

MS Exchange Monitoring KPIs (Top 6)

1. Mail Store growth
2. Mailbox growth
3. Transaction Log file growth (Transaction Log file (edb.log)
- ask your mail admin how big they should be allowed to grow...or when it will impact disk free.)
4. Receive Response Time
5. Send Response Time
6. SMTP Server \ Local Queue Length

VMware KPIs

ESX Hosts and VMs (Top 10)

Disk

1.Disk I/O

- depends on type of interface and in general 120,000 I/O operations is considered to be the max/high end.

2. Disk Read Rate
3. Disk Write Rate
4. Number of SCSI Reservations

Network

- | | |
|--------------------------------|---|
| 5. Network Packets Received | Number of packets received in the period |
| 6. Network Packets Transmitted | Number of packets transmitted in the period |
| 7. Network Usage | Aggregated network performance statistics |

Key item: monitor dropped packets (transmit/receive)

8. SCSI Reservations/LUNs

Used disk space per LUNs (see at the Host level in the vmware probe config)

e.g., Disk->vmhba1<#>

vmdk files (virtual machine disk file) containing the operating system and/or data and applications.

9. Memory Swap Utilization (%)

Memory Swap Used – This counter reflects the total amount of VMkernel swap usage on the host. In almost any scenario, this counter should be at or close to zero as VMkernel memory swapping is used as a last resort. Significant or consistent memory swapping indicates that ESX host memory is severely over-

committed and that performance degradation is imminent or actively occurring. VMs will become latent.

10 Memory Consumed (% of Memory)

Amount of host memory consumed by the virtual machine for guest memory

Informational:

VMCount

The count of VMs for this host

VMCountActive

The active count of VMs for this host

VMware Resources (Top 4)

1. CPU Ready Time

CPU Ready is available on Resources but not Hosts. See CPU icon:

Description: (CPU time spent in ready state).

Percentage of time that the virtual machine was ready, but could not get scheduled to run on the physical CPU. CPU ready time is dependent on the number of virtual machines on the host and their CPU loads. The VM wants to run and this is the amount of time it has to wait on the queue in a ready to run state before it can be scheduled on the CPU.

2. Monitor disk failure errors in hostd.log

3. All - Key Processes and Services

hostd (use logmon)

vpaxa (vCenter communication to/from ESX)

4. Correct port communication (use net_connect)

Ports: 443, 80, 902, 903, 905, 8084, 9084

Guest OS (Top 3)

1. CPU, Disk and Memory (cdm/system probe)

2. Disk Commands Aborted

Aborted commands as displayed by the aborted commands per second counter (ABRTS/s) represent commands issued by the guest operating system after it determines that a storage request cannot be fulfilled. Aborts are a sign that the storage system cannot meet the demands of the guest operating system.

3. Disk Utilization

% utilization of VMware datastores

Citrix KPIs (Top 8)

Probes: ica_response, ica_server, ntparf

- Need count of the number of clients on each server and monitoring of Citrix latency.
- Connect, Logon, and Session stats
- Want to know individual intricacies of a particular ICA session, such as latency or a *particular virtual channel's bytes sent and received*.
- Disconnected sessions can indicate users that are being disrupted due to network problems. Also, a high number of them being present results in excessive Virtual Memory usage.

Citrix Sessions

1. IcaSession (LastLatency)

This value represents the last recorded latency measurement for this session.

2. IcaSession (SessionAverage)

This value represents the average client latency over the life of a session.

Citrix Ima Networking

3. Bytes Received per second

Inbound bytes/sec

4. Bytes Sent per sec

Outbound bytes/sec

5. Network Connections

Number of Active IMA network connections other IMA Servers

CPU Counters

6. CPU Usage:

...is the percentage of CPU resource consumed by a user at a given time, averaged over a few seconds. Used to identify significant consumers of CPU resource and to provide CPU usage accounting data.

Note that on multi-processor machines the maximum value of the counter is 100% times the number of logical processors.

7. DataStoreReadspersec

Number of times data was read from the IMA DataStore

8. DataStoreWrites/sec

Number of times data was written to the IMA Data Store

Lotus Notes KPIs (Top 10)

KPI/Checkpoint/Metric (Name)	Notes Statistic Variable	Comments
1. Notes Server Availability	Notes Server Availability (ping)	May also use Server.Availability.Index for Server capacity monitoring
2. DB Response Time	Database Open Response Time (ms)	Specified database in cfg
3. Notes Latency – Inbound	Notes In Latency (ms)	
4. Mail Delivered	Server.Trans.Total	
5. Queue Length C:/D:/E:	...Avg.QueueLen.Peak	Each disk
6. Notes Response Time (secs)	Notes Mail Response (secs)	notes_response
7. Server Trans/min	Server.Trans.PerMinute	
8. Sessions Dropped	Server.Sessions.Dropped	
9. Database Replication Failures	Replica.Failed	
10.Virtual Memory	Platform.Memory.PagesPerSec	Should avg below 100 pages/sec

Note that all of the above are KPIs and as in any best practice, monitoring should be comprehensive and include standard systems monitoring such as **CPU, Disk, Memory, processes, services and log monitoring**. These KPIs can be used for Dashboard creation.

SAN KPIs (Top 4)

1. Avg Latency
2. Read/write latency for all key SAN disk volumes
3. SAN CPU utilization
4. Fibre Channel Operations