

IBM Z Software Pricing Reference Guide



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IBM Z Software Pricing Overview

IBM Z® software pricing methodologies are designed to offer:

- *Price-to-value*
- *Flexibility to run software where it is most efficient*
- *Capability to predict software charges*
- *Help with cost of new applications*
- *Flexibility to pay for software based on workload requirements*

For more information: ibm.com/systems/z/swprice

Glossary

MSUs – An MSU is defined as Millions of central processing unit Service Units per hour; the measure of capacity used to describe the computing power of the hardware processors on which IBM Z software runs. Processor MSU values are determined by the hardware vendor, IBM, or by Software Compatible Vendors.

IBM Z and IBM zEnterprise System servers:			
Full Name	Short Name	Machine Type	CMP Hardware Generation as of 0 April 2018
IBM z14® ZR1	z14	3907	N
IBM z14®	z14	3906	N
IBM z13®	z13	2964	N-1
IBM z13s™	z13s	2965	N-1
IBM zEnterprise® EC12	zEC12	2827	N-2
IBM zEnterprise BC12	zBC12	2828	N-2
IBM zEnterprise 196	z196	2817	N-3
IBM zEnterprise 114	z114	2818	N-3
IBM System z10, IBM System z9, IBM eServer zSeries and IBM System/390 (S/390) servers:			
IBM System z10® Enterprise Class	z10 EC™	2097	
IBM System z10 Business Class™	z10 BC™	2098	
IBM System z9® Enterprise Class	z9 EC	2094	
IBM System z9 Business Class	z9 BC	2096	
IBM eServer™ zSeries® 990	z990	2084	
IBM eServer zSeries 890	z890	2086	
IBM eServer zSeries 900	z900	2064	
IBM eServer zSeries 800	z800	2066	
IBM S/390 Parallel Enterprise Class	n/a	9672	
IBM S/390 Multiprise® 3000 Enterprise Server	MP3000	7060	
IBM S390 Multiprise 2000 Server	MP2000	2003	

Operating Systems from IBM	Operating Systems from other vendors
z/OS®	Linux®
z/VM®	Open Solaris
zVSE®	
z/TPF	

Monthly License Charge Pricing Metrics

Monthly License Charge (MLC) metrics are those where a recurring charge applies each month. This charge includes the right to use the product, and also access to IBM product support during the support period.

IBM offers a variety of MLC pricing metrics to meet the diverse needs of our mainframe customers. An IBM pricing metric establishes both the prices and the applicable terms and conditions for IBM software products. Select an MLC pricing metric, based on your goals and/or your environment (see the “Key MLC Metrics” table below). The selected metric will be used to price MLC products, such as z/OS, middleware, compilers and selected systems management tools and utilities.

For more detailed information about all of these MLC pricing metrics visit: ibm.com/systems/z/swprice/mlc/

Table 1: Key MLC Metrics and Associated Contract Numbers

	z13 z14	zEC12 z196	z10EC z9EC	z990 z900	9672 MP2000	z13s z14 ZR1	zBC12 z114	z10 BC z9BC	z890	z800	MP3000
Advanced Workload License Charges (AWLC) *+ Z125-8538	x	x				x5	x5				
Country Multiplex License Charges (CMLC) * Z126-6966	x	x				x	x				
Variable Workload License Charges (VWLC) *+ Z125-6516		x1	x	x			x1	x2	x2	x2	
Flat Workload License Charges (FWLC) ^	x	x	x	x		x5	x5	x2	x2	x2	
Advanced Entry Workload License Charges (AEWLC) * Z125-8755						x	x				
Entry Workload License Charges (EWLC) * Z125-6587								x	x	x	
Tiered Workload License Charges (TWLC) Z125-3901						x	x	x	x		
System z New Application License Charges (zNALC) ** Z125-7454	x	x	x	x		x	x	x	x	x	
Parallel Sysplex License Charges (PSLC) + Z125-5205	x	x	x	x	x	x3	x3	x3	x3	x3	
Midrange Workload License Charges (MWLC) * Z125-7452	x	x	x					x			
zSeries Entry License Charges (zELC) Z125-3901						x4	x4	x4	x4	x	
Growth Opportunity License Charges (GOLC) Z125-3901											x

Table 1 notes:

* Metric eligible for Sub-Capacity charges

+ Metric eligible for Aggregation in a qualified Parallel Sysplex®

^ Metric available only in conjunction with AWLC, CMLC and VWLC

1 Customer may select VWLC pricing for a zEC12, zBC12, z196 or z114 machine only when it participates in a VWLC Sysplex under the AWLC Transition Charges for Sysplexes terms and conditions with at least one of the following machines: z10 EC, z10 BC, z9 EC, z9 BC.

2 VWLC and FWLC are only available on z10 BC, z9 BC, z890 or z800 when that machine is participating in a qualified Parallel Sysplex environment.

3 PSLC are only available on z14 ZR1, z13s, zBC12, z114, z10 BC, z9 BC, z890 or z800 when that machine is participating in a qualified Parallel Sysplex environment.

4 The z14 ZR1 model A01, z13s model A01, zBC12 model A01, z114 model A01, z10 BC model A01, z9 BC model A01, and the z890 model 110 are priced using zSeries Entry License Charges (zELC)

5 AWLC and FWLC are only available on a z14 ZR1, z13s, zBC12 or z114 when that machine is participating in a qualified Parallel Sysplex environment.

International Program License Agreement Pricing Metrics

International Program License Agreement (IPLA) metrics are those where customers pay an up-front charge for an entitlement to use the product. A separate, optional annual charge called Subscription and Support (S&S) provides customers with future releases and versions at no additional charge and access to IBM product support during the support period.

- *IPLA software exists across all IBM servers but the references in this document refer exclusively to IPLA software on IBM Z servers.*

There are three pricing metrics that generally apply to IBM Z IPLA products:

- *Value Unit pricing applies to most IPLA products that run on z/OS. Value Unit pricing is typically based upon a number of MSUs and allows for lower cost of incremental growth.*
- *z/VM V5, V6, V7 and certain z/VM middleware have pricing based on the number of engines. Engine based*
- *Value Unit pricing allows for a lower cost of incremental growth with additional engine-based licenses purchased.*
- *Most Linux middleware is also priced based on the number of engines. The number of engines is converted into Processor Value Units under the Passport Advantage® terms and conditions.*

For more information visit:

ibm.com/systems/z/swprice/zipla/

Table 2: IBM Z IPLA Metrics

	IMS Tool, CICS Tools & Db2 Tools	Application Development Tools	WebSphere Product Suite	z/VM and related Middleware	Linux Middleware
MSU-Based Value Unit Pricing	X	X	X		
Engine-Based Value Unit Pricing				X	
Engine-Based Processor Value Unit Pricing					X

IBM Z Sub-Capacity Pricing

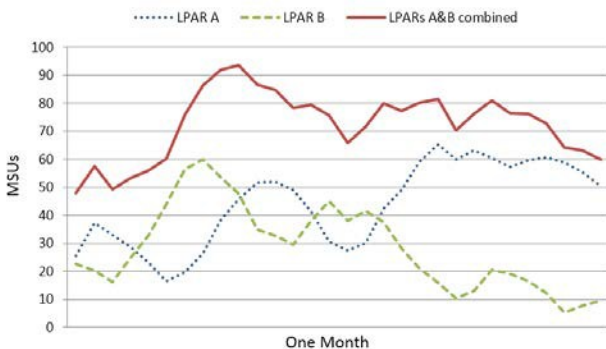
Traditionally, software licenses in the mainframe environment have been based upon the full mainframe capacity, meaning that the MSU-based software on the mainframe would be priced at the Full-Capacity MSUs of that machine. Sub-Capacity pricing provides a mechanism to license and pay for select IBM software products at a level less than the Full-Capacity of the mainframe.

Mechanics of Sub-Capacity

Sub-Capacity pricing allows select IBM software products to be licensed based upon the capacity of the Logical Partitions (LPAR) or LPARs where a product executes. To support the on demand needs of today's marketplace, LPAR capacity is determined each month by measuring the highest rolling 4-hour average utilization of the LPAR each month in MSUs.

By establishing a link between LPAR utilization and software charges, monthly variations in LPAR utilization may result in changes in software billing.

For example, in the illustration below, LPAR A's highest rolling four-hour average during the month is 65 MSUs. Products running in a given month solely in partition A would have Sub-Capacity charges based on that 65 MSU value. Similarly, LPAR B's highest rolling four-hour average is 60 MSUs. Products running in a given month solely in partition B would have Sub-Capacity charges based on that 60 MSU value. Lastly, products running in both LPARs at the same time in a given month would be charged based on the highest simultaneous rolling four-hour average utilization of both LPARs, which is shown at 94 MSUs.



Sub-Capacity Benefits

Sub-Capacity pricing can allow for many benefits, such as the ability to:

- Pay for select IBM software with LPAR-level granularity
- Vary charges each month, based on monthly variations in LPAR utilizations
- Increase installed hardware capacity without necessarily increasing software charges
- Manage software costs by managing workload utilizations
- Pay for software based on the highest 4-hour rolling average utilization (a benefit when compared with the measured peak utilization)

For more information visit:

ibm.com/systems/z/swprice/subcap/

Sub-Capacity Eligible Products

Select IBM products are eligible for Sub-Capacity pricing. IBM offers both MLC products and IPLA products with Sub-Capacity eligibility. For MLC products, licensed capacity may increase or decrease each month. However, for IPLA products, the licensed capacity cannot decrease once the license has been purchased. The following are some examples of Sub-Capacity eligible MLC/IPLA products:

- **Monthly License Charge** - z/OS, Db2[®], IMS[™], CICS[®], WebSphere[®] MQSeries[®], NetView[®], Lotus[®] Domino[®] and more. For a complete list, visit: ibm.com/systems/z/swprice/reference/exhibits/mlc.html
- **IPLA** - The majority of IPLA programs now qualify for Sub-Capacity pricing. Execution-based IPLA programs, such as IBM Fault Analyzer, may be charged based upon the utilization of the LPAR(s) where they execute.
- **Reference-based IPLA** programs, such as DB2 Tools, CICS Tools and IMS Tools, may be charged based upon the sub-capacity MSUs of their parent program (DB2, CICS or IMS) across the environment. For a complete list, visit: ibm.com/systems/z/swprice/reference/exhibits/ipla.html

Sub-Capacity Metrics for MLC Software

IBM offers six Sub-Capacity capable pricing metrics for MLC software:

- *Advanced Workload License Charges (AWLC) - Sub-Capacity charging for z14, z13, zEC12, and z196 customers. AWLC is also available on the z14 ZR1, z13s, zBC12 and z114, if participating in a qualified Parallel Sysplex cluster with z14, z13, zEC12, z196 or z114 machines.*
- *Country Multiplex License Charges (CMLC) - Sub-Capacity charging for customers with Country Multiplex Pricing.*
- *Workload License Charges (WLC) - Sub-Capacity charging for z10 EC, z9 EC, z990 and z900 customers. WLC is also available on the z10 BC, z9 BC, z890 and z800, if those machines participate in a qualified Parallel Sysplex cluster.*
- *Advanced Entry Workload License Charges (AEWLC) - Sub-Capacity charging for z14 ZR1, z13s, zBC12 and z114 customers.*
- *Entry Workload License Charges (EWLC) - Sub-Capacity charging for z10 BC, z9 BC, z890 and z800 customers.*
- *Midrange Workload License Charges (MWLC) - Sub-Capacity charging for z14, z13, zEC12, z196, z10 BC, z10 EC, z9 BC and z9 EC customers running z/VSE V4 or later.*
- *System z New Application License Charges (zNALC) - Sub-Capacity charging for the z/OS operating system on LPARs dedicated to 'new workload' applications such as Java[®] Language business applications running under WebSphere Application Server, Domino, SAP, PeopleSoft, and Siebel, assuming all applicable terms and conditions are met.*

For more information about zNALC see page 9 of this document

These seven price metrics may each be implemented in one of two ways::

- *Full-Capacity - charges are based upon the full (rated) capacity of the machine.*
- *Sub-Capacity - charges are based upon the utilization of the LPAR(s) where each Sub-Capacity eligible product executes.*

Only when Sub-Capacity MLC pricing is successfully implemented on a particular machine will that machine also be eligible for Sub-Capacity charging on eligible IPLA products, subject to IBM terms and conditions.

Sub-Capacity MLC Prerequisites

Eligibility is assessed on a machine-by-machine basis for each Sub-Capacity eligible operating system environment.

For a machine running z/OS to qualify for Sub-Capacity pricing, it must be a z/Architecture[®] (64-bit) machine fully migrated to z/OS. All instances of z/OS (and z/OS.e) on the machine must be executing in 64-bit mode. The license and the use of OS/390[®] must be discontinued. The presence of z/VM, z/VSE, z/TPF or Linux does not affect Sub-Capacity eligibility for z/OS.

For a machine running z/VSE to qualify for Sub-Capacity pricing, it must be a z14, z14 ZR1, z13, z13s, zEC12, zBC12, z196, z114, System z10 or System z9 machine fully migrated to z/VSE V4 or later. The license and the use of VSE/ESA[™] and z/VSE V3 must be discontinued. The presence of z/VM, z/OS, z/TPF or Linux does not affect Sub-Capacity eligibility for z/VSE.

For a machine running z/TPF to qualify for Sub-Capacity pricing, it must be a z/Architecture (64-bit) machine fully migrated to z/TPF. All instances of z/TPF on the machine must be executing in 64-bit mode. The license and the use of TPF V3 and TPF V4 must be discontinued. The presence of z/VM, z/OS, z/VSE or Linux does not affect Sub-Capacity eligibility for z/TPF.

Sub-Capacity Reporting Tool (SCRT)

Sub-Capacity Pricing requires the use of the Sub-Capacity Reporting Tool (SCRT). Customers must use SCRT each month to generate a monthly Sub-Capacity Report for each z/Architecture (64-bit) machine with Sub-Capacity pricing.

The Sub-Capacity Reports summarize the number of MSUs to be charged per product. Customers must submit to IBM, via e-mail or the Web, one Sub-Capacity Report per machine per month. These reports are used as the basis for Sub-Capacity pricing. For more information on SCRT, visit:

ibm.com/systems/z/swprice/subcap/scrt

Sub-Capacity Enhancements

The following offerings enhance the sub-capacity utilization reporting capabilities of zEnterprise or later systems running z/OS:

Getting Started Sub-Capacity Pricing (GSSP)

GSSP offers entry pricing for customers with low usage on select WebSphere programs by requiring less than the full LPAR sub-capacity license charge for up to fifty percent of the LPAR utilization consumed by the workload. For a list of eligible programs, visit:

ibm.com/systems/z/swprice/reference/exhibits/ipla_exe.html

Integrated Workload Pricing (IWP)

IWP can improve Monthly License Charge price/performance for co-locating selected WebSphere products (the defining programs) in the same LPARs as CICS/IMS (the adjusted programs). For lists of both types of IWP Programs visit:

ibm.com/systems/z/swprice/reference/exhibits/iwp.html

Mobile Workload Pricing (MWP)

MWP can reduce the cost of growth for mobile workloads processed by z/OS programs such as CICS, IMS, or WebSphere Application Server, by mitigating the impact of mobile transactions on sub-capacity charges. For a list of eligible programs, visit:

ibm.com/systems/z/swprice/reference/exhibits/mwp.html

IBM Z Collocated Application Pricing (zCAP)

zCAP can reduce the cost of growth for workloads new to the z/OS environment while allowing them to be collocated with existing workloads whose charges remain unaffected. For a list of eligible programs, visit:

ibm.com/systems/z/swprice/reference/exhibits/zcap.html

IBM Z Workload Pricing for Cloud (zWPC)

zWPC can reduce the cost of growth for new public cloud workloads processed by z/OS programs such as CICS, IMS, or WebSphere Application Server, by mitigating the impact of public cloud transactions on sub-capacity charges. For a list of eligible programs, visit:

ibm.com/systems/z/swprice/reference/exhibits/zwpc.html

Parallel Sysplex Aggregation

Parallel Sysplex aggregated pricing for z/OS complements the function and flexibility provided by the z/OS Parallel Sysplex architecture. Significant capabilities of a coupled Parallel Sysplex cluster include data sharing, high availability and the ability to dynamically balance work across the sysplex.

Aggregated pricing is designed to provide improved price/performance as you grow. This lower cost of incremental growth is provided via the decreasing unit cost per MSU, a key element of all the aggregation-capable price structures: AWLC, WLC, PSLC and zNALC.

In a qualified sysplex environment, aggregated MLC software charges are based on the total MSU values for those machines where the products execute. This provides you the flexibility to grow your sysplex either horizontally (add a new server) or vertically (grow an existing server) and experience similar incremental software costs. For more information about Parallel Sysplex aggregation qualification, visit:

ibm.com/systems/z/swprice/sysplex

Aggregated pricing also applies to z/TPF systems when those systems are configured in a qualified Loosely Coupled Complex.

In an uncoupled environment, MSU values are not aggregated with those of any other machines.

Country Multiplex Pricing (CMP)

CMP is a sub-capacity offering that allows z/OS and z/TPF customers to use their IBM Z capacity within a given country without the constraints of sysplex aggregation rules and many of the limitations of previous reporting methodologies. This new way of measuring and pricing sub-capacity program MSUs allows for more flexible deployment and movement of workloads across all machines within a country.

A Multiplex is the collection of all eligible IBM Z machines or sysplexes or both within a single country, measured as one machine for purposes of software sub-capacity reporting. The Sub-Capacity Reporting Tool (SCRT) generates a Multiplex report providing sub-capacity program utilization peaks across all machines in the Multiplex simultaneously, as opposed to separate peaks by machine which is how SCRT works in a non-Multiplex environment.

For more information about CMP, visit:

ibm.com/systems/z/swprice/cmp.html

Advanced Workload License Charges (AWLC)

Advanced Workload License Charges (AWLC) is one of IBM's Sub-Capacity capable MLC pricing metrics for z/OS and z/TPF workloads. AWLC is available for z14, z13, zEC12, and z196 machines, both when standalone and when in a qualified Parallel Sysplex environment with other zEnterprise or later machines.

AWLC is available on z14 ZR1, z13s, zBC12 or z114 machines only if that machine participates in a qualified Parallel Sysplex cluster consisting exclusively of zEnterprise or later machines. For more information about Parallel Sysplex aggregation, see the "Parallel Sysplex Aggregation" section of this document.

When customers adopt the AWLC pricing metric, all existing VWLC/PSLC/UJC* priced products will be moved to the AWLC or Flat WLC (FWLC) pricing metrics.

AWLC

Under AWLC, all Sub-Capacity eligible products have variable pricing. AWLC offers MSU-based pricing, with lower cost of incremental growth. Aggregation of MSUs is allowed across a qualified Parallel Sysplex cluster, subject to IBM terms and conditions.

AWLC Price Structure (Cumulative)

Base AWLC	3MSUs
Level 0	4 - 45 MSUs
Level 1	46 - 175 MSUs
Level 2	176 - 315 MSUs
Level 3	316 - 575 MSUs
Level 4	576 - 875 MSUs
Level 5	876 - 1315 MSUs
Level 6	1216 - 1975 MSUs
Level 7	1976+ MSUs

Flat WLC (FWLC)

Non-Sub-Capacity eligible Flat FWLC products will have one simple "flat" charge per product, per machine. FWLC is used in conjunction with both AWLC and WLC in z/OS environments, and may apply to other operating systems when z/OS is licensed to the same machine.

Country Multiplex License Charges (CMLC)

Country Multiplex License Charges (CMLC) is one of IBM's Sub-Capacity capable MLC pricing metrics, available only to customers with Country Multiplex Pricing (CMP). For more information about CMP, see the "Country Multiplex Pricing (CMP)" section of this document.

When customers adopt the CMLC pricing metric, all existing Sub-Capacity eligible products will be moved to CMLC. Non-Sub-Capacity eligible products will have either Flat Workload License Charges (FWLC) or Tiered Workload License Charges (TWLC).

CMLC

Under CMLC, all Sub-Capacity eligible products have variable pricing. CMLC offers MSU-based pricing, with lower cost of incremental growth. Aggregation of MSUs is implemented across the customer's Multiplex, subject to IBM terms and conditions.

CMLC Price Structure (Cumulative)

Base CMLC	3MSUs
Level 0	4 - 45 MSUs
Level 1	46 - 175 MSUs
Level 2	176 - 315 MSUs
Level 3	316 - 575 MSUs
Level 4	576 - 875 MSUs
Level 5	876 - 1315 MSUs
Level 6	1216 - 1975 MSUs
Level 7	1976 - 2499 MSUs
Level 8	2500 - 3499 MSUs
Level 9	3500 - 4999 MSUs
Level 10	5000 - 6999 MSUs
Level 11	7000 - 9999 MSUs
Level 12	10000 - 13999
Level 13	14000+ MSUs

Non-Sub-Capacity eligible products will have one non-variable charge per product, per machine. For z14, z13, zEC12, and z196 machines the FWLC non-variable charge is independent of machine capacity. For z14 ZR1, z13s, zBC12, and z114 machines the non-variable charge will be TWLC, where the tier is determined by the full capacity MSU rating of the machine. See the TWLC Price Structure on page 9.

*WebSphere MQ may be priced using SALC, see page 15 of this document.

Workload License Charges (WLC)

Workload License Charges (WLC) is one of IBM's Sub-Capacity capable MLC pricing metrics for z/OS and z/TPF workloads. WLC is available for z10 EC, z9 EC, z990 and z900 machines both when in a qualified Parallel Sysplex environment or when standalone.

WLC is available on z10 BC, z9 BC, z890 or z800 machines only if that machine participates in a qualified Parallel Sysplex cluster. For more information about Parallel Sysplex aggregation, see the "Parallel Sysplex Aggregation" section of this document.

When customers adopt the WLC pricing metric, all existing PSLC/ULC* priced products will be moved to the WLC pricing metric. The WLC pricing metric has two charging categories: Variable WLC and Flat WLC (FWLC).

Variable WLC (VWLC)

Under WLC, all Sub-Capacity eligible products have Variable WLC pricing. Variable WLC offers MSU-based pricing, with lower cost of incremental growth. Aggregation of MSUs is allowed across a qualified Parallel Sysplex cluster, subject to IBM terms and conditions.

VWLC Price Structure (Cumulative)

Base VWLC	3 MSUs
Level 0	4 - 45 MSUs
Level 1	46 - 175 MSUs
Level 2	176 - 315 MSUs
Level 3	316 - 575 MSUs
Level 4	576 - 875 MSUs
Level 5	876 - 1315 MSUs
Level 6	1316 - 1975 MSUs
Level 7	1976+ MSUs

Flat WLC (FWLC)

Non-Sub-Capacity eligible Flat FWLC products will have one simple "flat" charge per product, per machine. FWLC is used in conjunction with both AWLC and WLC in z/OS environments, and may apply to other operating systems when z/OS is licensed to the same machine.

*WebSphere MQ may be priced using SALC, see page 15 of this document.

Advanced Entry Workload License Charges (AEWLC)

Advanced Entry Workload License Charges (AEWLC) is a Sub-Capacity capable MLC pricing metric, available for z14 ZR1, z13s, zBC12 and z114 machines. The AEWLC price structure, for sub-capacity-eligible products, offers MSU-based cumulative pricing, with lower cost of incremental growth. Aggregation of MSUs is not allowed under the AEWLC metric.

Standalone z14 ZR1, z13s, zBC12 and z114

z14 ZR1, z13s, zBC12 and z114 standalone z/OS, z/TPF and z/VSE V4 or later customers will have AEWLC pricing**. All sub-capacity eligible products will be priced using the AEWLC pricing metric.

The remaining, non-sub-capacity eligible products will be priced using the Tiered EWLC (TWLC) price. TWLC pricing, for non-sub-capacity products, offers flat pricing based on the server capacity using a tiered structure. TWLC pricing is exclusive to the z14 ZR1, z13s, zBC12, z114, z10 BC, z9 BC and z890 servers. (Please note that Tiered EWLC pricing is sometimes also known as EWLC Tiered pricing.)

AEWLC Price Structure (Cumulative)

Base AEWLC	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 - 315 MSUs
Level 8	316+ MSUs

TWLC Price Structure (Flat)

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

Customers operating a z14 ZR1, z13s, zBC12 or z114 in a qualified z/OS Parallel Sysplex cluster or a z/TPF Loosely Coupled Complex may elect to have that machine priced as a standalone machine (AEWLC and TWLC) or may elect aggregated AWLC or aggregated PSLC pricing, subject to applicable terms and conditions. If the customer selects aggregated pricing, then zELC, AEWLC and TWLC price structures do not apply.

**The z14 ZR1 model A01, z13s model A01, zBC12 model A01, and z114 Model A01 are priced using zELC, see page 13 of this document.

Entry Workload License Charges (EWLC)

Entry Workload License Charges (EWLC) is a Sub-Capacity capable MLC pricing metric, available for z10 BC, z9 BC, z890 and z800 machines.

The EWLC price structure, for sub-capacity-eligible products, offers MSU-based cumulative pricing, with lower cost of incremental growth. Aggregation of MSUs is not allowed under the EWLC metric.

Standalone z10 BC, z9 BC and z890

z10 BC, z9 BC and z890 standalone z/OS and z/TPF customers will have EWLC pricing**. All sub-capacity eligible z/OS products will be priced using the EWLC pricing metric.

The remaining, non-sub-capacity eligible products will be priced using the Tiered EWLC (TWLC) price. TWLC pricing, for non-sub-capacity products, offers flat pricing based on the server capacity using a tiered structure. TWLC pricing is exclusive to the zBC12, z114, z10 BC, z9 BC and z890 servers. (Please note that Tiered EWLC pricing is sometimes also known as EWLC Tiered pricing.)

z800 Standalone

z800 standalone customers may choose to adopt EWLC pricing. If they choose to adopt the EWLC pricing metric, then all sub-capacity eligible products must be moved to the EWLC pricing metric. The remaining, non-sub-capacity eligible products will be priced using zSeries Entry License Charge (zELC) pricing. For more information on zELC, see page 13 of this document.

EWLC Price Structure (Cumulative)

Base EWLC	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

TWLC Price Structure (Flat)

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

z/OS customers operating a z10 BC, z9 BC, z890 or a z800 in a qualified Parallel Sysplex cluster may elect to have that machine priced as a standalone machine (EWLC and TWLC, or zELC) or may elect aggregated AWLC, aggregated WLC or aggregated PSLC pricing, subject to applicable terms and conditions. If the z/OS customer selects aggregated pricing, then zELC, EWLC and TWLC price structures do not apply.

** The z10 BC model A01, z9 BC model A01, and the z890 model 110 are priced using zELC, see page 13 of this document.

Midrange Workload License Charges (MWLC)

Midrange Workload License Charges (MWLC) is a monthly license charge pricing metric designed especially to support z/VSE V4 and later customers with z14, z13, zEC12, z196, System z10 or System z9 servers. IBM introduced Midrange Workload License Charges to deliver software price/performance for a variety of z/VSE customer needs.

The MWLC price structure, for sub-capacity-eligible products, offers MSU-based cumulative pricing, with lower cost of incremental growth. Aggregation of MSUs is not allowed under the MWLC metric.

Under MWLC, z/VSE V4 and later along with twelve key VSE middleware programs will be priced using the MWLC pricing metric. The remaining, non-sub-capacity eligible products will be priced using other price metrics such as TWLC (see pages 9 and 10), or GMLC or ELC (see page 15), depending upon the machine type being used.

MWLC Price Structure (Cumulative)

<u>Base MWLC</u>	<u>3 MSUs</u>
<u>Level 1</u>	<u>4 - 17 MSUs</u>
<u>Level 2</u>	<u>18 - 30 MSUs</u>
<u>Level 3</u>	<u>31 - 45 MSUs</u>
<u>Level 4</u>	<u>46 - 87 MSUs</u>
<u>Level 5</u>	<u>88 - 175 MSUs</u>
<u>Level 6</u>	<u>176 - 260 MSUs</u>
Level 7	261+ MSUs

Parallel Sysplex License Charges (PSLC)

Parallel Sysplex License Charges (PSLC) is a monthly license charge pricing metric for z/OS and z/TPF workloads where software charges are based upon the full rated capacity of the machine(s) where a product executes. PSLC may be applied to a standalone mainframe environment, or aggregation benefits may apply across a qualified Parallel Sysplex environment. For more information about Parallel Sysplex aggregation, see the "Parallel Sysplex Aggregation" section of this document in a qualified sysplex environment, PSLC software charges are based on the total MSU value for all those machines where the products execute.

For a standalone (uncoupled) z14, z13, zEC12, z196, z10 EC, z9EC, z990 or z900 machine, PSLC charges are based on the MSU capacity of that machine. Standalone z14 ZR1, z13s, zBC12, z114, z10 BC, z9 BC, z890 and z800 machines are not eligible for PSLC charges. PSLC is available on z14 ZR1, z13s, zBC12, z114, z10 BC, z9 BC, z890 or z800 machines only if that machine participates in a qualified z/OS Parallel Sysplex cluster or z/TPF Loosely Coupled Complex.

PSLC Price Structure (Cumulative)

<u>Base PSLC</u>	<u>3 - MSUs</u>
<u>Level A</u>	<u>4 - 45 MSUs</u>
<u>Level B</u>	<u>46 - 175 MSUs</u>
<u>Level C</u>	<u>176 - 315 MSUs</u>
<u>Level D</u>	<u>316+ MSUs</u>

System z New Application License Charges (zNALC)

System z New Application License Charges (zNALC) offers a reduced price for the z/OS operating system on LPARs where you are running a qualified "new workload" application such as Java business applications running under WebSphere Application Server, Domino, SAP, PeopleSoft, and Siebel, subject to IBM terms and conditions.

z/OS with zNALC can provide price performance benefits over previous 'new workload' pricing offers such as the original New Application License Charges (NALC) and the z/OS.e operating system. zNALC allows for aggregation across a qualified Parallel Sysplex environment, which can provide a lower cost of incremental growth across qualified "new workloads" that span a Parallel Sysplex environment.

zNALC is the IBM strategy for new applications, replacing the z/OS.e operating system and the NALC pricing metric. LPARs running zNALC workloads must be identified by name on SCRT reports, and you must certify your eligibility for zNALC charges on an annual basis. Other applications may run in a zNALC LPAR as long as they are only there in support of the zNALC qualified application.

For more information about zNALC, including terms and conditions, visit:

ibm.com/systems/z/swprice/mlc/znalc.html

zNALC Price Structure (Cumulative)

Base zNALC	3 MSUs
Level 0	4 - 45 MSUs
Level 1	46 - 175 MSUs
Level 2	176 - 315 MSUs
Level 3	316 - 575 MSUs
Level 4	576 - 875 MSUs
Level 5	876 - 1315 MSUs
Level 6	1316 - 1975 MSUs
Level 7	1976+ MSUs

New Application License Charges (NALC)

The older z/OS pricing metric called New Application License Charges (NALC) is no longer available for new workloads* though it remains available on those z/OS V1 machines which already have NALC pricing. NALC was designed for customers who dedicated an entire mainframe server to a qualifying On Demand Business application, such as WebSphere or a qualifying enterprise application such as SAP or PeopleSoft. For a product with the NALC pricing metric, there was a single low price per MSU per product and software charges were based upon the capacity of the machine where the product executed.

NALC was available to PSLC and WLC customers. NALC provided low price points for z/OS V1, OS/390 and Lotus Domino Version 5.

In the case that a machine was dedicated to e-business and also Sub-Capacity WLC, then the billable z/OS and/or Domino NALC MSUs would be based on the values that appeared on the monthly Sub-Capacity Reports. This was the only time when IBM terms permitted NALC MSUs to be less than full machine capacity.

With the introduction of zNALC pricing for "new workload" applications, customers interested in running new workloads on the IBM Z platform should consider zNALC as an alternative to NALC. zNALC offers price performance improvements as well as sub-capacity pricing.

*Please see the 4 December 2007 Announcement Letter "Software withdrawal: Selected IBM System z products — Some replacements available" regarding the withdrawal of the NALC price metric.

zSeries Entry License Charges (zELC)

zSeries Entry License Charges (zELC) is a monthly license charge pricing metric originally designed to support the z800 server.

zELC is determined based on the particular z800 model (0E1, 0A1, 0B1, 0C1, 001, 0X2, 0A2, 002, 003, 004) where the software is licensed. For a z800 that actively participates in a Parallel Sysplex environment, customers may choose for that z800 either zELC or the applicable aggregated base pricing metric, depending on PSLC/WLC terms and conditions.

zELC is offered on the following machines:

- z14 ZR1 model A01
- z13s model A01
- zBC12 model A01
- z114 model A01
- z10 BC model A01
- z9 BC model A01
- z890 model 110
- all z800 models

Growth Opportunity License Charges (GOLC)

Growth Opportunity License Charges (GOLC) is a monthly license charge pricing metric designed especially to support the Multiprise 3000® server. GOLC is determined based on the particular Multiprise 3000 model (H30, H50, H70) where the software is licensed. GOLC is only offered on Multiprise 3000 machines.

z/OS.e Operating System

z/OS.e was a specially priced offering of the z/OS operating system providing select z/OS function. Exclusive to z10 BC, z9 BC, z890 and z800 machines, z/OS.e is no longer available*.

z/OS and z/OS.e were the same code, except certain z/OS functionality was not available in a z/OS.e environment, such as the ability to execute CICS or IMS transactions.

For zELC, WLC and PSLC customers, z/OS.e had a single monthly license charge per engine, regardless of the engine size. For EWLC customers, z/OS.e was a subcapacity-eligible product and had EWLC MSU-based pricing. Middleware executing in a z/OS.e environment was priced according to the base pricing metric (zELC, PSLC, WLC, EWLC) selected for that z10 BC, z9 BC, z890 or z800 machine.

* Please see the 9 January 2007 Announcement Letter "System z New Application License Charges" for details of the replacement of the z/OS.e operating system.

Other Pricing Information

- *S/390 Usage Pricing (ULC)*
- *Select Application License Charges (SALC)*
- *VSE and VM Middleware Pricing*
- *Linux Middleware*
- *Version to Version Upgrades*

S/390 Usage Pricing (ULC)

IBM S/390 Usage Pricing, also known as Usage License Charges (ULC), offers an attractive pricing alternative on machines with either PSLC or GOLC. ULC provides a mechanism to deploy low-utilization software products across an enterprise, with excellent price/performance. For a product with ULC, software charges are based upon the utilization of that product. ULC price points are available for Db2, CICS, IMS and WebSphere MQ.

Select Application License Charges (SALC)

Select Application License Charges (SALC) is available solely for WebSphere MQ and only on machines with AWLC, WLC, AEWLC or EWLC. SALC may be a good price/performance option on very-low utilization installations of WebSphere MQ. SALC is available for either Sub-Capacity or Full-Capacity machines. For a WebSphere MQ installation with the SALC pricing metric, software charges are based upon the utilization of WebSphere MQ.

Implementation of ULC and SALC

ULC and SALC require submission of a yearly "Software Usage Report." IBM provides a reporting tool (which ships with OS/390 V2 and z/OS) that analyzes 12 months of Systems Measurement Facility (SMF) data, record type SMF89, and generates the "Software Usage Report." This annual report summarizes the use over the past 12 months and establishes the ULC/SALC MSU level for the next 12 months.

To determine the billable ULC/SALC MSUs for a given product, the following algorithm is applied to each product set. A product set encompasses all the active versions of a given product.

- *Daily value: In a given day, MSUs from highest hour of utilization each day*
- *Monthly value: In a given month, MSUs from the fourth highest daily value*
- *Yearly (billable) value: In a given year, MSUs from the highest monthly value*

VSE and VM Middleware Pricing

VSE middleware which is not eligible for MWLC pricing and certain VM middleware products have two pricing metrics which have not yet been discussed in this document:

- *Graduated Monthly License Charges (GMLC) is model group pricing for machines that are rated up to 80 MSUs*
- *Extended License Charges (ELC) is MSU-based pricing for machines that are rated at greater than 80 MSUs*

Refer to the following table to determine whether GMLC or ELC pricing should apply (excluding when MWLC are in effect):

Table 3: MLC Pricing Metrics for VSE and VM middleware

	IBM Z with AWLC or WLC	Standalone z14ZR1, z13s, zBC12, z114, z10BC, z9BC or z890	Standalone z800	MP30000	All Others
FWLC	X				
TWLC		X			
zELC			X		
GOLC				X	
GMLC/ELC					X

Table 3 notes:

1. z/VM V4, V5, V6 and V7 are engine-based IPLA, they do not have monthly license charges. However, certain VM middleware in a z/VM environment would follow the rules in Table 3.
2. If a VM or VSE product does not have a FWLC/TWLC/zELC/GOLC price, then the GMLC/ELC price applies.

Linux Middleware

The Linux operating system is not an IBM product. IBM middleware products that run in a Linux environment are licensed through IBM's Passport Advantage program. Linux middleware is typically licensed using an Engine based Processor Value Unit (PVU) metric.

For more information about Linux middleware in an IBM Z environment, visit

ibm.com/systems/z/swprice/subcap/linux.html

Version to version upgrades

Multi-Version Measurement (MVM) for z/OS and z/VSE removes time limits for running multiple eligible versions of a software program. Clients may run different versions of a program simultaneously for an unlimited duration during a program version upgrade. Clients may also choose to run multiple different versions of a program simultaneously for an unlimited duration in a production environment.

For more information about MVM, visit:

ibm.com/systems/z/swprice/mvm.html

To learn more

Visit the IBM Z Software Pricing Web site at ibm.com/systems/z/swprice/ or call IBM DIRECT at 1 800 IBM-CALL in the United States and Canada.

Australia 132 426

Austria 0660.5109

Belgium 02-225.33.33

Brazil 0800-111426

China (20) 8755 3828

Denmark 4520 8222

France 0800-03-03-03

Germany 01803-313233

Hong Kong (20) 2825 6222

Hungary 165-4422

India (80) 526 9050

Indonesia (21) 252 1222

Ireland 1-850-205-205

Israel 03-6978111

Italy 167-017001

Japan 0120 300 426

Korea (02) 781 7800

Malaysia (03) 717 7890

Mexico 91-800-00316

Netherlands 020-513.5151

New Zealand 0800-801-800

Philippines (02) 819 2426

Poland (022) 878-6777

Singapore 1800 320 1975

South Africa 0800-130130

Spain 900-100400

Sweden 020-220222

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Thailand (02) 273 4444

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