

Datasheet

OnCommand Performance Manager

Performance Monitoring for NetApp Clustered Data ONTAP 8.2

KEY BENEFITS

Using a simple, intuitive interface, OnCommand® Performance Manager gives storage administrators a wealth of clustered Data ONTAP® storage performance-monitoring features, including:

- Troubleshooting and resolving clustered Data ONTAP performance issues
- Automating performance alerts and incident root cause determination
- Providing historic view of clustered Data ONTAP performance
- Monitoring of network and storage system I/O
- Tracking workload and application QoS

Armed with this data, storage administrators can resolve and even prevent storage performance issues in their clustered Data ONTAP environments. Proactive alerts and problem resolutions greatly reduce troubleshooting and increase clustered Data ONTAP optimization.

The Challenge

The dynamic nature of clustered storage provides new capabilities such as nondisruptive operations, but also creates complexity. Troubleshooting poor storage performance can be a time-consuming and frustrating experience. With a potential chain of I/O trouble spots that spans from network protocols to physical devices, admins can spend hours tracking down the root cause of slow applications and degraded QoS. In many cases, poor performance might even reside not, in the storage subsystems but in the network itself. This further complicates the storage administrator's task of optimizing and maintaining the storage cluster. Without actionable information and data it's a daunting task to keep clusters optimized and performance at its peak.

The Solution

OnCommand Performance Manager delivers comprehensive data storage performance troubleshooting, isolates potential problems, and offers concrete solutions to performance issues based on its system analysis. There's no quicker way to boost and maintain

performance of clustered Data ONTAP 8.2 environments. Installed as a virtual appliance in your VMware® environment on your clustered Data ONTAP 8.2 or above system, OnCommand Performance Manager is easily configured through any web browser. The appliance then collects and monitors storage I/O counters from a number of potential performance-affecting system bottlenecks.

Integration with OnCommand Unified Manager

OnCommand Performance Manager integrates with NetApp® OnCommand Unified Manager, giving you a single point of control over your storage environment from IOPS and LUNs to systemwide storage management and protection.

Complements OnCommand Balance

When paired with OnCommand Balance, together the products provide administrators an even more comprehensive view and ability to optimize performance of their entire VMware virtual infrastructure to NetApp FAS storage operating in 7-Mode or clustered Data ONTAP or both together.

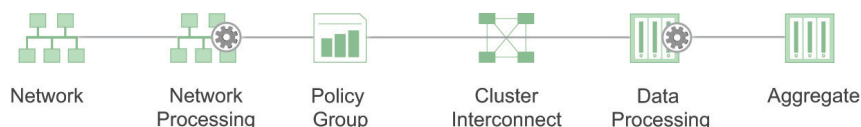


Figure 1) OnCommand Performance Manager monitoring categories.

OnCommand Performance Manager at Work

Focused exclusively on performance troubleshooting of clustered Data ONTAP, storage administrators can easily determine if there is a performance incident and where the incident originates and, best of all, recommend solutions to performance problems. In the dynamic environment of a storage cluster, automated analysis and proactive solution recommendations dramatically cut the time to diagnose and fix problems. OnCommand Performance Manager accomplishes this by tracking the factors shown in Figure 1, which can affect cluster performance.

Network

Operations outside the cluster's immediate domain such as network virus scanning, LDAP authentication, and other network tasks can affect storage I/O performance or even create a sustained burden on some nodes of a storage cluster. OnCommand Performance Manager automatically alerts administrators when network services cause I/O response time to cross a threshold.

Policy group limit

OnCommand Performance Manager monitors all QoS policies affecting all workloads; clustered Data ONTAP QoS policies allow an administrator to set a limit to the I/O rate for a volume or group of volumes. When throttling affects volume response time, Performance Manager will analyze and indicate which workload abnormality was the cause for throttling.

Network processing

Monitoring the processing of network protocols for any spikes or sustained traffic across the cluster can alert the administrator to take corrective action or even signal underlying problems on the network that are not storage related. If applications and data I/O are affected, the storage administrator can contact network administrators to resolve bandwidth and network I/O problems.

Cluster interconnect

The product actively monitors cluster interconnect activity. Any case in which the cluster interconnect network is the source of slow I/O is automatically detected with indication of which workloads are driving the abnormal load.

Data processing

New applications or the sudden increase in an application's activity can greatly affect its performance and the performance of storage across any given cluster. OnCommand Performance Manager delivers detailed information on data processing (WAFL®) activity and can identify which workloads have changed and have caused a CPU bottleneck.

Aggregate

Applications change. Usage varies over time. As a result, storage aggregates must be monitored to make sure they provide the optimum space, IOPS, and volumes needed for peak performance. With OnCommand Performance Manager, administrators will be notified if the aggregate is the source of unacceptable performance.

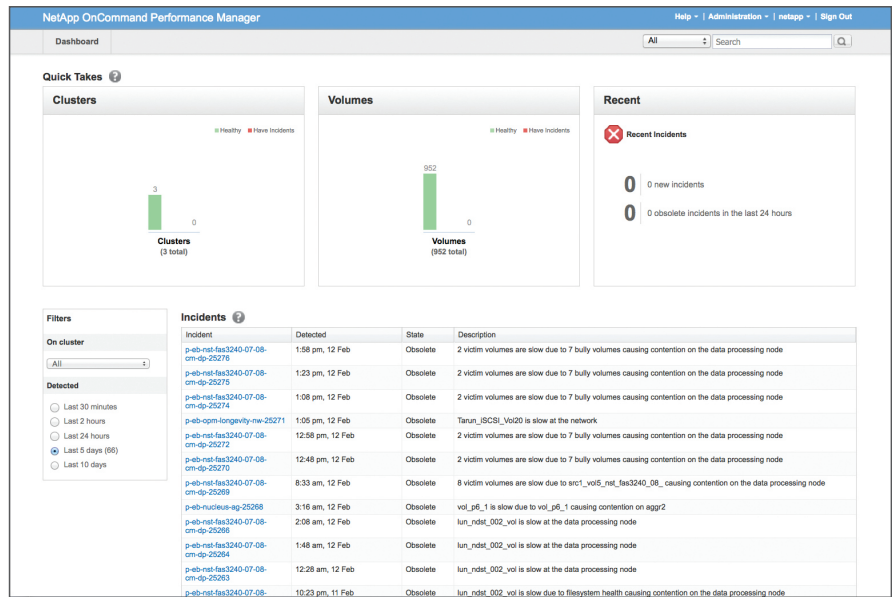


Figure 2) OnCommand Performance Manager dashboard.

Suggested Actions and Trends

Based on its comprehensive analysis of all the factors it monitors and tracks, OnCommand Performance Manager can then suggest corrective actions to performance incidents through the same intuitive dashboard. Depending on the data it is tracking, the product can keep data monitoring sets for up to 90 days, providing a comprehensive snapshot of cluster performance over time. This historic record can help administrators spot trends and head off impending performance issues before they affect the cluster.

System requirements:

- Data ONTAP 8.2 or higher
- VMware ESX® or ESXi™ for virtual appliance
 - 4 CPUs
 - CPU reservation 9.5 GHz
 - 12GB RAM
 - 310GB disk space (minimum; more might be required)
- Primary access through web browser
- Maintenance through console only
- Supports 4,000 volumes per OnCommand Performance Manager server, 2,000 volumes per cluster

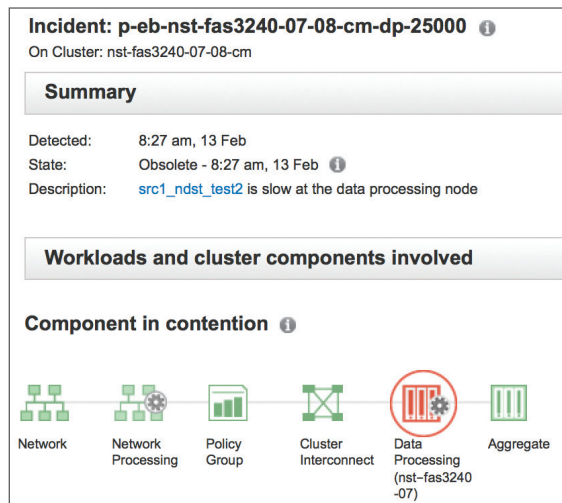


Figure 3) OnCommand Performance Manager data processing incident detected.

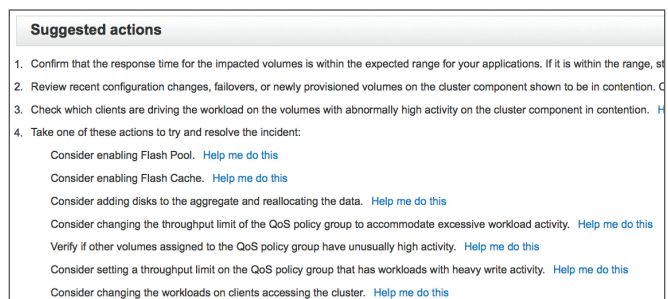


Figure 4) Sample suggested actions for an aggregate incident.

For NetApp Storage

- **System Manager.** Device-level management for individual and clusters of NetApp storage.
- **Unified Manager.** Monitor the availability, capacity, and protection of your clustered Data ONTAP resources to provide a single view of your NetApp storage health.
- **Performance Manager.** Provides performance monitoring and root-cause analysis of clustered Data ONTAP. It is the performance management part of Unified Manager. Monitor incidents in Performance Manager UI or in the Unified Manager dashboard.
- **Workflow Automation.** Automates storage tasks (e.g., commissioning, provisioning, decommissioning) and integrate with higher level systems such as orchestration to deliver storage self-service and cloud services.
- **Balance.** Provides performance analytics across virtual machines, physical servers, and NetApp storage. Optimizes storage performance in highly virtualized environments.

For Multi-Vendor Storage

- **Insight.** Manage configuration, performance, and capacity for multivendor storage environments plus enterprise reporting for capacity planning, showback, and chargeback.

For Integration

- **Snap Creator™ Framework, SnapDrive®, SnapManager®, SDK/API.** For integrated orchestration and data protection.

Table 1) NetApp OnCommand management and integration product portfolio.

The OnCommand Product Portfolio

The OnCommand management software family is designed to make NetApp storage the best solution for physical, virtual, and cloud environments. It includes products that help you control, automate, analyze, and integrate your storage.

Learn More

To learn more about how NetApp OnCommand management software provides the efficiency you need to keep pace with data growth and changing business requirements, go to www.netapp.com/oncommand or contact your local NetApp partner or sales representative. Explore the OnCommand community at www.netapp.com/oncommand_community.

From there you can visit the Performance Manager community space or any of the other product-specific community spaces to interact with subject matter experts, access details on getting started, and more.

About NetApp

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Discover our passion for helping companies around the world go further, faster at www.netapp.com.

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