HP Virtualization Performance Viewer

For the Linux operating system

Software Version: 1.20

Sizing Guide

Document Release Date: December 2013

Software Release Date: December 2013

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Acknowledgements

This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)

This product includes software written by Tim Hudson (tjh@cryptsoft.com)

This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support Online web site at:

http://www.hp.com/go/hpsoftwaresupport

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Contents

Chapter 1

Introduction

HP Virtualization Performance Viewer (vPV) is a web-based monitoring tool for virtual environments. For more information on vPV, visit the vPV home page at **http://www.hp.com/go/vpv**.

This document provides information on the performance tests performed on vPV and the results obtained. It also provides the sizing recommendations for optimal performance of the product.

Chapter 2

Performance Tests

The performance testing for vPV is performed in various test environments, varying the number of instances being monitored and the number of resources allocated to vPV.

This section describes the test scenarios and environments in which the tests are conducted using vPV and the results obtained.

Performance Test Scenario 1

The following table lists the performance test environment.

Item	Value
Total Instances	1000 (VMware)
CPU	2 vCPU
Memory	4 GB
Disk Space	40 GB
vPV Installation Type	Virtual appliance
Platform	CentOS 6.4 x64
License Type	Premium

Data Source

The versions of vCenters used for the tests are 5.0, 5.1, and 5.5.

Scenario

Add vCenters data sources to vPV. The vPV and vCenter servers are in the same subnet and have a total of 1000 instances. On an average, 850 VMs were always up and running throughout the test duration.

The CPU utilization and memory utilization are observed for the test duration.

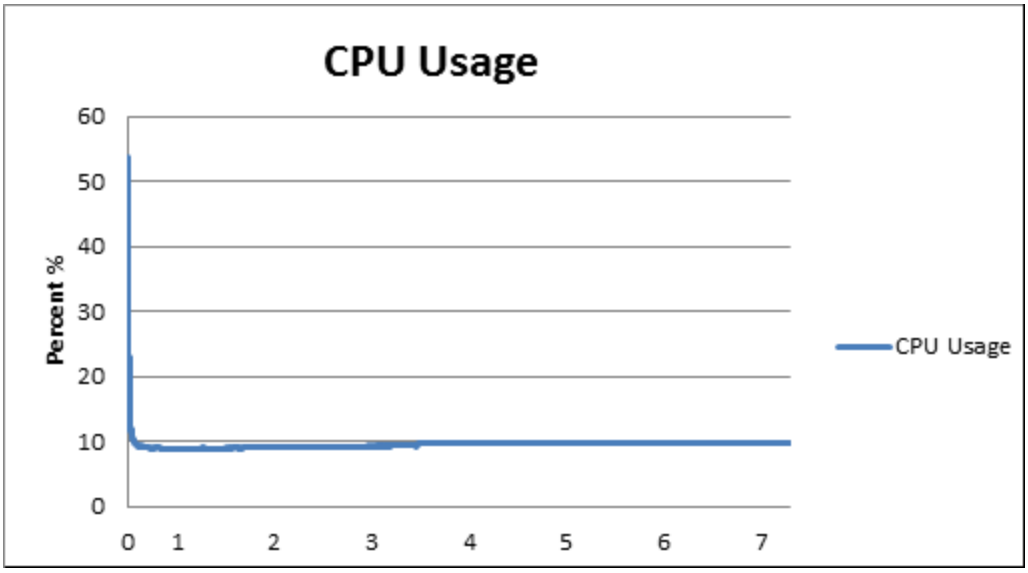
The test results are calculated for 7 days at 5 minute interval.

Results

Following section details the test results for the scenario.

CPU Utilization

The following graph shows the CPU utilization.

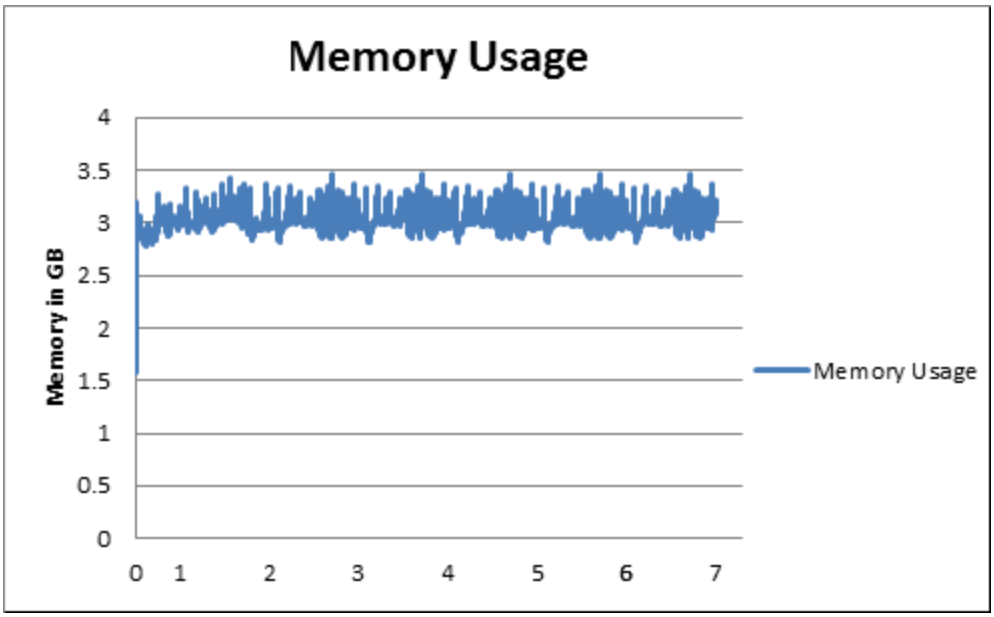


Conclusion

CPU usage of 50 % of 2 vCPUs in initial hours of data collection and CPU usage flattens out to around 15 % of 2 vCPUs. CPU usage spike of 60 - 80% is seen occasionally. This spike is averaged in the above graph.

Memory Utilization

The following graph shows the memory utilization.



Conclusion

Memory usage of 3.5 GB.

Performance Test Scenario 2

The following table lists the performance test environment.

Item	Value
Total Instances	2000 (VMware)
CPU	2 vCPU
Memory	4 GB
vPV Installation Type	Virtual appliance
Platform	CentOS 6.4 x64
License Type	Express License

Data Source

The versions of vCenters used to run the tests are 5.0, 5.1, and 5.5.

Scenario

Add vCenters to vPV. The vCenters have a total of 2000 active instances.

The CPU utilization and memory utilization are observed for the test duration.

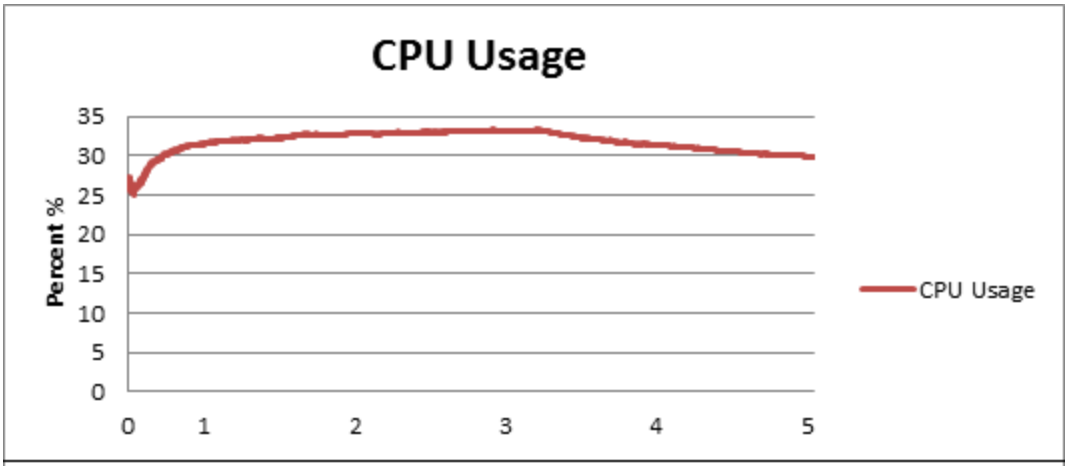
The test results are calculated for 5 days at 5 minutes interval.

Results

Following section details the test results for the scenario.

CPU Utilization

The following graph shows the CPU utilization.

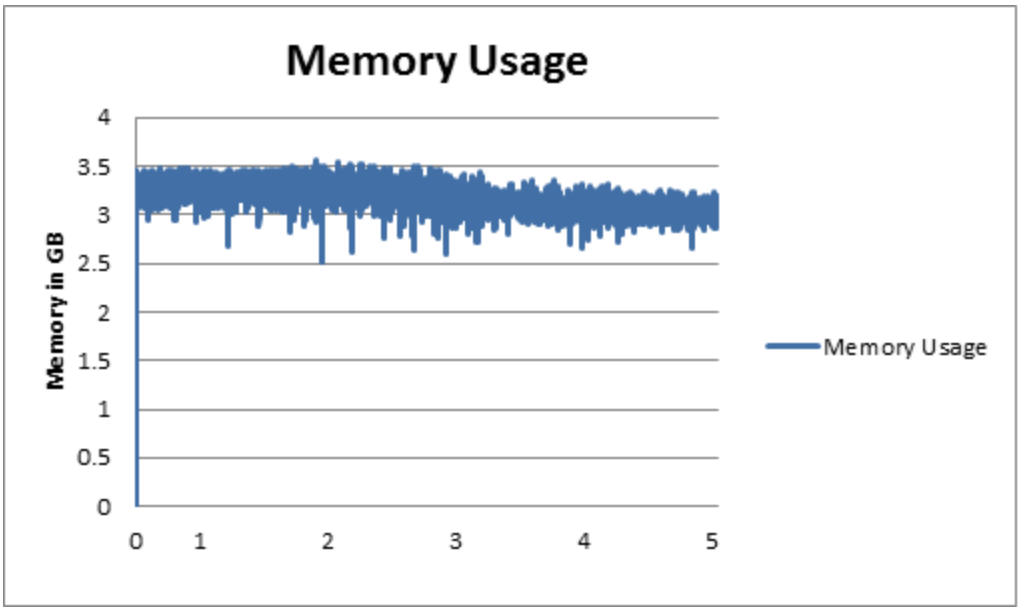


Conclusion

CPU usage of 30 - 35% of 2 vCPUs. CPU usage spike of 60 - 80% is seen occasionally. This spike is averaged in the above graph.

Memory Utilization

The following graph shows the memory utilization.



Conclusion

Memory usage of 3.5 GB.

Performance Test Scenario 3

The following table lists the performance test environment.

Item	Value
Total Instances	3500 (VMware)
CPU	4 vCPU
Memory[1]	12 GB
vPV Installation Type	Virtual appliance
Platform	CentOS 6.4 x64
Disk Size	64 GB
License Type	Premium License

Data Source Versions

The vCenter versions added to vPV to run the tests are 5.0, 5.1, and 5.5.

Scenario

Add vCenters to vPV. The vPV and vCenter servers are in the same subnet and have a total of 3500 instances. On an average, 3000 VMs were always up and running throughout the test duration.

The CPU utilization and memory utilization are observed for the test duration.

The test results are calculated for 7 days at a 5 minute interval.

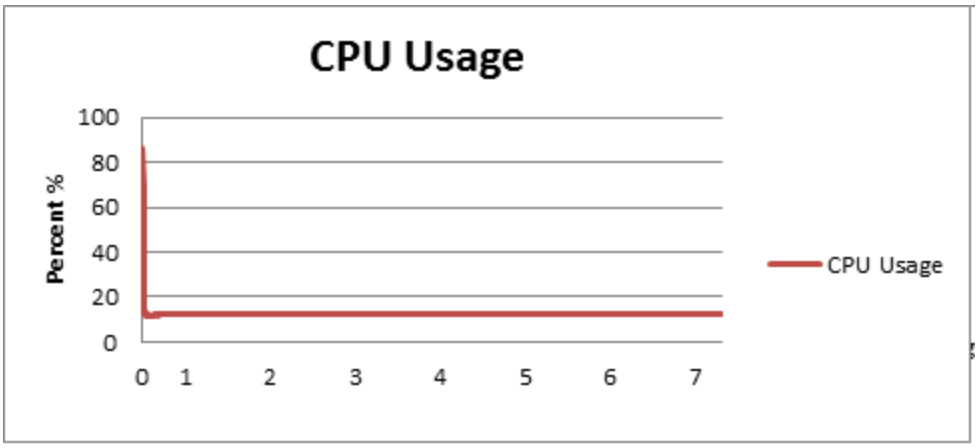
Results

Following section details the test results for the scenario.

CPU Utilization

The following graph shows the CPU utilization for the test scenario.

[1]Maximum Heap Size for VIServer = 4 GB

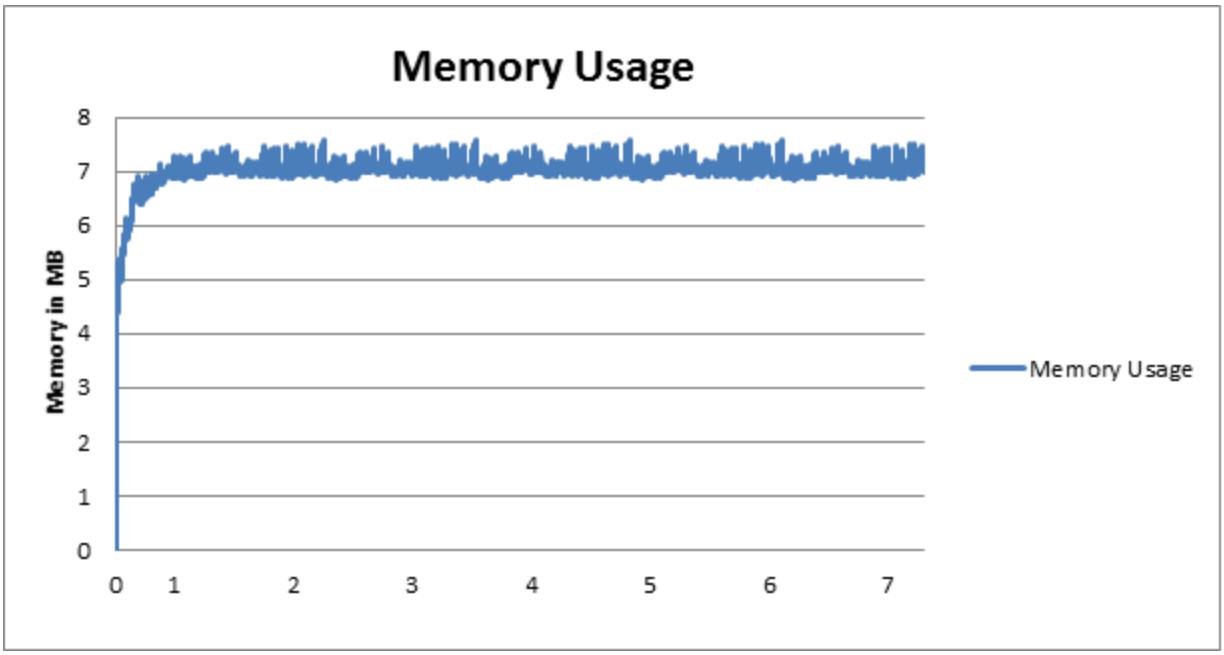


Conclusion

CPU usage of 80% of 4 vCPUs in initial hours of data collection and CPU usage flattens out to around 12 – 14% of 4 vCPUs. CPU usage spike of 60 - 80% is seen occasionally. This spike is averaged in the above graph.

Memory Utilization

The following graph shows the Memory Utilization for the test scenario.



Conclusion

Memory usage of 8 - 10 GB. Memory usage spike may go up to 10 GB, the spikes are averaged in above graph.

Performance Test Scenario 4

The following table lists the performance test environment.

Item	Value
Total Instances	6000
CPU	6 vCPU
Memory[1]	20 GB
Disk Size	80 GB
vPV Installation Type	Virtual Appliance
Platform	CentOS 6.4

Data Source

The data sources added to vPV to run the tests were VMware vCenter servers. The versions of the data sources added are listed in the following table.

Data Source	Versions	Instances
VMware vCenter Servers	5.0 5.1 5.5	6000

Scenario

Add data sources to vPV. The data sources have a total of 5400 active instances.

The CPU utilization and memory utilization are observed for the test duration. The test results are calculated for 8 days with 5 minute interval.

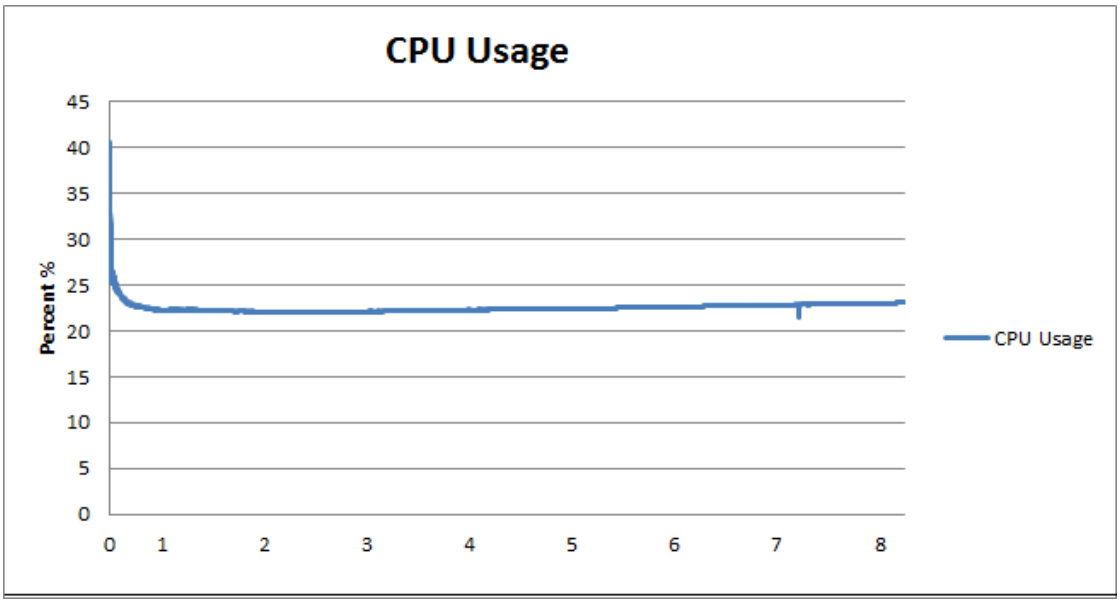
Results

Following section details the test results for the scenario.

CPU Utilization

The following graph shows the CPU utilization.

[1] Increase the Heap Size to 4 GB.

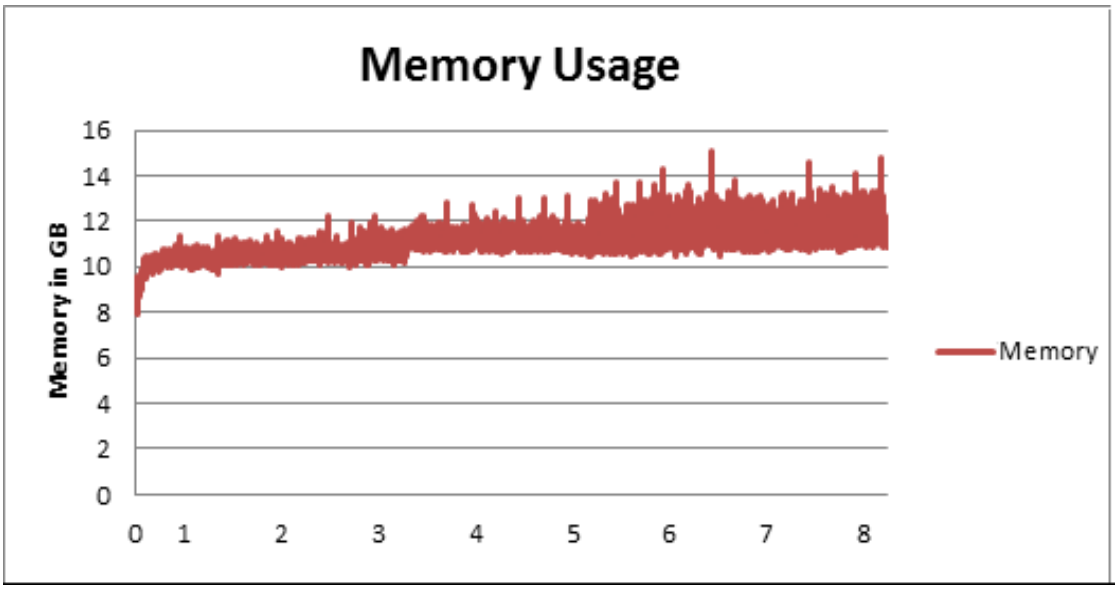


Conclusion

CPU usage of 45% of 6 vCPUs is seen during initial hours of data collection and CPU usage settles down to around 25% of 6 vCPUs. CPU usage spike of 60 - 80% is seen occasionally.

Memory Utilization

The following graph shows the memory utilization.



Conclusion

Memory usage up to 15 GB.

Chapter 3

Best Practices

Based on the tests run using vPV, following are the best practices on using the product for optimum results.

Scalability

It is recommended to have a maximum of only 1000 instances with Premium License and 1800 instances with Express License for a typical setup having 2 CPUs and 4 GB memory.

Instance count here includes the total number of VMs and hosts in the monitored environment. All VMs and hosts in both the powered on and off states are included in the instance count.

It is recommended to increase the Max Heap size of VI Server to 4 GB when monitoring more than 2000 instances. For this, increase the vPV Virtual Appliance Memory Size to a minimum of 8 GB.

Change jvmArgs , -XmX to 4096 in */var/opt/perf/viserver.properties* file. And restart vPV processes by running the command : `pv restart`.

The following table lists the recommended resource allocation for vPV Virtual Appliance monitoring different number of instances.

Resource Allocation Table for vPV VA					
Number of VM instances	**vCPUs - 2.792 GHz per vCPU**	**RAM in GB**	**Disk in GB**	**Network Usage in Mega bits per second**	**License Type**
6000	6	20	80	4 - 5	Premium
3500	4	12	64	2 - 3	Premium
2000	2	10	60	2 - 2.5	Premium
1000	2	4	40	1 - 1.5	Premium
2000	2	4	40	2 - 2.5	Express