

Nagios-Plugins for NetApp

Specifications

For the **present development-status** and additional links check out www.netapp-monitoring.info/en/matrix.html

Caches

BufferCache checks several metrics of the system buffer cache (=system memory) like Buffers being read, Buffers being written, Empty (unused) buffers, Buffers with modified data, Buffers associated with CP IO, ...

FlashCache checks several metrics of the external FlashCache (PAM II) like External cache hit rate, Average latency of read I/Os, Number of wafI buffers served off the external cache, ...

NVRAM checks data-rates and latency of the NVRAM.

Hardware

Hardware checks the NVRAM, cooling-devices, temperature-sensors and power-supplies of the head and its shelves. Also checks all disks in the system, if they are in a broken, pre-failed or replacing state.

Head monitors the heads hardware objects (fans, NVRAM, power-supplies, health-state, temperature-sensors)

Management

StorageUtilization Storage Utilization answers the question, "Am I effectively using the storage capacity available to my applications.

Metro Cluster

check_netapp_cluster checks the status of the high availability service (connected, taken over, takeover failed, ...).

Cluster checks the cluster-members regarding their state (connected, taken over, takeover failed, ...) and time-master-status (master, slave).

DiskPaths Checks if each disk has two paths (A/B, B/A).

SyncMirror checks the mirror-status on Metro Cluster aggregates. Derzeit nur für den 7m sinnvoll, da MetroCluster auf cm-Fileern nicht angeboten wird.

Network

IfGrp checks if an interface-group has enough links in up-state to still be redundant.

NetPort checks if the network-interfaces are enabled or not

Perflf checks and counts transfer-rates and errors per network-interface (ifnet). Especially useful for monitoring 10GbE-ports.

Perflif checks and counts transfer-rates and errors per network-interface (lif) for DataONTAP 8.2.x. or higher.

Performance

ConsistencyPoints reads the performance-counter cp_count twice and calculates the rate of CPs per second. The argument `-counter|-z` defines the type of consistency-point (wafI-timer, back-to-back, ...). The information gathered from this plugin corresponds to the CPty-column of 'sysstat -x 1'.

LunLatency Checks the 'latency' and 'operations per second' (ops) per LUN. Shows details for total, read, write and other. NetApp recommends monitoring latency as the primary performance indicator.

PerfAggr The area of application for this plugin is to monitor performance-relevant aspects of capacity management within an aggregate -in other words, the percentage of free blocks available for writes within an aggregate (ignoring all reservations, guarantees, or the like - just the free space available to the write al-

locator). This allows to proactively order additional storage for an aggregate before write performance is impacted.

PerfCpu checks one or all processors in a NetApp system for their utilization.

PerfDisk checks all disks in a NetApp system for their utilization (Percentage of time there was at least one outstanding request to the disk). Optional the check can be limited to the disks of a single aggregate.

PerfSys checks various performance counters of the NetApp-system (mostly operations/second and transfer-rates). Counters supported: `net_data_sent`, `dafs_ops`, `total_ops`, `disk_data_written`, `net_data_rcv`, `cifs_ops`, `streaming_pkts`, `http_ops`, `nfs_ops`, `fcg_ops`, `disk_data_read`, `iscsi_ops`

PerfVolume checks the 'latency' and 'operations per second' (ops) per volume. Shows details for total, read, write and other. NetApp recommends monitoring latency as the primary performance indicator.

WafI reads WAFL performance-counters like `cp_count` twice and calculates the rate of CPs per second. Different types of consistency-points (wafI-timer, back-to-back, ...) can be checked. The information gathered from this plugin corresponds to the CPTy-column of 'sysstat -x 1'.

Snap

SnapMirror checks and logs: lag-time, pair-state, pair-transfer-status, last-transfer-duration, transfer-errors.

SnapMirrorMetrics checks and logs SnapMirrors (including type Vault): lag-time, last-transfer-duration, last-transfer-size

SnapMirrorState checks and logs for SnapMirror (including type Vault): health, mirror-state

SnapVault monitors a SnapVault-relationship (lag-time, state, last-transfer-duration, transfer-errors)

Storage

OvercommitAggr Returns a list of aggregates together with their overcommitment in percent. Overcommitment is the relation between the aggregates size

and the total of all its (thin provisioned) volumes sizes.

Quotas sends an alarm, if one of the defined quotas are exceeded. One service-check can monitor the whole filer, since we use the internal definitions of the quota-system as thresholds.

Snapshots checks, if the snap-reserve is still sufficient. Thresholds are set in percent; performance-data can be either in percent or absolute (Byte). Additional criteria are the age or name of the snapshot. This can be used for monitoring snapshot-backups and whether they are up to date or not. Also can be used to find snapshots related to a specific application like SNMV and check all volumes for left-over snapshots.

Usage checks the used space in volumes and aggregates. Thresholds can be set in GB or percent.

VolumeAutosize checks a volumes total-size and alerts when the volume is close to being full relative to the autosize maximum.

Status

AggregateState checks the aggregates-state. Alarms if they are not online (configurable).

check_netapp_spare monitors the status of the spare-low condition (alarms if there is no suitable spare disk available).

Disk checks for failed/offline disks on the filer.

DiskFailed checks for failed/offline disks on the filer.

iSCSI monitors one or all iSCSI-adapters (online, offline, local, partner, error).

LunState checks the LUN-states. Alarms if they are not offline.

Raidstatus alarms, if one of the RAIDs is degraded.

ShelfBay checks, the shelf- and disk-port status. Can alarm BYP-status disks.

Status alarms, according to the global-status.

Uptime checks the seconds since last reboot.

vFiler monitors the status of a vFiler (if the vfiler is running and if the network resources are configured)

VolumeState checks the volume-states. Alarms if they are not online (configurable).

Vserver monitors the status of a Vserver (running, stopped, inconsistent or defunct)

www.netapp-monitoring.info