 BC	a	a	a	a
IBM System z9 EC & z9 BC	a	a	a	a
IBM eServer zSeries 990 & 890	r	a	a	a
IBM eServer zSeries 900 & 800	r	a	a	a

IBM zEnterprise System - Best in Class Systems and Software Technologies:

A system of systems that unifies IT for predictable service delivery

Unified management for a smarter system: zEnterprise Unified Resource Manager

§ Part of the IBM System Director family, provides platform, hardware and workload management

§ Unifies management of resources, extending IBM System z® qualities of service across the infrastructure

The world's fastest and most scalable system:
IBM zEnterprise™ 196
IBM zEnterprise™ 114
IBM zEnterprise™ EC12

§ Ideal for large-scale data and transaction serving and mission critical applications

§ Most efficient platform for large-scale Linux® consolidation

§ Leveraging a large portfolio of z/OS®, z/VSE™, and Linux on System z applications

§ Capable of massive scale up, 26 MIPS to more than 70 BIPS

Scale out to a trillion instructions per second:
IBM zEnterprise BladeCenter® Extension (zBX)

§ Selected IBM POWER7™ blades and IBM System x® Blades for tens of thousands of AIX®, Linux, and Windows applications

§ High performance optimizers and appliances to accelerate time to insight and reduce cost

§ Dedicated high performance private network

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z/VSE Support of IBM zEnterprise EC12 (zEC12)

§ **z/VSE Release Support**

- z/VSE supports the zEC12 with z/VSE V4.2, V4.3 and V5.1
  - No PTFs are required to run z/VSE on zEC12
  - For IOCP, EREP and HLASM PTFs, see PSP (subset 2827/ZVSE of 2827DEVICE)

§ **Configurable Crypto Express4s – new with zEC12**

- z/VSE toleration PTF required to use Crypto Express4s
  - Toleration PTF (DY47414) provided for z/VSE V5.1 only
- Crypto Express4s supported with existing z/VSE cryptographic functionality
  - Supported modes: (CCA) coprocessor and accelerator
  - PKCS #11 (EP11) coprocessor not supported

§ **OSA-Express4s 1000BASE-T – new with zEC12**
- No z/VSE PTF required
- 1000BASE-T supported with existing z/VSE functionality

§ **SCRT – Subcapacity Pricing**
- z/VSE 4.2 requires DY47111 (same as for z196, z114)

§ **z/VSE Releases with EoS**
- See z/VSE home page

z/VSE Support of IBM zEnterprise 114

§ z114 is supported by z/VSE V4.2, z/VSE V4.3 and z/VSE V5.1
- Refer to z/VSE Preventive Service Planning (PSP) buckets
- z/VSE PTFs are required for subcapacity pricing customers and QVS (Query Virtual Server)
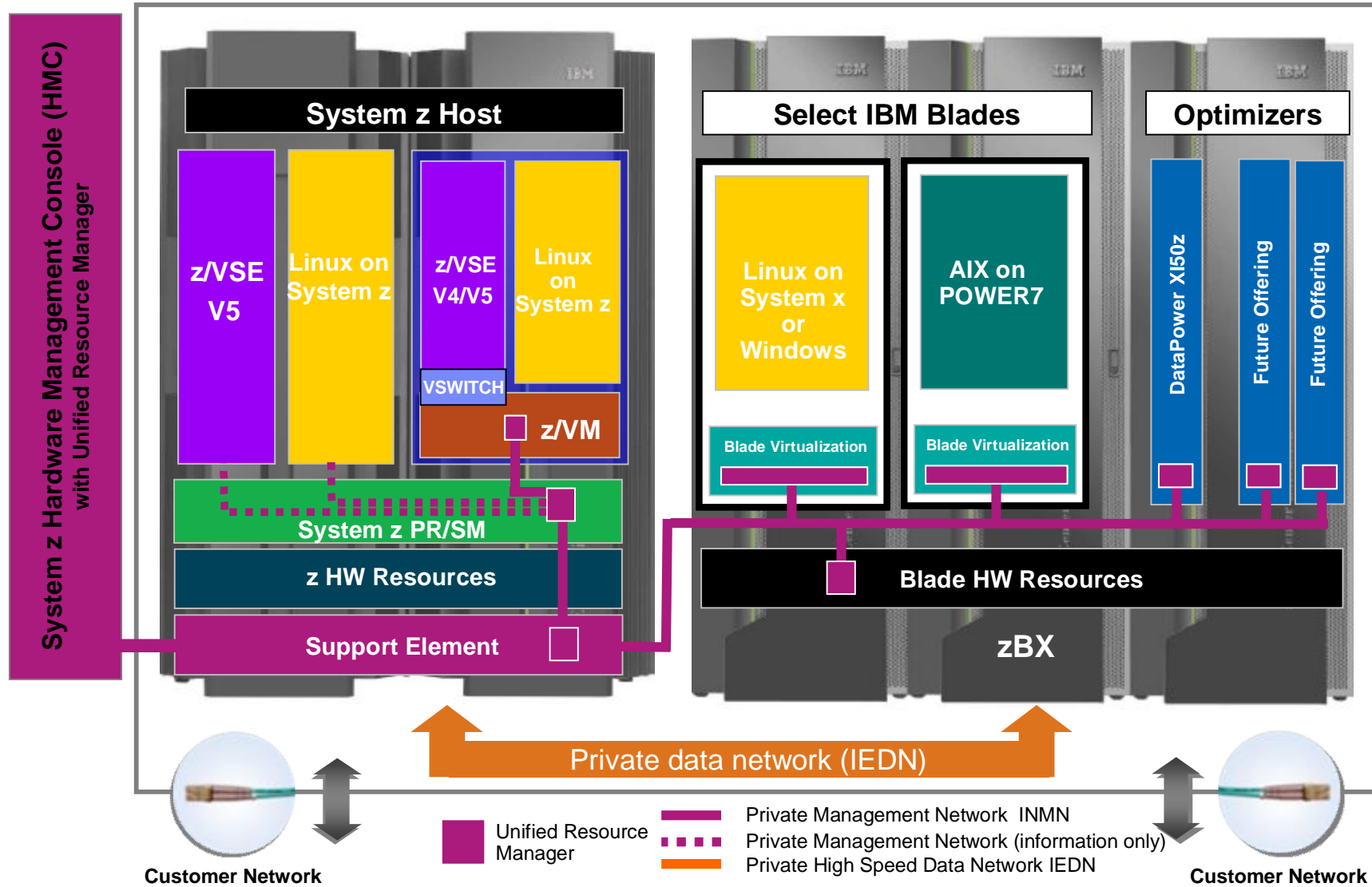
§ <u>Features / Functions</u>
- **Fast Path to Linux on System z in a z/VM-mode LPAR**
  - also available on z10 BC/EC
- **z/VSE z/VM IP Assist (VIA)**
  - exclusively on zEnterprise
- **Fast Path to Linux on System z in an LPAR environment**
  - exclusively on zEnterprise
- **Dynamic add of logical CPs**
  - also available on z10 BC/EC
- **Large page (1 MB frames) support for data spaces**
  - also available on z10 BC/EC
- **Dynamic add / remove of cryptographic processors**
  - also available on z10 BC/EC
- **Crypto Adjunct Processor (AP) Queue interrupt facility**
  - also available on z10 BC/EC
- **4096-bit RSA key support with configurable Crypto Express3**
  - also available on z10 BC/EC

§ <u>zBX environment</u>
- **z/VSE V5 provides native Intra Ensemble Data Network (IEDN) support**
  - z/VSE V4 can participate in an IEDN data network using z/VM's V6 VSWITCH support

IBM
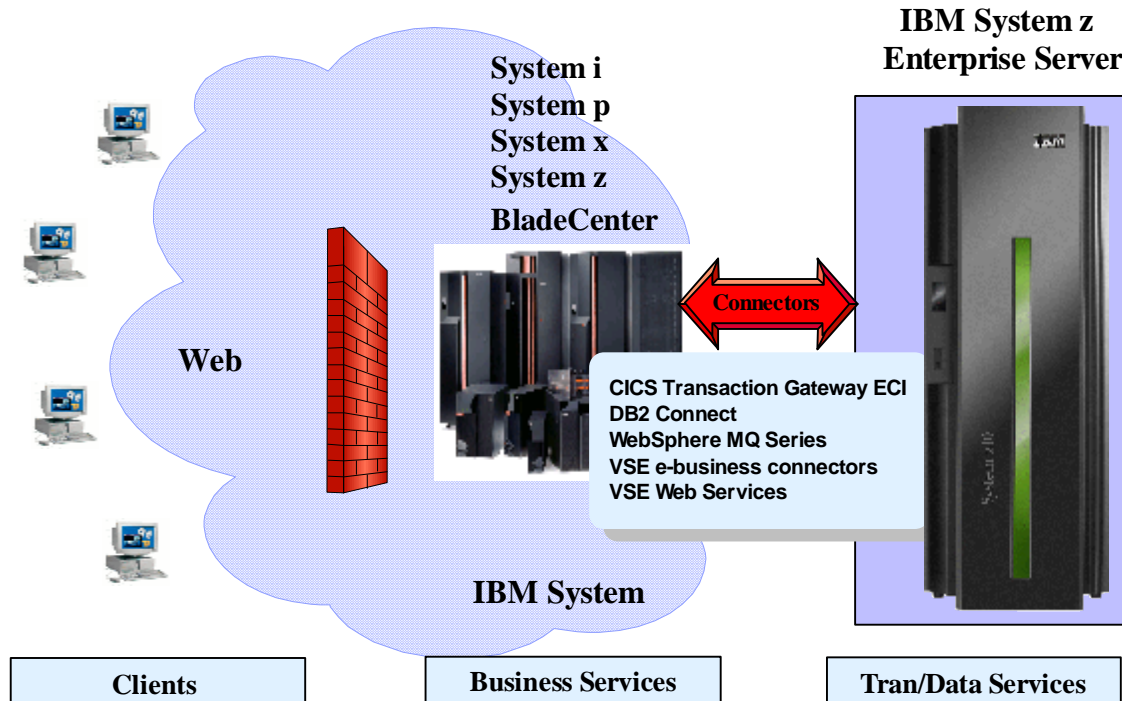
z/VSE Exploitation of IBM zEnterprise - IEDN to zBX

System z Hardware Management Console (HMC)
with Unified Resource Manager

System z Host

z/VSE V5

Linux on System z

z/VSE V4/V5

Linux on System z

VSWITCH

z/VM

System z PR/SM

z HW Resources

Support Element

Select IBM Blades

Linux on System x or Windows

AIX on POWER7

Blade Virtualization

Blade Virtualization

Blade HW Resources

zBX

Optimizers

DataPower XI50z

Future Offering

Future Offering

Private data network (IEDN)

Customer Network

Customer Network

Unified Resource Manager

Private Management Network INMN
Private Management Network (information only)
Private High Speed Data Network IEDN

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Agenda

§ **z/VSE Status & Support**

§ **z/VSE Strategy**

§ **z/VSE Modernization Options**

§ **z/VSE Software Pricing**

§ **z/VSE Functional Enhancements**

– **z/VSE V5.1**

– **z/VSE V5.1+**

– **z/VSE V5.1++**
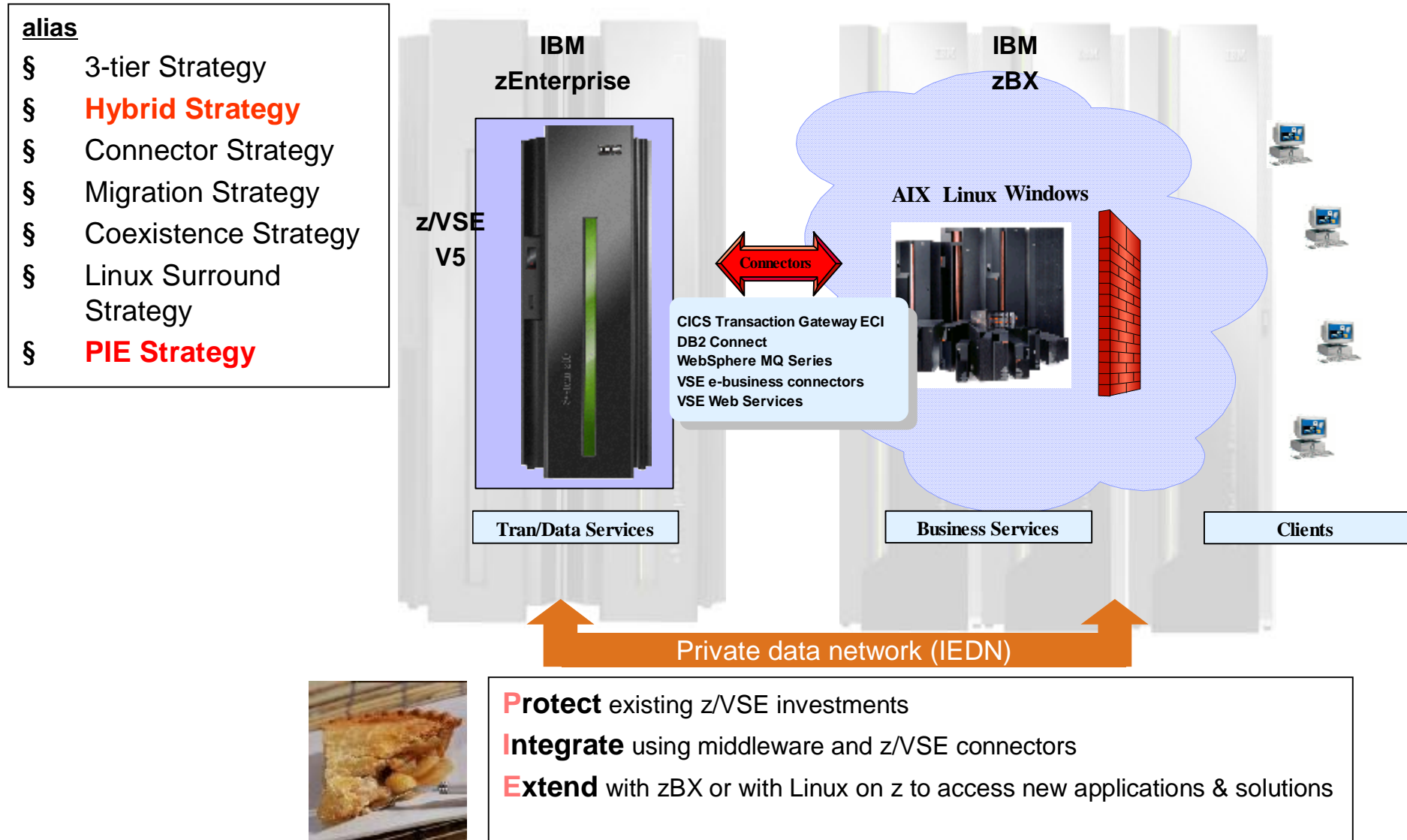
§ **Wrap-up**

z/VSE Strategy - Invented in Year 2000

alias

§ 3-tier Strategy

§ **Hybrid Strategy**

§ Connector Strategy

§ Migration Strategy

§ Coexistence Strategy

§ Linux Surround Strategy

§ **PIE Strategy**

System i
System p
System x
System z
BladeCenter

IBM System z
Enterprise Server

Connectors

Web

CICS Transaction Gateway ECI
DB2 Connect
WebSphere MQ Series
VSE e-business connectors
VSE Web Services

IBM System

Clients

Business Services

Tran/Data Services

Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

Extend with another platform to access new applications & solutions

z/VSE V5 Strategy with zEnterprise - More options, highly integrated

alias

§ 3-tier Strategy

§ **Hybrid Strategy**

§ Connector Strategy

§ Migration Strategy

§ Coexistence Strategy

§ Linux Surround Strategy

§ **PIE Strategy**

IBM zEnterprise

IBM zBX

z/VSE V5

AIX Linux Windows

Connectors

CICS Transaction Gateway ECI
DB2 Connect
WebSphere MQ Series
VSE e-business connectors
VSE Web Services

Tran/Data Services

Business Services

Clients

Private data network (IEDN)

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

IBM

z/VSE Strategy w/ Linux on System z
Hybrid Environment leveraging z/VSE, z/VM, and Linux on System z

Protect existing VSE investments
Integrate using middleware and VSE connectors
Extend with Linux on IBM System z technology & solutions
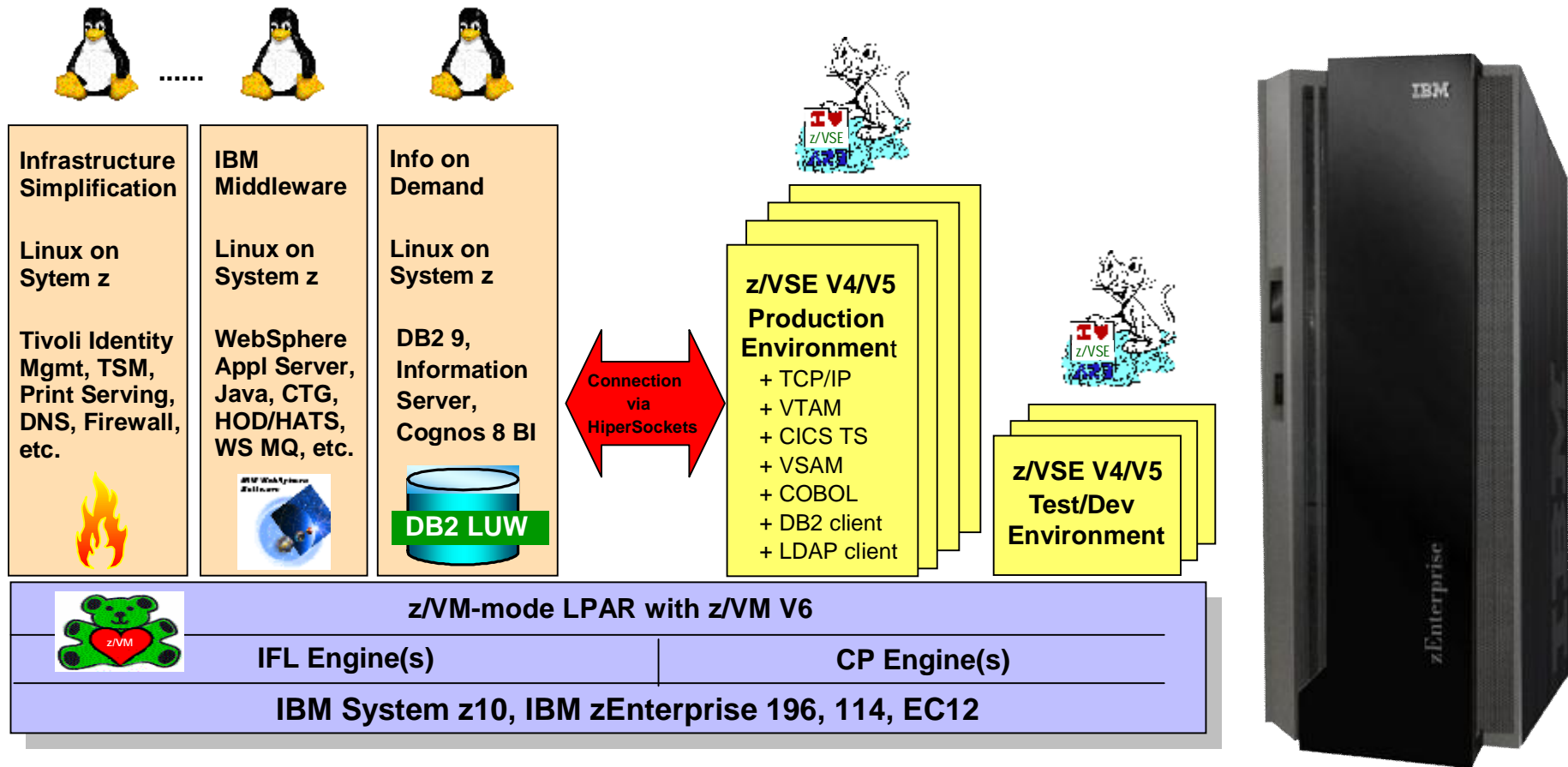
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Infrastructure Simplification

Linux on Sytem z

Tivoli Identity Mgmt, TSM, Print Serving, DNS, Firewall, etc.

IBM Middleware

Linux on System z

WebSphere Appl Server, Java, CTG, HOD/HATS, WS MQ, etc.

Info on Demand

Linux on System z

DB2 9, Information Server, Cognos 8 BI

DB2 LUW

Connection via HiperSockets

z/VSE V4/V5

Production Environment
+ TCP/IP
+ VTAM
+ CICS TS
+ VSAM
+ COBOL
+ DB2 client
+ LDAP client

z/VSE V4/V5 Test/Dev Environment

z/VM-mode LPAR with z/VM V6

IFL Engine(s) | **CP Engine(s)**

IBM System z10, IBM zEnterprise 196, 114, EC12

Agenda

§ **z/VSE Status & Support**

§ **z/VSE Strategy**

→ § **z/VSE Modernization Options**

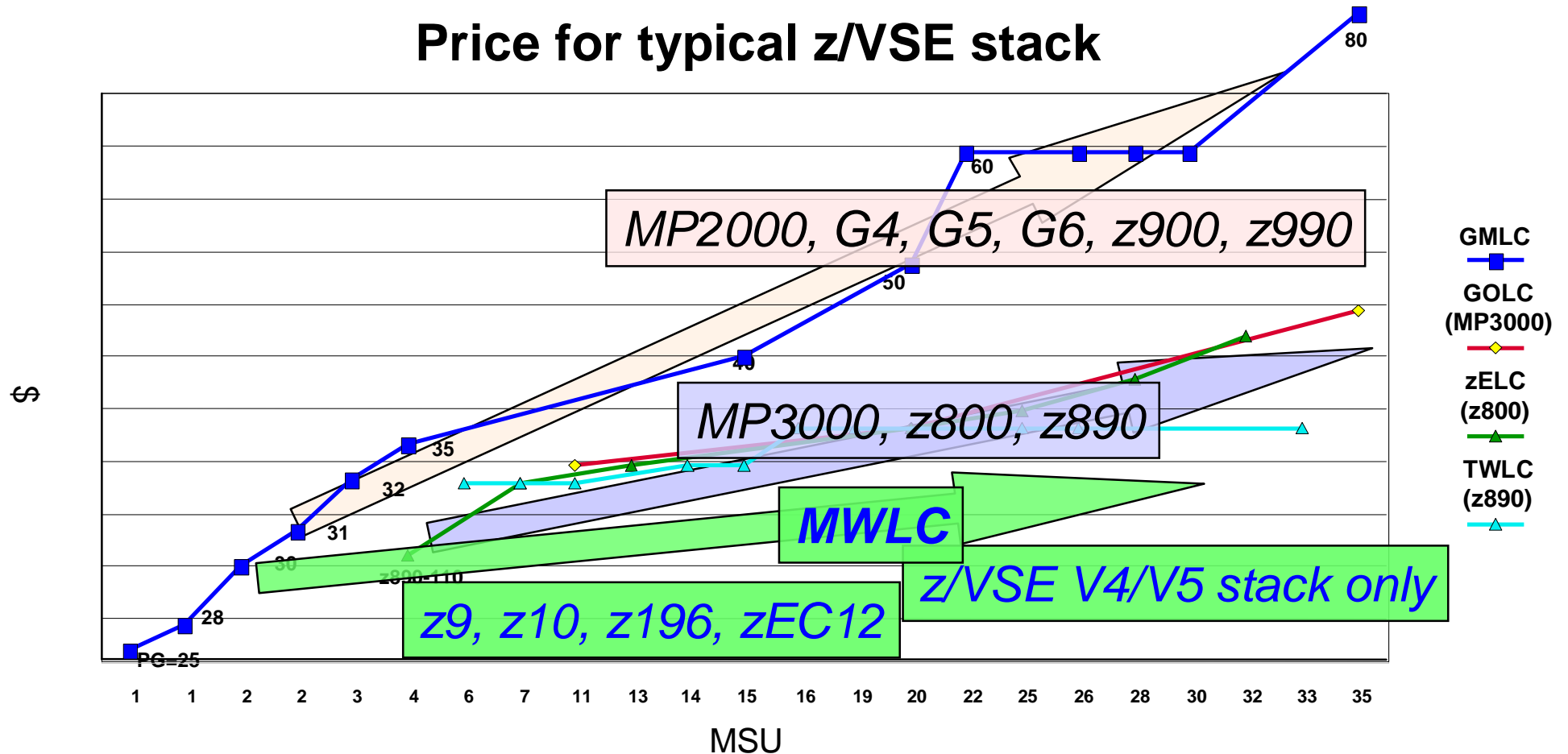§ **z/VSE Software Pricing**

§ **z/VSE Functional Enhancements**

− **z/VSE V5.1**

− **z/VSE V5.1+**

− **z/VSE V5.1++**

§ **Wrap-up**

z/VSE SOA and Interoperability

Connector Functions	z/VSE V5.1	z/VSE V4.3	z/VSE V4.2	z/VSE V4.1
z/VSE Connectors (no additional charge)				
VSAM, POWER, Librarian, ICCF lib, console	Yes	Yes	Yes	Yes
VSAM Redirector	Yes	Yes	Yes	Yes
SOA Web Services, i.e. SOAP and XML	Yes	Yes	Yes	Yes
z/VSE Script and DL/1	Yes	Yes	Yes	Yes
DB2 Stored Procedures for VSAM and DL/1	Yes	Yes	Yes	Yes
VTAPE interface to IBM Tivoli Storage Manager (TSM)	Yes	Yes	Yes	Yes
LDAP client (LDAP server on another platform required)	Yes	Yes	Yes	
SNMP agent	Yes	Yes		
Linux Fast Path from z/VSE to Linux TCP/IP in z/VM-mode LPAR	Yes	Yes		
z/VSE z/VM IP Assist (VIA)	Yes			
GDPS client	Yes			
Linux Fast Path via zEnterprise HiperSockets Completion Queues	Yes			
DBCLI connector	Yes			
IBM Middleware (priced)				
CICS Transaction Gateway ECI	Yes	Yes	Yes	Yes
Host on Demand / Host Application Transformation	Yes	Yes	Yes	Yes
DB2 Connect / DB2 UDB (DB2 Server for z/VSE V7.5 Client)	Yes	Yes	Yes	Yes
WebSphere MQ (z/VSE Client no charge)	Yes	Yes	Yes	Yes

The No1 scenario, worldwide: DB2 LUW for z/VSE Customers
Data consolidation & data warehouse solutions with DB2 UDB on System z

Linux on System z

Cognos

DB2 UDB (64-bit)

DB2 UDB

DB2 VSE/VM

VSAM

Connection via HiperSockets

z/VSE Production Environment

+ CICS
+ TCP/IP
+ VSAM
+ COBOL
+ DB2 Client
+ VSAM Redir.

z/VSE Test Environment

+ CICS
+ VSAM
+ COBOL

LPAR or z/VM	z/VSE Production System LPAR or z/VM	z/VSE Test System LPAR or z/VM
IFL Engine	Standard Engine	
IBM System z		
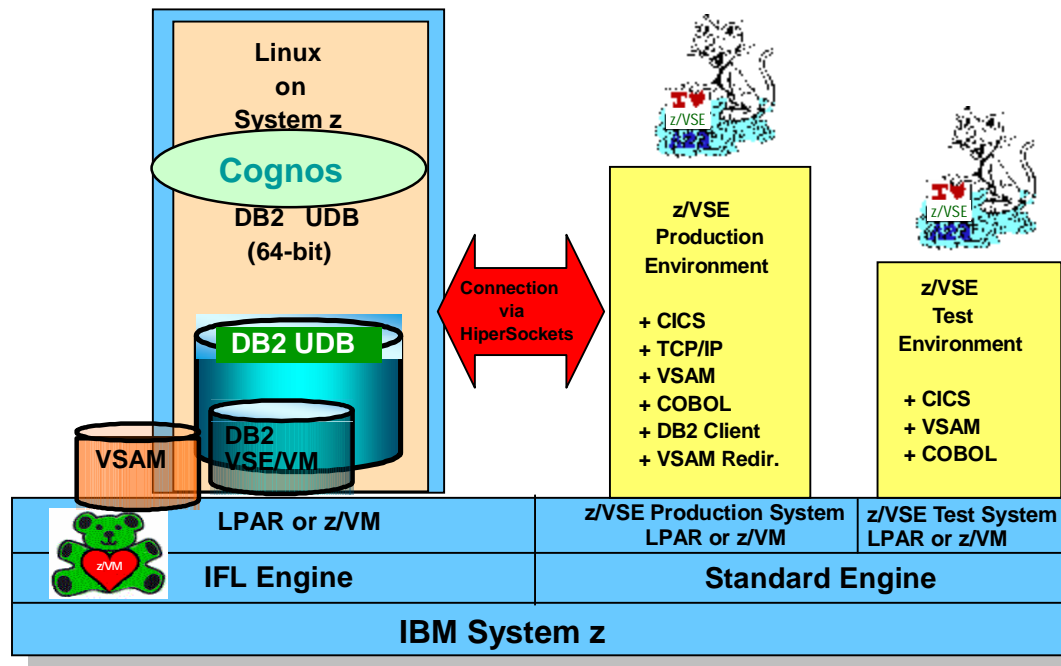
Evolving usage scenario: Backup / Restore Concept for z/VSE
Integrate z/VSE with TSM on Linux on System z
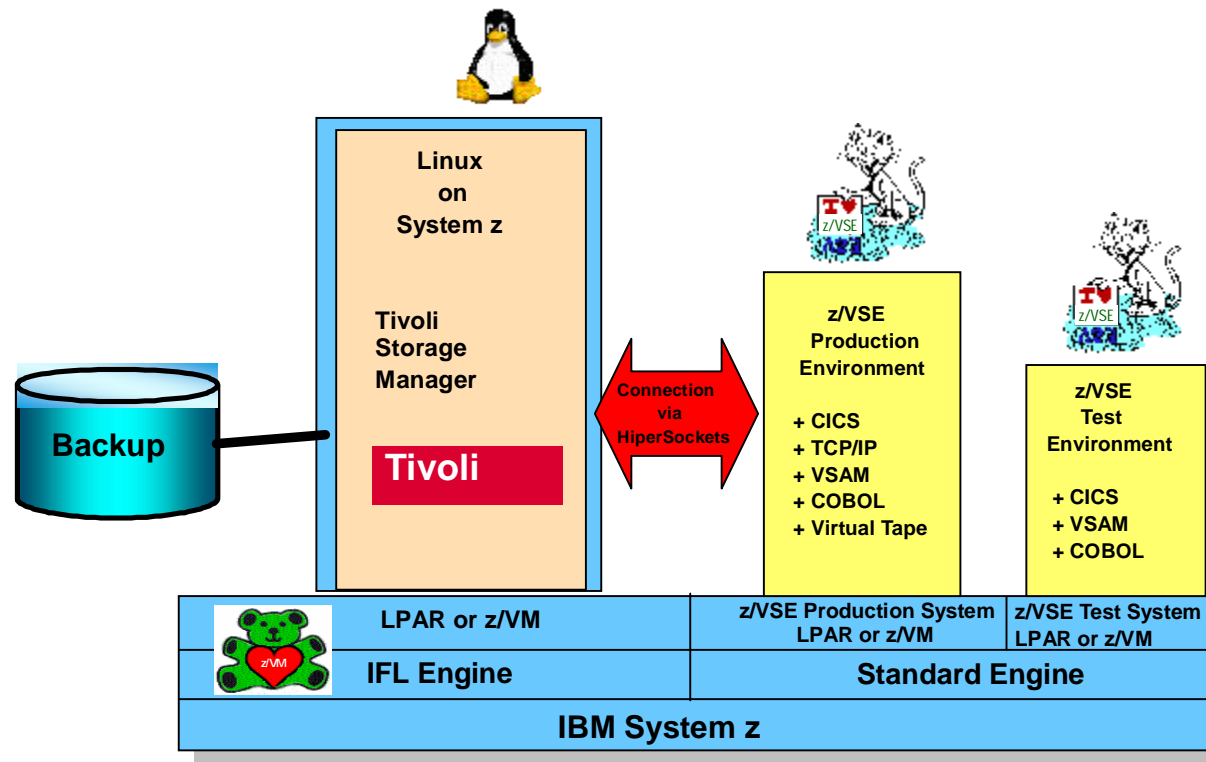
Combine the Scenarios, Manage Software Cost

Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

Extend with Linux technology and new solutions

Linux on System z

IFLs run at full speed

Firewall, ISV Appl, Open Source Appl, etc.

WAS, Portal, HATS, HoD, RDz, Lotus Domino, etc.

DB2 UDB, TSM, TEC, WS MQ, Cognos, etc.

DB2 UDB

Connection via HiperSockets

Manage SW license charges

z/VSE Production Environment
+ CICS TS
+ VTAM
+ TCP/IP
+ VSAM
+ DB2
+ Applications

z/VSE Test Environment
+ CICS TS
+ VTAM
+ VSAM
+ COBOL

MIPS

MSU

z/VM

z/VSE Production System LPAR or z/VM

z/VSE Test System LPAR or z/VM

IFL Engine

Standard Engine

IBM System z

Additional Options with zEnterprise (Example: Oracle e-Business Suite)

Supported as native port

Applications not certified on LoZ can be run on AIX blades

System z Hardware Management Console z(HMC) with Unified Resource Manager

System z Host

IBM Power7 Blades

z/OS z/TPF z/VSE

Oracle DB and FMW

Oracle EBS Mid-Tier

Oracle DB and FMW

Oracle Enterprise Manager

Oracle supported app

Oracle supported app

Oracle supported app

Linux

Linux

AIX

AIX

AIX

AIX

Linux

z/VM

Power

Power

System z PR/SM

PowerVM

PowerVM

z HW Resources

Blade HW Resources

zBX - **Optional Factory-Packaged Blades and Accelerators**

Support Element

Private Data Network

Customer Network

Customer Network

Ensemble Management Firmware

Private Management Network
Private High Speed Data Network

Agenda

§ **z/VSE Status & Support**

§ **z/VSE Strategy**

§ **z/VSE Modernization Options**

➡ § **z/VSE Software Pricing**

§ **z/VSE Functional Enhancements**

   – **z/VSE V5.1**

   – **z/VSE V5.1+**

   – **z/VSE V5.1++**

§ **Wrap-up**

MWLC – Midrange Workload License Charge on z9, z10, z196, and zEC12

Price for typical z/VSE stack

MP2000, G4, G5, G6, z900, z990

MP3000, z800, z890

MWLC

z/VSE V4/V5 stack only

z9, z10, z196, zEC12

Legend:
- GMLC
- GOLC (MP3000)
- zELC (z800)
- TWLC (z890)

X-axis (MSU): 1 1 2 2 3 4 6 7 11 13 14 15 16 19 20 22 25 26 28 30 32 33 35

Y-axis: $

§ *"I just got our April software bill from IBM for the first month on our z9 under z/VSE 4.1 and MWLC. We were paying $22,965 per month on our z800 under z/VSE 3.1.2. The April bill is for the same software and it is $12,318: a difference of $10,647 per month."* **Mike Moore, IT Manager, Alabama Judical Datacenter, Alabama**

AEWLC − Advanced Entry Workload License Charge on z114

Price for typical z/VSE stack

Legend:
- **GMLC**
- **GOLC (MP3000)**
- **zELC (z800)**
- **TWLC (z890)**
- **MWLC (z9/10/196/EC12)**
- **AEWLC (z114)**

MP2000, G4, G5, G6, z900, z990

MP3000, z800, z890

z9, z10, z196, zEC12

z114

z890-110

$

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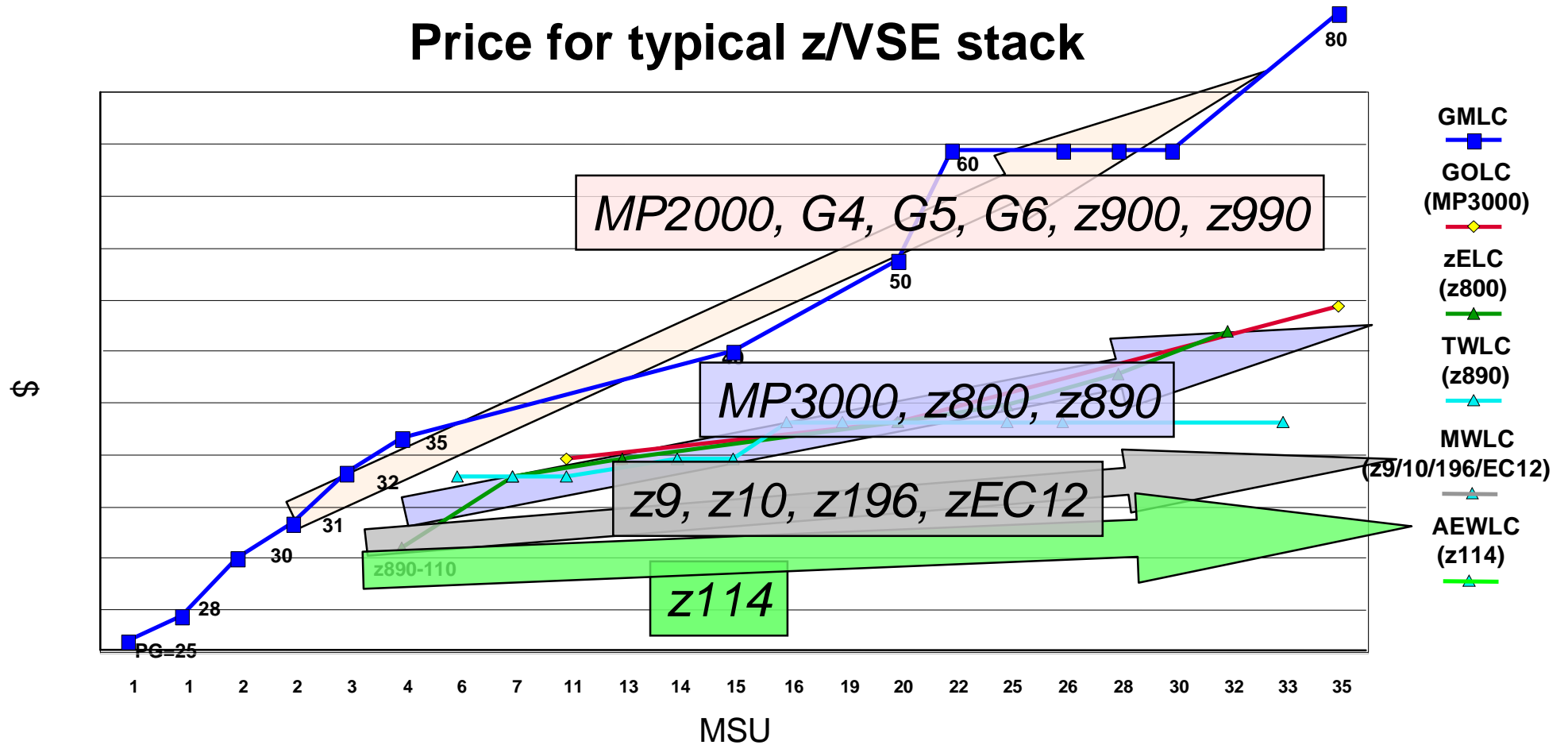
Typical z/VSE stack consists of z/VSE Operating System, LE, CICS TS, VTAM, TCP/IP, DB2

PVU Table
Processor Value Units

PVU Website Link:
click here

http://ibm.com/software/lotus/
passportadvantage/pvu_licen
sing_for_customers.html

Notes:
1) Each Integrated Facility for Linux (IFL) or Central Processor (CP) engine is equivalent to 1 processor core.

2) Refers to System z9, eServer zSeries, or System/390 servers.

3) Entitlements required for Power Processor Element (PPE) cores only.

4) The PVU requirement for the POWER7 processor technology is dependent on the maximum possible number of sockets on the server.

5) z196 refers to IBM zEnterprise 196

6) z114 refers to IBM zEnterprise 114

PVU Table per Core (section 1 of 2 - RISC and System z)

Processor Vendor	Processor Name	Server model numbers	Maximum number of sockets per server	One-Core (1)	Dual-Core (2)	Quad-Core (4)	Hexa-Core (6)	Octi-Core (8)	16-Core (16)	IFL Engine	Proc. Model Number	PVUs per Core
IBM	POWER7 [4]	770,780,795	> 4			■	■	■			All	120
		750,755,775 PS704	4				■	■			All	100
		PS700-703, 710-740	2			■	■	■			All	70
	POWER6	550,560,570, 575,595	All		■						All	120
		520, JS12,JS22, JS23,JS43	All		■						All	80
	POWER5, POWER4	All	All		■						All	100
	POWER5 QCM	All	All			■					All	50
	z196, **zEC12** System z10 [1,5]	All	All							■	All	120
	z114, System z9 z990, S/390 [1,2,6]	All	All							■	All	100
	PowerPC 970	All	All		■						All	50
	PowerXCell™, Cell/B.E.™ 8i [3]	All	All	■							All	30
HP / Intel®	Itanium® 1,2	All	All		■	■					All	100
	PA-RISC	All	All		■						All	100
Sun / Fujitsu	SPARC64 VI, VII	All	All		■	■					All	100
	UltraSPARC IV	All	All		■						All	100
	SPARC T3	All	All					■	■		All	70
	UltraSPARC T2	All	All				■	■	■		All	50
	UltraSPARC T1	All	All				■	■	■		All	30
Any	Any single-core	All	All	■							All	100

* Requirements as of Publish Date: July 12, 2011

System z

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- § **z/VSE Modernization Options**
- § **z/VSE Software Pricing**
- § **z/VSE Functional Enhancements**
  - – **z/VSE V5.1**
  - – **z/VSE V5.1+**
  - – **z/VSE V5.1++**
- § **Wrap-up**

z/VSE V5.1   -   GA since Nov-25-2011

§ Introduction of an Architectural Level Set (ALS) that requires System z9 (or later)
- z/VSE V5 will run on System z9 BC/EC, z10 EC/BC, zEnterprise z196/z114, and zEC12

§ 64-bit virtual addressing for growing / future workloads
- Keep 'more data in memory' to benefit from increased processor storage
- Built upon 64-bit real addressing, compatible API with z/OS

§ IBM zEnterprise exploitation
- Support Static Power Save Mode for MWLC clients with subcapacity option on z196
- 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)
- z/VSE z/VM IP Assist (VIA)

§ Exploitation of IBM System Storage options
- Copy Export function of TS7700 Virtualization Engine for disaster recovery
- IBM Storwize V7000 Midrange Disk System

§ Networking enhancements
- IPv6 support added to Linux Fast Path connector
- GDPS client for high availability in z/VSE

§ Statement of Direction
- CICS Explorer capabilities for CICS TS for VSE/ESA to deliver additional value
- Allow the Linux Fast Path function to be used in an LPAR environment

z/VSE V5.1+ aka V5.1.1 - GA since June-15-2012

§ **Support IBM CICS Explorer – the new face of CICS Transaction Server**
  – Add value to CICS TS for VSE/ESA
  – New systems management framework for CICS TS (consists of client and server part)
  – Client part of CICS Explorer common for z/OS and z/VSE, server part requires CICS TS and z/VSE V5.1
  – *Fulfills SOD in z/VSE V5.1 Preview Announcement (RFA54520), 04/12/2011*

§ **Fast Path to Linux on System z (LFP) in LPAR**
  – Allows TCP/IP applications to communicate with TCP/IP stack on Linux w/o using a TCP/IP stack on z/VSE
  – LFP in a z/VM guest environment available since z/VSE V4.3 – now LPAR support is added
  – LFP in LPAR requires HiperSockets Completion Queue function of zEnterprise
  – *Fulfills SOD in zEnterprise Announcement (RFA54727), 07/12/2011*
  – *Fulfills SOD in z/VSE V5.1 Announcement (RFA55492), 10/12/2011*

§ **z/VSE database connector for z/VSE applications**
  – Allows to utilize a new Call Level Interface (CLI) to advanced database functions
  – Flexibility to use a database server on a platform other than z/VSE (for example in a zBX environment)

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 V5.1
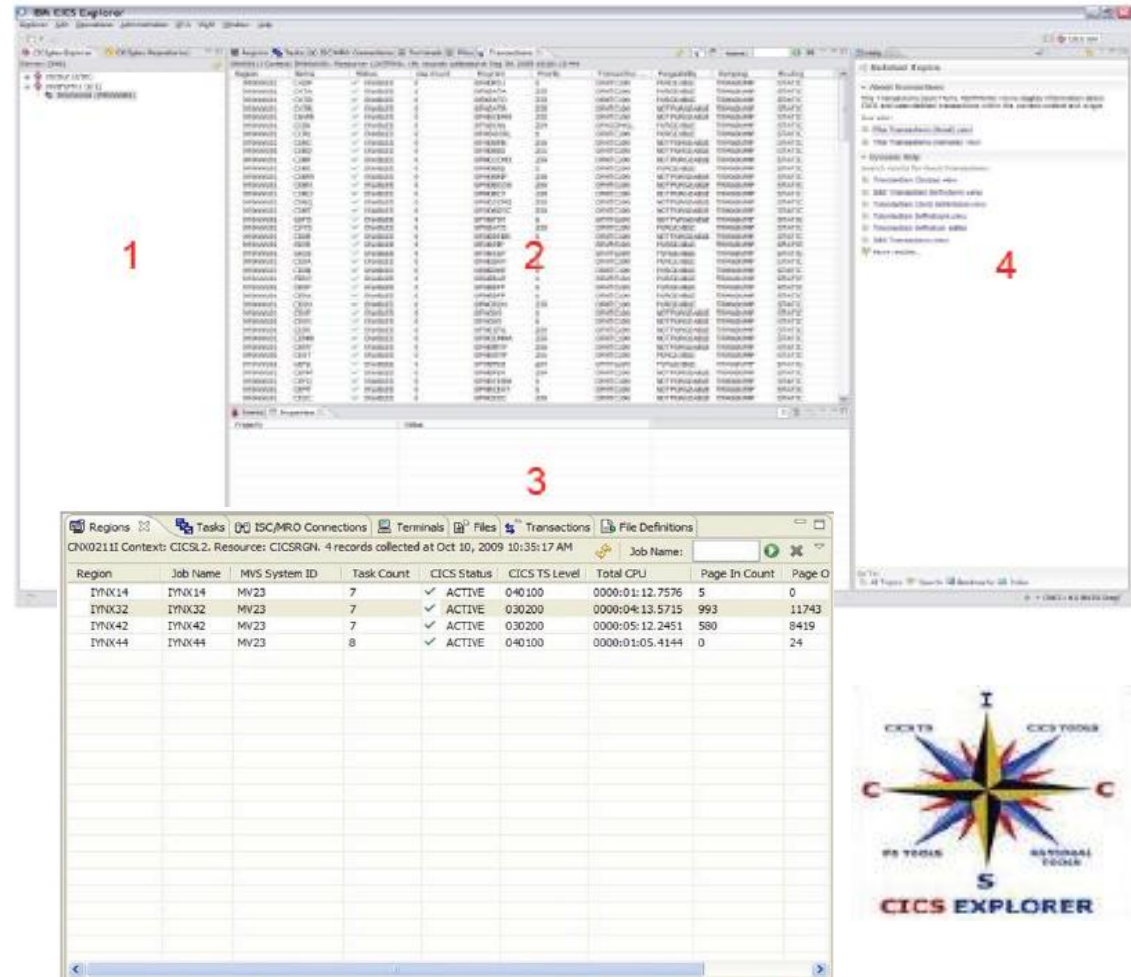
Fulfills Statement of Direction:
"IBM intends to provide CICS Explorer capabilities for CICS TS for VSE/ESA, to deliver additional value."

Linux Fast Path in an LPAR environment with z/VSE V5.1+

Faster communication between z/VSE and Linux applications

à Exploits the HiperSockets Completion Queue support of IBM zEnterprise

Application

TCP/IP Stack

z/VSE Supervisor

Application

TCP/IP Stack

Kernel

HiperSockets, OSA, VSWITCH

network

network

Without LFP

Application

z/VSE Supervisor

Application

LFP Daemon

TCP/IP Stack

Kernel

Hipersockets CQ

zEnterprise z196, z114*, zEC12

*) Driver level 93 or later.

network

With LFP in LPAR
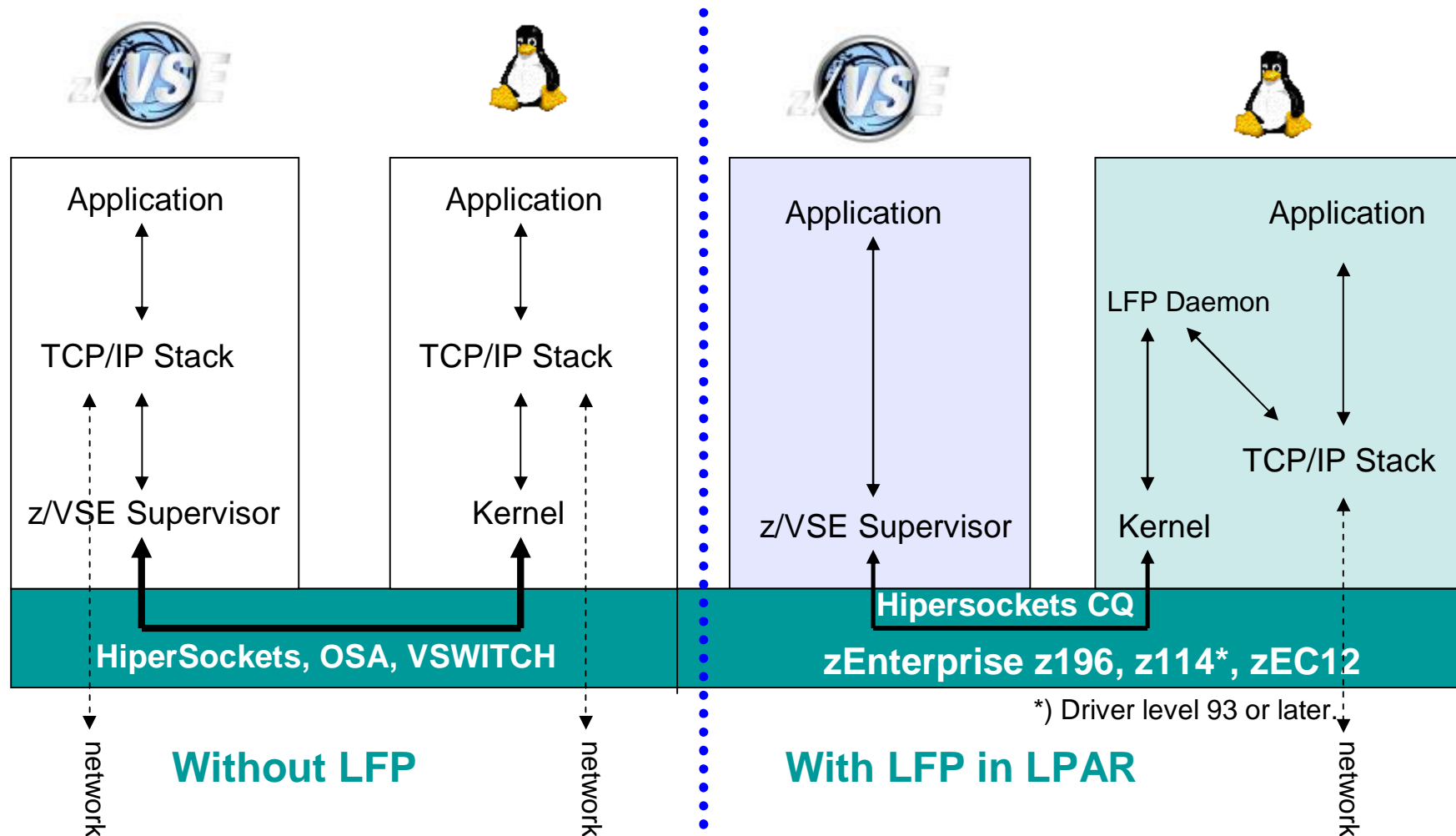
z/VSE Data Base Call Level Interface (DBCLI) with z/VSE V5.1+

z/VSE universal data base connector

§ Allows z/VSE applications to access a relational database on any suitable database server
  – IBM DB2, IBM Informix, Oracle, MS SQL Server, MySQL, etc.
    à *The database product must provide a JDBC driver that supports JDBC V3.0 or later*
§ Utilize advanced database functions and use SQL statements
§ Flexibility to use a database server on a platform other than z/VSE
  – for example, zBX environment
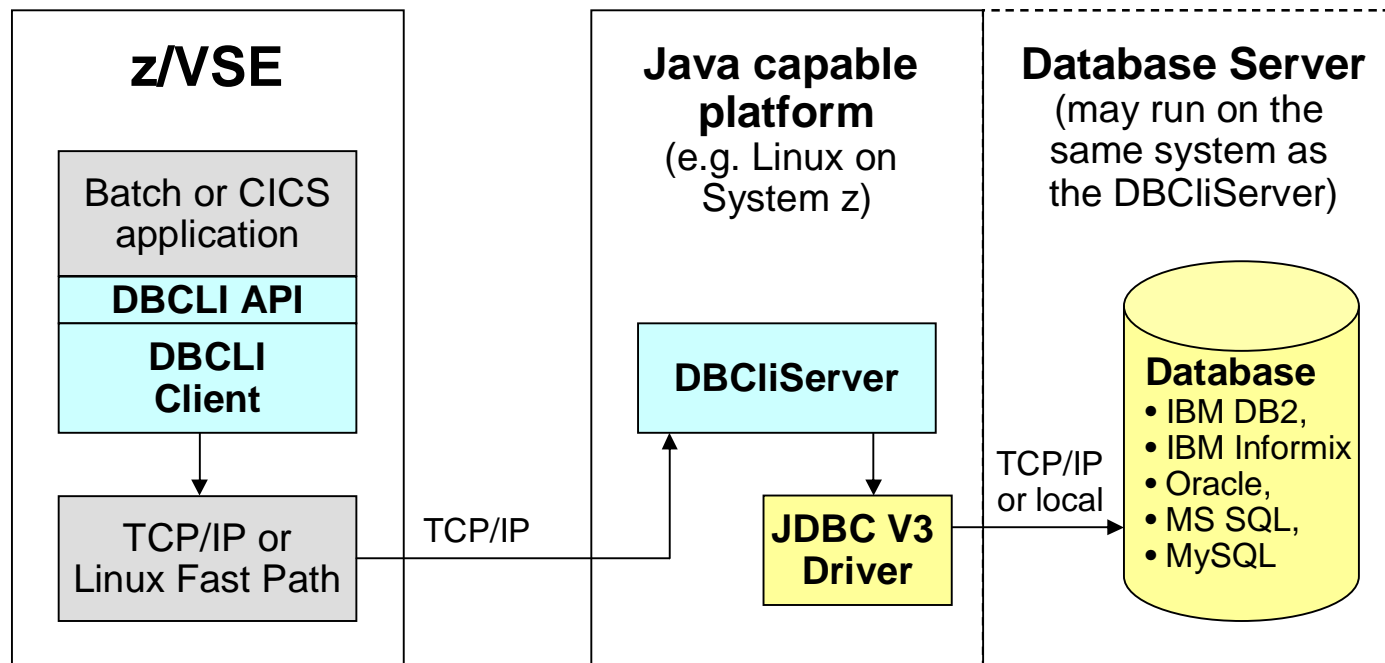
z/VSE V5.1++ is planned to become V5.1.2
Announced April-2-2013, GA planned for June-14-2013

§ **Support innovative zEnterprise EC12 technology**

– Configurable Crypto Express4S

– OSA-Express4S 1000BASE-T

§ **Support enhanced IBM System Storage options**

– TS1140 tape drive (with encryption capabilities)

– TS7700 Virtualization Engine Release 3.0 (includes disk-based encryption)

– DS8870 (for use with both, ECKD and FCP-attached SCSI disks)

– Storwize V7000 Release 6.4 (for use with FCP-attached SCSI disks)

§ **64-bit Input / Output processing for applications**

– Enhances 64-bit virtual support by allowing to use 64-bit virtual storage also for I/O buffers

– Benefits from increased processor storage of latest zEnterprise servers

§ **Extend z/VSE connectivity and networking options in heterogeneous environments**

– z/VSE database connector connection pooling – performance improvement

– Configurable HiperSockets buffers – for improved throughput to Linux on System z

– IPv6/VSE: Layer-2 support for IPv4 links in addition to IPv6 links – more flexibility in mixed z/VSE, z/VM, Linux on System z configurations

§ **Provide IPv6/VSE security enhancements**

– Secure Sockets Layer (SSL) support – secure transmission of data to and from remote systems

– Exploits hardware-assisted encryption with System z cryptographic adapters and CPACF

Three new Statements of Direction, announced on April-2-2013

§ IBM intends to add functionality that **allows initial installation of z/VSE without requiring a physical tape.**

– Clients who use a tape for initial installation only, may no longer be forced to include a tape in the z/VSE configuration.

– With this ease of use function IBM will fulfill client requirements.

§ IBM intends in the **future to enhance IBM CICS Explorer** for IBM CICS Transaction Server for VSE/ESA to provide updates to CICS resources.

§ It is planned to **reduce** the AEWLC and MWLC **list price of IPv6/VSE** V1.1.
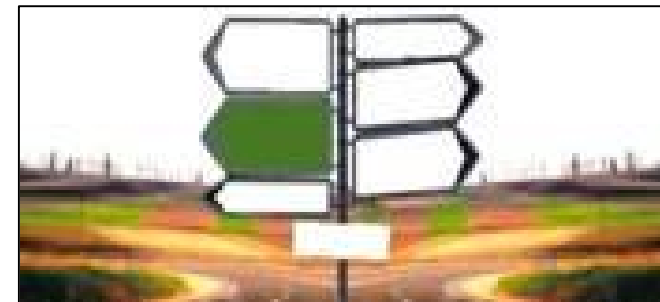
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Agenda

§ **z/VSE Status & Support**

§ **z/VSE Strategy**

§ **z/VSE Modernization Options**

§ **z/VSE Software Pricing**

§ **z/VSE Functional Enhancements**

  – **z/VSE V5.1**

  – **z/VSE V5.1+**

  – **z/VSE V5.1++**

§ **Wrap-up**

IBM

z/VSE continues to demonstrate IBM's commitment

**Hardware Support
More Capacity
Quality
z/OS Affinity
Interoperability
Protect Integrate Extend**

z/VSE V5.1+ - 2Q2012

Ø**CICS Explorer Monitoring**
Ø**Universal database connector**
Ø**Linux Fast Path in LPAR**

z/VSE V5.1 - 4Q2011

Ø**zEnterprise exploitation**
Ø**IEDN connection to zBX**
Ø**64-bit virtual memory objects**
Ø**ALS to System z9 (+ higher)**
Ø**z/VSE z/VM IP Assist (VIA)**

z/VSE V5.1++ - 2Q2013

Ø**64-bit I/O for applications**
Ø**Networking enhancements**
Ø**Security enhancements**

**+ SoD: CICS Explorer Update, DVD
Install, Price Reduction IPv6/VSE**

z/VSE V4.3 - 4Q2010

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

+ SoD: CICS Explorer, LFP in LPAR

+ SoD: 64-bit virtual support

z/VSE 5.1+ and ++ denote enhancements
made available via PTF

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