



IBM Systems and Technology Group

z/VSE V4.1 Live Virtual Class

Part 2: Midrange Workload License Charge

Created: February 22, 2007

Updated: February 26, 2008, April 2009

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Agenda

- § **Top Concerns of VSE* Customers**
- § **Midrange Workload License Charge (MWLC)**
- § **Sub-Capacity Pricing Option**
- § **Some Examples**
- § **Summary**



(*) The term "VSE" stands for both, VSE/ESA and z/VSE.

Top Five Concerns of VSE* Customers

1. Cost



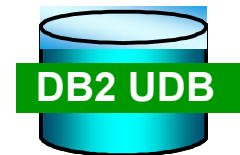
2. Cost



3. Cost



4. Applications



5. Applications



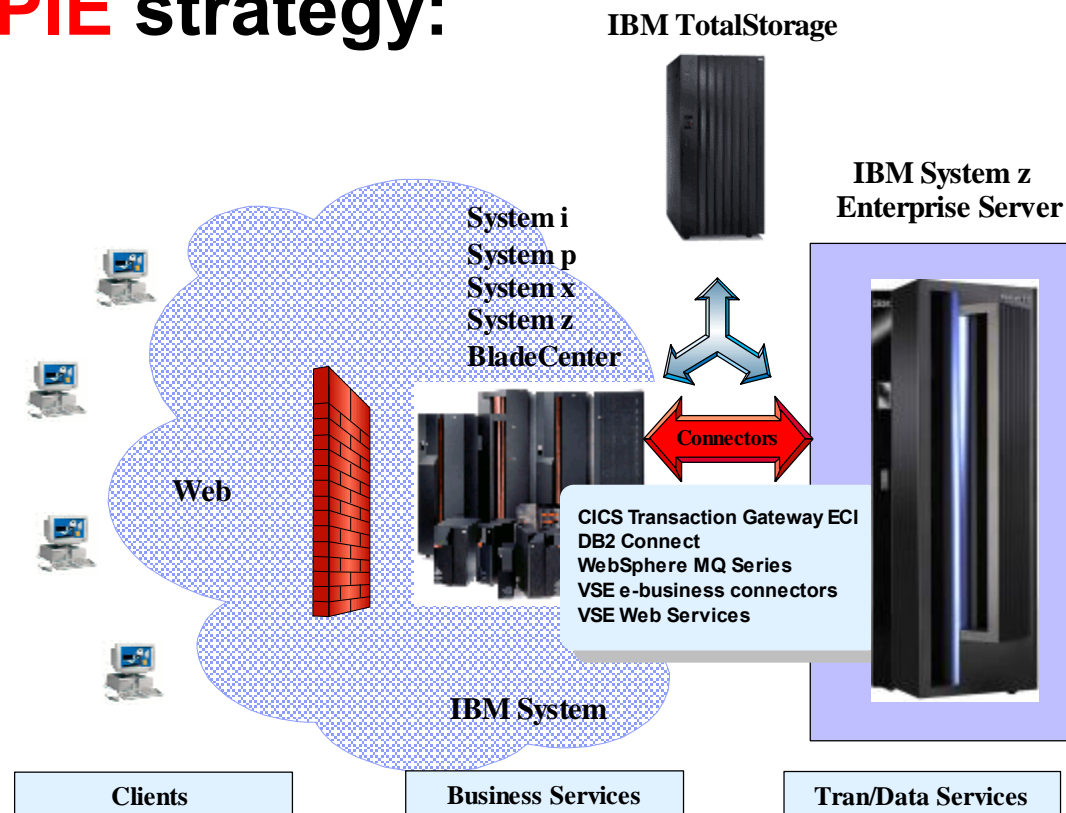
(*) The term "VSE" stands for both, VSE/ESA and z/VSE.



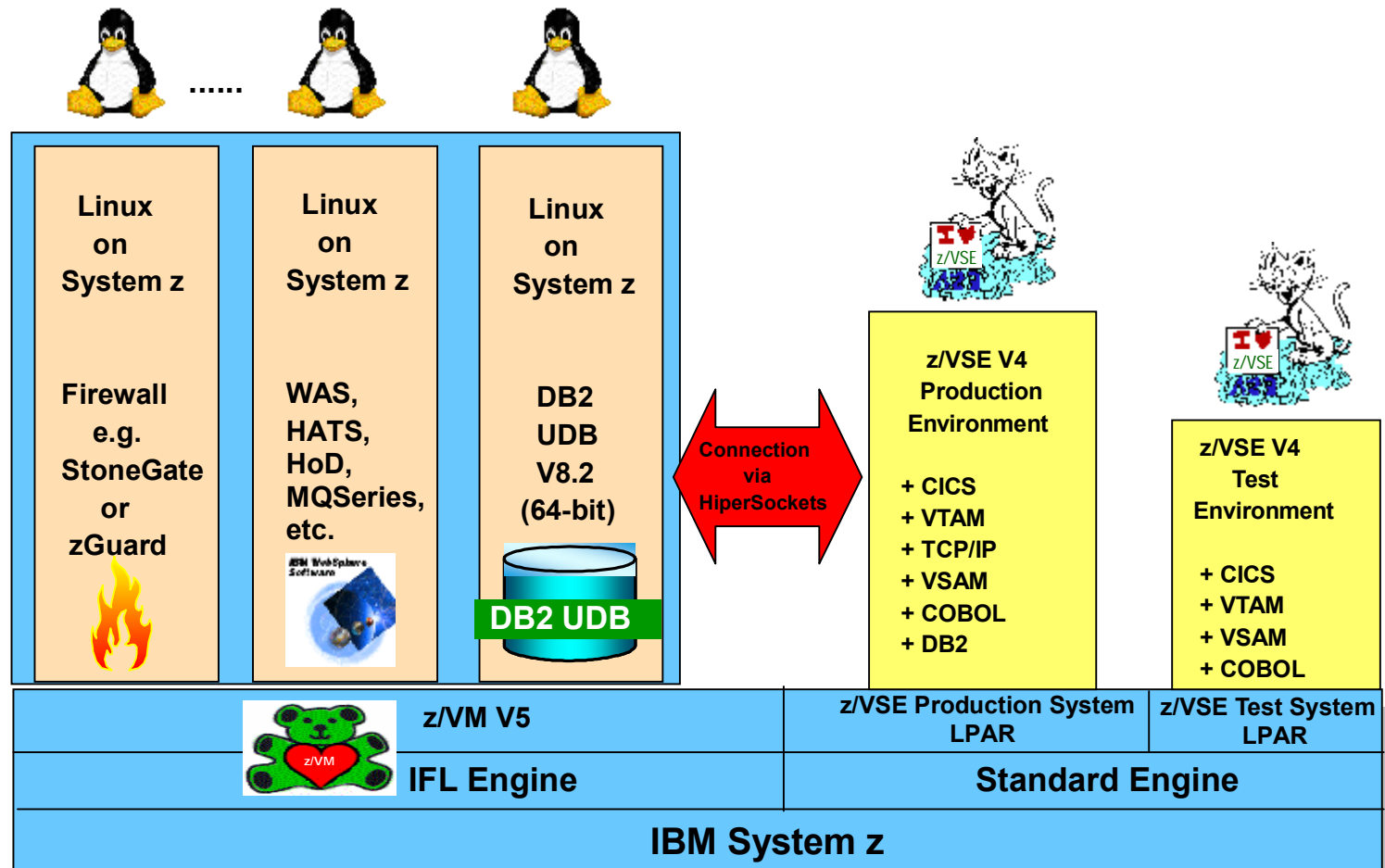
How to address the **Application Issue** ?

Access to new applications is provided through z/VSE's **PIE** strategy:

- § **Protect**
 - existing VSE investments
- § **Integrate**
 - using IBM middleware and VSE connectors
- § **Extend**
 - with Linux technology and solutions



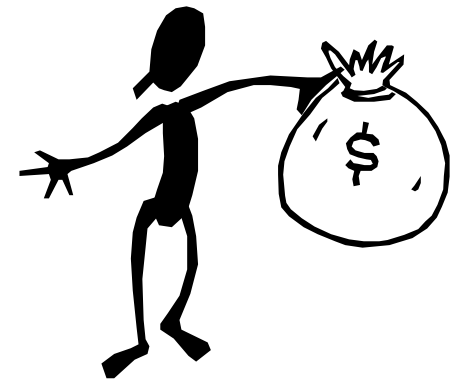
Access to new Applications with Linux on System z



How to address the **Cost** Issue ?

Cost is addressed with this announcement:

- § **Midrange Workload License Charge (MWLC)**
- § **Sub-Capacity Pricing Option**



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§ **Top Concerns of VSE* Customers**

→ § **Midrange Workload License Charge (MWLC)**

§ **Sub-Capacity Pricing Option**

§ **Some Examples**

§ **Summary**

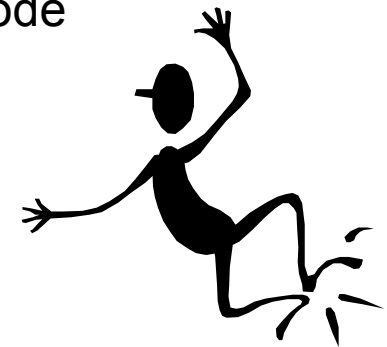


(*) The term "VSE" stands for both, VSE/ESA and z/VSE.

Midrange Workload License Charge (MWLC)

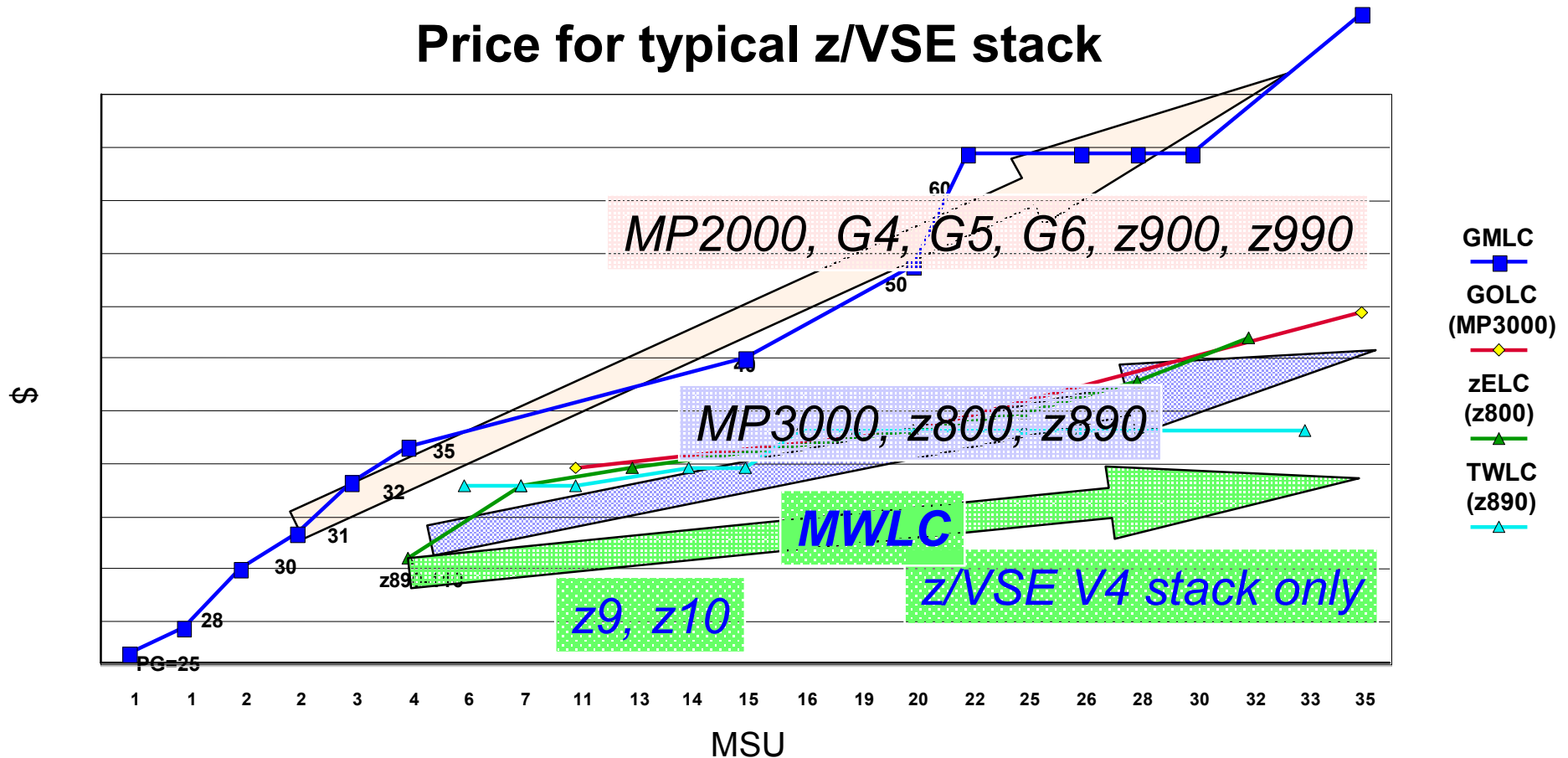
- § **New software pricing, exclusively for z/VSE customers**
- § **Requires current hardware (System z9 EC, z9 BC, z10 EC or z10 BC) and z/VSE V4**
 - Exception: z9 BC and z10 BC Capacity Setting A01 remains zELC
- § **Full-capacity and sub-capacity MWLC options**
 - Full-capacity mode offers improved price/performance compared to GOLC, zELC, and TWLC alternatives
 - Additional price/performance possible through sub-capacity mode

- § Announced: January 9, 2007
- § Available: March 16, 2007
- § Updated: October 9, 2007
- § Updated: February 26, 2008
- § Updated: April 2009



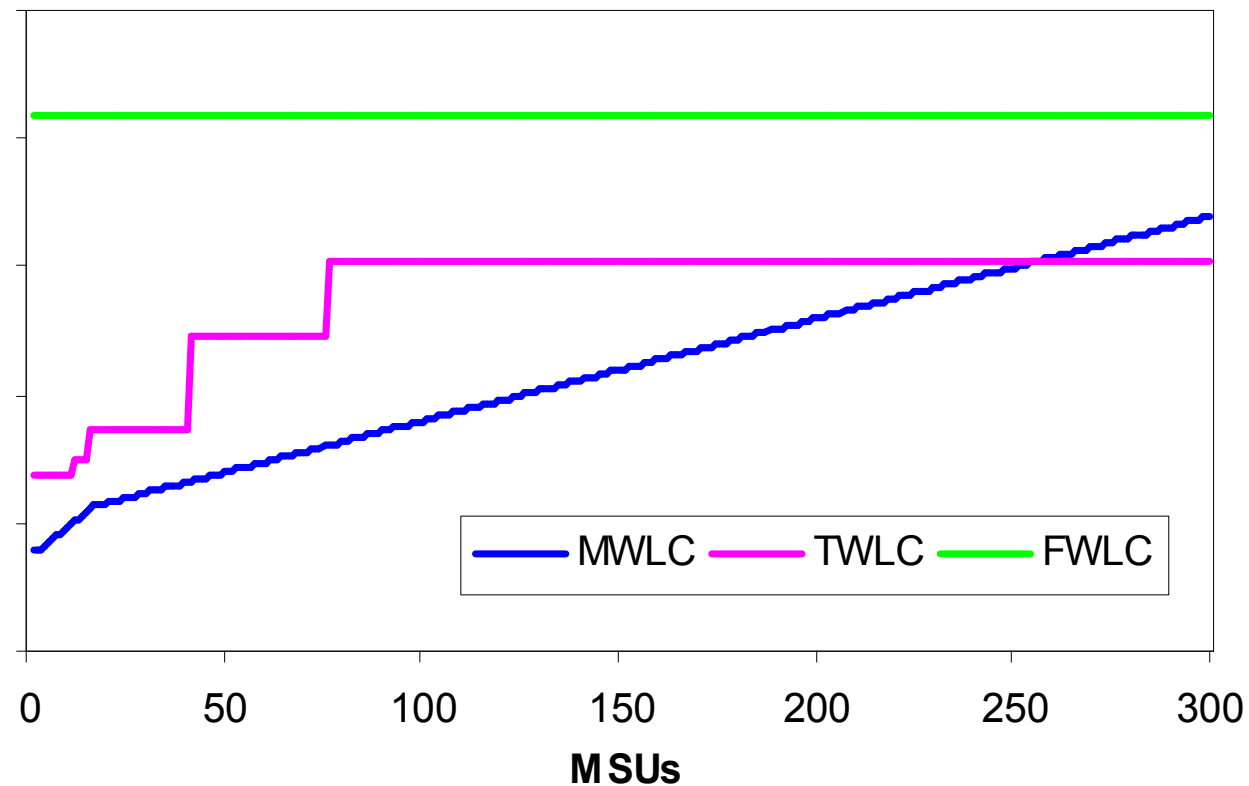
What does MWLC do to Price/Performance ?

Price for typical z/VSE stack



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

MWLC Sample Stack Slope 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

VSE-related Products eligible for MWLC

1. **z/VSE V4**
2. **CICS TS for VSE/ESA**
3. **ACF/VTAM[®] V4 VSE/ESA**
4. **TCP/IP for VSE/ESA**
5. **DB2 Server for VSE & VM**
6. **DL/I DOS/VS**
7. **IBM Cobol VSE/ESA**
8. **IBM PL/1 for VSE/ESA**
9. **C/VSE**
10. **High Level Ass. VSE & VM/ESA[®]**
11. **WebSphere MQSERIES[®] VSE/ESA**
12. **DITTO/ESA[®] for VSE**
13. **IBM DFSORT/VSE[®] V3**
14. **Encryption Facility for z/VSE V1.2**

Product ID	Product Name
5686CF8	z/VSE V4.1
5648054	CICS TS for VSE/ESA
5648099	DITTO/ESA [®] FOR VSE
5686A04	TCP/IP NFS
5686A04	TCP/IP Application Pak
5686A04	TCP/IP GPS
5686065	ACF/VTAM [®] V4 VSE CInt/Serv
5686065	ACF/VTAM V4 VSE Inter Ent
5686065	ACF/VTAM V4 VSE MultiDomain
5686068	IBM COBOL VSE/ESA Full Func
5686068	IBM COBOL VSE/ESA Alt Func
5696234	High Lvl Assem. VSE Only
5697F42	DB2 Server for VSE&VM
5697F42	DB2 QMF for VM/VSE
5697F42	DB2 QMF for Windows feat of DB2
5697F42	DB2 QMF for Windows feat of QMF
5697F42	DB2 Control Center for VM/VSE
5746SM3	IBM DFSORT/VSE [®] V3
5686A06	MQSERIES [®] VSE/ESA
5746XX1	DL/I Data Language
5686A01	C/VSE Alt. Function
5686A01	C/VSE Full Function
5686069	IBM PL/I VSE/ESA Full Func
5686069	IBM PL/I VSE/ESA Alt Func
5686CF8	Encryption Facility for z/VSE V1.2

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§ Top Concerns of VSE* Customers

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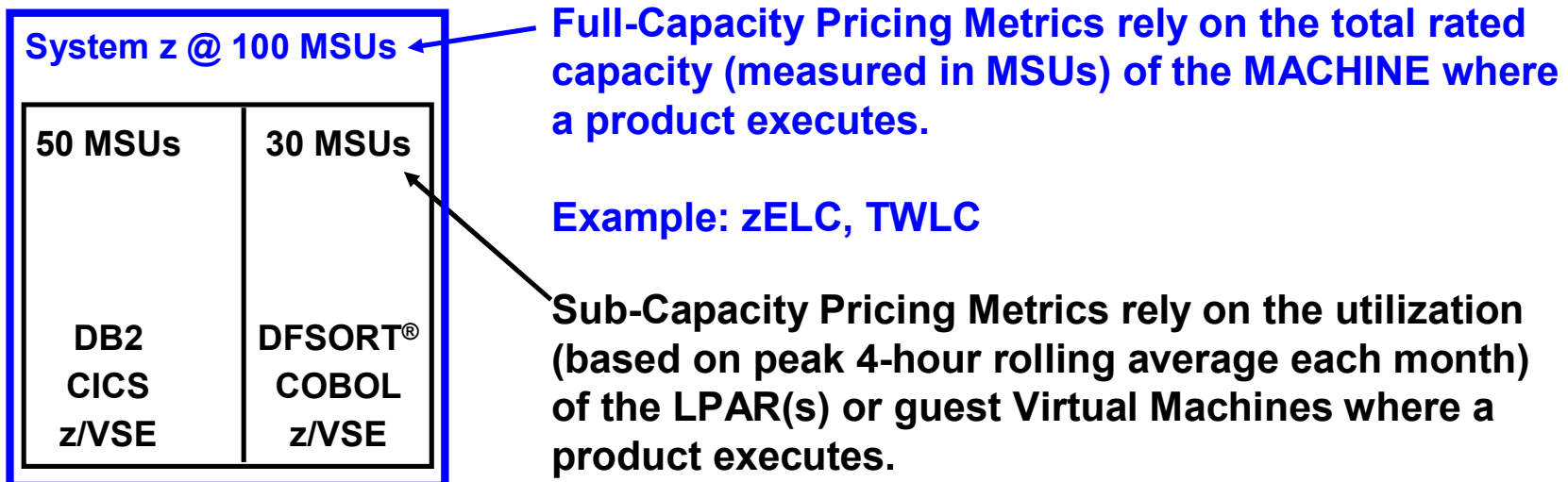
What is Sub-Capacity?

sub- (prefix)

Below; under; beneath: *subsoil*.

Subdivision: *subregion*.

Less than completely or normally; nearly.



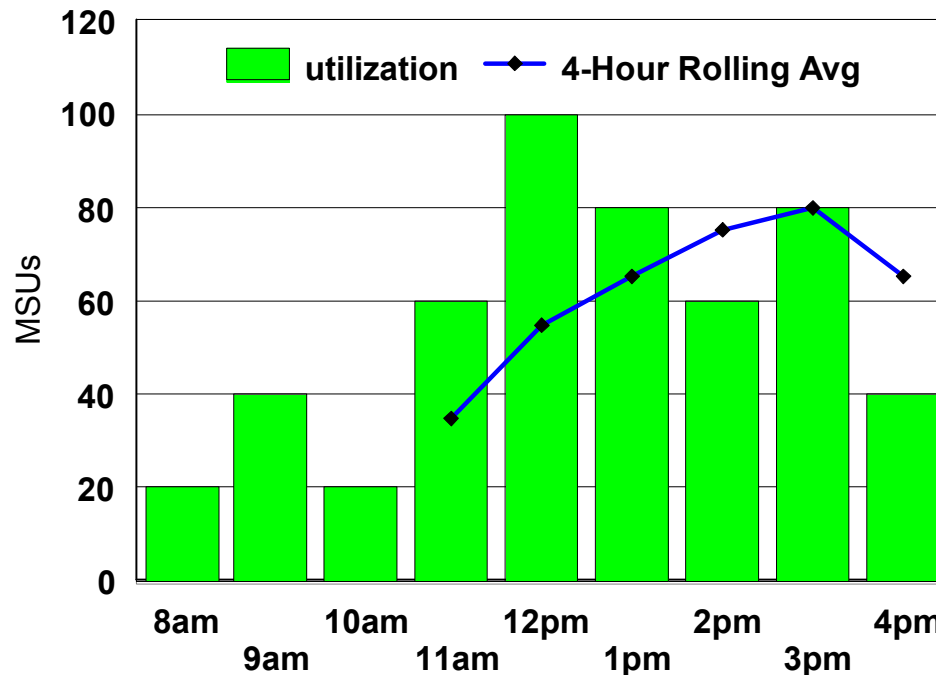
Example: EWLC, MWLC

Sub-Capacity Concept: Rolling 4-Hour Average

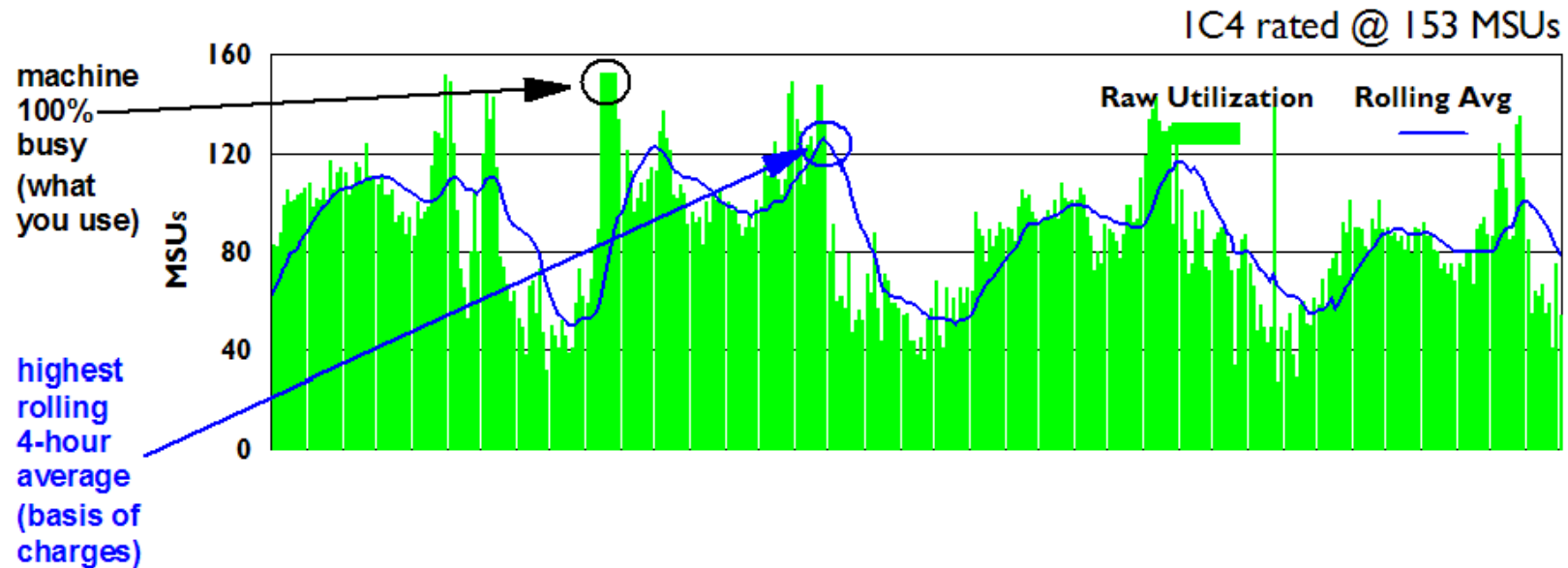
Capture the 4-hour rolling average of utilization for each interval in the month

4-Hour Rolling Average

11 am (8,9,10,11): 35 MSUs
 12 pm (9,10,11,12): 55 MSUs
 1 pm (10,11,12,1): 65 MSUs
 2 pm (11,12,1,2): 75 MSUs
 3 pm (12, 1, 2, 3): 80 MSUs
 4 pm (1, 2, 3, 4): 65 MSUs



Example: Peak Rolling 4-Hour Average



Rolling 4-Hour Average utilization smooths out peaks in raw utilization. Allows for varied peaks & bases Software charges on more moderate measure.

Transition to Sub-Capacity Pricing

§ Basic Requirements

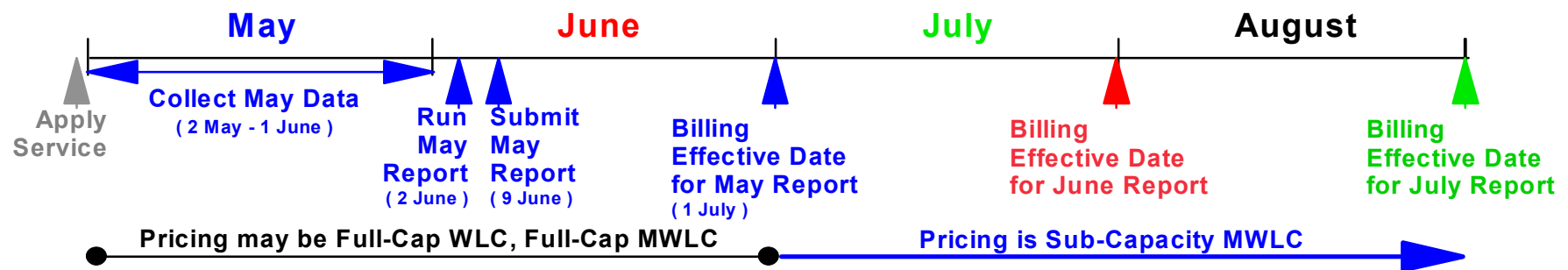
- IBM System z10 BC, z10 EC, z9 EC or z9 BC
- z/VSE V4 (no older VSE version allowed on the processor, ie. no VSE/ESA V2, no z/VSE V3)
- If running under VM: z/VM 5.2 (or later) is required

§ Reporting Requirements

- Must report on all LPARs and z/VM guests (production, test, development, etc.)
- 95% data collection
- Default (i.e. worst case) is full-capacity prices
- 2-month full-capacity transition period

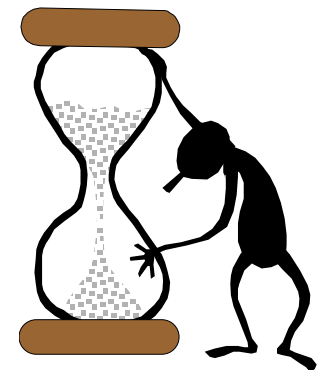
§ Timing Requirements

- Sub-Capacity Pricing begins with the submission of 1st full month report
- Data collection period: 2nd of the previous month - 1st of the current month
- Data submission period: 2nd - 9th following data collection



Capacity Measurement Tool (CMT)

- § **Announced and available with z/VSE V4.1 since March 16, 2007**
- § **Can be activated on z9 and z10 servers only**
- § **Requires z/Architecture mode è z/VSE V4.1 (and later) only**
- § **Collects data for LPARs and/or guest machines running under z/VM 5.2 (or later)**
- § **Implemented as a new z/VSE V4 system task**
 - periodically measures CPU usage and calculates MSUs
 - measurement interval is every 30 minutes
 - calculates the rolling 4-hour average
 - creates dataset with SCRT89 records
- § **Output from CMT is input for SCRT**



Sub-Capacity Reporting Tool (SCRT)



- § **Announced with preview announcement of z/VSE V4.2 on Oct 9, 2007**
- § **Available with z/VSE V4.1 (and later) since Oct 10, 2007**
- § **Requires SCRT V14.2 (available since Oct 10, 2007) on z/VSE or z/OS**
- § **Analyzes SCRT89 records as produced by CMT with z/VSE V4**
- § **Also analyzes SMF70 and SMF89 records as produced by z/OS**
- § **Customers must generate their SCRT report on a monthly base**
- § **Customers must send their SCRT report to IBM on a monthly base**
- § **Output from SCRT is a report, similar to a spreadsheet report**

Benefits of Sub-Capacity Pricing

§ Disconnect HW growth from SW charges for sub-capacity eligible products

- Allows you to **grow hardware capacity** independently of software capacity
e.g. upgrade server and only pay for software based on the utilized portion of the server
- Grow into excess hardware capacity gradually as needed **with a 1 MSU level** of granularity
- **Spike** into "spare" capacity without incurring software charges
- Manage utilization without having to turn engines on and off

§ Grow an LPAR without affecting software in other LPARs

- **Isolate products** in certain LPARs to reduce software costs (optional)
- Reduce LPAR utilization to reduce software costs (optional)
- Add capacity to **grow your production LPARs** without impacting your test and/or development LPARs

§ Align software charges with utilization

- Pay based on highest rolling 4-hour average utilization **each month**, not peak utilization
- Sub-Capacity Monitoring Tool manages measurement and reporting
- Software charges increased/decreased based on variations in utilization

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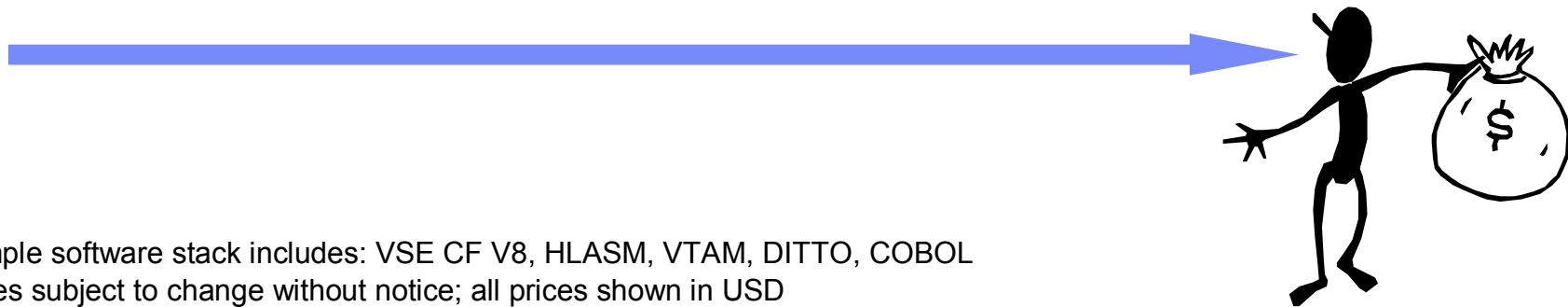


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z/VSE – Price/Performance over Time

§ Midrange sample customer software stack

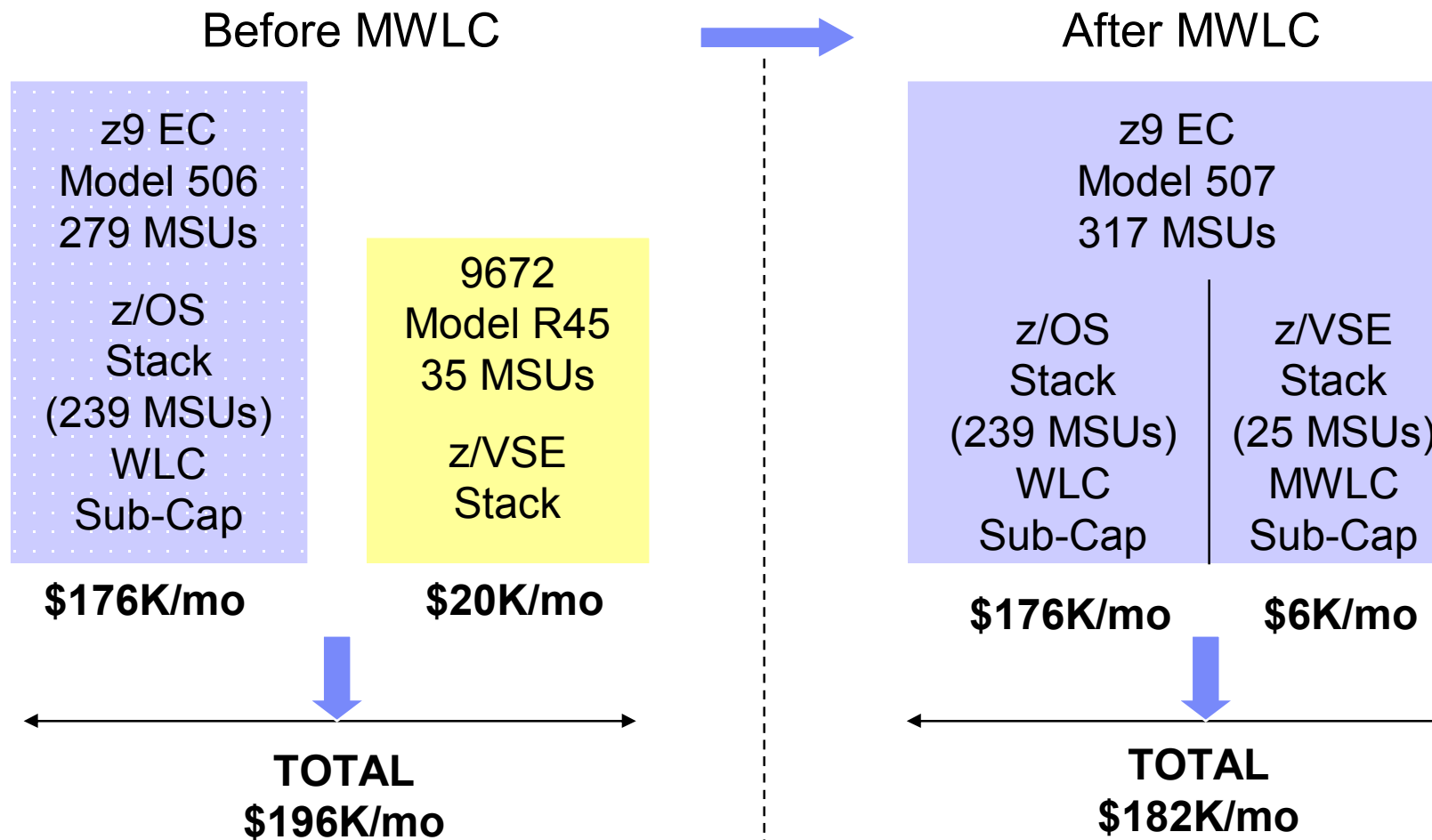
32 MSUs z/VSE Stack 9672 GMLC	32 MSUs z/VSE Stack z800 zELC	32 MSUs z/VSE Stack z890 TWLC	32 MSUs z/VSE V4 Stack z9 BC MWLC	32 MSU z/VSE V4 Stack z9 BC MWLC with 30% White Space
\$240K/yr	\$120K/yr	\$96K/yr	\$76K/yr	\$71K/yr



*Sample software stack includes: VSE CF V8, HLASM, VTAM, DITTO, COBOL

*Prices subject to change without notice; all prices shown in USD

z/VSE V4: MWLC High-End Price/Performance server consolidation example



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Summary of z/VSE Software Price Metrics

IBM Servers	z/VSE V4	z/VSE V3 (Note 1)	VSE/ESA V2
IBM System z9 and System z10 Enterprise Class – z9 EC and z10 EC	MWLC (incl sub-cap opt.)	GMLC, ELC, flat WLC	GMLC, ELC, flat WLC
IBM System z9 and System z10 Business Class – z9 BC and z10 BC (except A01 which is priced zELC)	MWLC (incl sub-cap opt.)	TWLC	TWLC
IBM eServer zSeries 990 and 900	GMLC, ELC, flat WLC	GMLC, ELC, flat WLC	GMLC, ELC, flat WLC
IBM eServer zSeries 890 (except 110 which is priced zELC)	TWLC	TWLC	TWLC
IBM eServer zSeries 800	zELC	zELC	zELC
S/390® Parallel Enterprise Server™ G5/G6	not applicable	GMLC, ELC, flat WLC	GMLC, ELC, flat WLC
S/390® Multiprise® 3000	not applicable	GOLC	GOLC

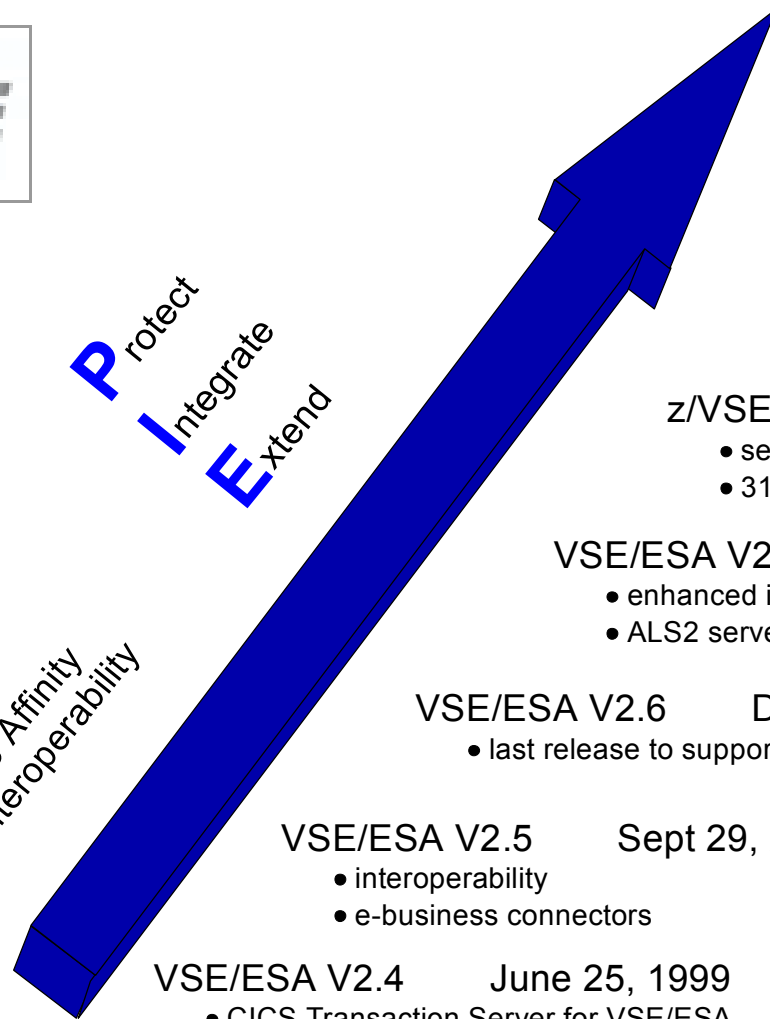
Note 1: z/VSE V3 can operate in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE V3 is designed to support selected features of IBM System z hardware.

z/VSE Evolution



Capacity
Quality
z/OS Affinity
Interoperability

Protect
Integrate
Extend



VSE/ESA V2.4 June 25, 1999
• CICS Transaction Server for VSE/ESA
• e-business

VSE/ESA V2.5 Sept 29, 2000
• interoperability
• e-business connectors

VSE/ESA V2.6 Dec 14, 2001
• last release to support pre-G5 servers

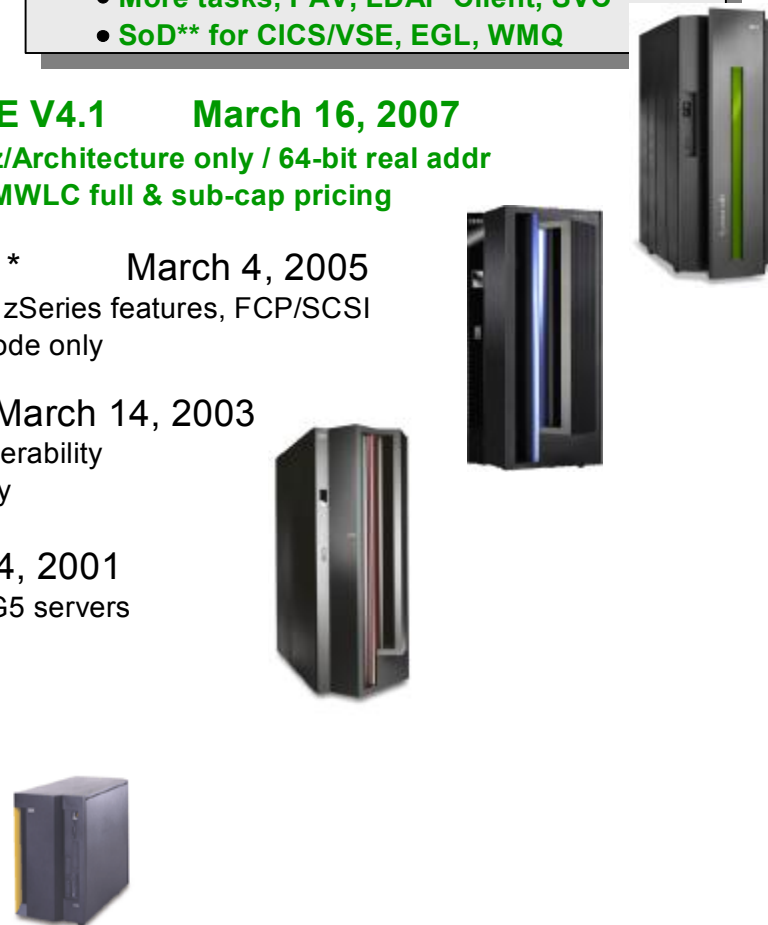
VSE/ESA V2.7 March 14, 2003
• enhanced interoperability
• ALS2 servers only

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

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

z/VSE V4.2 Oct 17, 2008
• More tasks, PAV, LDAP Client, SVC
• SoD** for CICS/VSE, EGL, WMQ

z/VSE V4.2.1 July 17, 2009
• Delivering on SoD
• Additional enhancements



The Bottom Line

- § **System z -- in combination with z/VSE V4 – can help you achieve significant reduction in monthly software charges**
- § **The resulting savings can – and should – be used to invest in new solutions, e.g.**
 - SOA
 - Linux on System z
 - new middleware
 - new standard software
 - new application development
- § **Get focused more on ‘value’ rather than ‘cost’ !**

