Datasheet

OnCommand Performance Manager

Monitor, alert on, and troubleshoot storage performance; have full integration with OnCommand Unified Manager

Key Benefits

Get a comprehensive view of performance through a single dashboard for proactive storage management.

- Monitor and receive event notifications and alerts automatically.
- Have dynamic, user-defined, and system-defined thresholds for alerts.
- Identify whether storage is the source of a reported response time incident.
- Troubleshoot and perform root cause analysis.
- Get guidance on corrective actions and verify changes.

Armed with a wealth of performance data and leveraging advanced analytics, storage administrators can bring storage performance in line with the fluctuating demands of their business.

The Challenge

In Dr. Rado Kotorov's article in *ITworld* [1] on the CIO's top priorities for 2015, he names managing data as the second most important priority for CIOs. Data is recognized by CIOs as their most valuable asset because data is used to drive productivity, innovation, and business success. Although managing data growth is a top priority for many IT organizations, they must also contend with ever-changing business requirements, which increase data center complexity.

Ensuring that business-critical applications have reliable access to data requires optimal performance from all levels in a data center, including storage systems. Troubleshooting application performance issues can be a time-consuming and frustrating experience with trouble spots spanning anything from applications or servers to network protocols or physical devices. Administrators can spend significant time tracking down the root cause of slow applications and degraded service quality. Without easy access to performance information, they typically react initially by blaming the storage systems. However, investigation often determines that the issue lies elsewhere.

These frequent scenarios force storage administrators to expend valuable time and resources proving that storage subsystems are not the source of a performance issue. This is hugely frustrating, because these resources would be better spent maintaining, optimizing, and planning data service offerings. Without actionable information at your fingertips, keeping storage systems optimized for peak performance can become a daunting task.

The Solution

NetApp® OnCommand® Performance Manager is an integrated component of OnCommand Unified Manager. It delivers comprehensive data storage performance monitoring and data retention, along with notifications and alerts for proactive management. Performance Manager automates root cause analysis and recommends solutions to performance issues based on timely system analysis.

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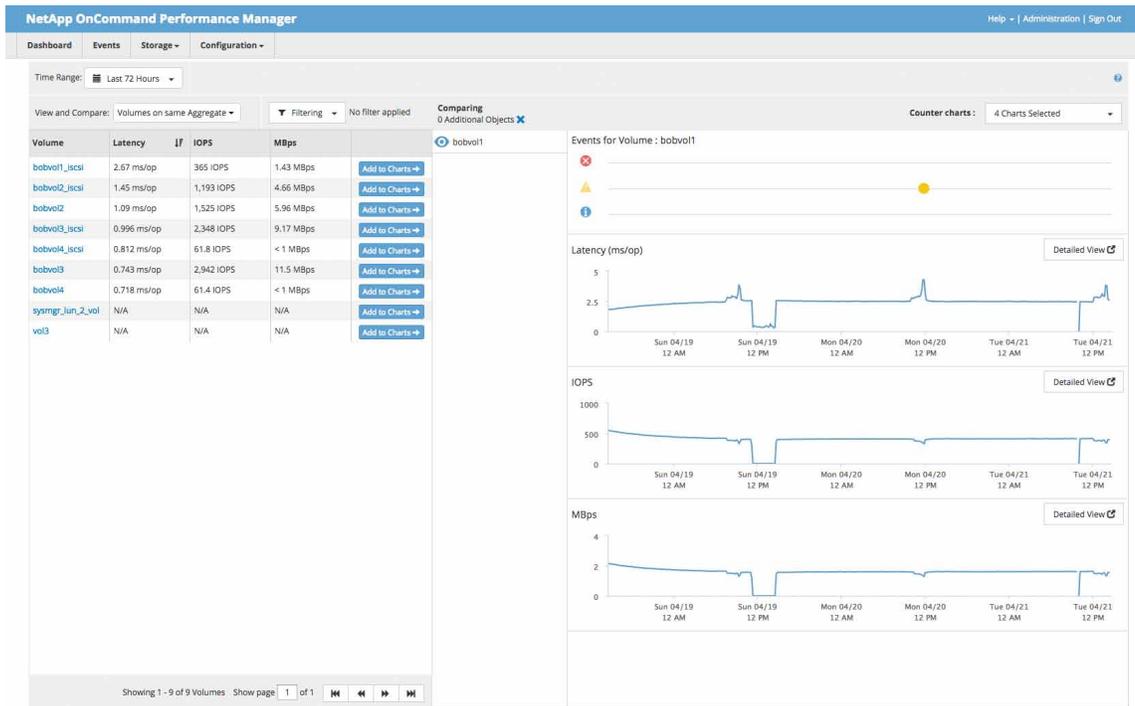1. "The CIO's Top 3 Priorities for 2015" by Dr. Rado Kotorov, *ITWorld*, December 8, 2014.

Figure 1) The performance explorer lets you traverse relationships between related objects, metrics and add charts to compare objects, and zoom in on areas of interest.

Maintain Optimal Performance

Designed to monitor the performance of NetApp clustered Data ONTAP® environments, OnCommand Performance Manager provides cluster status using automated analytics. It also provides cluster health–displaying performance metrics, including latency, IOPS, MBps, disk utilization, and node utilization. Performance Manager sorts clusters by level of importance, and lets you click to drill down into cluster details. From there, you can navigate and explore through an intuitive user interface to view performance trends and compare the performance of storage objects within clusters. The performance explorer lets you view and compare multiple objects to pinpoint areas of concern and proactively manage and optimize storage performance (see Figure 1).

Troubleshoot and Correct Quickly

Storage administrators receive early warning notifications about events as well as alerts on issues that might impact performance. Based on the information provided, you can easily determine if there is a performance incident and view recommended solutions for performance problems. In the dynamic environment of a storage cluster, automated analysis and recommended corrective actions reduce dramatically the time to diagnose and fix problems. OnCommand Performance Manager accomplishes this by tracking the factors that can affect performance.

Set thresholds

OnCommand Performance Manager comes with built-in system-defined and dynamic thresholds, and lets you define your own policy thresholds for greater control over your alerts. This includes built-in thresholds and the ability to customize

thresholds for NetApp All Flash FAS. You can easily view when a threshold violation occurred and the details related to the violation (see Figure 2).

Network services

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 place a sustained burden on some nodes of a storage cluster. OnCommand Performance Manager automatically alerts administrators when off-storage network services cause I/O response time to cross a threshold.

Policy group limit

Performance Manager monitors volume-level workloads by default. Customized clustered Data ONTAP quality-of-service (QoS) policies allow an administrator to set a limit on the I/O rate for a volume or group of storage objects. OnCommand Performance Manager monitors and analyzes all of the QoS policies that affect workload, and indicates when an abnormal workload is causing throttling and affecting response time.

Data processing

New applications or the sudden increase in an application's activity can greatly affect storage performance across any given cluster. OnCommand Performance Manager provides detailed information on data processing (NetApp WAFL® [Write Anywhere File Layout]) activity and identifies which workloads have changed and caused a CPU bottleneck.
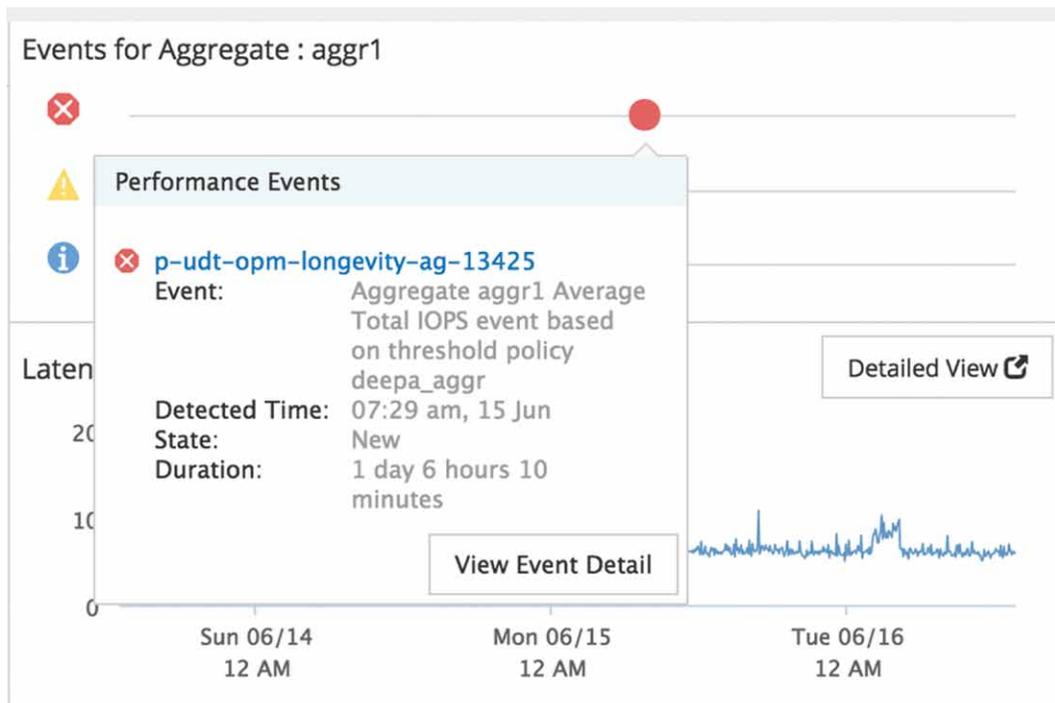
Figure 2) Easily correlate a performance event with the metric chart and access the incident details within the performance explorer. The red dot or "cherry point" in the event timeline marks the time when a policy violation occurred.

Aggregate

Applications change and usage varies over time. As a result, storage aggregates must be monitored continually to make sure that they provide the optimum space, IOPS, and volumes required for peak performance. With OnCommand Performance Manager, administrators are notified if the aggregate is the source of unacceptable performance, letting them take corrective action quickly.

Integrate Performance

OnCommand Performance Manager makes its data available in two ways. It has a push mechanism through an external data provider feature that currently supports Graphite and Grafana, an open-source application for visualizing large-scale measurement data. OnCommand Performance Manager also has a pull mechanism through OnCommand API Services that lets you pull performance data into a third-party management tool.

Installation and Supported Platforms

Installed as a virtual appliance in your VMware or Red Hat® Enterprise Linux® environment and supporting physical or virtual machines on ESXi or Microsoft Hyper-V®, OnCommand Performance Manager is easily configured and supports most popular web browsers.

Learn More

OnCommand Performance Manager is part of the OnCommand management software portfolio; go to www.netapp.com/ oncommand to learn more. You can also explore the OnCommand product community, including OnCommand discussions, articles, and resources, at http://www.netapp.com/ oncommand_community.

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.
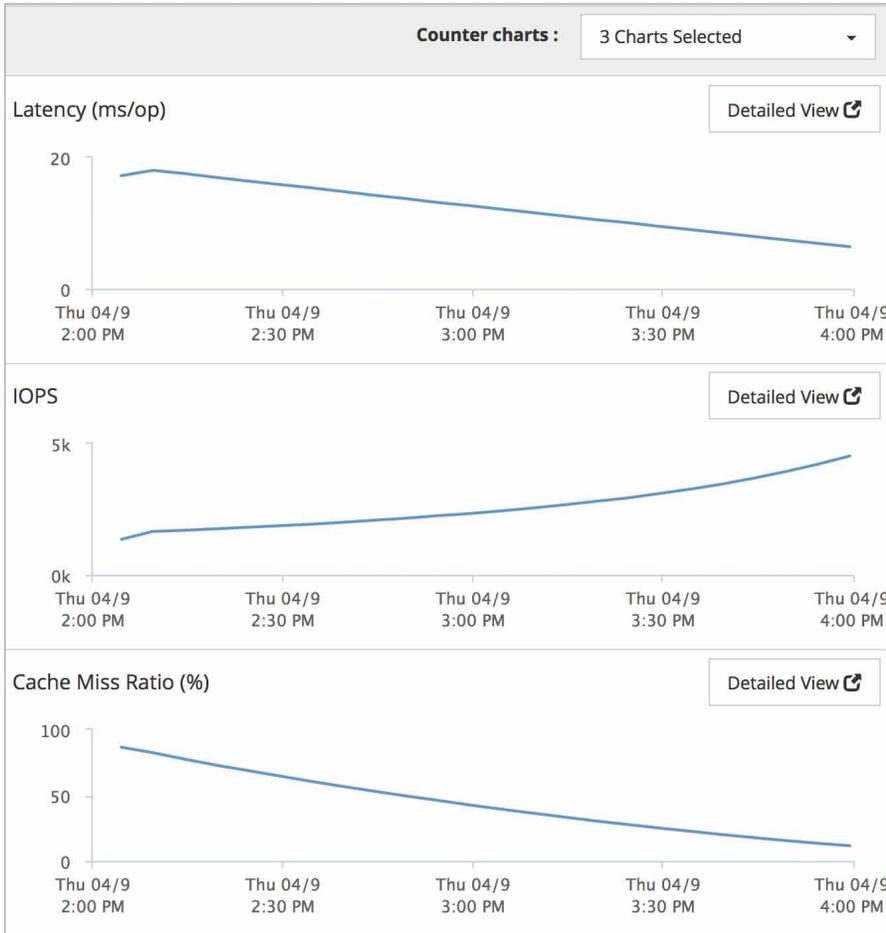**www.netapp.com**

Figure 3) This chart demonstrates how correlating several metrics visually builds a sense of confidence in the way a storage system performs. Here NetApp Flash Cache™ intelligent caching is populated with a workload working set, and workload IOPS increases as latency decreases.