HP Virtualization Performance Viewer

For the Linux operating system

Software Version: 2.00

Reference Guide: Metric Definition

Document Release Date: June 2014

Software Release Date: June 2014

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Contents

Chapter 1: Introduction

HP Virtualization Performance Viewer (HP vPV) is a web-based tool that helps you monitor the resources in virtualized and cloud environment. HP vPV helps you visualize performance data for elements in the context of each other to rapidly analyze bottlenecks For more information on HP vPV, visit the HP vPV home page at http://www.hp.com/go/vpv.

Chapter 2: Metrics

This chapter provides information on metrics. HP vPV provides a parameter or a set of parameters called Metrics[1] that you can use to monitor and measure the health, performance, and availability of a monitored resource.

HP vPV provides Performance Graphing that helps you to visualize the monitored data in a graphical or tabular format. A drawn graph consists of data points available for the selected metrics. A metric class is a set of related metrics grouped together based on the type of data the metric reports.

vPV provides the following types of metrics:

- KVM/Xen
- OpenStack
- HP aPaaS
- vCenter Host
- vCenter Guest
- vCenter Datacenter
- vCenter Cluster
- vCenter Datastore
- vCenter Respool
- vCenter VirtualApp
- vCenter BYVM Storage
- Hyper-V Host
- Hyper-V Guest
- Hyper-V Cluster
- Hyper-V Datastore
- Hyper-V BYVM Storage

[1] A metric is a measurement that gives an indication of the operational health and performance of a resource.

KVM/Xen

Metric Name	Description
CPUTotalUtil	The total CPU utilization percentage. **Note:** The CPU Usage metric in the workbench is mapped to this metric.
CPUPhysTotalTime	The total amount of time that a guest (VM) uses the host's CPU.
CPUCycleTotalUsed	Total number of CPU cycles used.
CPUClockSpeed	The CPU clock speed in MHz.
MemSwapin	The swapped memory, in MB.
MemPhys	The total physical memory in MB.
NumCPUSocket	Number of CPU sockets.
NumCPU	Number of CPUs.
NumLS	Number of logical machines (guest VMs).
MemEntlUtil	The percentage of memory utilization.
DiskPhysWriteByteRate	The rate at which data is transmitted, in KBps, to the physical disk.
DiskPhysReadByteRate	The rate at which data is received, in KBps, from the physical disk.
DiskPhysIOByteRate	The data transaction rate of the physical disk, in KBps.
NetOutByte	Number of bytes, in MB, transmitted during the specified time interval.
NetInByte	Number of bytes, in MB, received during the specified time interval.
NetByteRate	Sum of data that is transmitted and received , in KBps.
NumNetif	Number of network interfaces supported by a VM.
NumDisk	Number of idle disks (including the CD ROM).

OpenStack

Model Type	Metric Name	Description
Tenant	NumVM	Number of VMs present in the tenant.
	NumHost	Number of Hosts present in the tenant.
	NumCPU	Number of CPUs present in the tenant.
	CPUUtil	The average CPU utilization rate, in percentage, of the VMs present in the tenant.
	DiskUtil	The average disk utilization rate, in percentage, of the VMs present in the tenant.
	MemoryUsageHours	The amount of memory utilized by the VMs in the tenant during the hours that they were in an active state. For example: Consider a tenant which has 5 active VMs with 2 MB memory each. And the VMs are active for 10 hours. Then, MemoryUsageHours = (Memory capacity per VM) x (Number of VMs) x (Number of hours VMs are active) = 2 x 5 x 10 = 100.
	CPUUsageHours	The number of CPUs utilized by the VMs in the tenant during the hours that they were in an active state. For example: Consider a tenant which has 5 active VMs with 2 CPUs each. And the VMs are active for 10 hours. Then, CPUUsageHours = (No. of CPUs per VM) x (Number of VMs) x (Number of hours VMs are active) = 2 x 5 x 10 = 100.

Model Type	Metric Name	Description
	DiskUsageHours	The number of disks utilized by the VMs in the tenant during the hours that they were in an active state. For example: Consider a tenant which has 5 active VMs with 2 disks each. And the VMs are active for 10 hours. Then, DiskUsageHours = (No. of Disks per VM) x (Number of VMs) x (Number of hours VMs are active) = 2 x 5 x 10 = 100.
	DiskUsageGB	The amount of disk space utilized, in GBs, by the VMs present in the tenant.
	InstanceLimit	The maximum number of VMs allowed in a tenant.
	CPULimit	The maximum number of CPUs allowed in a tenant.
	MemoryLimit	The maximum memory capacity allowed in a tenant.
	CPUUsageMHz	The total physical CPU utilization, in MHz, by the VMs present in the tenant.
	TotalCPUMHz	The total physical CPU capacity, in MHz, of the VMs present in the tenant.
	TotalDiskGB	The total disk capacity, in GBs, of the VMs present in the tenant.
Cloud	NumVM	Number of VMs present in the cloud.
	NumHost	Number of hosts present in the cloud.
	NumTenant	Number of tenants present in the cloud.
	CPUUtil	The CPU utilization percentage.
	MemUtil	The memory utilization percentage.
	NumCPUCores	The total number of CPU cores.
	Memory	The total memory capacity of the cloud, in MBs.

Model Type	Metric Name	Description
Virtual Machine	NumCPU	The number of CPUs allocated to the VM.
	NumDisk	The number of disks allocated to the VM.
	NumNIC	The number of Network Interface Card (NICs) allocated to the VM.
	Memory	The total memory capacity of the VM, in MBs.
	DiskCapacity	The total disk capacity of the VM, in GBs.
	CPUUtil	The total CPU utilization percentage.
	MemUtil	The total memory utilization percentage.
	DiskUtil	The total disk capacity utilization percentage.
	NumDiskRead	The average number of disk read commands issued by the VM.
	NumDiskWrite	The average number of disk write commands issued by the VM.
	NumNetRead	The average number of network read commands issued by the VM.
	NumNetWrite	The average number of network write commands issued by the VM.
	CPUUsageMHz	The total physical CPU utilization, in MHz.
	MemUsageMB	The total physical memory utilization, in MBs.
	DiskUsageGB	The total disk utilization, in GBs.
	CPUPhysUtil	Total CPU utilization percentage of the physical host.
	MemPhysUtil	Total memory utilization percentage of the physical host.

Model Type	Metric Name	Description
Host	NumVM	The number of VMs hosted by the host.
	NumCPU	The number of CPU sockets available in the host.
	NumCPUCore	The number of CPU cores used by the host.
	NumDisk	The number of disk sockets available in the host.
	NumNIC	The number of NIC sockets available in the host.
	Memory	The total memory capacity of the host, in MBs.
	CPUUtil	The CPU utilization percentage.
	MemUtil	The memory utilization percentage.
	NumDiskRead	The average number of disk read commands issued by the host.
	NumDiskWrite	The average number of disk write commands issued by the host.
	NumNetRead	The average number of network read commands issued by the host.
	NumNetWrite	The average number of network write commands issued by the host.

HP aPaaS

Model Type	Metric Name	Description
Cloud	num_apps	The number of applications present in the cloud.
	num_users	The number of users present in the cloud.
	memory_totalGB	The total memory allocated to all the nodes in the cloud, in GBs.
	memory_free_totalGB	The total unutilized memory by all the nodes in the cloud, in GBs.
	memory_used_totalGB	The total memory utilization by all the nodes in the cloud, in GBs.
	memory_usage_pct	The total memory utilization percentage.
	cpu_avg_usage_pct	The average CPU utilization percentage.
	total_num_cpu	The total number of CPUs allocated to all the nodes in the cloud.
Group	name	The group name.
	members	The names of the users present in the group.
	user_count	The total number of users present in the group.
	memory_usage_pct	The total memory utilization percentage of all users in the group.
User	isAdmin	Information on whether the user is an administrator.
	emailId	The email address of the user.
	groupName	The group to which the user belongs.
	app_count	The number of applications used by the user.
	memory_allocated_mb	The total memory capacity allocated to the user, in MBs.
	memory_used_mb	The total memory utilization, in MBs.
	memory_usage_pct	The total memory utilization percentage.

Model Type	Metric Name	Description
Node	cpu_idle	The percentage of time that the CPU is idle.
	cpu_interrupt	The percentage of time that the CPU is interrupted.
	cpu_nice	The percentage of time that CPU uses the nice process.
	cpu_softirq	The percentage of time CPU encountered software interrupt requests.
	cpu_steal	The percentage of cycles that were 'stolen' from the CPU.
	cpu_system	The percentage of time the CPU is under system state.
	cpu_user	The percentage of time the CPU is under user state.
	cpu_wait	The percentage of time that the CPU is in wait state.
	df_freeGB	The free disk space, in GBs.
	df_usedGB	The used disk space, in GBs.

Model Type	Metric Name	Description
	fork_rate	The rate at which the fork system call is executed.
	net_rate	The throughput of the node, in bytes/seconds.
	net_out_rate	The number of bytes transmitted per second.
	net_in_rate	The number of bytes received per second.
	net_in_byte	The total number of bytes received by the node.
	net_out_byte	The total number of bytes transmitted by the node.
	net_out_error_pct	The percentage of packets which were not transmitted.
	net_in_error_pct	The percentage of packets which were not received.
	net_error_packets	The total number of packets which displayed errors during transmission and reception.
	net_in_error_packets	The total number of packets which displayed errors during reception.
	net_out_error_packets	The total number of packets which displayed errors during transmission.
	net_out_packets	The total number of packets transmitted by the node.
	net_in_packets	The total number of packets received by the node.
	num_netifs	The total number of network interfaces present in a node.

Model Type	Metric Name	Description
	load_longterm	The load average value during the last 15 minutes.
	load_midterm	The load average value during the last five minutes.
	load_shortterm	The load average value during the last one minute.
	memory_free_buff_ cacheGB	The maximum memory buffer limit, in GBs.
	memory_usedGB	The memory utilization, in GBs.
	memory_usage_pct	The memory utilization percentage.
	ps_state_blocked	The total number of processes in blocked state.
	ps_state_paging	The total number of processes in paging state.
	ps_state_running	The total number of processes running on the node.
	ps_state_sleeping	The total number of processes in sleep state.
	ps_state_stopped	The total number of processes which are stopped.
	ps_state_zombies	The total number of processes in the zombie state.
	swap_cachedGB	The total size of the swap cache, in GBs.
	swap_freeGB	The free swap space , in GBs.
	swap_io_inGB	The amount of data swapped from the disk, in GBs.
	swap_io_outGB	The amount of data swapped to the disk, in GBs.
	swap_usedGB	The amount of swap memory used, in GBs.
	num_cpu	The total number of CPUs allocated to the node.

Model Type	Metric Name	Description
Apps	name	The name of the application.
	environment	The application environment variable details.
	instances	The total number of application instances.
	runningInstances	The total number of application instances which are running.
	services	The list of available and provisioned service names.
	state	The state of the application (Started/Stopped).
	uris	The unique ID of the application.
	version	The version number of the application.
	stats_state	The status of the application instance.
	cores	The number of CPU cores allocated to the application.
	disk_quote_gb	The disk capacity allocated to the application, in GBs.
	host	The host on which the application is deployed.
	port	The port number of the application.
	mem_quota_mb	The total memory capacity allocated to the application, in MBs.
	uptime	The total time for which the application is running.
	cpu_usage_pct	The CPU utilization percentage.
	mem_usage_mb	The memory utilization, in MBs.
	mem_usage_pct	The memory utilization percentage.
	disk_usage_gb	The disk utilization, in GBs.
	disk_usage_pct	The disk utilization percentage.
	time_usage	The amount of time for which the application is in use.

vCenter

Host

Metric Name	Description
SystemRole	On a Host the metric is HOST. For a logical system the value is GUEST and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
BelongsToDatacenter	Name of the Datacenter to which this machine belongs.
ClusterName	On a Host and resource pool it is the name of the cluster to which the host belongs to when it is managed by virtual centre. For a logical system the value is NA.
ConnectionState	For a host this metric is the current status of the connection. For logical systems, it indicates whether or not the entity is available for management. It can have values as - **Connected**, **Disconnected** or **NotResponding**. The value is NA for all other entities.
CPUClockSpeed	On a Host and logical system, it is the clock speed of the CPUs in MHz if all of the processors have the same clock speed. For a resource pool the value is NA.
CPUCycleEntlMax	On a Host, logical system and resource pool this value indicates the maximum processor capacity, in MHz, configured for the entity.
CPUCycleEntlMin	On a Host, logical system and resource pool this value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleTotalUsed	On a Host,resource pool and logical system, it is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
CPUEntlEMin	On a Host, Logical system and resource Pool this metric is NA
CPUEntlMax	On a HOST, for a host, the metric is equivalent to total number of cores on the host. For a resource pool and a logical system, this metrics indicates the maximum CPU units configured for it.
CPUEntlMin	On a HOST, the metric is equivalent to total number of cores on the host. For a resource pool and a logical system, this metrics indicates the guaranteed minimum CPU units configured for it.
CPUEntlUtil	Percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed by the logical system.

Metric Name	Description
CPUMTEnabled	On a Host, this metric indicates whether the CPU hardware threads are enabled or not for a host while for a resource pool and a logical system the value is not available ("na").
CPUPhysReadyUtil	On a logical system it is the percentage of time, during the interval, that the CPU was in ready state. For a host and resource pool the value is NA.
CPUPhysSysModeUtil	On a Host, the metrics indicates the percentage of time the physical CPUs were in system mode during the interval for the host or logical system.
CPUPhysTotalTime	On a logical system, the value indicates the time spent in seconds on the physical CPU by logical system or host or resource pool.
CPUPhysTotalUtil	On a Host, the value indicates percentage of total time the physical CPUs were utilized by logical system or resource pool.
CPUPhysUserModeUtil	On a Host, the metrics indicates the percentage of time the physical CPUs were in user mode during the interval for the host or logical system.
CPUPhysWaitUtil	On a logical system it is the percentage of time, during the interval, that the virtual CPU was waiting for the IOs to complete. For a host and resource pool the value is NA.
CPUPhyscUtil	This metric indicates the number of CPU units utilized by the logical system.
CPUSharesPrio	This metric indicates the weightage or priority assigned to a Uncapped logical system. This value determines the minimum share of unutilized processing units that this logical system can utilize.
CPUSysModeUtil	On a Host and logical system, this metric indicates the percentage of time the CPU was in system mode during the interval.
CPUTotalUtil	On a logical system the value indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this metric value is same as CPU_PHYS_TOTAL_UTIL.
CPUUnreserved	On a Host, it is the number of CPU cycles that are available for creating a new logical system. For a logical system and resource pool the value is NA.
CPUUserModeUtil	On a Host and logical system, this metric indicates the percentage of time the CPU was in user mode during the interval.
DiskCommandAbortRate	Disk Command Abort Rate for the logical system.

Metric Name	Description
DiskPhysIOByte	On a Host and a logical system, this metric indicates the number of KBs transferred to and from disks during the interval.
DiskPhysIOByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
DiskPhysRead	On a Host and a logical system, this metric indicates the number of physical reads during the interval.
DiskPhysReadByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
DiskPhysReadRate	On a Host and a logical system, this metric indicates the number of physical reads per second during the interval.
DiskPhysWrite	On a Host and a logical system, this metric indicates the number of physical reads during the interval.
DiskPhysWriteByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
DiskPhysWriteRate	On a Host and a logical system, this metric indicates the number of physical writes per second during the interval.
DiskQueueDepthPeak	The disk queue depth for the logical system.
DiskReadLatency	Total disk read latency for the logical system.
DiskUtil	On a Host, it is the average percentage of time during the interval (average utilization) that all the disks had IO in progress. For logical system and resource pool the value is NA.
DiskUtilPeak	On a Host, it is the utilization of the busiest disk during the interval. For a logical system and resource pool the value is NA.
DiskWriteLatency	Total disk write latency for this logical system.
GuestToolsStatus	On vMA, for a guest the metric is the current status of guest Integration Tools in the guest operating system, if known. The value is NA for all other entities.
IPAddress	On a Host, this metric indicates the IP Address for a host and a logical system while for a resource pool the value is NA.
LSID	On a Host, this metric is a unique identifier for a host, resource pool and a logical system. The value of the metric may change for an instance across collection intervals.

Metric Name	Description
LSMode	On a HOST, the value is **Capped** for a host and **Uncapped** for a logical system. For resource pool, the value is Uncapped or Capped depending on whether the reservation is expandable or not for it.
LSName	On a Host, this metric is a unique identifier for host, resource pool and a logical system.
ParentType	On a System, the metric indicates the type of parent entity. The value is **HOST** if the parent is a host, **RESPOOL** if the parent is resource pool. For a host, the value is NA.
LSShared	On a HOST, the value is **Dedicated** for host, and **Shared** for logical system and resource pool.
MemActive	On a logical system it is the amount of memory, that is actively used. For a host and resource pool the value is NA.
MemAvail	On a HOST, the amount of physical memory available in the host system (in MBs unless otherwise specified). For a logical system and resource pool the value is NA.
MemBalloonUsed	On a Host, for logical system, it is the amount of memory held by memory control for ballooning. The value is represented in KB. For a host and resource pool the value is NA.
MemBalloonUtil	On a logical system, it is the amount of memory held by memory control for ballooning. It is represented as a percentage of MEM_ENTL. For a host and resource pool value is NA.
MemEntl	On a Host the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured while for resource pool the value is NA.
MemEntlMax	On a Host, this metric indicates the maximum amount of memory configured for a resource pool or a logical system. For a host, the value is the amount of physical memory available in the system.
MemEntlMin	On a Host, this metric indicates the reserved amount of memory configured for a host or resource pool or a logical system.
MemEntlUtil	On a Host,or a logical system, the value indicates percentage of entitled memory in use during the interval by it.
MemFree	On a Host and logical system, it is the amount of memory not allocated. For a resource pool the value is na.
MemFreeUtil	The percentage of memory that is free at the end of the interval. For a RP, the value is NA.

Metric Name	Description
MemOverallHealth	On a Host, it is a number that indicates the state of the memory. Low number indicates system is not under memory pressure. For a logical system and resource pool the value is "na". **0** - High - indicates free memory is available and no memory pressure. **1** - Soft **2** - Hard **3** - Low - indicates there is a pressure for free memory.
MemOverhead	The amount of memory associated with a logical system, that is currently consumed on the host system, due to virtualization.
MemPhys	On a Host, the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured.
MemPhysUtil	The percentage of physical memory used during the interval.
MemSharesPrio	The weightage or priority for memory assigned to the logical system. This value influences the share of unutilized physical Memory that the logical system can utilize.
MemSwapUtil	On a logical system, it is the percentage of swap memory utilized with respect to the amount of swap memory available for a logical system. For host and resource pool value is NA.
MemSwapIn	On a logical system the value indicates the amount of memory that is swapped in during the interval. For a host and resource pool the value is NA.
MemSwapOut	On a logical system the value indicates the amount of memory that is swapped in during the interval. For a host and resource pool the value is NA.
MemSwapped	On a Host, logical system and resource pool, this metrics indicates the amount of memory that has been transparently swapped to and from the disk.
MemSwapTarget	On a logical system the value indicates the amount of memory that can be swapped. For a host and resource pool the value is "na".
MemSysUtil	On a Host, it is the amount of physical memory used by the system during the interval. For a logical system and resource pool the value is NA.
MemUnreserved	On a HOST it is the amount of memory, that is unreserved. For a logical system and resource pool the value is "na".
MemUsed	The amount of memory used by the logical system at the end of the interval.

Metric Name	Description
NetByteRate	On a Host, and logical system, it is the sum of data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps. For a resource pool the value is NA.
NetInByte	On a Host and logical system, it is number of bytes, in MB, received during the interval. For a resource pool the value is NA.
NetInPacket	On a Host and logical system, it is the number of successful packets per second, received for all network interfaces during the interval.
NetInPacketRate	On a Host and logical system, it is the number of successful packets, received for all network interfaces during the interval.
NetOutByte	On a Host and logical system, it is number of bytes, in MB, transmitted during the interval. For a resource pool the value is NA.
NetOutPacket	On a Host and logical system, it is the number of successful packets, sent for all network interfaces during the interval.
NetOutPacketRate	The number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loopback interface.
NetPacketRate	On a Host and logical system, it is the number of successful packets per second, both sent and received, for all network interfaces during the interval.
NumActiveGuests	On a Host, this indicates the number of logical systems hosted in a system that are active. For a logical system and resource pool the value is NA.
NumCPU	The number of virtual CPUs configured for this logical system.
NumCPUCore	On a Host, this metric provides the total number of CPU cores on the system. For a logical system or a resource pool the value is NA.
NumCPUSocket	On a Host, this metric indicates the number of physical CPU sockets on the system. For a logical system or a resource pool the value is NA.
NumDisk	The number of disks configured for this logical system. Only local disk devices and optical devices present on the system are counted in this metric.
NumGuests	On a Host, this indicates the number of logical systems hosted in a system. For a logical system and resource pool the value is NA.
NumNetif	On a Host, the metric is the number of network adapters on the host. For a logical system, the metric is the number of network interfaces configured for the logical system. For a resource pool the metric is NA.

Metric Name	Description
NumSnapshots	For a guest, the metric is the number of snapshots created for the system. The value is NA for all other entities.
ParentUUID	On a Host, the metric indicates the UUID appended to display_name of the parent entity. For a logical system and resource pool this metric could indicate the UUID appended to display_name of a host or resource pool as they can be created under a host or resource pool.
StateChangeTime	For a guest, the metric is the epoch time when the last state change was observed. The value is NA for all other entities.
SystemHostHostName	On a logical system and resource pool, it is the Fully Qualified Domain Name (FQDN) of the host on which they are hosted. For a host, the value is NA.
SystemHostName	On a Host, for a host and logical system, the metric is the Fully Qualified Domain Name, while for resource pool the value is NA.
SystemName	On a Host, this metric indicates the name of the host or logical system or resource pool.
SystemID	UUID of this logical system. This Id uniquely identifies this logical system across multiple hosts. In VMWare, for a logical system or a host, the value indicates the UUID appended to display_name of the system. For a resource pool the value is hostname of the host where resource pool is hosted followed by the unique id of resource pool.
SystemMachineModel	On a Host, it is the CPU model of the host system. For a logical system and resource pool the value is "na".
SystemOSType	On a Host, the metric can have the following values for host and logical system: **ESX/ESXi** followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, Unknown. The value is NA for a resource pool
SystemPath	On a Host, the metric indicates the installation path for host or logical system.
SystemState	On a Host, this metric can have one of the following states for a Host: **on, off, unknown**. The values for a logical system can be one of the following: **on, off, suspended, unknown**. The value is NA for a Resource Pool.
SystemUptimeHours	On a Host and logical system the metrics is the time, in hours, since the last system reboot. For a resource pool the value is NA.
SystemUptimeSeconds	On a Host and logical system the metrics is the time, in seconds, since the last system reboot. For a resource pool the value is NA.
SystemVirtType	On a Host, the value of this metric is **VMware.**

Metric Name	Description
VCIPAddress	On a Host , the metric indicates the IP address of the Virtual Centre that the host is managed by. For a resource pool and logical system the value is NA.
vMotionEnabled	On a Host, this metric indicates whether vMotion is enabled or not. It is NA for other entities.
vmVersion	For a Guest, this metric indicates the version of the Virtual Machine. It is NA for other entities.
CPUReadyTime	Time for which the virtual machine was ready, but could not get scheduled to run on the physical CPU.
CPUCoStopTime	Time the virtual machine is ready to run, but is unable to run due to co-scheduling constraints.
CPUIdleTime	Total time that the CPU spent in an idle state.
CPUWaitTime	Total time that the CPU spent in wait state.
CPUDemandUsed	The amount of CPU resources (MHz) a virtual machine would use if there were no CPU contention or CPU limit.
CPUUsedTime	Total time for which the CPU was used.

vCenter Host also contains `BootTime, MemGranted, MemShared, MemHeap, MemHeapFree, NetInByteRate, NetOutByteRate, MemSharedCommon, CPUReservedCapacity, and MemBalloonTarget` metrics

Guest

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
BelongsToDatacenter	Name of the Datacenter to which this machine belongs.
ClusterName	On a Host and resource pool it is the name of the cluster to which the host belongs to when it is managed by virtual centre. For a logical system the value is NA.
ConnectionState	For a host this metric is the current status of the connection. For logical systems, it indicates whether or not the entity is available for management. It can have values as - **Connected, Disconnected or NotResponding**. The value is **NA** for all other entities.

Metric Name	Description
CPUClockSpeed	On a Host and logical system, it is the clock speed of the CPUs in MHz if all of the processors have the same clock speed. For a resource pool the value is NA.
CPUCycleEntlMax	On a Host, logical system and resource pool this value indicates the maximum processor capacity, in MHz, configured for the entity.
CPUCycleEntlMin	On a Host, logical system and resource pool this value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleTotalUsed	On a Host,resource pool and logical system, it is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
CPUEntlEMin	On a Host, Logical system and resource Pool this metric is NA
CPUEntlMax	On a HOST, for a host, the metric is equivalent to total number of cores on the host. For a resource pool and a logical system, this metrics indicates the maximum CPU units configured for it.
CPUEntlMin	On a HOST, the metric is equivalent to total number of cores on the host. For a resource pool and a logical system, this metrics indicates the guaranteed minimum CPU units configured for it.
CPUEntlUtil	Percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed by the logical system.
CPUMTEnabled	On a Host, this metric indicates whether the CPU hardware threads are enabled or not for a host while for a resource pool and a logical system the value is not available("na").
CPUPhysReadyUtil	On a logical system it is the percentage of time, during the interval, that the CPU was in ready state. For a host and resource pool the value is NA.
CPUPhysSysModeUtil	On a Host, the metrics indicates the percentage of time the physical CPUs were in system mode during the interval for the host or logical system.
CPUPhysTotalTime	On a logical system, the value indicates the time spent in seconds on the physical CPU by logical system or host or resource pool.
CPUPhysTotalUtil	On a Host, the value indicates percentage of total time the physical CPUs were utilized by logical system or resource pool.
CPUPhysUserModeUtil	On a Host, the metrics indicates the percentage of time the physical CPUs were in user mode during the interval for the host or logical system.
CPUPhysWaitUtil	On a logical system it is the percentage of time, during the interval, that the virtual CPU was waiting for the IOs to complete. For a host and resource pool the value is NA.
CPUPhyscUtil	This metric indicates the number of CPU units utilized by the logical system.

Metric Name	Description
CPUSharesPrio	This metric indicates the weightage or priority assigned to a Uncapped logical system. This value determines the minimum share of unutilized processing units that this logical system can utilize.
CPUSysModeUtil	On a Host and logical system, this metric indicates the percentage of time the CPU was in system mode during the interval.
CPUTotalUtil	On a logical system the value indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this metric value is same as CPU_PHYS_TOTAL_UTIL.
CPUUnreserved	On a Host, it is the number of CPU cycles that are available for creating a new logical system. For a logical system and resource pool the value is NA.
CPUUserModeUtil	On a Host and logical system, this metric indicates the percentage of time the CPU was in user mode during the interval.
DiskCommandAbortRate	Disk Command Abort Rate for the logical System.
DiskPhysIOByte	On a Host and a logical system, this metric indicates the number of KBs transferred to and from disks during the interval.
DiskPhysIOByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred to and from disks during the interval.
DiskPhysRead	On a Host and a logical system, this metric indicates the number of physical reads during the interval.
DiskPhysReadByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred from disks during the interval.
DiskPhysReadRate	On a Host and a logical system, this metric indicates the number of physical reads per second during the interval.
DiskPhysWrite	On a Host and a logical system, this metric indicates the number of physical reads during the interval.
DiskPhysWriteByteRate	On a Host and a logical system, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval.
DiskPhysWriteRate	On a Host and a logical system, this metric indicates the number of physical writes per second during the interval.
DiskQueueDepthPeak	The disk queue depth for this logical system.
DiskReadLatency	Total disk read latency for the logical system.

Metric Name	Description
DiskUtil	On a Host, it is the average percentage of time during the interval (average utilization) that all the disks had IO in progress. For logical system and resource pool the value is NA.
DiskUtilPeak	On a Host, it is the utilization of the busiest disk during the interval. For a logical system and resource pool the value is NA.
DiskWriteLatency	Total disk write latency for this logical system.
GuestToolsStatus	On vMA, for a guest the metric is the current status of guest Integration Tools in the guest operating system, if known. The value is NA for all other entities.
IPAddress	On a Host, this metric indicates the IP Address for a host and a logical system while for a resource pool the value is NA.
LSID	On a Host, this metric is a unique identifier for a host, resource pool and a logical system. The value of this metric may change for an instance across collection intervals.
LSMode	On a HOST, the value is **Capped** for a host and **Uncapped** for a logical system. For resource pool, the value is Uncapped or Capped depending on whether the reservation is expandable or not for it.
LSName	On a Host, this metric is a unique identifier for host, resource pool and a logical system.
ParentType	On a System, the metric indicates the type of parent entity. The value is **HOST** if the parent is a host, **RESPOOL** if the parent is resource pool. For a host, the value is NA.
LSShared	On a HOST, the value is **Dedicated** for host, and **Shared** for logical system and resource pool.
MemActive	On a logical system it is the amount of memory, that is actively used. For a host and resource pool the value is NA.
MemAvail	On a HOST, the amount of physical memory available in the host system (in MBs unless otherwise specified). For a logical system and resource pool the value is NA.
MemBalloonUsed	On a Host, for logical system, it is the amount of memory held by memory control for ballooning. The value is represented in KB. For a host and resource pool the value is NA.
MemBalloonUtil	On a logical system, it is the amount of memory held by memory control for ballooning. It is represented as a percentage of MEM_ENTL. For a host and resource pool value is NA.

Metric Name	Description
MemEntl	On a Host the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured while for resource pool the value is NA.
MemEntlMax	On a Host, this metric indicates the maximum amount of memory configured for a resource pool or a logical system. For a host, the value is the amount of physical memory available in the system.
MemEntlMin	On a Host, this metric indicates the reserved amount of memory configured for a host or resource pool or a logical system.
MemEntlUtil	On a Host,or a logical system, the value indicates percentage of entitled memory in use during the interval by it.
MemFree	On a Host and logical system, it is the amount of memory not allocated.For a resource pool the value is "na".
MemFreeUtil	The percentage of memory that is free at the end of the interval. For a resource pool, the value is NA.
MemOverallHealth	On a Host, it is a number that indicates the state of the memory. Low number indicates system is not under memory pressure. For a logical system and resource pool the value is "na". **0** - High - indicates free memory is available and no memory pressure. **1** - Soft **2** - Hard **3** - Low - indicates there is a pressure for free memory.
MemOverhead	The amount of memory associated with a logical system, that is currently consumed on the host system, due to virtualization.
MemPhys	On a Host, the value is the physical memory available in the system and for a logical system this metric indicates the minimum memory configured.
MemPhysUtil	The percentage of physical memory used during the interval.
MemSharesPrio	The weightage or priority for memory assigned to this logical system. This value influences the share of unutilized physical Memory that this logical system can utilize.
MemSwapUtil	On a logical system, it is the percentage of swap memory utilized with respect to the amount of swap memory available for a logical system. For host and resource pool, the value is NA.
MemSwapIn	On a logical system, the value indicates the amount of memory that is swapped in during the interval. For a host and resource pool, the value is NA.
MemSwapOut	On a logical system, the value indicates the amount of memory that is swapped in during the interval. For a host and resource pool, the value is NA.
MemSwapped	On a Host, logical system, and resource pool, this metric indicates the amount of memory that is transparently swapped to and from the disk.

Metric Name	Description
MemSwapTarget	On a logical system, the value indicates the amount of memory that can be swapped. For a host and resource pool, the value is na.
MemSysUtil	On a Host, it is the amount of physical memory used by the system during the interval. For a logical system and resource pool, the value is NA.
MemUnreserved	On a Host, it is the amount of memory, that is unreserved. For a logical system and resource pool, the value is na.
MemUsed	The amount of memory used by the logical system at the end of the interval.
NetByteRate	On a Host, and logical system, it is the sum of data transmitted and received for all the NIC instances of the host and virtual machine. It is represented in KBps. For a resource pool, the value is NA.
NetInByte	On a Host and logical system, it is the number of bytes, in MB, received during the interval. For a resource pool, the value is NA.
NetInPacket	On a Host and logical system, it is the number of successful packets received per second, for all network interfaces during the interval.
NetInPacketRate	On a Host and logical system, it is the number of successful packets received, for all network interfaces during the interval.
NetOutByte	On a Host and logical system, it is the number of bytes, in MB, transmitted during the interval. For a resource pool, the value is NA.
NetOutPacket	On a Host and logical system, it is the number of successful packets sent, for all network interfaces during the interval.
NetOutPacketRate	The number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that are processed without errors or collisions. This does not include data for loopback interface.
NetPacketRate	On a Host and logical system, it is the number of successful packets sent and received per second, for all network interfaces during the interval.
NumActiveGuests	On a Host, this indicates the number of logical systems hosted in a system, that are active. For a logical system and resource pool, the value is NA.
NumCPU	The number of virtual CPUs configured for this logical system.
NumCPUCore	On a Host, this metric provides the total number of CPU cores on the system. For a logical system or a resource pool, the value is NA.
NumCPUSocket	On a Host, this metric indicates the number of physical cpu sockets on the system. For a logical system or a resource pool the value is NA.
NumDisk	The number of disks configured for this logical system. Only local disk devices and optical devices present on the system are counted in this metric.

Metric Name	Description
NumGuests	On a Host, this indicates the number of logical systems hosted in a system. For a logical system and resource pool, the value is NA.
NumNetif	On a Host, the metric is the number of network adapters on the host. For a logical system, the metric is the number of network interfaces configured for the logical system. For a resource pool, the metric is NA.
NumSnapshots	For a guest, the metric is the number of snapshots created for the system. The value is NA for all other entities.
ParentUUID	On a Host, the metric indicates the UUID appended to display_name of the parent entity. For a logical system and resource pool, this metric could indicate the UUID appended to display_name of a host or resource pool as they can be created under a host or resource pool.
StateChangeTime	For a guest, the metric is the epoch time when the last state change was observed. The value is NA for all other entities.
SystemHostHostName	On a logical system and resource pool, it is the FQDN of the host on which it is hosted. For a host, the value is NA.
SystemHostName	On a Host, for a host and logical system, the metric is the FQDN, while, for resource pool, the value is NA.
SystemName	On a Host, this metric indicates the name of the host, logical system, or resource pool.
SystemID	UUID of this logical system. This Id uniquely identifies the logical system across multiple hosts. In VMWare, for a logical system or a host, the value indicates the UUID appended to display_name of the system. For a resource pool, the value is hostname of the host, where resource pool is hosted followed by the unique id of resource pool.
SystemMachineModel	On a Host, it is the CPU model of the host system. For a logical system and resource pool, the value is na.
SystemOSType	On a Host, the metric can have the following values for host and logical system: ESX/ESXi followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, Unknown. The value is NA for a resource pool.
SystemPath	On a Host, the metric indicates the installation path for host or logical system.
SystemState	On a Host, this metric can have one of the following states for a Host: **on, off, unknown**. The values for a logical system can be one of the following: **on, off, suspended, unknown.** The value is NA for a Resource Pool.
SystemUptimeHours	On a Host and logical system, the metric is the time, in hours, since the last system reboot. For a resource pool, the value is NA.

Metric Name	Description
SystemUptimeSeconds	On a Host and logical system, the metrics is the time, in seconds, since the last system reboot. For a resource pool, the value is NA.
SystemVirtType	On a Host, the value of this metric is VMware Metric Equivalent for VMWare, for Host, Guest, and resource pool, the value is VMWare.
VCIPAddress	On a Host , the metric indicates the IP address of the Virtual Centre that the host is managed by. For a resource pool and logical system, the value is NA.
vMotionEnabled	On a Host, this metric indicates whether vMotion is enabled or not. It is NA for other entities.
vmVersion	For a Guest, this metric indicates the version of the Virtual Machine. It is NA for other entities.
CPUReadyTime	Time for which the virtual machine was ready, but could not get scheduled to run on the physical CPU.
CPUCoStopTime	Time the virtual machine is ready to run, but is unable to run due to co-scheduling constraints
CPUIdleTime	Total time that the CPU spent in Idle state.
CPUWaitTime	Total time that the CPU spent in Wait state.
CPUDemandUsed	The amount of CPU resources (MHz) a virtual machine uses if there is no CPU contention or CPU limit.
CPUUsedTime	Total time for which the CPU was used

vCenter Guest also contains `BootTime, MemGranted, MemShared, MemHeap, MemHeapFree, NetInByteRate, NetOutByteRate, MemSharedCommon, CPUReservedCapacity, and MemBalloonTarget` metrics

Datacenter

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
LSName	Unique identifier of the Datacenter.
SystemID	UUID of the datacenter. This is display_name.
ParentUUID	Name of the vCenter to which this datacenter belongs.
SystemName	Name of the Datacenter.

Metric Name	Description
NumHosts	Number of hosts under this Datacenter.
NumGuests	Number of VMs under this datacenter.
SystemVirtType	The value of this metric is **VMware**.
ParentType	On a System, the metric indicates the type of parent entity. The value is **HOST** if the parent is a host, **RESPOOL** if the parent is resource pool.
NumClones	Number of virtual machine clone operations.
NumCreate	Number of virtual machine create operations.
NumDeploy	Number of virtual machine template deploy operations.
NumDestroy	Number of virtual machine delete operations.
NumReconfigure	Number of virtual machine reconfigure operations.
TotalVmMotions	Number of Migrations with VMotion (host change operations for powered-on VMs).
TotalSvMotions	Number of Migrations with Storage VMotion (datastore change operations for powered-on VMs).
NumRegister	Number of Virtual Machine register operations.
NumChangeHostDS	Number of host and datastore change operations for powered-off and suspended Virtual Machines.
NumPowerOff	Number of Virtual Machine power off operations.
NumStandByGuest	Number of Virtual Machine standby guest operations.
NumPowerOn	Number of Virtual Machine power on operations.
NumUnRegister	Number of Virtual Machine unregister operations.
NumChangedDS	Number of datastore change operations for powered-off and suspended Virtual Machines.
NumShutDownGuest	Number of Virtual Machine guest shutdown operations.
NumRebootGuest	Number of Virtual Machine guest reboot operations.

Metric Name	Description
NumChangeHost	Number of host change operations for powered-off and suspended Virtual Machines.
NumReset	Number of Virtual Machine reset operations.
NumSuspend	Number of Virtual Machine suspend operations.
MemPhysUtil	% of Physical Memory Used (MB).
CPUTotalUtil	CPU Total Util
NumActiveGuests	Number of logical systems hosted in the system that are active.
NumResourcePools	Number of resource pools on the datacenter.
NumClusters	Number of clusters on the datacenter

Cluster

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
SystemName	Name of the cluster.
LSName	Unique identifier of the cluster.
SystemID	UUID of the cluster.
ParentUUID	Name of the datacenter to which this cluster belongs.
Type	Type of the Cluster.
NumHosts	Number of hosts on this cluster.
BelongsToDatacenter	Datacenter to which this cluster belongs.
NumClones	Number of virtual machine clone operations.
NumCreate	Number of virtual machine create operations.
NumDeploy	Number of virtual machine template deploy operations.
NumDestroy	Number of virtual machine delete operations.

Metric Name	Description
NumReconfigure	Number of virtual machine reconfigure operations.
TotalVmMotions	Number of Migrations with VMotion (host change operations for powered-on VMs).
TotalSvMotions	Number of Migrations with Storage VMotion (datastore change operations for powered-on VMs).
CPUEntlUtil	CPU entitlement Utilization.
CPUTotalUtil	Total CPU Utilization.
CPUEffectiveUtil	Utilization of total available CPU resources of all hosts within that cluster.
MemEffectiveUtil	Utilization of total amount of machine memory of all hosts in the cluster that is available for use for virtual machine memory (physical memory for use by the Guest OS) and virtual machine overhead memory.
CPUFailover	VMware high availability number of failures that can be tolerated.
MemPhysUtil	Total Memory Utilization.
MemOverhead	The amount of memory associated with a logical system, that is currently consumed on the host system, due to virtualization.
MemEntlUtil	Memory Entitlement Utilization.
MemBalloonUsed	Amount of memory in KB held by memory control for ballooning.
SystemVirtType	The value of this metric is **VMware.**
ParentType	On a System, the metric indicates the type of parent entity. The value is **HOST** if the parent is a host, **RESPOOL** if the parent is resource pool.
DrsConfigEnabled	Whether DRS is enabled on the Cluster.
DasConfigEnabled	Whether HA is enabled on the Cluster.
NumRegister	Number of Virtual Machine register operations.
NumChangeHostDS	Number of host and datastore change operations for powered-off and suspended Virtual Machines.
NumPowerOff	Number of Virtual Machine power off operations.
NumStandByGuest	Number of Virtual Machine standby guest operations.
NumPowerOn	Number of Virtual Machine power on operations.
NumUnRegister	Number of Virtual Machine unregister operations.
NumChangedDS	Number of datastore change operations for powered-off and suspended Virtual Machines.

Metric Name	Description
NumShutDownGuest	Number of Virtual Machine guest shutdown operations.
NumRebootGuest	Number of Virtual Machine guest reboot operations.
NumChangeHost	Number of host change operations for powered-off and suspended Virtual Machines.
NumReset	Number of Virtual Machine reset operations.
NumSuspend	Number of Virtual Machine suspend operations.
MemUsed	Amount of Physical Memory used in MB.
CPUCycleTotalUsed	Amount of CPU Cycles used in MHz.
NumResourcePools	Number of resource pools on the cluster.

Datastore

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
SystemName	Name of the Datastore.
SystemID	Id of the Datastore.
Type	Datastore type.
Capacity	Datastore Capacity in MB.
DiskUsed	Datastore Space used in MB.
SharePriority	Shared Priority
IORMEnabled	IORM Enabled
IORMThreshold	IORM Threshold
MountedOn	Display name of the parent of the datastore.
ClusterName	Cluster to which this Datastore belongs.
DiskThroughputUsage	Throughput Usage for the datastore.

Metric Name	Description
DiskThroughputContention	Throughput Contention for the datastore.
ConnectionState	Whether datastore is accessible or not.
ParentUUID	UUID of the host to which this datastore belongs.
LSName	Unique identifier of the datastore.
ParentType	Type of the parent of the datastore.
SystemVirtType	The value of this metric is **VMware**.
NumReadCommands	Average number of read commands issued per second to the datastore during the collection interval.
NumWriteCommands	Average number of write commands issued per second to the datastore during the collection interval.
NumDiskReads	Number of disk reads during the collection interval.
NumDiskWrites	Number of disk writes during the collection interval.
DiskVMDKUsed	Datastore Space used by Virtual Machine Files in MB.
DiskProvisioned	Amount of storage set-aside for use by a datastore in MB.
DiskSnapshotUsed	Datastore Space used by the virtual machine snapshots in MB.
DiskSwapUsed	Datastore Space used by the swap files in MB.
DiskOthersUsed	Datastore Space used by other files in MB.
BelongsToDatacenter	Datacenter to which this datastore belongs.

Respool

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
SystemName	Display Name of the resource pool
SystemID	This value is name of the Cluster where resource pool is hosted followed by the unique id.

Metric Name	Description
LSName	Unique identifier of the resource pool.
NumGuests	Number of VMs.
CPUEntlMin	The minimum CPU units configured for this resource pool.
CPUEntlMax	The maximum CPU units configured for this resource pool.
CPUEntlUtil	Percentage of entitled processing units consumed by the resource pool.
CPUCycleEntlMin	This value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleEntlMax	This value indicates the maximum processor capacity, in MHz, configured for the entity.
MemEntlMin	The minimum amount of memory configured for the logical system, in MB.
CPUPhyscUtil	Percentage of physical processing units consumed by the resource pool.
MemEntlMax	The maximum amount of memory configured for the logical system, in MB.
MemSharesPrio	The weightage or priority for memory assigned to this logical system.
MemOverhead	The amount of memory associated with a logical system, that is currently consumed on the host system, due to Virtualization.
MemSwapped	This metric indicates the amount of memory that has been transparently swapped to and from the disk.
MemEntlUtil	The amount of memory utilized for the logical system, in MB.
LSMode	This metric indicates whether the CPU entitlement for the resource pool is **Capped** or **Uncapped**.
CPUSharesPrio	This value determines the minimum share of unutilized processing units that this logical system can utilize.
CPUPhysTotalTime	Total time in seconds, spent by the logical system on the physical CPUs.
CPUPhysTotalUtil	Percentage of total time the physical CPUs were utilized by this logical system during the interval.
CPUCycleTotalUsed	Total time the physical CPUs were utilized during the interval, represented in CPU cycles.
BelongsToDatacenter	This is the name of the datacenter to which resource pool is part of.
ClusterName	This is the name of the cluster to which resource pool is part of.

Metric Name	Description
HostedOn	This is the name of the ESX host on which resource pool is hosted.
ParentUUID	UUID of the parent of this resource pool
ParentType	Parent type of the resource pool.
SystemVirtType	The value of this metric is **VMware**.
MemUsed	The amount of memory used at the end of the interval.

VirtualApp

Metric Name	Description
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**. For virtualApp this value is **VIRTUALAPP**.
SystemName	Display Name of virtualApp.
SystemID	This value is name of the Cluster where virtualApp is hosted followed by the unique id.
LSName	Unique identifier of the virtualApp.
NumGuests	Number of VMs.
CPUEntlMin	The minimum CPU units configured for this virtualApp.
CPUEntlMax	The maximum CPU units configured for this virtualApp.
CPUEntlUtil	Percentage of entitled processing units consumed by the virtualApp.
CPUCycleEntlMin	This value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleEntlMax	This value indicates the maximum processor capacity, in MHz, configured for the entity.
MemEntlMin	The minimum amount of memory configured for the logical system, in MB.
CPUPhyscUtil	Percentage of physical processing units consumed by the virtualApp.
MemEntlMax	The maximum amount of memory configured for the logical system, in MB.
MemSharesPrio	The weightage/priority for memory assigned to this logical system.
MemOverhead	The amount of memory associated with a logical system, that is currently consumed on the host system, due to Virtualization.

Metric Name	Description
MemEntlUtil	The amount of memory utilized for the logical system, in MB.
LSMode	This metric indicates whether the CPU entitlement for the resource pool is **Capped** or **Uncapped**.
CPUSharesPrio	This value determines the minimum share of unutilized processing units that this logical system can utilize.
CPUPhysTotalTime	Total time in seconds, spent by the logical system on the physical CPUs.
CPUPhysTotalUtil	Percentage of total time the physical CPUs were utilized by this logical system during the interval.
CPUCycleTotalUsed	Total time the physical CPUs were utilized during the interval,represented in CPU cycles
BelongsToDatacenter	This is the name of the datacenter to which virtualApp is part of.
ClusterName	This is the name of the cluster to which virtualApp is part of.
HostedOn	This is the name of the ESX host on which virtualApp is hosted.
ParentUUID	Uuid of the parent of this virtualApp.
ParentType	Parent type of the virtualApp.
SystemVirtType	The value of this metric is **VMware**.
MemUsed	The amount of memory used at the end of the interval.

BYVM Storage

Metric Name	Description
SystemRole	For a shared datastore, this value is the type of the entity associated with Datastore.
SystemName	For a shared datastore, this value is name of the node.
SystemVirtType	For vmware, this values is **VMWARE**.
SystemID	UUID of the entity which mounts this datastore.
DatastoreID	UUID of the datastore.
DatastoreName	Name of the datastore.
ParentUUID	UUID of the datastore to which this entity belongs.

Metric Name	Description
ParentType	Type of the parent of the node.
DiskUsed	This is the total space consumed by the virtual machine on the datastore, including the vmdk file, snapshots and other files.
ReadLatency	Total read latency experienced by the entity on this datastore.
WriteLatency	Total write latency experienced by the entity on this datastore.
MaxQueueDepth	MaxQueueDepth
DiskSnapshotUsed	This is the space consumed by the virtual machine snapshot files on the datastore.
DiskVMDKUsed	This is the total space consumed by the virtual machine vmdk files on the datastore.
DiskProvisioned	This is the total space provisioned for the virtual machine on the datastore.
DiskReadRate	Rate of reading from the datastore.
DiskWriteRate	Rate of writing to the datastore.
NumReadCommands	Average number of read commands issued per second to the datastore during the collection interval.
NumWriteCommands	Average number of write commands issued per second to the datastore during the collection interval.

Hyper-V

Host

Metric Name	Description
AvailableStorageCapacity	The value indicates the total available free space across all logical disks. This metric is only available for Hyper-V hosts and not available for VM.
ClusterName	Name of the Hyper-V cluster.
CPUClockSpee	On a Host and logical system, the value indicates the clock speed of the CPUs in MHz, if all of the processors have the same clock speed.
CPUCycleEntlMax	On a Host and logical system this value indicates the maximum processor capacity, in MHz, configured for the entity.

CPUCycleEntlMin	On a Host and logical system pool the value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleTotalUsed	On a Host and logical system, it is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
CPUEntlMax	On a HOST, the metric is CPU capacity. For a logical system, the metric indicates the maximum CPU units configured for it.
CPUEntlMin	On a HOST, the metric is equivalent to total number of cores. For a logical system, the metric indicates the guaranteed minimum CPU units configured for it.
CPUEntlUtil	Percentage of entitled processing units (guaranteed processing units allocated to this logical system) consumed by the logical system.
CPUMTEnabled	On a Host, the metric indicates whether the CPU hardware threads are enabled or not for a host while for a logical system the value is not available.
CPUPhysReadyUtil	On a Host and logical system it is the percentage of time, during the interval, that the CPU was in ready state.
CPUReadyTime	For a Host and Guest, the metric indicates the time for which the virtual machine was ready, but could not get scheduled to run on the physical CPU.
CPUSharesPrio	The metric indicates the weightage or priority assigned to an uncapped logical system. This value determines the minimum share of un-utilized processing units that the logical system can utilize.
CPUSysModeUtil	On a Host and logical system, the metric indicates the percentage of time the CPU was in system mode during the interval.
CPUTotalUtil	On a logical system the value indicates the percentage of total time the logical CPUs were not idle during the interval. For a host, the metric value is same as Physical utilization.
CPUUserModeUtil	On a Host and logical system, the metric indicates the percentage of time the CPU was in user mode during the interval.

DiskPhysReadByteRate	On a Host the metric indicates the average number of KBs per second at which data was transferred from disks during the interval. For logical systems the metric is not Available.
DiskPhysWriteByteRate	On a Host, the metric indicates the average number of KBs per second at which data was transferred to disks during the interval. For logical system the metric is not available.
DiskReadLatency	Total disk read latency for the Hyper-V host.
DiskSpaceReserved	Total storage space available on the host.
DiskTotalCapacity	Total disk storage available on the host.
DiskTotalIORate	Average number of bytes transferred to or from the disk during write or read operations on the host.
DiskWriteLatency	Total disk write latency for host.
DynamicMemoryEnabled	Indicates whether dynamic memory is enabled for the virtual machine.
DynamicMemoryMaximum	Specifies the maximum amount of memory that this virtual machine is allowed to use.
IPAddress	On a Host, this metric indicates the IP address for a host and a logical system.
LocalDiskTotalCapacity	Total disk capacity available on the Host.
LocalStorageAvailableCapacity	Total free space available.
MacAddress	For a Guest, the value contains comma separated mac address(s).
MemActive	On a logical system it is the amount of memory, that is actively used. For a host this is NA.
MemAvail	On a HOST, the amount of physical memory available in the host system. For a logical system the value is NA.
MemEntl	On a Host the value is the physical memory available in the system and for a logical system the total amount of RAM in the virtual system, as seen by the guest operating system. For a virtual system with dynamic memory enabled, this represents the initial memory available at start-up.
MemEntlUtil	On a logical system, the value indicates percentage of entitled memory in use during the interval by it. For Host this is N/A.

MemoryDemand	The value represents how much memory the virtual machine needs at this time to meet the requirements of the active processes running in the virtual machine. For Host this metric is N/A
MemoryPressure	Pressure is synonymous with availability. Average pressure at this level is the average pressure of VMs at any given time.
MemPhys	On a Host, the value is the physical memory available in the system and for a logical system this metric is not available.
MemPhysUtil	The percentage of physical memory used during the interval.
MemSharesPrio	The weightage or priority for memory assigned to this logical system. This value influences the share of un-utilized physical memory that the logical system can utilize. For Host, the value is NA
MemUsed	The amount of physical memory used by the logical system and Host.
NetByteRate	On a Host, it is the sum of data transmitted and received for all the NIC instances. This metric is not available for logical systems.
NetInByteRate	For a Host, this metric indicates the input bytes per second over the network.
NetInPacketRate	On a Host,it is the number of successful packets, received for all network interfaces during the interval. For virtual systems this metric is not available.
NetOutByteRate	For a Host, this metric indicates the output bytes per second over the network.
NetOutPacketRate	The number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loop back interface.
NetPacketRate	On a Host, it is the number of successful packets per second, both sent and received, for all network interfaces during the interval. For virtual systems this metric is not available.
NetworkIORate	Rate at which bytes are sent and received on the interface.

NumCPU	The number of virtual CPUs configured for this logical system.
NumCPUCore	On a Host, the metric provides the total number of CPU cores on the system. For a logical system or a resource pool the value is NA.
NumCPUSocket	On a Host, the metric indicates the number of physical CPU sockets on the system. For a logical system or a resource pool the value is NA.
NumGuests	On a Host, the value indicates the number of logical systems hosted in a system. For a logical system and resource pool the value is NA.
ParentType	On a System, the metric indicates the type of parent entity. The value is **HOST** if the parent is a host, **RESPOOL** if the parent is resource pool. For a host, the value is NA.
ParentUUID	On a Host, the metric indicates the UUID appended to display_name of the parent entity. For a logical system and resource pool this metric could indicate the UUID appended to display_name of a host or resource pool as they can be created under a host or resource pool.
StateChangeTime	For a guest, the metric is the epoch time when the last state change was observed. The value is NA for all other entities.
SystemHostHostName	On a logical system and resource pool, it is the FQDN of the host on which they are hosted. For a host, the value is NA.
SystemHostName	For a host and logical system, the metric is the FQDN, while for resource pool the value is NA.
SystemID	UUID of the logical system. This ID uniquely identifies the logical system across multiple hosts. In VMware, for a logical system or a host, the value indicates the UUID appended to display_name of the system. For a resource pool the value is hostname of the host where resource pool is hosted followed by the unique id of the resource pool.
SystemMachineModel	On a Host, it is the CPU model of the host system. For a logical system and resource pool the value is `na`.
SystemName	On a Host, this metric indicates the name of the host or logical system or resource pool.

SystemOSName	On a Host, the metric indicates the name of the operating system. This metric is NA for guests.
SystemOSType	On a Host, the metric can have the following values for host and logical system: ESX/ESXi followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, Unknown. The value is NA for a resource pool.
SystemOSVersion	Available only for Host.
SystemRole	On a Host the metric is HOST. For a logical system the value is GUEST and for cluster, the value is CLUSTER. For datastore, the value is DATASTORE.
SystemState	The values for a logical system can be one of the following: **Running, Saved, Suspended, stopped, or paused**.
SystemUptimeHours	On a Host and logical system the metric is the time, in hours, since the last system reboot.
SystemUptimeSeconds	On a Host and logical system the metric is the time, in seconds, since the last system reboot.
SystemVirtType	On a Host, the value of this metric is Hyper-V.
TotalDiskCapacity	Total disk capacity on the Host.
UsedStorageCapacity	Total Disk used on the Host.

Hyper-V Host also contains `ProcessorVendor` metric.

Guest

Metric Name	Description
AvailableStorageCapacity	Total available free space across all logical disk. This metric is only for Hyper-V hosts and N/A for Virtual machines.
ClusterName	Name of the Hyper-V cluster.
CPUClockSpeed	On a Host and logical system, it is the clock speed of the CPUs in MHz if all of the processors have the same clock speed.
CPUCycleEntlMax	On a Host and logical system the value indicates the maximum processor capacity, in MHz, configured for the entity.

CPUCycleEntlMin	On a Host and logical system pool the value indicates the minimum processor capacity, in MHz, configured for the entity.
CPUCycleTotalUsed	On a Host and logical system, it is the total time the physical CPUs were utilized during the interval, represented in CPU cycles.
CPUEntlMax	For a host, the metric is CPU Capacity. For a logical system, this metrics indicates the maximum CPU units configured for it.
CPUEntlMin	On a HOST, the metric is equivalent to total number of cores on the host. For a logical system, this metrics indicates the guaranteed minimum CPU units configured for it.
CPUEntlUtil	Percentage of entitled processing units (guaranteed processing units allocated to the logical system) consumed by the logical system.
CPUMTEnabled	On a Host, the metric indicates whether the CPU hardware threads are enabled or not for a host while for a logical system the value is not available na.
CPUPhysReadyUtil	On a Host and logical system it is the percentage of time, during the interval, that the CPU was in ready state.
CPUPhysTotalUtil	On a Host and logical system this value indicates the percentage of total time the physical CPUs were utilized.
CPUReadyTime	For a Host and Guest, the metric indicates the time for which the VM was ready, but was not scheduled to run on the physical CPU.
CPUSharesPrio	The metric indicates the weightage or priority assigned to an uncapped logical system. This value determines the minimum share of un-utilized processing units that the logical system can utilize.
CPUSysModeUtil	On a Host and logical system, this metric indicates the percentage of time the CPU was in system mode during the interval.
CPUTotalUtil	On a logical system the value indicates percentage of total time the logical CPUs were not idle during the interval. For a host, this metric value is same as Physical utilization.

CPUUserModeUti	On a Host and logical system, this metric indicates the percentage of time the CPU was in user mode during the interval.
DiskPhysReadByteRate	On a Host this metric indicates the average number of KBs per second at which data was transferred from disks during the interval. For logical systems this metric is not Available.
DiskPhysWriteByteRate	On a Host, this metric indicates the average number of KBs per second at which data was transferred to disks during the interval. For logical system this metric is not available.
DiskReadLatency	Total disk read latency for the Hyper-V Host.
DiskSpaceReserved	Total storage space available on the host.
DiskTotalCapacity	Total Disk storage available on the host.
DiskTotalIORate	Average number of bytes transferred to or from the disk during write or read operations on the Host.
DiskWriteLatency	Total disk write latency for host.
DynamicMemoryEnabled	Indicates whether dynamic memory is enabled for the virtual machine.
DynamicMemoryMaximum	Specifies the maximum amount of memory that this virtual machine is allowed to use.
IPAddress	On a Host, this metric indicates the IP Address for a host and a logical system.
LocalDiskTotalCapacity	Total Disk Capacity available on the Host.
LocalStorageAvailableCapacity	Total Free space available.
MacAddress	For a guest, it contains coma separated mac address(s)
MemActive	On a logical system it is the amount of memory, that is actively used. For a host this is NA.
MemAvail	On a HOST, the amount of physical memory available in the host system. For a logical system the value is NA.
MemEntl	On a Host the value is the physical memory available in the system and for a logical system the total amount of RAM in the virtual system, as seen by the guest operating system. For a virtual system with dynamic memory enabled, this represents the initial memory available at startup.

MemEntlUtil	On a logical system, the value indicates percentage of entitled memory in use during the interval. For Host this is N/A
MemoryDemand	The value represents how much memory the virtual machine needs at this time to meet the requirements of the active processes running in the virtual machine. For Host this metric is N/A
MemoryPressure	Pressure is synonymous with availability. Average pressure at this level is the average pressure of VMs at any given time.
MemPhys	On a Host, the value is the physical memory available in the system and for a logical system this metric is not available.
MemPhysUtil	The percentage of physical memory used during the interval.
MemSharesPrio	The weightage or priority for memory assigned to this logical system. This value influences the share of un-utilized physical Memory that the logical system can utilize. for Host, NA
MemUsed	The amount of physical memory used by the logical system and Host.
NetByteRate	On a Host, it is the sum of data transmitted and received for all the NIC instances. This metric is not available for logical systems.
NetInByteRate	For a Host, this metric indicates the input bytes per second over the network.
NetInPacketRate	On a Host, it is the number of successful packets, received for all network interfaces during the interval. For virtual systems this metric is not available.
NetOutByteRate	For a Host, this metric indicates the output bytes per second over the network.
NetOutPacketRate	The number of successful packets sent through all network interfaces over the cumulative collection time. Successful packets are those that have been processed without errors or collisions. This does not include data for loopback interface.

NetPacketRate	On a Host, it is the number of successful packets per second, both sent and received, for all network interfaces during the interval. For virtual systems this metric is not available.
NetworkIORate	Rate at which bytes are sent and received on the interface.
NumCPU	The number of virtual CPUs configured for this logical system. .
NumCPUCore	On a Host, this metric provides the total number of CPU cores on the system. For a logical system or a resource pool the value is NA.
NumCPUSocket	On a Host, this metric indicates the number of physical CPU sockets on the system. For a logical system or a resource pool the value is NA.
NumGuests	On a Host, this indicates the number of logical systems hosted in a system. For a logical system and resource pool the value is NA.
ParentType	On a System, the metric indicates the type of parent entity. The value is HOST if the parent is a host, RESPOOL if the parent is resource pool. For a host, the value is NA.
ParentUUID	On a Host, the metric indicates the UUID appended to display_name of the parent entity. For a logical system and resource pool this metric could indicate the UUID appended to display_name of a host or resource pool as they can be created under a host or resource pool.
StateChangeTime	For a guest, the metric is the epoch time when the last state change was observed. The value is NA for all other entities.
SystemHostHostName	On a logical system and resource pool, it is the FQDN of the host on which they are hosted. For a host, the value is NA.
SystemHostName	On a Host, for a host and logical system, the metric is theFQDN, while for resource pool the value is NA.

SystemID	UUID of this logical system. This Id uniquely identifies this logical system across multiple hosts. In VMWare, for a logical system or a host, the value indicates the UUID appended to display_name of the system. For a resource pool the value is hostname of the host where resource pool is hosted followed by the unique id of resource pool.
SystemMachineMode	On a Host, it is the CPU model of the host system. For a logical system and resource pool the value is `na`.
SystemName	On a Host, this metric indicates the name of the host or logical system or resource pool.
SystemOSName	On a Host, the metric indicates the name of the Operating System. This metric in NA for guests.
SystemOSType	On a Host, the metric can have the following values for host and logical system: ESX/ESXi followed by version or ESX-Serv (applicable only for a host) Linux, Windows, Solaris, Unknown. The value is NA for a resource pool.
SystemOSVersion	Available only for Host.
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
SystemState	The values for a logical system can be one of the following: **Running, Saved, Suspended,stopped** or **paused.**
SystemUptimeHours	On a Host and logical system the metrics is the time, in hours, since the last system reboot
SystemUptimeSeconds	On a Host and logical system the metrics is the time, in seconds, since the last system reboot.
SystemVirtType	On a Host, the value of this metric is Hyper-V.
TotalDiskCapacity	Total disk capacity on the Host.
UsedStorageCapacity	Total Disk used on the Host

Hyper-V Guest also contains `ProcessorVendor` metric.

Cluster

Metric Name	Description

CPUTotalUtil	Total CPU Utilization
MemEntl	Effective memory available
MemPhys	Total physical memory available
MemPhysUtil	Total memory utilization
MemUsed	Amount of physical memory used
NumCPU	The number of virtual CPUs configured for this logical system.
NumCPUCore	Number of CPU Cores.
NumGuests	Number of VMs under this cluster.
NumHosts	Number of hosts on this cluster.
ParentType	On a System, the metric indicates the type of parent entity.
ParentUUID	UUID of the parent
SystemID	UUID of the cluster
SystemName	Name of the cluster
SystemRole	The value of this metric is **CLUSTER.**
SystemVirtType	The value of this metric is **Hyper-V**.

Hyper-V Cluster also contains `DiskTotalIORate` and `NetworkIORate` metrics.

Datastore

Metric Name	Description
Capacity	Datastore capacity (in MB)
DiskOthersUsed	Datastore space used by other files(in MB)
DiskProvisioned	Amount of storage set-aside for use by a datastore(in MB)
DiskReadRate	Rate at which bytes are transferred from the disk during read operations.
DiskSnapshotUsed	Datastore space used by the virtual machine snapshots (in MB).
DiskUsed	Datastore space used (in MB)

DiskVMDKUsed	Datastore space used by VM files (in MB)
DiskWriteRate	Rate at which bytes are transferred from the disk during write operations.
MountedOn	Mounted drive letter of the volume.
NumDiskReads	Number of disk reads during the collection interval.
NumDiskWrites	Number of disk writes during the collection interval.
ParentType	Type of the parent of the datastore.
ParentUUID	UUID of the host to which this datastore belongs.
QueueLength	Average number of both read and write requests that were queued for the selected disk during the sample interval.
SystemID	Id of the Datastore
SystemName	Name of the Datastore
SystemRole	On a Host the metric is **HOST**. For a logical system the value is **GUEST** and for a resource pool the value is **RESPOOL**. For datacenter, this is **DATACENTER**. For cluster, this is **CLUSTER**. For datastore, this is **DATASTORE**.
SystemVirtType	The value of this metric is `VMware` Metric Equivalent for VMWare, for Host, Guest and RP the value is VMWare.
Type	File system on the logical disk. For example: `NTFS, CSVFS`.

Hyper-V Datastore also contains `DiskReadLatency` and `DiskWriteLatency` metrics

BYVM Storage

Metric Name	Description
DatastoreID	UUID of the datastore
DatastoreName	Name of the datastore
DiskProvisioned	This is the total space provisioned for the virtual machine on the datastore.
DiskReadRate	Rate of reading from the datastore.
DiskSnapshotUsed	This is the space consumed by the virtual machine snapshot files on the datastore.

DiskUsed	This is the total space consumed by the virtual machine on the datastore, including the `vmdk` file, snapshots and other files.
DiskVMDKUsed	This is the total space consumed by the virtual machine `vmdk` files on the datastore.
DiskWriteRate	Rate of writing to the datastore.
ParentType	Type of the parent of the node.
ParentUUID	UUID of the datastore to which this entity belongs.
QueueLength	Average number of both read and write requests that were queued for the selected disk during the sample interval.
ReadLatency	Total read latency experienced by the entity on this datastore.
SystemID	UUID of the entity which mounts this datastore.
SystemName	For a shared datastore, the value is name of the node.
SystemRole	For a shared datastore, the value is the type of the entity associated with datastore.
SystemVirtType	For VMware, the value is `Hyper-V`.
WriteLatency	Total write latency experienced by the entity on this datastore.

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