



Technical Report

Oracle Enterprise Manager 10g System-Monitoring Plug-in for NetApp Storage Systems

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EXECUTIVE SUMMARY

The Oracle® Enterprise Manager 10g Grid Control system-monitoring plug-in for NetApp® storage systems provides complete availability, performance, and configuration information for NetApp storage systems. The NetApp plug-in, released with the Oracle Enterprise Manager Grid Control Release 2, provides an efficient way of managing applications that rely on NetApp storage systems and Oracle technologies with reduced cost and complexity. Application administrators can now consolidate all of the monitoring information in the Grid Control console, gather all the statistical data relevant to applications, and perform comprehensive root cause analysis to diagnose problems. The plug-in provides advanced monitoring and detailed configuration analysis for NetApp storage systems, which in turn helps storage administrators to deliver the right storage performance on end-user services and better align their efforts with business requirements.

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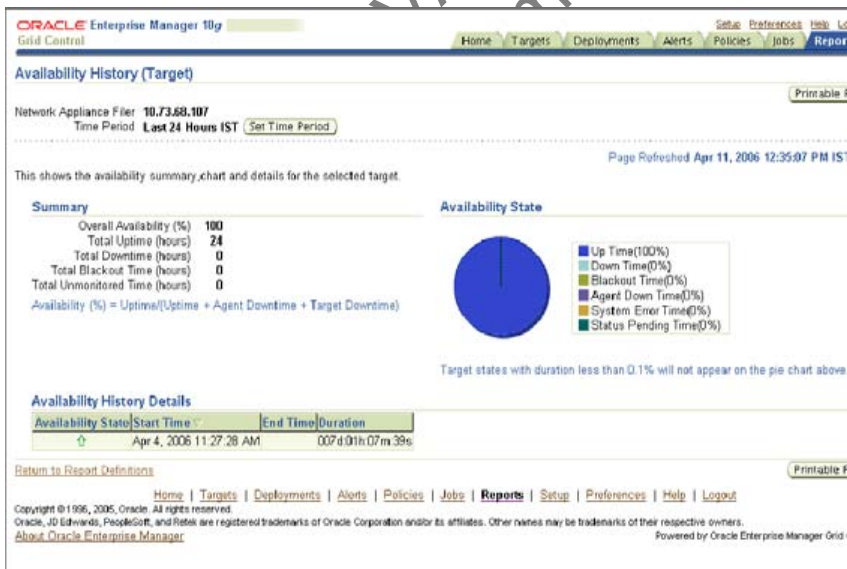
1 BENEFITS OF OUT-OF-BOX AVAILABILITY AND PERFORMANCE MONITORING

The system-monitoring plug-in for NetApp storage systems automatically gathers a comprehensive set of availability and performance metrics with predefined thresholds, providing alerts to administrators. Information provided by the plug-in helps administrators to get quick solutions by fine-tuning thresholds according to their specific operational environment and service-level agreements (SLAs). Some of the key performance indicator monitors included with plug-in are NFS statistics, size and usage of file systems, volumes, qtree information, disk statistics, and so on.

In addition to real-time monitoring of performance metrics of NetApp storage systems, Oracle Grid Control stores the monitoring information in the management repository. With this information administrators can analyze performance through various historical views and complete strategic tasks such as trend analysis and reporting.

To further aid administrators with critical tasks such as problem diagnosis, trend analysis and capacity planning, the system-monitoring plug-in for NetApp storage systems includes various out-of-the-box reports, such as availability, performance, and traffic and configuration. These reports can be used to summarize the information about NetApp storage systems. Administrators can use these reports, which are accessible from the NetApp storage system home page in the Grid Control console, to schedule, share, and customize reports to fit with operations requirements.

Figure 1) NetApp storage availability report.



System-Monitoring Plug-In for NetApp Storage Systems

- Out-of-box availability and performance monitoring
- Detailed configuration statistics for analysis
- Reports for problem diagnosis, trend analysis, and capacity planning
- Monitoring and event management features:
 - Blackouts
 - Corrective actions
 - Notifications
 - User-defined metrics
 - Monitoring templates

Benefits:

- Efficiently manages applications that run on NetApp storage
- Reduces cost and complexity of managing NetApp storage
- Improves responsiveness to end users

2 POWERFUL MONITORING AND EVENT MANAGEMENT FEATURES FOR NETAPP STORAGE SYSTEMS

The plug-in for NetApp storage systems provides a powerful monitoring and event management interface, thereby delivering a robust solution through automation, standardization, and a “manage-many-as-one” approach.

The key features of the plug-in include:

- **Blackout periods.** Administrators can prevent unnecessary alerts being raised during scheduled maintenance operations, such as hardware upgrades.
- **Monitoring templates.** These templates simplify the task of standardizing monitoring settings across the entire NetApp storage environment by allowing administrators to specify the monitoring settings (metrics, thresholds, metric collection schedules, and corrective actions) once and applying them to any number of NetApp storage systems.
- **User-defined metrics.** These allow administrators to collect and monitor parameters specific to their applications.
- **Notifications.** This feature defines when and how administrators should be notified about critical problems with their applications, ensuring quicker problem resolution.
- **Corrective actions.** These ensure that routine responses to alerts are automatically executed, thereby saving administrators time and ensuring problems are dealt with before they noticeably impact users.

3 TRACKING CONFIGURATION CHANGES

The most difficult task for an administrator is to keep track of configuration changes on a daily basis. Being able to quickly view details of the system configuration, analyze historical changes, and enforce standardization between systems is key to obtaining useful diagnostics, auditing, compliance, and making solid business decisions.

The system-monitoring plug-in for NetApp storage systems simplifies these tasks by automatically collecting detailed information about NetApp storage, including: control station details, data movers, disk groups, and disk device configuration. This information is collected daily (or as frequently as required) and stored in the management repository. In addition, Grid Control automatically tracks all changes to the NetApp storage configuration, helping administrators track configuration changes with details about what changed, who is responsible for the change, and when the change was made.

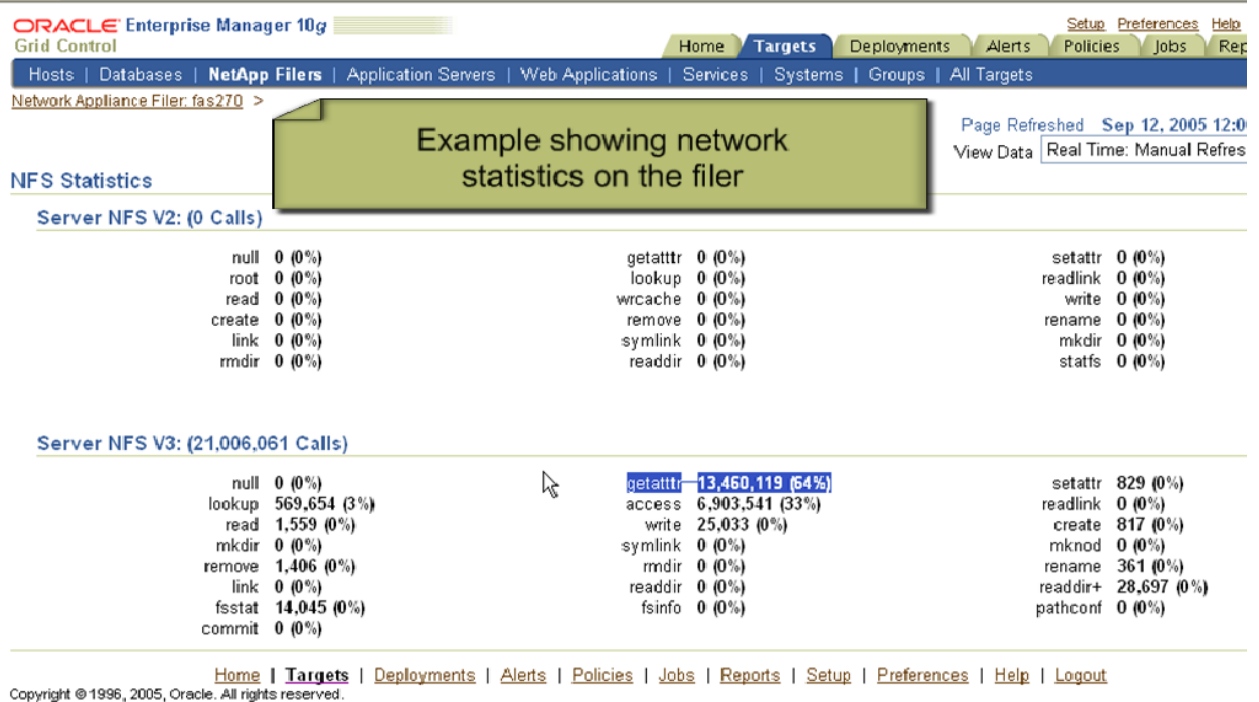
4 CENTRALIZED MONITORING INFORMATION IN SINGLE CONSOLE

Having a consolidated view of the NetApp storage system through the Oracle Enterprise Grid Control with plug-in helps administrators monitor and manage all of their data center components from a central place. Implementing Oracle Enterprise Manager in a data center environment reduces the total cost of ownership by eliminating the need for different tools to gather the critical information about data center components, thus streamlining the correlation of availability and performance problems across the entire set of data center components.

5 EASY DIAGNOSIS AND SERVICE-LEVEL MANAGEMENT

Oracle Grid Control's service-level management functionality provides a comprehensive monitoring solution that helps organizations achieve high availability and performance and optimize service levels for their business services. Administrators can monitor services from the end user's perspective by using service tests or synthetic transactions, modeling relationships between services and underlying data center components, performing root cause analysis of service failures, and reporting on achieved service levels.

Figure 2) NetApp storage availability report.



6 SUMMARY

The system-monitoring plug-in for NetApp storage extends Oracle Enterprise Manager Grid Control to add support for managing NetApp storage systems. By deploying the plug-in in your Grid Control environment, you will gain the following management features for NetApp storage systems:

- Comprehensive availability and performance monitoring
- Detailed storage information about storage capacity, volumes, and qtree usage
- Configuration information about volumes, qtrees, and RAID groups
- Alerts and violations based on thresholds set on monitoring data
- NFS statistics for NetApp storage systems, disk statistics, and access to NetApp FilerView®

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System-Monitoring Plug-In for NetApp Storage Systems

The system-monitoring plug-in for NetApp storage systems is integrated with the following Oracle management applications:

- Management packs for database and applications
 - Tuning pack
 - Diagnostics pack
 - Configuration pack
 - Change management pack
- Management packs for application server
 - Configuration pack
 - Diagnostics pack
- Standalone management packs
 - Service-level management pack
 - Configuration management pack for systems other than Oracle
 - Provisioning pack
- Management plug-ins
 - System-monitoring plug-in for hosts
 - System-monitoring plug-in for databases other than Oracle
 - System-monitoring plug-in for middleware other than Oracle
 - System-monitoring plug-in for network devices
 - System-monitoring plug-in for storage management

Detailed information about these products is located at www.oracle.com/em.