

z/VM Licensing and Pricing

"Virtualization" is the IT industry's hot new buzz word, and with it comes increased interest in IBM's leading virtualization technology for the zSeries mainframe, z/VM. IBM has responded to this increased interest by enhancing and extending z/VM with new technologies and features, most of which are designed to make running Linux-based workloads more cost effective and practical on the mainframe.

One of these new enhancements isn't technical, however, but deals with the way IBM licenses and charges for z/VM. Starting with z/VM Release 4, IBM licenses z/VM under the terms and conditions of the IBM International Program License Agreement (IPLA). Under the IPLA, which is similar to the license agreements found on "shrink-wrapped" software packages, there is now a one-time charge for z/VM and it's optional, priced, features, DIRMAINT, RACF and the Performance Toolkit. The complete text of the IPLA can be found here:

<http://www-03.ibm.com/software/sla/sladb.nsf/viewbla>

In addition, IBM offers an optional enhanced support package, called Subscription and Support, which provides for annual maintenance, including telephone assistance as well as access to new updates, releases, and versions of z/VM without additional charges. While the S&S offering is optional, it is a "Good Thing" (™, M. Stewart), and should be acquired as well. Subscription and Support must be declined when ordering z/VM Version 4 and 5 if you do not want it.

Based on U.S. pricing figures, the one time charge for z/VM Release 4 is \$45,000/engine, regardless of engine type, standard or IFL. Each additional engine licensed is another \$45,000. A z/VM V4 license for an 8-way zSeries server would then be 8 x \$45,000 or \$360,000, a not insignificant chunk of change. With the introduction of z/VM 5.2, however, the pricing structure has changed dramatically: z/VM is now licensed based on "value units" (VU), which vary depending on the number of engines being licensed to run z/VM V5. The more value units that are licensed, the less expensive they become. Engine-based Value Unit pricing of z/VM V5 is different than MSU-based Value Unit pricing, which is available on other IBM software products.

The Rules: IBM has defined a set of rules that must be followed when counting the total number of engines in a processor.

Rule 1: When ordering z/VM V5.2 (or the optional features) to operate on any of the standard engines in a zSeries processor, z/VM must be licensed for all of the standard engines in the processor.

Rule 2: When ordering z/VM V5.2 (or the optional features) to operate on any of the Linux-only IFL engines in a zSeries processor, z/VM must be licensed for all of the IFL engines in the processor.

Rule 3: The number of engines can be aggregated across processors that are part of your enterprise for licensing purposes.

Rule 4: Standard engines and IFL engines, because of the different workloads they're meant to address, cannot be combined in a LPAR. An LPAR must have either all standard engines or all IFL engines. This segregation by engine type in LPARs insures that the proper workloads are dispatched on the proper engines.

Translation from engines to Value Units: The total number of value units for a specified number of engines can be determined by consulting the following table.

the first 3 engines (1 -- 3)	are assigned	10	value	units	each
the next 3 engines (4 -- 6)	are assigned	9	"	"	"
the next 3 engines (7 -- 9)	are assigned	8	"	"	"
the next 3 engines (10 -- 12)	are assigned	7	"	"	"
the next four engines (13 -- 16)	are assigned	6	"	"	"
the next four engines (17 -- 20)	are assigned	5	"	"	"
the next four engines (21 -- 25)	are assigned	4	"	"	"
and 26 or more engines	are assigned	3	"	"	"

As an example, to license z/VM on a five-processor zSeries, it would require: (3 x 10) + (2 x 9) = 48 value units (10 value units each for the first three engines, plus 9 value units each for the next two engines).

What's a Value Unit cost?

Based on U.S. pricing data. IBM's one-time charge pricing for z/VM Version 5 and its optional, priced features are:

z/VM 5.2 -- \$2,250/vu
 DIRMAINT -- \$38/vu
 RACF/VM -- \$300/vu
 PerfTKT -- \$175/vu

The optional S&S charges are, per year:

z/VM 5.2 -- \$563/vu
 DIRMAINT -- \$10/vu
 RACF/VM -- \$75/vu
 PerfTKT -- \$44/vu

Some examples:

1) A small z800 with only 3 IFL engines in a single LPAR

Number of value units = 3 x 10 = 30

z/VM 5.2 charge = 30 x \$2,250 = \$67,500
 DIRMAINT charge = 30 x \$38 = \$1,140
 RACF/VM charge = 30 x \$300 = \$9,000
 PerfTKT charge = 30 x \$175 = \$5,250
 Total one-time charge = \$82,890

The S&S charges would be:

z/VM 5.2 charge = 30 x \$563 = \$16,890
 DIRMAINT charge = 30 x \$10 = \$300
 RACF/VM charge = 30 x \$75 = \$2,250

PerfTKT charge = 30 x \$44 = \$1,320
 Total S&S charge = \$20,760/yr

2) A medium z890 with 4 engines, 2 IFL and 2 standard, configured into 3 LPARs: LPAR1 has 1 IFL and will support z/VM with Linux guest images, LPAR2 will have the other IFL engine and run Linux natively, and LPAR3 will have both standard engines running z/OS.

Number of value units: 10 (for IFL LPAR1) + 10 (for IFL LPAR2) = 20 (see rule 2 above)

z/VM 5.2 charge = 20 x \$2,250 = \$45,000
 DIRMAINT charge = 20 x \$38 = \$760
 RACF/VM charge = 20 x \$300 = \$6,000
 PerfTKT charge = 20 x \$175 = \$3,500
 Total one-time charge = \$55,260

The S&S charges would be:

z/VM 5.2 charge = 20 x \$563 = \$11,260
 DIRMAINT charge = 20 x \$10 = \$200
 RACF/VM charge = 20 x \$75 = \$1,500
 PerfTKT charge = 20 x \$44 = \$880
 Total S&S charge = \$13,840/yr

3) A large z990 with 16 engines, in the following configuration: 5 IFL engines in LPAR1, 5 standard engines in LPAR2 and 6 standard engines in LPAR3. LPAR1 will run z/VM and Linux guests, LPAR2 will run z/VM and z/OS and TPF guests, and LPAR3 will run z/OS in production.

Number of value units: (3 x 10) + [note 1]
 (3 x 9) + [note 2]
 (3 x 8) + [note 3]
 (3 x 7) + [note 4]
 (4 x 6) = 126 [note 5]

Note 1: first 3 IFL engines in LPAR1

Note 2: last 2 IFL engines in LPAR1 and first standard engine in LPAR2

Note 3: next 3 standard engines in LPAR2

Note 4: last standard engine in LPAR2 and first 2 standard engines in LPAR3 (rule 1 above)

Note 5: last 4 standard engines in LPAR3 (rule 1 above)

z/VM 5.2 charge = 126 x \$2,250 = \$283,500
 DIRMAINT charge = 126 x \$38 = \$4,788
 RACF/VM charge = 126 x \$300 = \$37,800
 PerfTKT charge = 126 x \$175 = \$22,050
 Total one-time charge = \$348,138

The S&S charges would be:

z/VM 5.2 charge = 126 x \$563 = \$70,938
 DIRMAINT charge = 126 x \$10 = \$1,260
 RACF/VM charge = 126 x \$75 = \$9,450
 PerfTKT charge = 126 x \$44 = \$5,544
 Total S&S charge = \$87,192/yr

4) The same z990 configuration given in example 3 plus an additional z890 with two IFL engines and 2 standard engines. The two IFL engines in the z890 will be in LPARLNX, running z/VM and Linux guests, and the two standard engines will be in LPARZOS, running z/OS natively.

Number of value units: 126 (from example 3) + (2 x 5) = 136 (rule 3)

z/VM 5.2 charge	= \$283,500 + 10 x \$2,250	= \$306,000
DIRMAINT charge	= \$4,788 + 10 x \$38	= \$5,168
RACF/VM charge	= \$37,800 + 10 x \$300	= \$40,800
PerfTKT charge	= \$22,050 + 10 x \$175	= \$23,800
Total one-time charge		= \$375,768

The S&S charges would be:

z/VM 5.2 charge	= 136 x \$563	= \$76,568
DIRMAINT charge	= 136 x \$10	= \$1,360
RACF/VM charge	= 136 x \$75	= \$10,200
PerfTKT charge	= 136 x \$44	= \$5,984
Total S&S charge		= \$94,112/yr

If you do the math, this is only an 8.8% increase over the licensing charges of example 3; highlighting the very low incremental cost of adding additional processors for z/VM workloads.