Introduction to Active IQ Unified Manager

Active IQ Unified Manager 9.11

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Introduction to Active IQ Unified Manager

Active IQ Unified Manager (formerly OnCommand Unified Manager) enables you to monitor and manage the health and performance of your ONTAP storage systems from a single interface.

Unified Manager provides the following features:

- Discovery, monitoring, and notifications for systems that are installed with ONTAP software.
- Dashboard to show capacity, security, and performance health of the environment.
- Enhanced alerts, events, and threshold infrastructure.
- Displays detailed graphs that plot workload activity over time; including IOPS (operations), MBps (throughput), latency (response time), utilization, performance capacity, and cache ratio.
- Identifies workloads that are overusing cluster components and the workloads whose performance is impacted by the increased activity.
- Provides suggested corrective actions that can be performed to address certain incidents and events, and a "Fix It" button for some events so you can resolve the issue immediately.
- Integrates with OnCommand Workflow Automation to execute automated protection workflows.
- Ability to create new workloads, such as a LUN or file share, directly from Unified Manager and assign a Performance Service Level to define the performance and storage objectives for the users accessing the application using that workload.

Introduction to Active IQ Unified Manager health monitoring

Active IQ Unified Manager (formerly OnCommand Unified Manager) helps you to monitor a large number of systems running ONTAP software through a centralized user interface. The Unified Manager server infrastructure delivers scalability, supportability, and enhanced monitoring and notification capabilities.

The key capabilities of Unified Manager include monitoring, alerting, managing availability and capacity of clusters, managing protection capabilities, and bundling of diagnostic data and sending it to technical support.

You can use Unified Manager to monitor your clusters. When issues occur in the cluster, Unified Manager notifies you about the details of such issues through events. Some events also provide you with a remedial action that you can take to rectify the issues. You can configure alerts for events so that when issues occur, you are notified through email, and SNMP traps.

You can use Unified Manager to manage storage objects in your environment by associating them with annotations. You can create custom annotations and dynamically associate clusters, storage virtual machines (SVMs), and volumes with the annotations through rules.

You can also plan the storage requirements of your cluster objects using the information provided in the capacity and health charts, for the respective cluster object.

Physical and logical capacity

Unified Manager makes use of the concepts of physical and logical space used for ONTAP storage objects.

- Physical capacity: Physical space refers to the physical blocks of storage used in the volume. “Physical used capacity” is typically smaller than logical used capacity due to the reduction of data from storage efficiency features (such as deduplication and compression).
- Logical capacity: Logical space refers to the usable space (the logical blocks) in a volume. Logical space refers to how theoretical space can be used, without accounting for results of deduplication or compression. “Logical space used” is physical space used plus the savings from storage efficiency features (such as deduplication and compression) that have been configured. This measurement often appears larger than the physical used capacity because it includes Snapshot copies, clones, and other components, and it does not reflect the data compression and other reductions in the physical space. Thus, the total logical capacity could be higher than the provisioned space.

Capacity measurement units

Unified Manager calculates storage capacity based on binary units of 1024 (2^{10}) bytes. In ONTAP 9.10.0 and earlier, these units were displayed as KB, MB, GB, TB, and PB. Beginning with ONTAP 9.10.1, they are displayed in Unified Manager as KiB, MiB, GiB, TiB, and PiB. Note: The units used for throughput continue to be kilobytes per second (Kbps), Megabytes per second (Mbps), Gigabytes per second (Gbps), or Terabytes per second (Tbps) and so forth, for all releases of ONTAP.

Capacity unit displayed in Unified Manager for ONTAP 9.10.0 and earlier	Capacity unit displayed in Unified Manager for ONTAP 9.10.1	Calculation	Value in bytes
KB	KiB	1024	1024 bytes
MB	MiB	1024 * 1024	1,048,576 bytes
GB	GiB	1024 * 1024 * 1024	1,073,741,824 bytes
TB	TiB	1024 * 1024 * 1024 * 1024	1,099,511,627,776 bytes

Introduction to Active IQ Unified Manager performance monitoring

Active IQ Unified Manager (formerly OnCommand Unified Manager) provides performance monitoring capabilities and event root-cause analysis for systems that are running NetApp ONTAP software.

Unified Manager helps you to identify workloads that are overusing cluster components and decreasing the performance of other workloads on the cluster. By defining performance threshold policies you can also specify maximum values for certain performance counters so that events are generated when the threshold is breached. Unified Manager alerts you about these performance events so that you can take corrective action, and bring performance back to normal levels of operation. You can view and analyze events in the Unified Manager UI.

Unified Manager monitors the performance of two types of workloads:

- User-defined workloads

These workloads consist of FlexVol volumes and FlexGroup volumes that you have created in your cluster.

- System-defined workloads

  These workloads consist of internal system activity.

Using Unified Manager REST APIs

Active IQ Unified Manager provides you with REST APIs to view the information about monitoring and managing your storage environment. APIs also allow provisioning and managing storage objects based on policies.

You can also execute ONTAP APIs on all ONTAP-managed clusters by using the API gateway supported by Unified Manager.

For information about Unified Manager REST APIs, see the Active IQ Unified Manager API Developer's Guide.

What the Unified Manager server does

The Unified Manager server infrastructure consists of a data collection unit, a database, and an application server. It provides infrastructure services such as discovery, monitoring, role-based access control (RBAC), auditing, and logging.

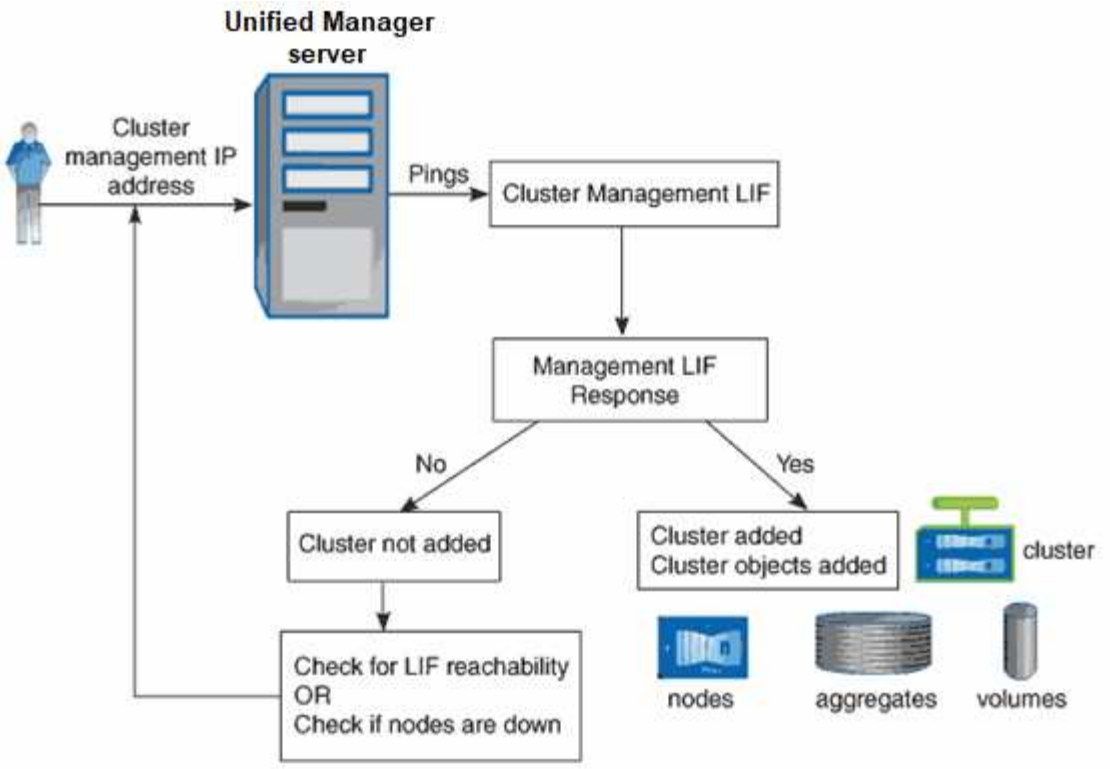
Unified Manager collects cluster information, stores the data in the database, and analyzes the data to see if there are any cluster issues.

How the discovery process works

After you have added the cluster to Unified Manager, the server discovers the cluster objects and adds them to its database. Understanding how the discovery process works helps you to manage your organization's clusters and their objects.

The default monitoring interval is 15 minutes: if you have added a cluster to Unified Manager server, it takes 15 minutes to display the cluster details in the Unified Manager UI.

The following image illustrates the discovery process in Active IQ Unified Manager:


Unified Manager server
Cluster management IP address
Pings
Cluster Management LIF
Management LIF Response
No
Yes
Cluster not added
Cluster added
Cluster objects added
cluster
Check for LIF reachability
OR
Check if nodes are down
nodes
aggregates
volumes

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