SAN-Engineer Govindagouda Ranganagoudar

VMWare -Topics Leave a comment

How to Use ESXTOP

Configuring monitoring using esxtop

To monitor storage performance per HBA:

1. Start esxtop by typing esxtop at the command line.
2. Press d to switch to disk view (HBA mode).
3. Press f to modify the fields that are displayed.
4. To view the entire Device name, press SHIFT + L and enter 36 in Change the name field size.
5. Press b, c, d, e, h, and j to toggle the fields and press Enter.
6. Press s, then 2 to alter the update time to every 2 seconds and press Enter.
7. See Analyzing esxtop columns (http://communities.vmware.com/docs/DOC-9279) for a description of relevant columns.

Note: The following options are only available in VMware ESX 3.5 and later.

To monitor storage performance on a per-LUN basis:

1. Start esxtop by typing esxtop from the command line.
2. Press u to switch to disk view (LUN mode).
3. Press f to modify the fields that are displayed.
4. Press b, c, f, and h to toggle the fields and press Enter.
5. Press s, then 2 to alter the update time to every 2 seconds and press Enter.
6. See Analyzing esxtop columns (http://communities.vmware.com/docs/DOC-9279) for a description of relevant columns.

To increase the width of the device field in esxtop to show the complete naa id:

1. Start esxtop by typing esxtop at the command line.
2. Press u to switch to the disk device display.
3. Press L to change the name field size.**Note**: Ensure to use uppercase L.
4. Enter the value 36 to display the complete naa identifier.

To monitor storage performance on a per-virtual machine basis:

1. Start esxtop by typing esxtop at the command line.
2. Type v to switch to disk view (virtual machine mode).
3. Press f to modify the fields that are displayed.
4. Press b, d, e, h, and j to toggle the fields and press Enter.
5. Press s, then 2 to alter the update time to every 2 seconds and press Enter.
6. See Analyzing esxtop columns (http://communities.vmware.com/docs/DOC-9279) for a description of relevant columns.

Analyzing esxtop columns

This table lists the relevant columns and a brief description of these values:

Column	Description
CMDS/s	This is the total amount of commands per second and includes IOPS (Input/Output Operations Per Second) and other SCSI commands such as SCSI reservations, locks, vendor string requests, unit attention commands etc. being sent to or coming from the device or virtual machine being monitored. In most cases CMDS/s = IOPS unless there are a lot of metadata operations (such as SCSI reservations)
DAVG/cmd	This is the average response time in milliseconds per command being sent to the device
KAVG/cmd	This is the amount of time the command spends in the VMkernel
GAVG/cmd	This is the response time as it is perceived by the guest operating system. This number is calculated with the formula: DAVG + KAVG = GAVG

These columns are for both reads and writes, whereas xAVG/rd is for reads and xAVG/wr is for writes. The combined value of these columns is the best way to monitor performance, but high read or write response time it may indicate that the read or write cache is disabled on the array. All arrays perform differently, however DAVG/cmd, KAVG/cmd, and GAVG/cmd should not exceed more than 10 milliseconds (ms) for sustained periods of time.**Note**: VMware ESX 3.0.x does not include direct functionality to monitor individual LUNs or virtual machines using esxtop. Inactive LUNs lower the average for DAVG/cmd, KAVG/cmd, and GAVG/cmd. These values are also visible from the vCenter Server performance charts. For more information, see *Performance Charts* in the Basic System Administration Guide (http://www.vmware.com/support/pubs/).

If you experience high latency times, investigate current performance metrics and running configuration for the switches and the SAN targets. Check for errors or logging that may suggest a delay in operations being sent to, received, and acknowledged. This includes the array's ability to process I/O from a spindle count aspect, or the array's ability to handle the load presented to it.

If the response time increases to over 5000 ms (or 5 seconds), VMware ESX will time out the command and abort the operation. These events are logged; abort messages and other SCSI errors can be reviewed in the following logs:

- ESX 3.5 and 4.x – /var/log/vmkernel
- ESXi 3.5 and 4.x – /var/log/messages
- ESXi 5.x – /var/log/vmkernel.log

The type of storage logging you may see in these files depends on the configuration of the server. You can find the value of these options by navigating to **Host** > **Configuration** > **Advanced Settings** > **SCSI** > **SCSI.Log* or SCSI.Print***.
Posted June 25, 2013 by g6237118