MWLC for z/VSE 4.1:

Can It Save You Software Costs?

By John Lawson

IBM recently announced a new software licensing metric called Midrange Workload License Charges (MWLC), which is available exclusively for z/VSE Version 4 users running on IBM System z9 servers. It's the latest in a series of software licensing options announced in conjunction with new mainframe servers to help reduce IBM software licensing costs. MWLC provides a sub-capacity pricing option that was previously available only with other licensing methods for z/OS customers. This article provides a perspective on this new announcement and how it might benefit VSE customers.

History, Terms, and More Terms

In the last decade VSE customers have seen several new IBM software licensing methods introduced along with their respective acronyms:

Graduated Monthly License Charge (GMLC) was among the earliest where software license charges were based on the group in which a machine was classified.

Growth Opportunity License Charge (GOLC) was introduced in 1999 with the Multiprise 3000 servers and was specific to the models in that family of servers.

Extended License Charge (ELC) also was announced in 1999 and provided the first MSU-based pricing for qualified VM and VSE software running on machines larger than group 80. Millions of Service Units (MSU) is a measure of machine capacity.

Workload License Charge (WLC) was made available in 2001 with the zSeries 900 (z900) server. This was the first software licensing method that offered sub-capacity pricing based on system utilization rather than the full capacity of the machine; however, this option was available only for selected z/OS software products. A flat WLC price, independent of the full capacity of the machine, was charged for VSE software eligible for this pricing method.

zSeries Entry License Charge (zELC) was announced in 2002 for zSeries 800 (z800) servers running in a stand-alone environment. This pricing option also was announced later as the only option available for the smallest of the zSeries 890 and the System z9 Business Class servers (z890 capacity setting 110 and z9 BC capacity setting A01).

Entry Workload License Charge (EWLC), announced in 2003 for the z800, was available for only selected z/OS software products.

Tiered EWLC pricing method (TWLC) accompanied the announcement of the z890 in 2004 and was made available exclusively for all z890 servers except the z890 capacity setting 110, which is zELC-based only. This method also was available exclusively for all z9 BC servers when they were announced, except the z9 BC capacity setting A01, which is zELC-based only. TWLC provides flat monthly pricing using a tiered structure based on MSUs. Figure 1 shows the tiers and range of MSUs for each.

The pricing method used for the VSE operating system and related software products depends on what server is being used and whether the software product is eligible for that method. For example, on z900, z990 or z9 Enterprise Class (z9 EC) servers, the VSE software products would be priced using GMLC, ELC, or flat WLC, depending on the product. On all z890 or z9 Business Class (z9 BC) servers, except the two smallest capacity settings mentioned previously, the VSE software products would be priced using TWLC.

With the availability of each of these pricing methods, VSE customers can reduce their software licensing costs for the VSE operating system and selected products. Illustro Systems has worked with several clients who have gone through upgrades from Multiprise 3000 systems to 9672 processors and more recently to z/890 processors. Each upgrade has resulted in better price/performance because of lower software costs and faster processors. The announcement of MWLC and its sub-capacity pricing option provides even more opportunities for our clients and other VSE customers to reduce their VSE software costs.

MWLC for z/VSE 4.1

IBM announced MWLC on Jan. 9, 2007, and made this pricing method available with the general availability of z/VSE 4.1 on March 16, 2007. MWLC is available for only z/VSE Version 4.1 and selected VSE software products running on z9 BC or z9 EC servers. MWLC isn't available for the z9 BC capacity setting A01 because zELC is the only pricing method available for it. In addition to the z/VSE 4.1 operating system, the following 12 VSE software products are eligible for MWLC pricing:

- CICS TS for VSE/ESA (5648-054)
- ACF/VTAM V4 Client/Server, Multidomain and Inter-Enterprise (5686-065)
- TCP/IP for VSE/ESA Application Pak, NFS feature and GPS feature (5686-A04)
- DB2 Server for VSE and VM, QMF for VM/VSE, QMF for Windows feature of DB2 and feature of QMF, Control Center for VM/VSE (5697-F42)
- IBM DFSORT/VSE V3 (5746-SM3)
- MQSeries VSE/ESA (5686-A06)
- DL/I data language (5746-XX1)
- DITTO/ESA for VSE (5648-099)
- IBM COBOL VSE/ESA (5686-068)
- High Level Assembler VSE (5696-234)
- C/VSE Alternate Function and Full Function Offerings (5686-A01)
- IBM PL/I VSE/ESA Alternate Function and Full Function (5686-069).

Other VSE software products that don't qualify for MWLC pricing are priced based on the license method available for that product and the type of z9 server on which the product is licensed. For z9 BC servers, this is TWLC, and for the z9 EC servers, this is GMLC, ELC, or flat WLC.

MWLC provides the same options to VSE customers that WLC and EWLC

Tier	Machine Capacity (MSUs)
Tier A	1–11
Tier B	12–15
Tier C	16–40
Tier D	41–75
Tier E	76–1500
Tier F	1501+

Figure 1: TWLC Pricing Structure

provided to z/OS customers. Costs for eligible VSE software products can be based on the full-capacity or sub-capacity of the z9 server. Full-capacity MWLC pricing is based on the rated capacity in MSUs of the z9 server. Sub-capacity MWLC pricing is based on the actual utilization where the eligible VSE products are running, under z/VSE V4.1 in separate Logical Partitions (LPARs), or as guests under z/VM on the z/9 server. Sub-capacity MWLC pricing has some restrictions and requires collection and reporting of machine utilization data to determine software charges for the eligible VSE products. The IBM MWLC announcement letter states that the

MWLC pricing options are designed to improve price/performance if you're migrating from one of the other pricing methods previously discussed.

Sub-Capacity MWLC Pricing

Certain restrictions apply to sub-capacity MWLC pricing for eligible VSE products. z/VSE Version 4.1 is the only version of the VSE operating system allowed on the z9 server in any LPAR or guest under z/VM. No prior versions of VSE can be used or licensed on the z9 server where sub-capacity MWLC pricing is implemented. If z/VSE 4.1 is running as a guest under z/VM, then z/VM Version 5.2 or later is required. If z/OS

is running on the same z9 server as z/VSE 4.1, the pricing method selected for z/VSE is independent of the one selected for z/OS.

Sub-capacity MWLC pricing is based on the peak four-hour rolling average utilization in MSUs observed across each month for the native z/VSE LPAR or z/VSE guest in which the MWLC eligible product executes. If product executes in more than one native z/VSE LPAR or z/VSE guest, then the highest combined four-hour rolling average utilization of all native z/VSE LPARs and z/VSE guests is used to determine the sub-capacity MWLC price for the product. Figures 2, 3 and 4 show examples of how sub-capacity pricing is determined.

Figure 2 shows an example configuration with two z/VSE guests running under z/VM in one LPAR and a native z/VSE running in a second LPAR on a z9 BC capacity setting T02. This server has a rated capacity of 66 MSU.

If full-capacity MWLC pricing is used, the license charges for each of the VSE products and z/VSE operating system would be based on the 66 MSU-rated capacity of the z9 server. If sub-capacity MWLC pricing is used, the license charge for the z/VSE operating system, ACF/VTAM, and CICS TS will be based on the combined peak four-hour rolling average of the two z/VSE guests and the native z/VSE LPAR. The license charge for DB2 will be based on the peak four-hour rolling average utilization of the z/VSE guest in which it's running. The license charge for COBOL/VSE will be based on the peak four-hour rolling average utilization of the native z/VSE LPAR in which it is running.

Figure 3 shows an example of how the peak four-hour rolling average utilization and combined peak four-hour average utilization would be used to determine the sub-capacity MWLC price for the products in our sample configuration.

The z/VSE operating system, ACF/VTAM and CICS TS sub-capacity MWLC price would be based on 45 MSUs, the combined peak four-hour rolling average utilization that occurred in hour three of the month in this example. This is the highest sum of the four-hour rolling averages that occurred in the same hour for both z/VSE guests and the native z/VSE LPAR and not the sum of the highest utilization for each of these from different hours. The sub-capacity MWLC price for DB2 is based on 30

z9 BC-T02 (66 MSU)		
LPAR 1 z/VM 5.2		LPAR 2 z/VSE 4.1
Guest 1 z/VSE 4.1 ACF/VTAM CICS TS DB2	Guest 2 z/VSE 4.1 ACF/VTAM CICS TS	ACF/VTAM CICS TS COBOL/VSE

Figure 2: Sample Configuration—Two LPARs With z/VSE Guests and Native z/VSE

Hour	1	2	3	4	…	719	720
Guest 1	20	25	30	25	…	22	20
Guest 2	5	5	5	5	…	5	5
LPAR 2	8	10	10	12	…	11	8
Combined	33	40	45	42	…	38	33
DB2 (Guest 1)	20	25	30	25	…	22	20
COBOL/VSE (LPAR 2)	8	10	10	12	…	11	8

Figure 3: Sample Configuration—Four-Hour Rolling Average Utilization in MSU

Level	Machine Capacity (MSUs)	$$$
Base MWLC	3	$xxx
Level 1	4–17	$L1xxx/MSU
Level 2	18–30	$L2xxx/MSU
Level 3	31–45	$L3xxx/MSU
Level 4	46–87	$L4xxx/MSU
Level 5	88–175	$L5xxx/MSU
Level 6	176–260	$L6xxx/MSU
Level 7	261+	$L7xxx/MSU

Figure 4: MWLC Pricing Structure

MSUs, the peak four-hour rolling average utilization of guest one, which also occurred in hour three. The sub-capacity MWLC price for COBOL/VSE is based on 12 MSUs, the peak four-hour rolling average utilization of the native z/VSE LPAR, which occurred in hour four.

This example may be typical of many VSE environments where one z/VSE image is a heavily used production system, the second image is a lightly used production system, and the third image is a moderately used development system. Sub-capacity MWLC pricing may reduce software costs by using only MWLC-eligible products in the system in which they're needed.

This example also demonstrates another way sub-capacity MWLC pricing can reduce software costs. MWLC uses a pricing structure based on a rate of xxx dollars per MSU for each MSU level above a base MWLC price. Figure 4 shows the range of MSUs for each level.

The software cost for the products in our example on the 66 MSU z9 server would have been at the level 4 MWLC rate if full-capacity MWLC pricing applied. By using sub-capacity MWLC pricing, the software costs for the z/VSE operating system, ACF/VTAM, and CICS TS would be at the level 3 MWLC rate because the combined peak four-hour rolling average utilization was 45 MSUs. DB2 software cost would be at the level 2 MWLC rate because the guest where it ran had a peak four-hour rolling average utilization of 30 MSUs. COBOL/VSE software cost would be at the level 1 MWLC rate because LPAR2 where it executed had a peak four-hour rolling average utilization of 12 MSUs.

Another example of the benefit of using sub-capacity MWLC pricing can be shown using one of illustro System's client systems for which we do regular capacity analysis studies. Processor and I/O utilization was collected using our iServer capacity measurement tool, software provided exclusively to our clients to capture VSE systems capacity and performance data. The client has a z/890 capacity setting 270, which has a full-capacity rating of 107 MSUs. From our capacity analysis, we determined the peak four-hour average utilization was around 40 percent. The MSU usage for the sub-capacity MWLC licensing should be about 43 MSUs, which would fall into the level 3 rate as shown in Figure 4. By upgrading to an equivalent z9 BC capacity

setting X02 with a full-capacity rating of 103 and using sub-capacity MWLC pricing, our client could save VSE software licensing costs.

Another benefit of sub-capacity MWLC pricing is that software costs don't necessarily increase if you have short duration peaks that use the full capacity of the z9 server. Sub-capacity MWLC pricing is based on the highest four-hour rolling average utilization. Within that four-hour peak interval, you may have occasional spikes of activity that exceed this average; however, your MWLC software costs will be based on the peak average, not on these occasional spikes. So, you can use the full-capacity of the z9 server to handle these spikes and still pay software costs based on less than full capacity.

You also may have some seasonal spikes where your peak four-hour rolling average utilization is much higher in some months than in others. MWLC software costs following these months will increase as the peak four-hour rolling average increases in these months; however, it also will decrease when your peak four-hour rolling average starts to decrease in the lower activity months.

Sub-Capacity Measuring and Reporting

The MWLC announcement letter describes the process a customer must follow to receive sub-capacity MWLC billing. The customer must produce and submit to IBM each month a Sub-Capacity Report to get sub-capacity MWLC pricing. A sub-capacity measurement tool is provided with z/VSE 4.1 to use in generating the necessary records for producing a sub-capacity report.

The records generated by the measurement tool are called SCRT89 records. A Sub-Capacity Reporting Tool (SCRT) is used to process these records and produce the Sub-Capacity Report. SCRT currently runs on z/OS only, so if the VSE customer has access to a z/OS system, they can generate their own Sub-Capacity Report. If not, then the SCRT89 records must be sent to IBM. IBM will produce the Sub-Capacity Report and return it to the customer for review within two business days. The report then needs to be submitted to IBM by the ninth day of the month following the month in which the SCRT89 records were collected.

The MWLC announcement letter also stated that a new version of SCRT is being created to report z/VSE MSUs; however, this new version isn't expected

to be generally available until April 10, 2007. Since a full month of SCRT89 records are required to produce a valid Sub-Capacity Report, this means the earliest customers can receive sub-capacity MWLC billing is June 1, 2007.

Conclusion

MWLC pricing appears to offer significant software cost savings for VSE customers, especially for those who can take advantage of sub-capacity pricing. MWLC also offers the opportunity to upgrade to newer and larger processors while reducing VSE software costs. Before performing such an upgrade, you should evaluate the total software costs for both MWLC-eligible software products and non-eligible products. A processor upgrade may increase the software costs for non-eligible products because of a change in tiers or capacity, depending on the pricing method used for those products. However, the savings in software costs for the MWLC-eligible products may more than offset the software cost increases for the non-eligible products.

Vendor software costs also have to be considered in any processor upgrade decision. CA also has announced a usage-based pricing method for selected VSE system management software. You can read more about CA's Measured Workload Pricing at http://www3.ca.com/Press/PressRelease.aspx?CID=70874. Contact other vendors to determine what software pricing options they have available to complement IBM's MWLC pricing options.

The IBM System z Software Pricing Website (http://ibm.com/zseries/swprice) provides excellent information and examples for the new MWLC pricing as well as the other pricing methods discussed here. There also are links to documents containing MSU ratings for mainframes and the list of sub-capacity eligible software. The IBM z/VSE Operating System Website (http://ibm.com/zseries/zvse/) also has several links to the z/VSE 4.1 and MWLC announcements and presentations on both. **Z**

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