Sub-capacity (Virtualization) License Counting Rules

Sun Microsystems Solaris x86 Server Virtualization Environment

NOTE: Please use these rules along with the Sub-capacity licensing attachment

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Summary of Virtualization Capacity Licensing Requirements

- ## Customers must:
  - ▸ Agree to the terms of the Sub-capacity Attachment, and follow Virtualization Capacity License Counting rules for their Eligible Virtualization Environment(s)
  - ▸ Use Eligible Sub-capacity Products
  - ▸ Use Eligible Virtualization Technologies
  - ▸ Use Eligible Processor Technologies
  - ▸ Use the IBM License Metric Tool (ILMT) and maintain report documentation
    - • Tivoli Asset Discovery for Distributed V7.2 (TADd) may be used in lieu of IBM License Metric Tool V7.2
    - • Certain ILMT / TADd use exceptions may apply

PLEASE NOTE:

▪*The above is only a summary. For details about sub-capacity licensing requirements, see the Sub-capacity Attachment and other information referred to above, at* **_Passport Advantage Virtualization Capacity website_**

▪*Customers are responsible for the installation of the IBM License Metric Tool and for the server it runs on.*

Sun Microsystems Solaris x86 Server Virtualization Environment - Definitions

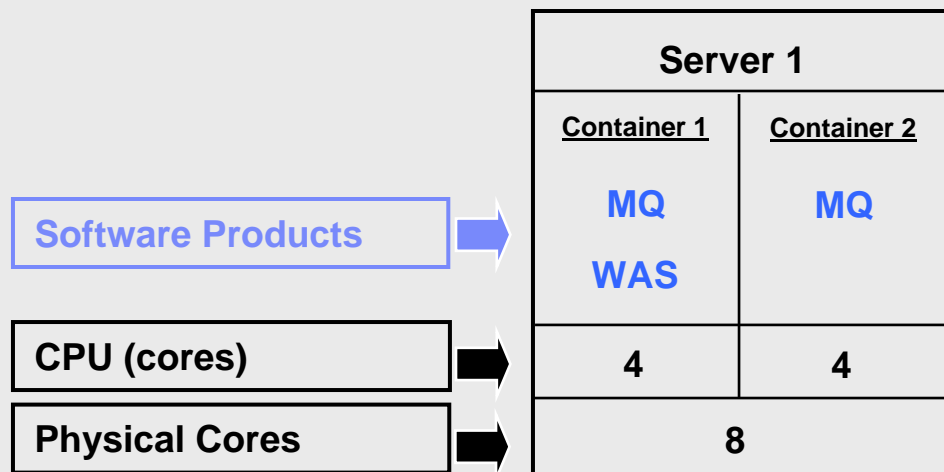- **Container**
  - A Container represents a complete system with processors, memory, disk , network resources and is where processing capacity is available to the IBM software
  - Multiple Containers can share physical resources and run side by side on the same server

- **CPU – Virtual CPU**
  - Each Container is assigned a CPU quantity
  - The processing capacity of a CPU cannot be more than one physical processor core
  - Each CPU is equal to one core for PVU licensing

- **Single Server**
  - A stand alone server that provides resources (i.e. processor core capacity) to the Containers

License counting in a "Single Server"

1 Server	8 Virtual Cores	8 Physical Cores

Software Products ➡

CPU (cores) ➡

Physical Cores ➡

Server 1

Container 1	Container 2
MQ WAS	MQ
4	4
8	

License counting for Solaris on x86 server
- Eligible Virtualization Technology can be used to create Containers
- Each container is assigned a CPU quantity
- Each CPU is equal to one core for PVU licensing.
- License PVUs for the maximum number of CPUs (cores) in the Conatiner(s) available to the product

▸ For above example, the PVU Virtualization Capacity licensing requirement is based on the maximum number of CPUs (cores) in the Container/Zone available to a product

Cores to License	Container 1	Container 2	Virtualization Capacity	Full Capacity
MQ software	4	4	8	8
WAS software	4	-	4	8

License counting in a "Single Server"

Virtualization Capacity greater than Full (Physical) Capacity

1 Server	9 Virtual Cores	8 Physical Cores

Software Products →

CPU (cores) →

Physical Cores →

Server 1		
Container 1	**Container 2**	**Container 3**
MQ **WAS**	**MQ**	**MQ**
4	4	1
8		

License counting for Solaris on x86 server
- Eligible Virtualization Technology can be used to create Containers
- Each container is assigned a CPU quantity
- Each CPU is equal to one core for PVU licensing.
- License PVUs for the maximum number of CPUs (cores) in the Conatiner(s) available to the product
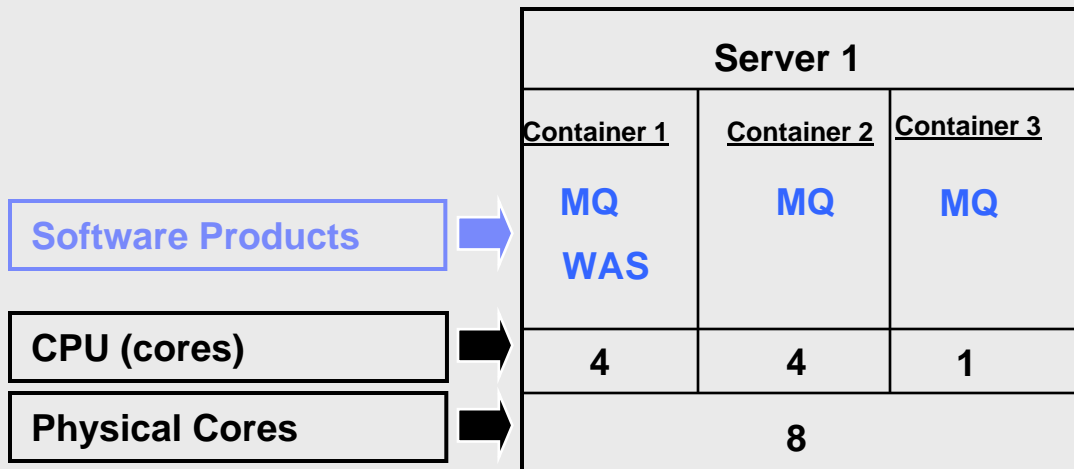 - the lower of the sum of CPU(s) or the full capacity of the server

▶ For above example, the PVU Virtualization Capacity licensing requirement is based on the maximum number of CPUs (cores) in the Container(s) available to a product

  ▶ License Rule: lower of the Virtualization Capacity or Full (Physical) Capacity available in the Server

Cores to License	Container 1	Container 2	Container 3	Virtualization Capacity	Full capacity
MQ software	4	4	1	9	8
WAS software	4	-		4	8

Sun Microsystems Solaris x86 Server Virtualization Environment - Licensing Rules

- <u>Single Server:</u> (A stand alone server that provides resources (i.e. processor core capacity) to the Containers)

  - License PVUs for the maximum number of CPUs (cores) in the Container(s) available to the Eligible Product

    - lower of the sum of CPU or Full (physical) Capacity of the server

- The licensing rules in the preceding pages reflect how ILMT will operate to calculate PVUs

- If ILMT does not yet support a Eligible Virtualization Environment, or you qualify for an exception to use ILMT, you will need to follow the Manual Calculation of Virtualization Capacity.

- The Manual Calculation of Virtualization Capacity rules can be found in the following pages

- To find out if a Eligible Virtualization Technology is supported by ILMT visit
  Passport Advantage Sub-capacity licensing information

Manual Calculation of Virtualization Capacity

- <u>Eligibility Criteria</u>: Customers must use the IBM License Metric Tool, with the following exceptions
  - ILMT does not support the Eligible Virtualization Environment
  - Customer has fewer than 1000 employees and contractors - Tool recommended
  - Customer server Full Capacity licensing for a PVU product is less than 1000 PVUs (on servers with an Eligible Virtualization Environment) - Tool recommended

- <u>Requirements:</u> For the above exceptions, customers must manually manage, track and prepare Audit Reports
  - An Audit Report must be prepared at least once per quarter and identify the following detail: Each Eligible Sub-Capacity Product deployed in each Eligible Virtualization Environment
  - An Eligible Virtualization Environment can be a Single Server or a Group of Servers (Server Cluster)
  - In addition to the above detail, the report should provide a summary total of the required number of PVUs by and for each Eligible Sub-Capacity Product
  - Audit Reports must be prepared as frequently as is required to maintain a history of increases to Virtualization Capacity and Full Capacity
  - Each Audit Report must be **<u>signed and date stamped</u>**, at least once per quarter

> *The above is only a summary. For detailed terms please see the <u>Passport Advantage Sub-capacity licensing information</u>*

Manual Calculation of Virtualization Capacity – Rules

- <u>Single Server:</u> (A stand alone server that provides resources (i.e. processor core capacity) to the Containers)

  - License PVUs for the maximum number of CPUs (cores) in the Container(s) available to the Eligible Product

    - lower of the sum of CPU or Full (physical) Capacity of the server

Manual Calculation of Virtualization Capacity - Worksheet Example

Worksheet has 3 tabs

Use the following tabs

- Instructions & Information

- Single Server

Web Link: Worksheet for Manual Calculation of Virtualization Capacity

VIRTUALIZATION ENVIRONMENT - SINGLE SERVER

- This worksheet is for one standalone server for one Software Product
- Per the Instructions on the first tab, you may choose to leverage this approach or develop / leverage your own processes and reporting format so long as you capture all of the information below
- Enter data in input fields below (shaded area)   * Mandatory

Date of this Audit Report *	March 31, 2009
Product Name *	IBM WEBSPHERE APPLICATION SERVER NETWORK DEPLOYMENT
Program Identification Number (57xx-xxx)	5724-H88
P/N Description	IBM WEBSPHERE APPLICATION SERVER NETWORK DEPLOYMENT PROCESSOR VALUE UNIT (PVU)
Part Number	D55WJLL
Server ID / Location	Server ID # F6015; Bldg 1, Room 1, Somers, NY
Server Vendor / Brand	IBM System x
Server Model	xxxxx
Virtualization Technology used *	VMware ESX 3.5
Processor Technology (Vendor, Brand,Type,Model#) * **(A)**	Intel Xeon Quad Core Model 35XX
PVUs per core * **(A)**	70
Total Activated Cores on Server * **(C)**	8
Full Capacity PVUs for Server * **(C)**	560

DO NOT DELETE ROW

VM, Partition ID * (whatever identifier used for any subdivision of a server such as LPAR #, IP address, hostname, etc.)	Cores **(B)** per Partition or VM *	User Comments
A	4	
B	4	
C	2	
D	2	

Sum of Virtual Cores *	12	
PVUs per core *	70	
Virtualization Capacity PVUs by Product for Server *	840	
PVU Licenses required by Product for Server * **(C)**	**560**	

* Mandatory Field

(A) PVU's required for each physical processor core are listed on the PVU table (see link below, including vendor/brand designations)
http://www-01.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html

(B) For purposes of 'Manual Calculation' of Virtual Capacity, 1 virtual core (or CPU) is equivalent to 1 physical core. Enter values in whole cores.

(C) Lower of Full Capacity or Virtualization Capacity

Instructions + Information | Single Server | Group of Servers "Cluster"

Key Web Links

- PVU

  - PVU table and other information

- Sub-capacity

  - Passport Advantage Sub-capacity licensing information

  - Virtualization Capacity License Counting Rules

  - Sub-capacity licensing attachment