



E12

z/VSE V4 - MWLC Software Pricing for IBM System z9

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**z/VSE V4
featuring MWLC Software
Pricing for IBM System z9**

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Agenda

- **Midrange Workload License Charge (MWLC)**
- **Sub-Capacity Pricing Option**
- **Implementation Details**
- **Summary**



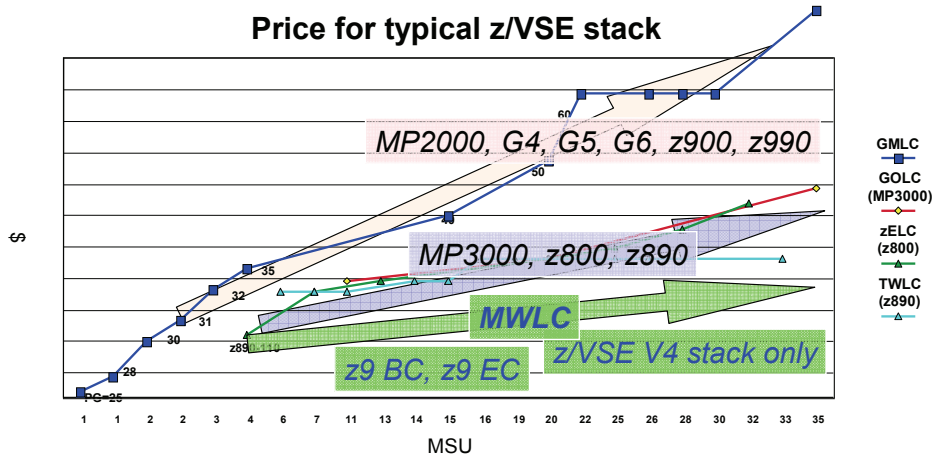


Midrange Workload License Charge (MWLC)

- **New software pricing, exclusively for z/VSE customers**
- **Requires current hardware (IBM System z9 EC or z9 BC) and z/VSE V4**
 - Exception: z9 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**



What does MWLC do to Price/Performance ?



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



Midrange Workload License Charges for z9 BC*

for Sub-Capacity Eligible Products
Midrange Workload License Charges (MWLC)

for non-Sub-Capacity Eligible Products
Tiered EWLC Price Structure (TWLC)

Full Cap mode - use rated MSU capacity
or
Sub-Cap mode - use MSU values from
sub-capacity reports

MWLC Price Structure exclusive to z9 BC and z9 EC

base	3 MSUs
Level 1	4 - 17 MSUs
Level 2	18 - 30 MSUs
Level 3	31 - 45 MSUs
Level 4	46 - 87 MSUs
Level 5	88 - 175 MSUs
Level 6	176 - 260 MSUs
Level 7	261+ MSUs

cumulative monthly pricing

TWLC Price Structure** exclusive to z9 BC and z890

Tier A	1 - 11 MSUs
Tier B	12 - 15 MSUs
Tier C	16 - 40 MSUs
Tier D	41 - 75 MSUs
Tier E	76 - 1500 MSUs
Tier F	1501+ MSUs

flat monthly pricing - select the tier
based on the MSU rating of your box



* The z9 BC Model A01 is not eligible for MWLC, it is priced using zELC.
** z9 EC models do not use the TWLC price structure, they use Flat Workload License Charges (FWLC) when applicable.



Example: MWLC Price Points

Product [MSU]	TWLC Tier A 1-11	MWLC							
		Base	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
VSE Central Function V8	4162	2081	63	21	21	21	21	21	21
CICS TS if used w/ z/VSE V4	2534	1800	54	18	18	18	18	18	18

Examples:

z9 BC D02, 16 MSUs (~ 115 MIPS): Cost of CICS TS on z/VSE V4 = Base + (13 * Level1) = \$2,502,--

z9 BC I01, 21 MSUs (~ 150 MIPS): Cost of VSE CF V8 = Base + (14 * Level1) + (4 * Level2) = \$3,047,--

*Prices subject to change without notice; all prices shown in USD as of Jan 2007.



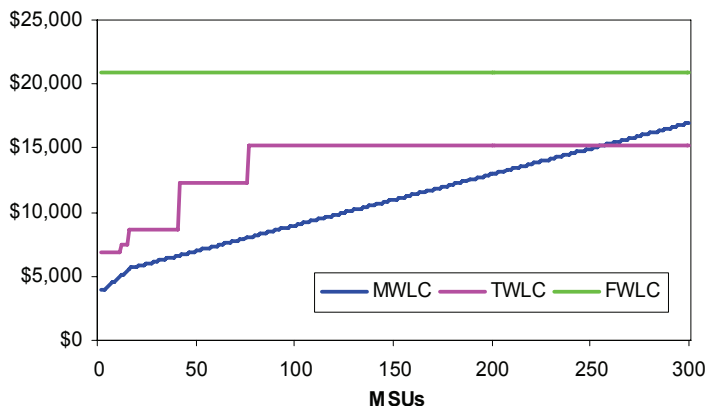
VSE-related Products eligible for MWLC

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/I for VSE/ESA
9. C/VSE
10. High Lvl Ass. VSE & VM/ESA®
11. WebSphere MQSERIES® VSE/ESA
12. DITTO/ESA® for VSE
13. IBM DFSORT /VSE® V3

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



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; all prices shown in USD



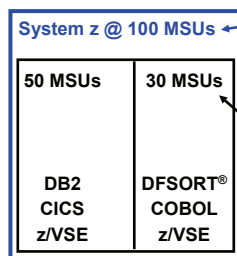
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What is Sub-Capacity?

sub- (prefix)
 Below; under; beneath: *subsoil*.
 Subdivision: *subregion*.
 Less than completely or normally; nearly.



Full-Capacity Pricing Metrics rely on the total rated capacity (measured in MSUs) of the MACHINE where a product executes.

Example: zELC, TWLC

Sub-Capacity Pricing Metrics rely on the utilization (based on peak 4-hour rolling average each month) of the LPAR(s) or guest Virtual Machines where a product executes.

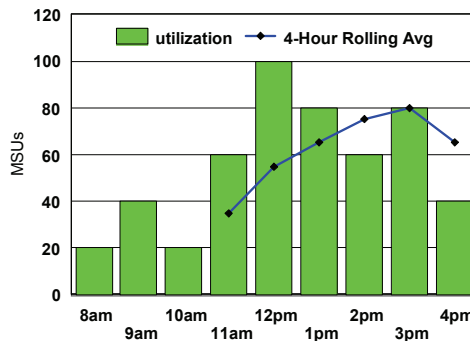
Example: EWLC, MWLC

Sub-Capacity Concept: Rolling 4-Hour Average

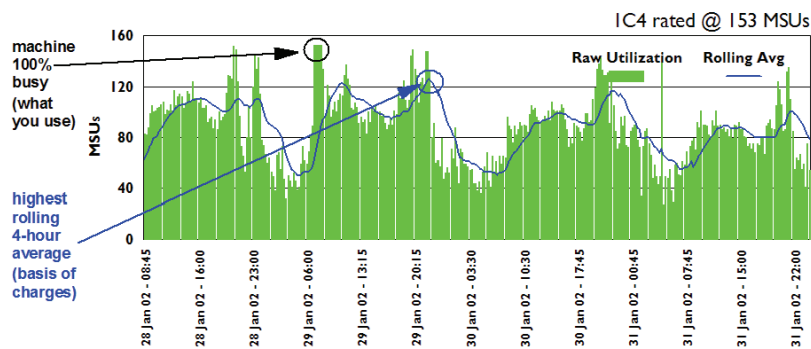
Capture the 4-hour rolling average of utilization for each interval in the month

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



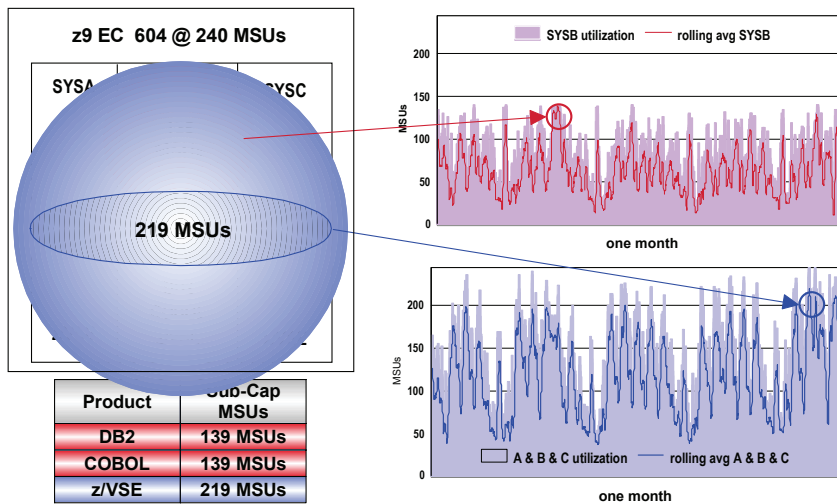
Example: Peak Rolling 4-Hour Average



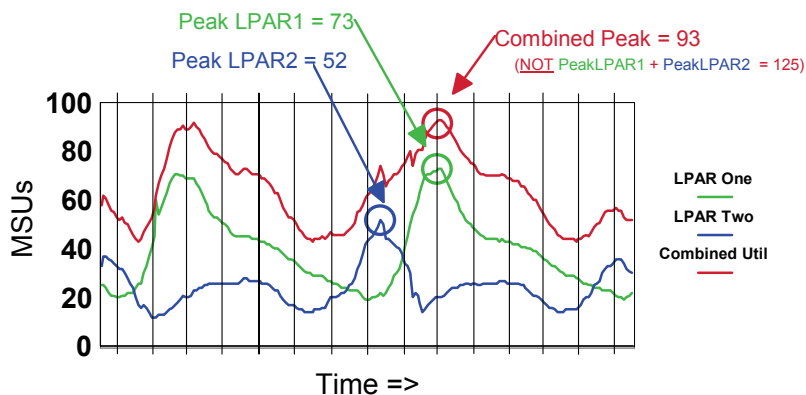
Rolling 4-Hour Average utilization smooths out peaks in raw utilization. Allows for varied peaks & bases Software charges on more moderate measure.



Generic Sub-Capacity Example



Simultaneous combined rolling 4-Hour Average



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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Transition to z/VSE V4 MWLC Pricing

Basic Requirements

- IBM System z9 BC or z9 EC (exception: z9 BC A01 is priced zELC)
- z/VSE V4
- If running under VM: z/VM 5.2 (or later) is required

Very simple !



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
- new projects with IBM



Transition to z/VSE V4 Sub-Capacity Pricing

Basic Requirements

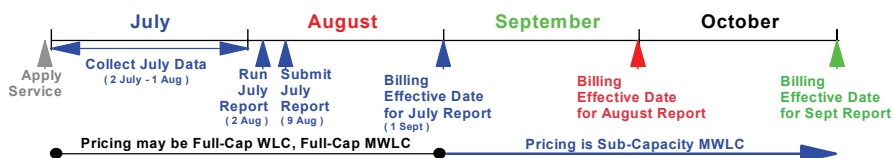
- IBM System z9 BC or z9 EC (exception: z9 BC A01 is priced zELC and can not get sub-cap pricing)
- z/VSE V4 (no older VSE version allowed on the processor, i.e. no VSE/ESA V2, no z/VSE V3)
- If running under VM: z/VM 5.2 (or later) is required

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

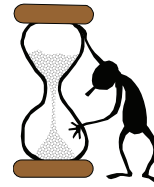
Timing Requirements

- 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)

- Sometimes called “Sub-Capacity Monitoring Tool”
- Announced and available with z/VSE V4.1 since March 16, 2007
- Can be activated on z9 BC and z9 EC models only
- Requires z/Architecture mode → z/VSE V4.1 only
- Collects data for LPARs and/or guest machines running under z/VM 5.2 (or later)
- Implemented as a new z/VSE V4.1 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)

- Not announced and not available on z/VSE V4.1
- Requires z/OS system to execute, and requires a new version of SCRT
- New version of SCRT on z/OS is available since 4/2007
- Analyzes SCRT89 records as produced by CMT on z/VSE V4
- Also analyzes SMF70 and SMF89 records as produced by z/OS
- If there is both, z/OS and z/VSE V4, you must generate your own SCRT report
- If there is only z/VSE V4, you will need to send SCRT89 records to IBM and IBM will run SCRT for you
- Output from SCRT is a report, similar to a **spreadsheet report**





SCRT Example Report: Part 1 of 2

===== SUB-CAPACITY REPORT =====

Run Date/Time	02 Feb 2007 - 12:38
Name of Person Submitting Report:	xyz
E-Mail Address of Report Submitter:	xyz
Phone Number of Report Submitter:	xxx
Customer Name	xyz
Customer Number	xxx
Machine Serial Number	xxx
Machine Type and Model	2096-G01
Machine Rated Capacity (MSUs)	15
Purchase Order Number	xyz
Is this machine a member of a pricing aggregation?	no
Customer Comments (255 chars max)	xyz
TOOL INFORMATION	
Tool Release	12:02
Reporting Period	2 Jan, 2007 - 1 Feb, 2007



SCRT Example Report: Part 2 of 2

% Data Collected	z/VSE
Justification for low data collection (255 chars max)	96% for 31 days
	explain

PRODUCT SUMMARY INFORMATION

WWLC Product Name	WWLC Product ID	Tool MSUs
VSE Central Functions V8	5686-CF8	13
ACF/VTAM V4 VSE/ESA	5686-065	13
CICS TS for VSE/ESA	5648-054	13
DITTO/ESA for VSE	5648-099	13
High Level Assembler VSE & VM	5696-234	13
IBM COBOL VSE/ESA	5686-068	13
TCP/IP for VSE	5686-A04	13

Agenda

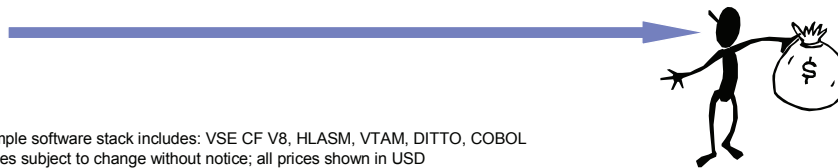
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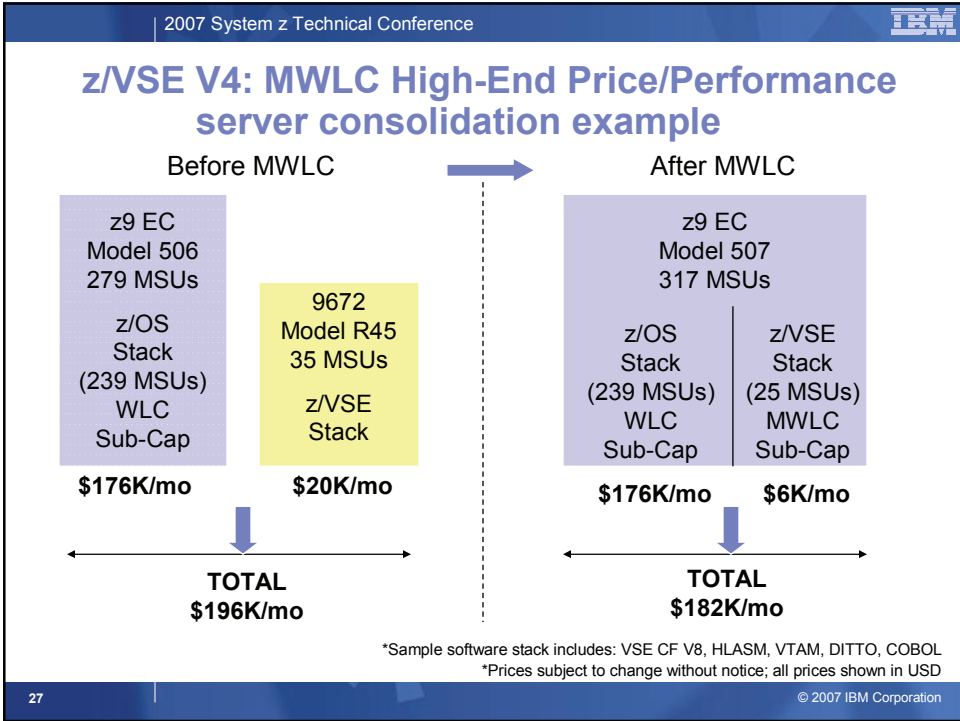
z/VSE – Price/Performance over Time

- 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




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Summary: z/VSE V4 and MWLC



- Helping to protect your investments in core z/VSE application code, data, application knowledge, and IT skills
- Helping to preserve your highly evolved business processes and end-user training
- Helping you to implement new solutions in a three-tier, integrated environment that leverages existing z/VSE information assets
- Helping improve price / performance
- 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
 - new projects with IBM



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