

1 ACTIVE IQ UNIFIED MANAGER

NetApp Active IQ Unified Manager offers comprehensive monitoring and key management capabilities for NetApp ONTAP to help manage your storage systems' availability, capacity, protection, and performance risks. Unified Manager can be deployed on a Linux or Windows server or as a virtual appliance on a VMware host.

In today's data-driven business environment, organizations constantly face the challenges of managing extensive and complex data storage infrastructures. Efficiently monitoring, optimizing, and ensuring the health of these systems is crucial for maintaining uninterrupted operations and supporting business continuity.

With the ever-increasing volume and velocity of data, IT departments require robust solutions that streamline management tasks and provide predictive analytics to address potential issues preemptively.

A COMPREHENSIVE STORAGE MANAGEMENT SOLUTION

NetApp® Active IQ® Unified Manager (AIQUM) is a comprehensive, monitoring, alerting, reporting, and active management solution for infrastructure engineers and IT generalists. It manages and monitors performance, capacity, and health in ONTAP systems. Unified Manager collects, retains, and analyzes NetApp storage performance statistics so storage admins can quickly troubleshoot and resolve issues. Unified Manager can be deployed on a Linux or Windows server or as a virtual appliance on a VMware host. Unified Manager's awareness of VMware environments simplifies the provisioning and management of storage workloads, offers a clear analysis of workload performance issues, and facilitates more effective resource utilization.

Unified Manager integrates with the Active IQ Portal, the cloud-based intelligence engine that provides predictive analytics and actionable intelligence for your entire NetApp environment. The Active IQ Portal delivers community intelligence, risk assessments, and recommendations to dark (secure) and non-dark sites.

Active IQ Portal receives telemetry data daily from your systems and hundreds of thousands of NetApp assets worldwide. This adds to a multipetabyte data lake that intelligently processes trillions of data points each month. Fueled by a very large and highly diverse community, Active IQ Portal uses the latest predictive analytics techniques and machine learning algorithms to derive wisdom from this rich data set. It continuously assesses telemetry data, drawing on trillions of real-time and historical diagnostic records to identify potential problems before they negatively impact your business.

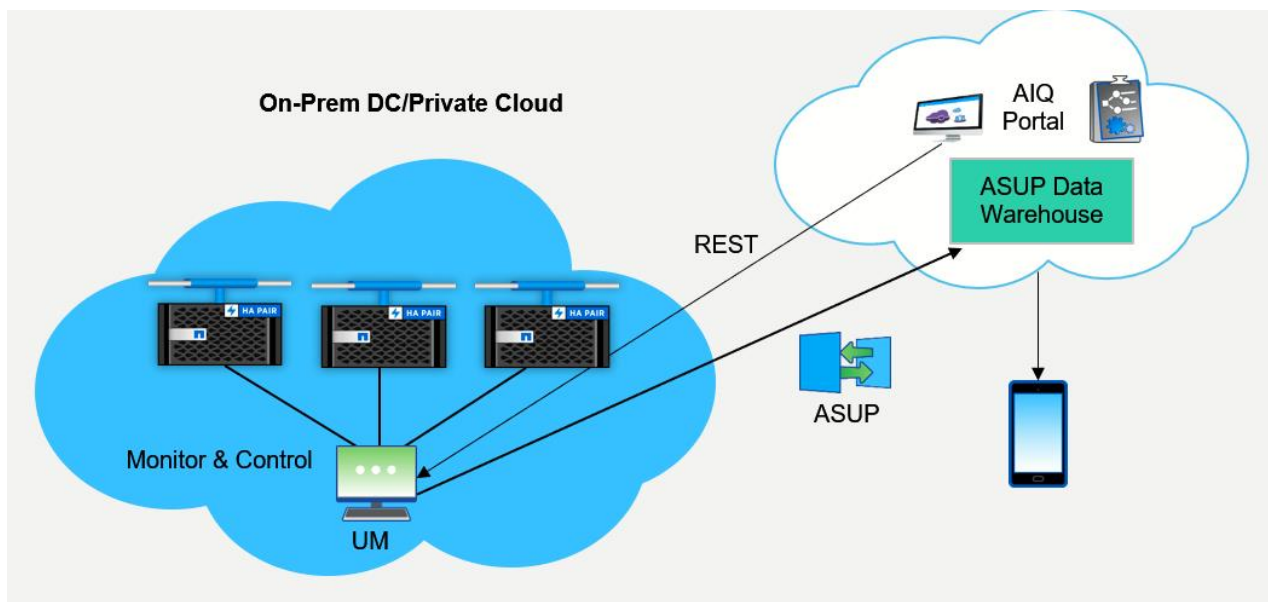


Figure 1: Active IQ Portal and Unified Manager Integration – Use Active IQ Portal for data center-wide insights and recommendations and Unified Manager to troubleshoot, automate, and customize monitoring and management.

With the integration of Active IQ Portal and Unified Manager, you get:

- Predictive analytics integration
- Automated workflows
- Performance monitoring and reporting
- Proactive health and capacity management
- Simplified and intuitive graphical user interface
- Health and risk alerts

PREDICTIVE ANALYTICS INTEGRATION

The seamless integration with the Active IQ Portal enhances Unified Manager's capabilities by incorporating predictive analytics and actionable intelligence derived from community intelligence and a vast multipetabyte data lake. This empowers organizations with upgrade recommendations, automated alert resolutions, and risk assessments.

AUTOMATED WORKFLOWS

Active IQ Unified Manager reduces the complexity of storage management and streamlines routine tasks with policy-based automation. This gives IT teams the ability to focus on strategic initiatives rather than routine maintenance activities.

PERFORMANCE MONITORING AND REPORTING

Unified Manager delivers real-time insights into storage performance so administrators can quickly identify and resolve bottlenecks, thus maintaining optimal system performance. Unified Manager provides a holistic view of storage health, leveraging real-time analytics to monitor the status and trends of ONTAP systems, ensuring that administrators are equipped to maintain optimal performance and capacity. You can also gain valuable insights for decision-making and

compliance purposes through the ability to create custom reports tailored to your specific organizational needs.

PROACTIVE HEALTH AND CAPACITY MANAGEMENT

Stay ahead of potential issues with AI-driven insights that guide capacity planning and health management. AIQUM identifies underutilized resources and provides recommendations for cost-saving measures, optimizing the overall investment in storage infrastructure. With AIQUM's predictive analytics, you'll be well-prepared for storage needs. It continuously monitors storage utilization and identifies trends, enabling you to plan capacity effectively and avoid storage constraints or performance bottlenecks. Through intelligent capacity management, AIQUM helps you optimize storage investments, avoiding overprovisioning while preparing you for future growth.

SIMPLIFIED AND INTUITIVE GRAPHICAL USER INTERFACE

Unified Manager offers a simplified and intuitive graphical user interface (GUI) for monitoring and managing the health and performance of your storage environment. This GUI enhances the overall user experience with an integrated view of how your storage infrastructure is performing. Administrators can log in to a single URL and monitor health and performance attributes from a single location. The simplified navigation makes it easy to see the higher-level actions and dashboards up front, so you do not have to drill down to each object to view information. It simplifies complex data management tasks for swift decision-making and action. This user-friendly approach means faster response times and reduced training costs. This means you can accomplish more tasks with just one or two clicks, giving you more control with less effort.

HEALTH AND RISK ALERTS

Unified Manager generates proactive health and risk notifications so IT teams can address issues promptly and maintain system integrity. In addition to reporting security status, Unified Manager generates security events for any cluster or SVM that has security violations and potential ransomware attacks. You can track these issues in the Event Management inventory page and configure alerts for these events to notify the storage administrator when new security events occur. These proactive alerts and automated fixes minimize the risk of downtime, ensuring your business operations remain uninterrupted.

ADVANCED DATA PROTECTION AND ANTI-RANSOMWARE

With comprehensive data protection features and state-of-the-art anti-ransomware capabilities, Active IQ Unified Manager defends your data and fortifies your reputation as a secure and reliable enterprise. The introduction of anti-ransomware monitoring in version 9.10 and the expanded capabilities in subsequent versions, including intuitive visualizations and management actions, offer a strong defense against ransomware attacks, safeguarding critical data. AIQUM raises events whenever ONTAP systems publish Event Management System events for the ransomware attack detection feature on a volume level and storage VM level. It also introduces several management actions for enabling and disabling anti-ransomware features through fix-it buttons. Subsequent versions have expanded on these capabilities, including 9.11, which includes intuitive visualization of the volumes and storage VMs' anti-ransomware status. You get a consolidated view on the Security dashboard for the Volume anti-ransomware status as well as storage VM status for each cluster.

API ENHANCEMENTS

Continuous improvements to APIs bolster Unified Manager's data protection capabilities, ensuring that storage administrators have the most advanced tools to secure their storage environments. The inclusion of REST APIs provides the flexibility to integrate Unified Manager with other systems and applications, allowing for custom automation and enhanced interoperability within the IT ecosystem. AIQUM's compatibility with VMware and REST APIs facilitates seamless integration with existing systems, enhancing your IT agility and future-proofing your storage investments.

ACTIVE IQ UNIFIED MANAGER DASHBOARD

The Dashboard gives you the ability to perform management actions on specific issues diagnosed by Unified Manager. It has several panels that provide high-level capacity and performance statistics for the clusters in your environment.

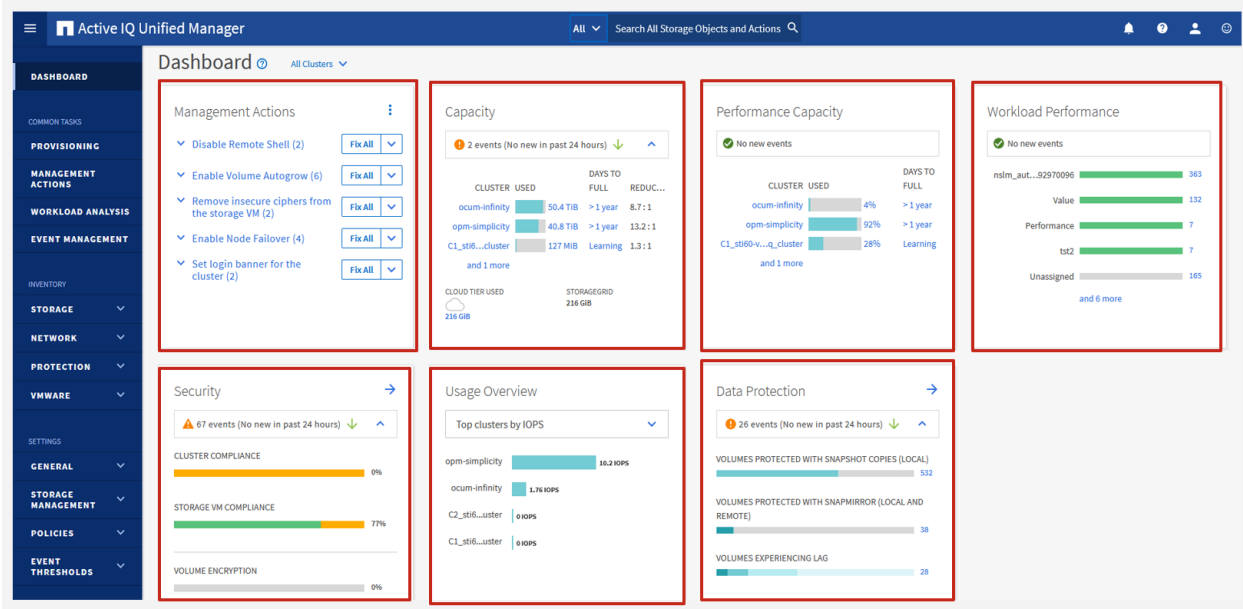


Figure 2: Active IQ Unified Manager dashboard in detail – *The redesigned dashboard introduces an enhanced left-hand navigation pane that groups features according to functionality for ease of user access.*

The Dashboard page has “widgets” that display the information on a high level:

- **Management Actions panel.** Lists the issues and fixes that Unified Manager can make to resolve certain events.
- **Capacity panel.** Shows the capacity used on the local tier and cloud tier, projection of days to full, and the data reduction obtained.
- **Performance Capacity panel.** Shows the performance capacity consumption and the projection of days to full.
- **Workload Performance panel.** Shows the conformance of the workloads to the applied performance service levels.

- **Security panel.** Shows the cluster and SVM level security conformance with respect to the ONTAP Security Hardening Guide.
- **Usage Overview panel.** Choose to view clusters sorted by the highest IOPS, throughput, or capacity.
- **Data Protection Summary panel.** Shows the details of Snapshot and the SnapMirror relationships.