z/VSE V4.1 Live Virtual Classes

Part 1: z/VSE and MWLC Announcement Overview
February 1, 2007

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§ **Agenda** for z/VSE V4.1 LVC Part 1

– z/VSE Version 4 Release 1

– Midrange Workload License Charges (MWLC)

– z/VSE Version 4 Strategy

– Summary

– Q & A session

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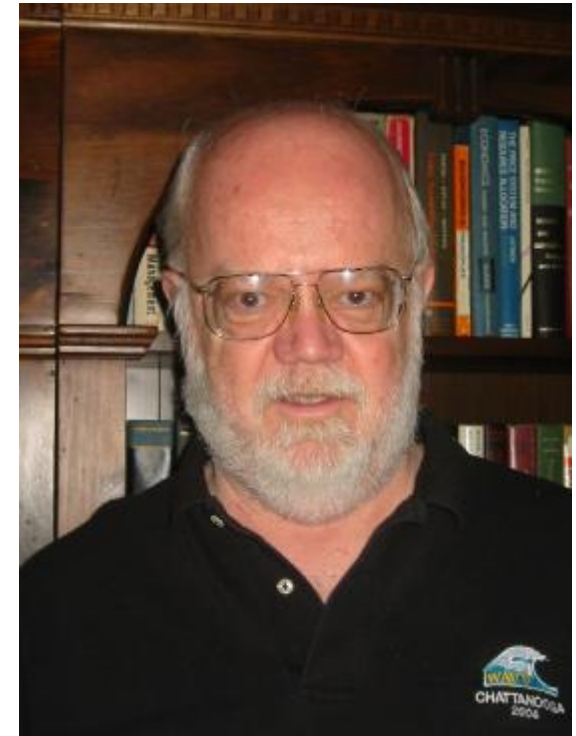
z/VSE Version 4 Release 1

z/VSE Version 4 Release 1

§ Preview 4/27/2006

§ Announce 1/9/2007

§ **General Availability 3/16/2007**

§ **z/Architecture mode _only_**
  – 64-bit _real_ addressing (31-bit _virtual_ addressing)
    • up to 8 GB real processor storage
  – IBM System z9 EC and z9 BC servers
  – IBM eServer zSeries 990, 890, 900, and 800 servers

§ **Capacity Measurement Tool (CMT)**
  – fulfills SOD from July 2005

§ **New MWLC pricing metrics (z/VSE V4 on z9 EC and z9 BC _only_)**
  – Improved price/performance with full-capacity MWLC price points
  – Sub-capacity MWLC option for added price/performance

§ **Encryption enhancements**
  – CPACF enhancements (AES-128)
  – Configurable Crypto Express2 (new accelerator option)
  – SecureFTP
  – IBM System Storage TS1120 encrypting tape

z/VSE Version 4 Release 1 (cont.)

§ **TCP/IP for VSE/ESA V1.5 Service Pack E enhancements**, including
- Performance
- Security and SSL
  - CPACF AES-128
  - Crypto Express2 2048-bit RSA keys
  - SecureFTP
- Message Logging, FTP, Telnet, eMail, BSE/C Socket API

§ **SOA and Interoperability**
- VTAPE interface to Tivoli® Storage Manager (TSM) to backup VSE data
- VSAM Capture Exit
- upgrade to JDK 1.5 (Java5) standard

§ **Component changes**
- ACF/VTAM V4.2 31-bit buffers
- BSM security logging and reporting
- VSE/POWER enhancements
- LE/VSE enhancements and z/OS affinity

§ **FSU from z/VSE V3.1 and VSE/ESA V2.7**

§ **Requires z/VM V5.2 (or later) if running under VM**

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z/VSE support for IBM System Storage

New Standard in Pricing and Packaging		New Standard in Functionality, Performance, TCO
IBM TotalStorage DS6000	ESS 750 / 800	IBM TotalStorage DS8000

IBM System Storage	DS6000	ESS 750, 800, 800Turbo	DS8000, DS8000 Turbo
ESCON	*Not Avail*	Yes	Yes
FICON	Yes	Yes	Yes
FCP/SCSI	Yes	Yes	Yes

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z/VSE support for IBM TS1120 Tape Drive Encryption

§ **IBM System Storage TS1120 - first encrypting tape drive**
  – Standard feature on new TS1120 tape drives
  – Supports data encryption using 256 bit AES encryption
  – Microcode enhancements for encryption policy and key communications
  – Encryption performed with minimal (< 1% data rate performance impact)
  – Data is compressed *and* encrypted – no change in media utilization
  – Supports "traditional" and "encrypted" modes of operation
  – Encryption "disabled" unless otherwise specified
  – Chargeable upgrade feature for existing TS1120 Drives

§ **z/VSE V4.1 designed for Systems Managed Encryption**
  – Support may be available via PTF after z/VSE V4.1 GA
  – SOD for z/VSE V3.1

§ **Innovative IBM Encryption Key Manager (EKM) component for Java platform™ supported on a range of systems including:**
  – z/OS, AIX, Linux (incl System z), i5/OS, HP, Sun, and Windows

§ **Integration with IBM tape systems, libraries**

TS1120
500 GB
100 MB/sec

Encryption Key Manager

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z/VSE Comparison

§ z/VSE V3.1* (GA 3/2005)

- ESA/390 (31-bit) mode only
  - up to 2GB real processor storage
  - System z9 EC *and* z9 BC
  - zSeries 990, 890, 900, 800
  - **Multiprise 3000 & S/390 G5/G6**
  - ……
- HiperSockets
- CPACF
- Crypto Express2 (configurable)
- FCP/SCSI disks & NPIV
  - DS8000, DS6000, ESS
- FICON Express2 & 4
- OSA Express2
- 31-bit buffers for ACF/VTAM (via PTF)
- SOD for TS1120 encrypting tape

§ **z/VSE V4.1 (GA Planned 3/2007)**

- **z/Architecture (64-bit) mode <u>only</u>**
  - **up to 8 GB real processor storage**
  - System z9 EC *and* z9 BC
  - zSeries 990, 890, 900, 800
- **MWLC Pricing Metric (z9 <u>only</u>)**
  - **Full-capacity & sub-capacity mode**
- HiperSockets
- CPACF + enhancements
- Crypto Express2 (configurable)
- FPC/SCSI disk & NPIV + point-to-point
  - DS8000. DS6000, ESS
- FICON Express2 & 4
- OSA Express2
- 31-bit buffers for ACF/VTAM
- TS1120 encrypting tape

Note 1: z/VSE V3 can operate in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE V3 is designed to support selected features of IBM System z hardware

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z/VSE Status

VSE Version and Release	Marketed	Supported	End of Support
z/VSE V4.1	**Yes**	**Yes**	tbd
z/VSE V3.1	Yes	Yes	tbd
VSE/ESA V2.7	No	Yes, *but …*	02/28/2007

# Introducing a <u>New</u> Price Metric for z/VSE V4

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Midrange Workload License Charge (MWLC)

§ Requires current hardware (IBM System <u>z9 EC or z9 BC</u>) *and* <u>z/VSE V4</u>
  – exception: z9 BC Capacity Setting A01 remains zELC

§ Full-capacity and sub-capacity MWLC options
  – <u>full-capacity</u> mode offers improved price/performance compared to GOLC, zELC, and TWLC alternatives
  – additional price/performance possible through <u>sub-capacity</u> mode

§ Structured to help address new z9 opportunities

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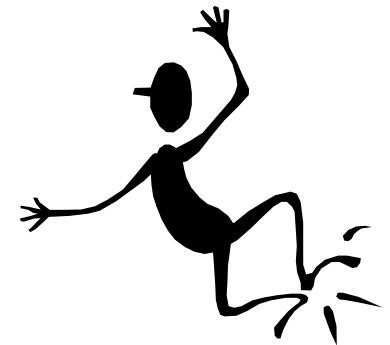
# VSE & VSE-related Products Eligible for MWLC

§ **Base**
- 5686 CF8   VSE Central Functions
- 5696 234   HLASM
- 5648 054   CICS TS for VSE/ESA V1
- 5686 065   ACF/VTAM® VSE/ESA V4
- 5686 A04   TCP/IP for VSE/ESA V1.5
- 5648 099   DITTO/ESA® for VSE
- 5697 F42   DB2 Server for VSE & VM

§ **Optional Products**
- 5686 068   IBM COBOL for VSE/ESA
- 5686 A01   IBM C for VSE/ESA
- 5686 069   IBM PL/1 for VSE/ESA
- 5746 SM3   IBM DFSORT/VSE V3
- 5746 XX1   DL/I VSE
- 5686 A06   MQSeries® for VSE/ESA

MWLC Sample Stack vs. TWLC and FWLC
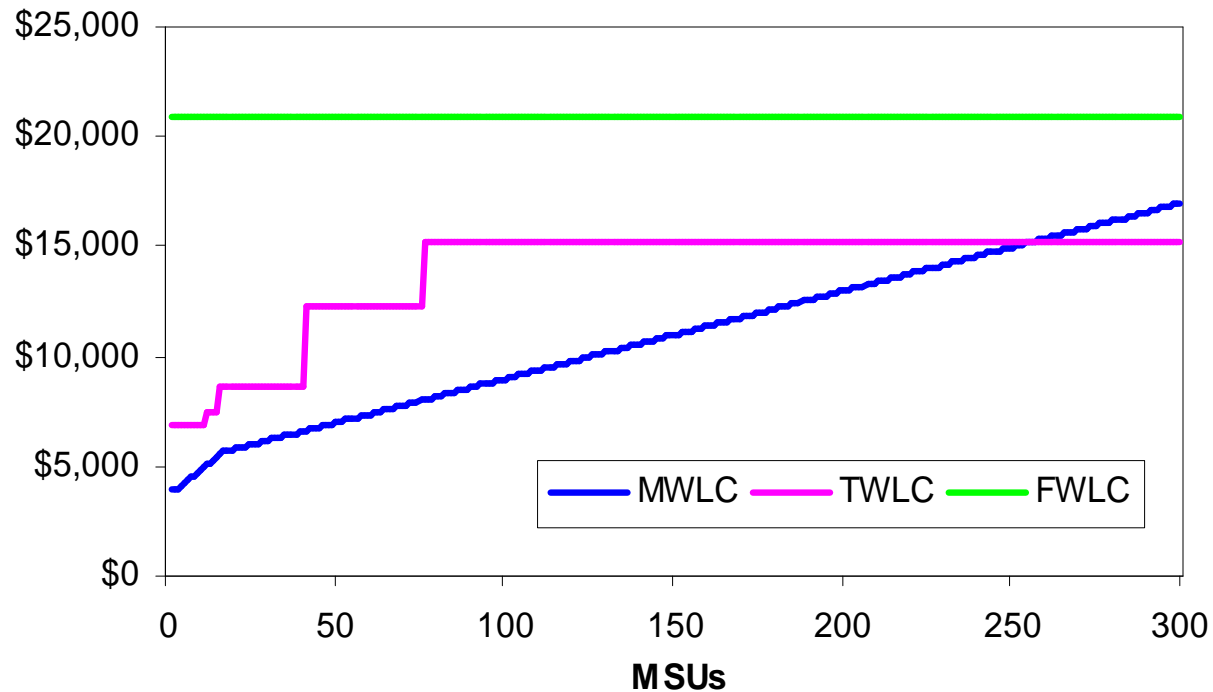
§ Customers may choose between MWLC/TWLC or MWLC/FWLC as appropriate to their machine

§ Additional price/performance may be possible with sub-capacity mode

*Sample software stack includes: VSE CF V8, HLASM, VTAM, DITTO, COBOL
*Prices subject to change without notice; all prices shown in USD

What is sub-capacity?

Full-Capacity pricing metric relies on the *total rated capacity* (measured in MSUs) of the MACHINE where a product executes.

System z @ 100 MSUs

50 MSUs	30 MSUs
DB2 CICS z/VSE	DFSORT® COBOL z/VSE
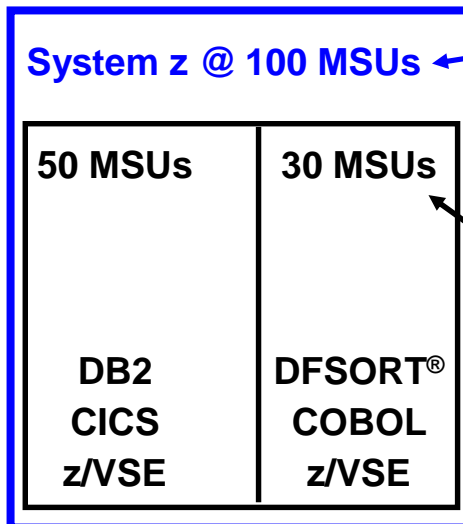
Sub-Capacity pricing metric relies on the utilization (based on peak *4-hour rolling average* each month) of the LPAR(s) or guest Virtual Machines where a product executes.

Generic sub-capacity example
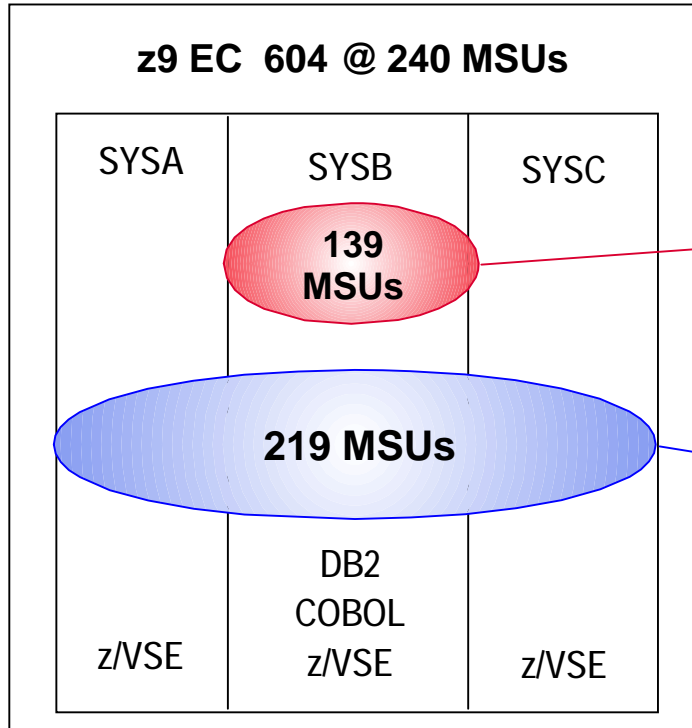
Product	Sub-Cap MSUs
DB2	139 MSUs
COBOL	139 MSUs
z/VSE	219 MSUs

z9 EC 604 @ 240 MSUs

SYSA — SYSB — SYSC

139 MSUs

219 MSUs

DB2 COBOL z/VSE

z/VSE — z/VSE — z/VSE

SYSB utilization — rolling avg SYSB

one month

A & B & C utilization — rolling avg A & B & C

one month

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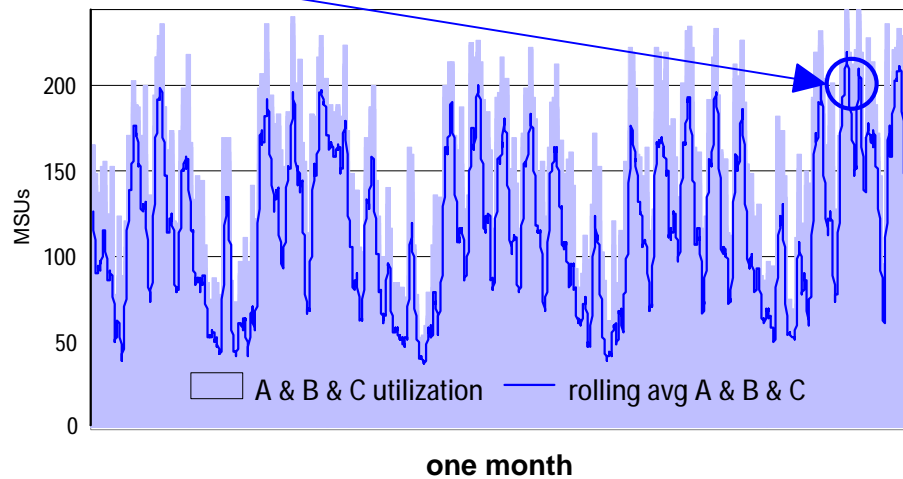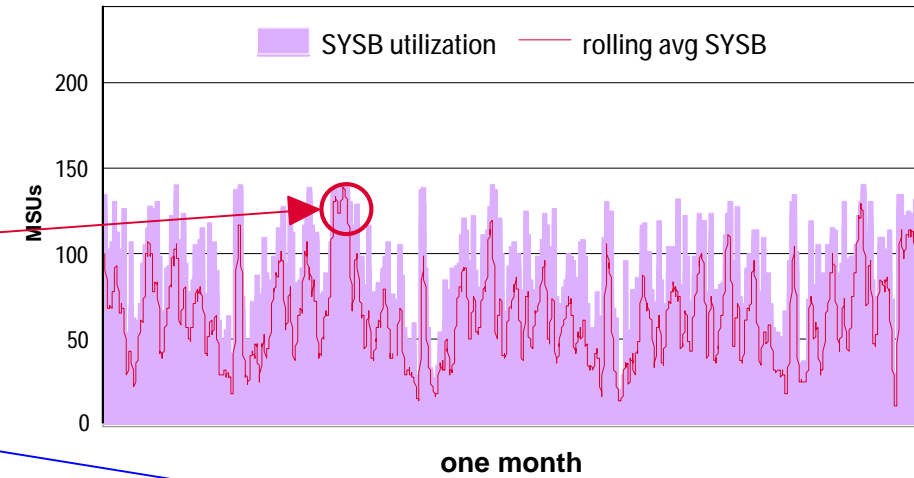
New Opportunities with MWLC

§ **More MSUs for the same, or lower, IBM software $**

– More capacity for future growth, workload spikes, seasonal factors, emergencies, etc.
  • disconnect hardware growth from software charges
  • grow into installed capacity gradually with a 1 MSU level of granularity
– IBM software $ respond to normal cyclicality
– Isolate middleware products to reduce software costs (depending on workload)
  • examine workload to identify where you might limit product use to specific LPARs (or VM guests)
  • limit LPAR (or VM guest) utilization to control software costs (optional)
  • expand priority LPARs (or VM guests) without impacting other LPARs (or VM guests)
– Add IFL(s) and Linux-based IBM middleware to the mix for new workloads

§ **Pick the server that best meets your customer needs**

– High end and midrange IBM System z9 servers are no longer priced differently

§ **Server consolidation in large accounts**

– Consolidate remote, vulnerable VSE workloads onto LPARs on System z9 EC servers primarily running z/OS at HQ

§ Same MSUs for lower IBM software $

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z/VSE Strategy

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VSE Customer Environment

§ Mixed servers (System z, System p, System x, System i, and competitive)
§ CICS and batch programs on z/VSE
§ VSAM data on z/VSE (plus some DB2, DL/I, or ISV databases)
§ Relational data bases (DB2, Oracle, etc.) on distributed platforms
§ Data exchange via FTP

System i

I5/OS / Linux DB2

DB2 UDB

System x Server Farm

System p

AIX 5L / Linux SAP DB2 / ORACLE

DB2 UDB

IP

IP

Windows / Linux DB2 / ORACLE

DB2 UDB

Data Exchange via FTP

z/VSE Production Environment

+ TCP/IP
+ CICS
+ VTAM
+ COBOL

VSAM

+ VSAM
+ DB2

DB2 VSE/VM

z/VSE Test Environment

+ CICS
+ VSAM
+ COBOL

LPAR or z/VM

LPAR or z/VM

System z
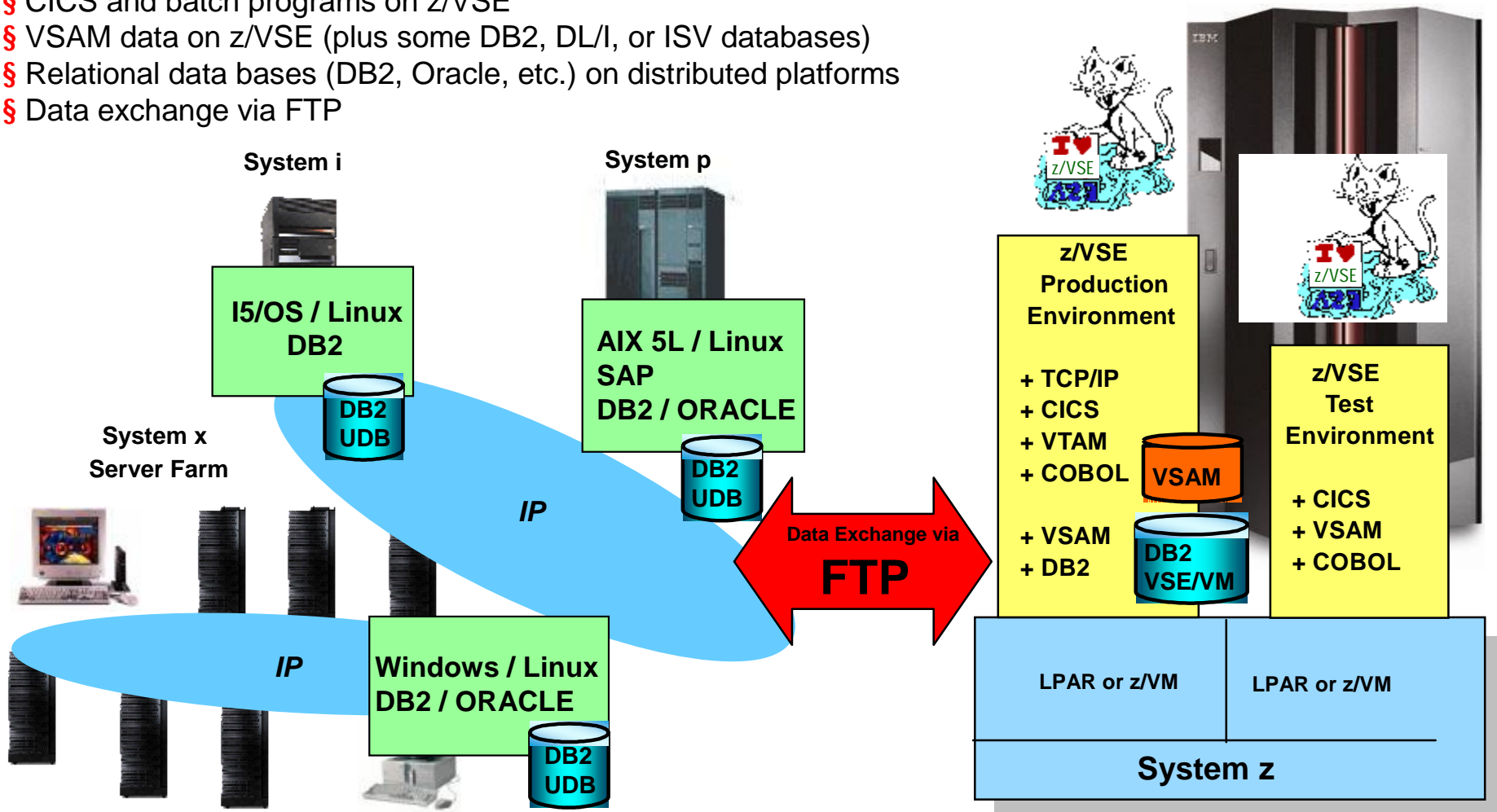
Most important requirement: **Access to new applications!**

z/VSE "PIE" Strategy

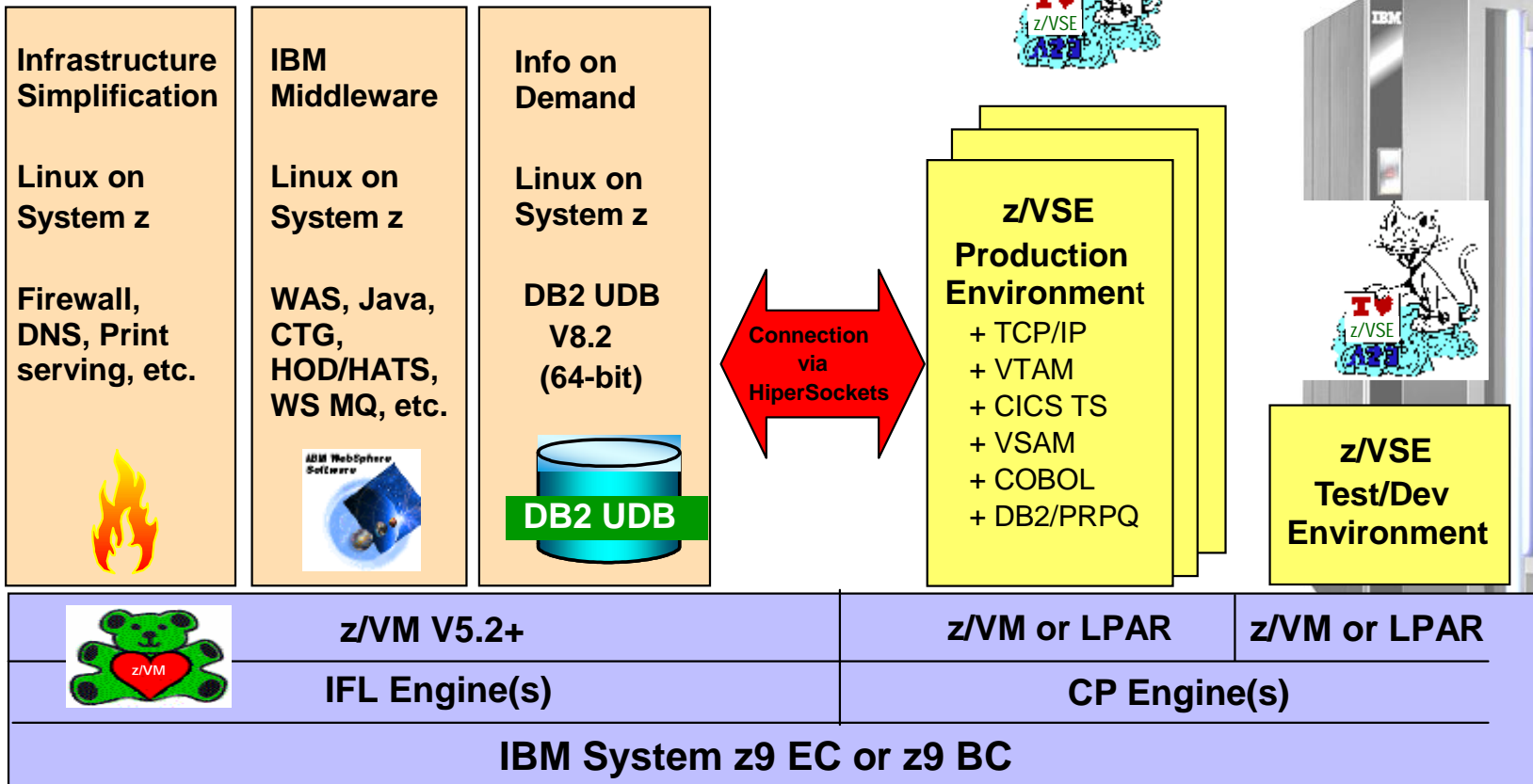§ Help **P** rotect existing customer investments in core z/VSE programs, data, equipment, business & IT skills, *plus* business processes, end user training

– Modernize, i.e. extend z/VSE resources to Web

– Exploit IBM servers, storage, and software

– z/OS affinity

§ Help **I** ntegrate z/VSE with the rest of IT, based on open and industry standards

– VSE connectors and SOA Web services

– IBM middleware

§ Help **E** xtend solutions with Linux on System z

– Linux as a preferred platform for new workloads

• leverage existing core VSE investments

• low cost, low risk, fast time-to-market

– New line-of-business applications

– Low TCO and infrastructure simplification

z/VSE V4 and Linux on System z

......

Infrastructure Simplification Linux on System z Firewall, DNS, Print serving, etc.	IBM Middleware Linux on System z WAS, Java, CTG, HOD/HATS, WS MQ, etc.	Info on Demand Linux on System z DB2 UDB V8.2 (64-bit) DB2 UDB

Connection via HiperSockets

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

z/VSE Test/Dev Environment

z/VM V5.2+	z/VM or LPAR	z/VM or LPAR
IFL Engine(s)	CP Engine(s)	

IBM System z9 EC or z9 BC
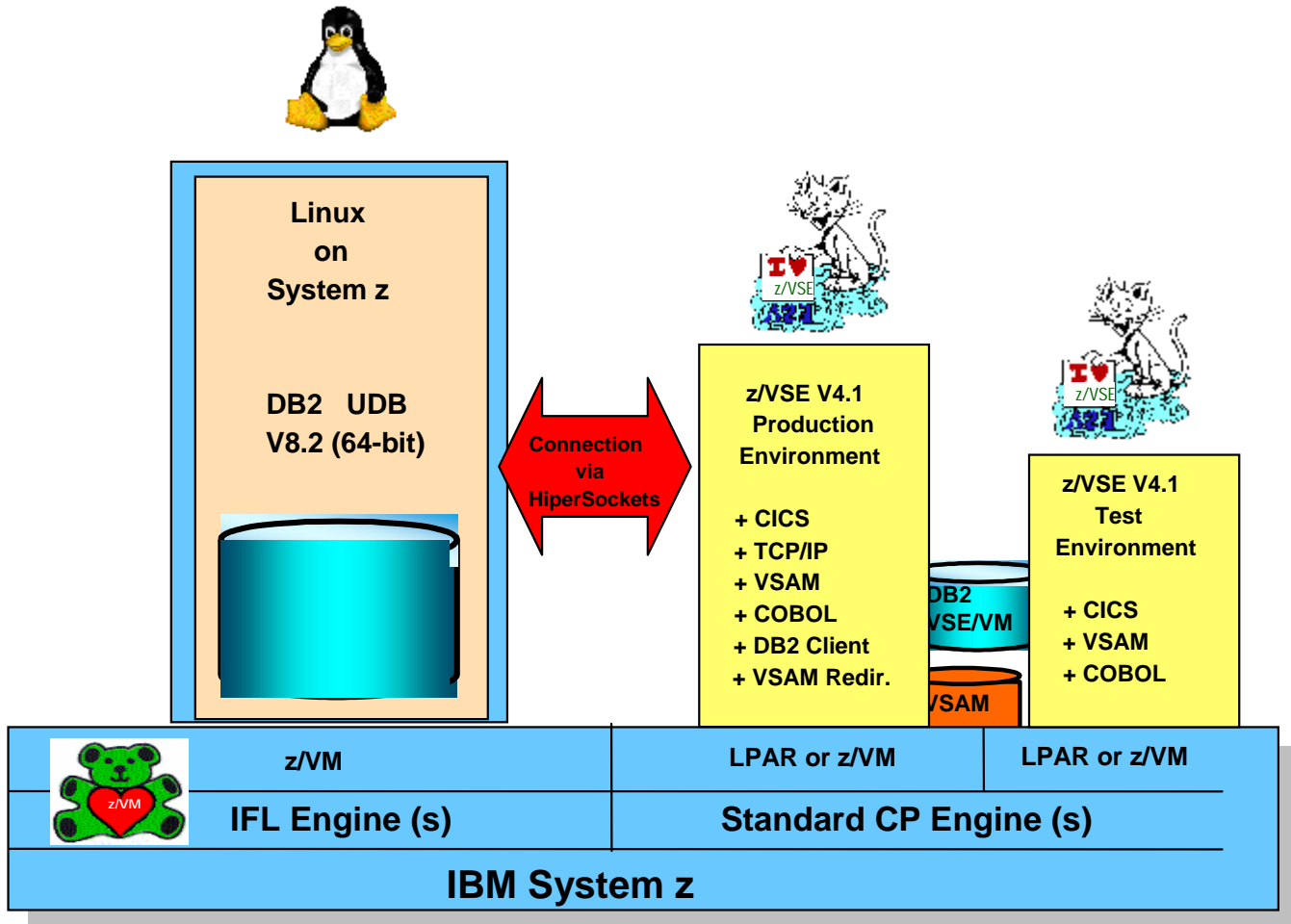
Scenario 1: DB2 UDB (64-bit) for VSE Customers

Data consolidation and data warehouse solutions with DB2 UDB on System z

Linux on System z

DB2 UDB V8.2 (64-bit)

Connection via HiperSockets

z/VSE V4.1 Production Environment

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

DB2 VSE/VM

VSAM

z/VSE V4.1 Test Environment

+ CICS
+ VSAM
+ COBOL

z/VM	LPAR or z/VM	LPAR or z/VM
IFL Engine (s)	**Standard CP Engine (s)**	

IBM System z

Scenario 2: „Webification" of VSE Applications

Web enable existing applications with Browser / Graphic front end

Linux
on
System z

WAS
HoD
HATS

Connection
via
HiperSockets

z/VSE V4.1
Production
Environment

+ CICS
+ TCP/IP
+ VSAM
+ COBOL

z/VSE V4.1
Test
Environment

+ CICS
+ VSAM
+ COBOL

z/VM

LPAR or z/VM

LPAR or z/VM

IFL Engine (s)

Standard CP Engine (s)

IBM System z

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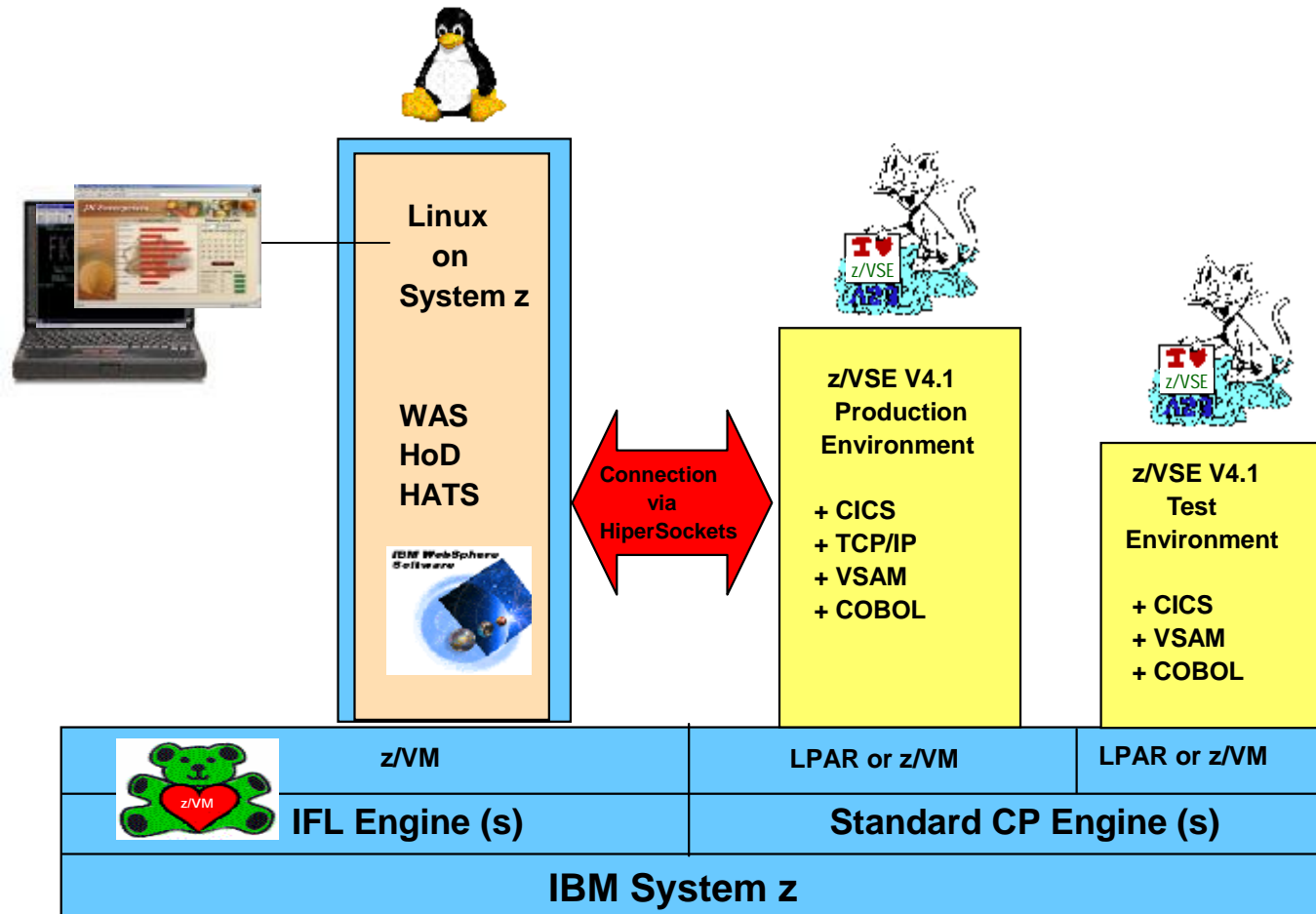
Summary/Wrap-up

z/VSE Version 4 Release 1

§ Announce 1/9/2007 (Preview 4/29/2006)

§ **General Availability 3/16/2007**

§ **z/Architecture (64-bit) mode <u>only</u>**

- Up to 8 GB real processor storage
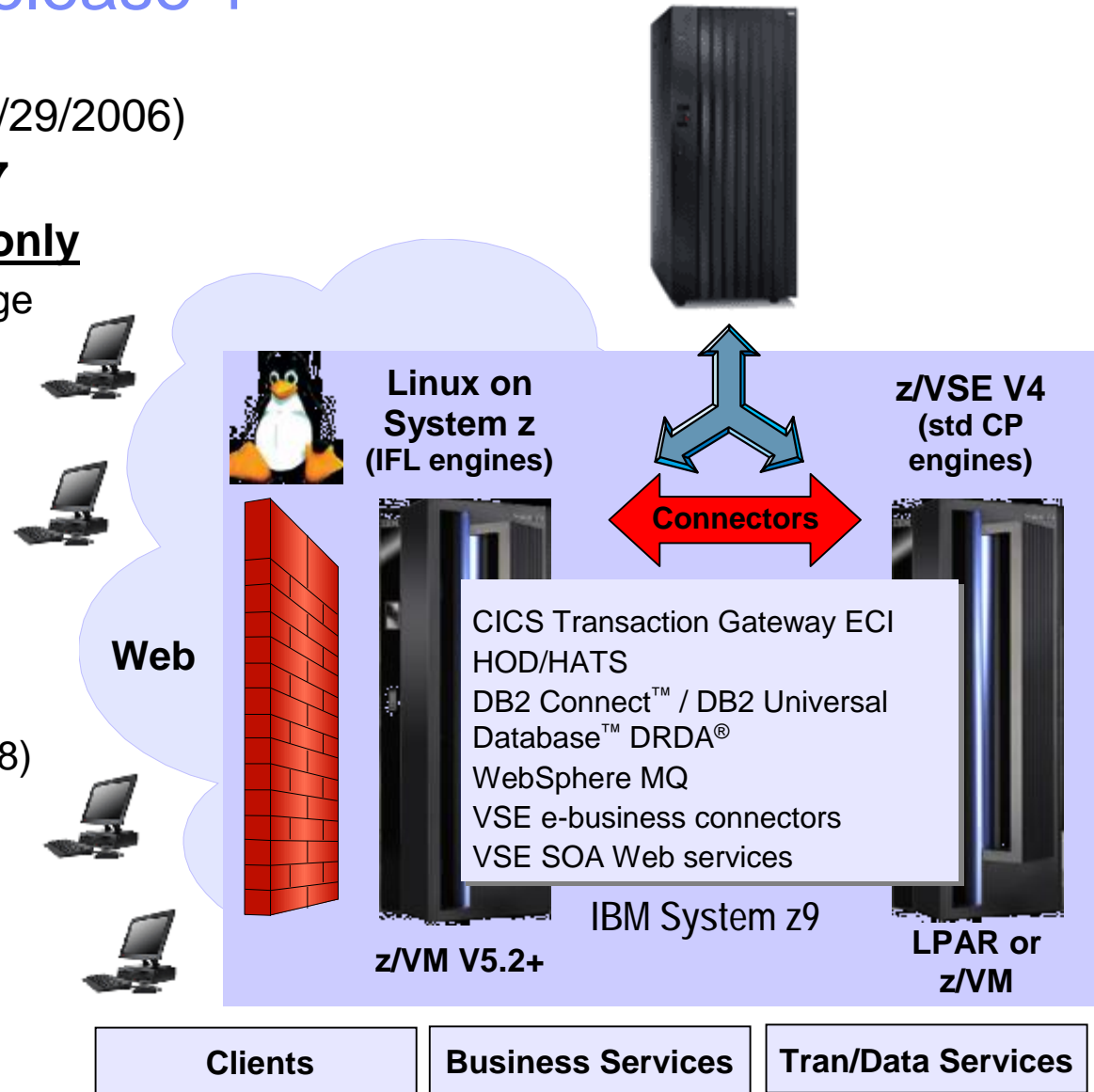- System z9 EC *and* z9 BC
- zSeries 990, 890, 900, 800

§ **New MWLC pricing metrics** (z9 <u>only</u>)

- Low full capacity price points
- Sub-capacity option

§ **Encryption enhancements**

- CPACF enhancements (AES-128)
- Crypto Express2 (configurable)
- SecureFTP
- TS1120 encrypting tape

§ **SOA and interoperability**

Linux on System z (IFL engines)

z/VSE V4 (std CP engines)

Connectors

Web

CICS Transaction Gateway ECI
HOD/HATS
DB2 Connect™ / DB2 Universal Database™ DRDA®
WebSphere MQ
VSE e-business connectors
VSE SOA Web services

IBM System z9

z/VM V5.2+

LPAR or z/VM

| Clients | Business Services | Tran/Data Services |

IBM

More z/VSE Learning Opportunities

§ **z/VSE V4.1 Live Virtual Classes**

§ **#1 z/VSE and MWLC Announcement Overview**
   - G. M. (Jerry) Johnston
   - February 1

§ **#2 Midrange Workload Licence Charges (MWLC)**
   - Dr. Klaus Goebel
   - February 22

§ **#3 z/VSE V4.1 Solutions based on SOA and DB2**
   - Wilhelm Mild
   - March 15

Note: Charts will be available on the z/VSE web site the day following each call. Replay will be available one week later. For more information, please see the z/VSE web site at:

http://www-03.ibm.com/servers/eserver/zseries/zvse/

§ **z/VSE-related Events in 2007**

§ **GUIDE-SHARE-EUROPE (GSE) -**
   - March 26 – 28
   - Berlin

§ **European IBM 2007 System z and Storage Technical Conference -**
   featuring z/OS, z/VM, z/VSE, and Linux on System z
   - April 16 - 20
   - Munich

§ **2007 WAVV Conference -**
   featuring z/VM, z/VSE, and Linux on System z
   - May 18 - 22
   - Green Bay, WI

§ **US IBM 2007 System z Expo -**
   featuring z/OS, z/VM, z/VSE, and Linux on System z
   - September 17 – 21
   - San Antonio, TX