



White Paper

NetApp OnCommand: Unified Management for Shared Storage Infrastructure

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EXECUTIVE SUMMARY

Organizations recognize the need to transform their data centers to manage data growth and improve their efficiency. Improved tools that unify, automate, and extend the data management process are at the heart of realizing this gain in efficiency.

This white paper examines the new NetApp® OnCommand™ unified manager software. Because this product has integrated capabilities and a common user interface, users can efficiently manage, provision, and protect valuable enterprise data resources. OnCommand also uses open APIs, a Software Development Kit (SDK), and a growing ecosystem of partners to extend its capabilities to virtualized environments and orchestration frameworks.

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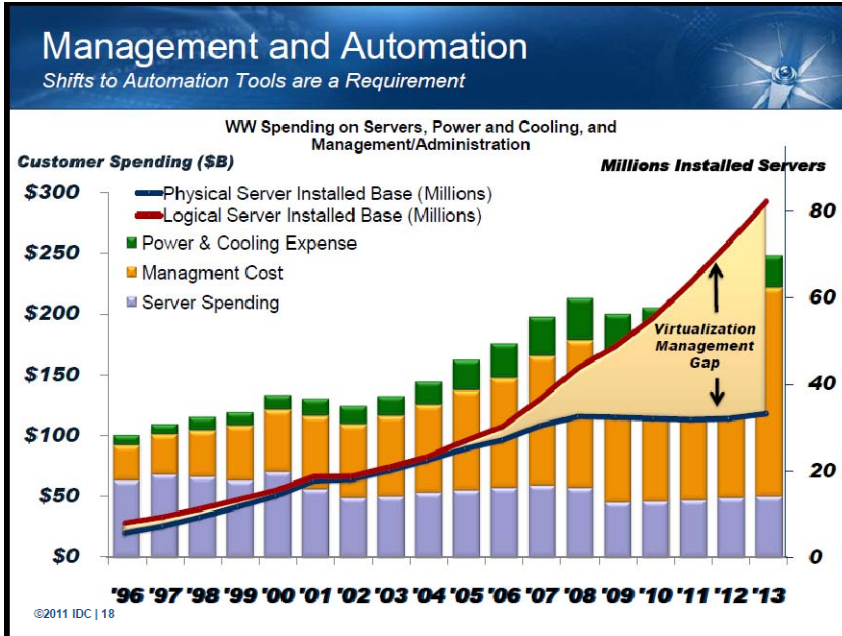
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1 THE TECHNOLOGY CHALLENGE OF A CHANGING WORLD

The pace of change in our world is dramatic and ever increasing. Compounding the explosive growth of data are pressures to control costs and simultaneously deliver better service to users. CIOs are required to come up with new and innovative solutions while saddled with aging infrastructures and inflexible technologies that are inefficient, offer no capabilities for data reduction, and do not enable the administrative scaling required by the rapid growth in data and virtual resources.

Figure 1) Virtualization management gap. Source: IDC, March 2011.



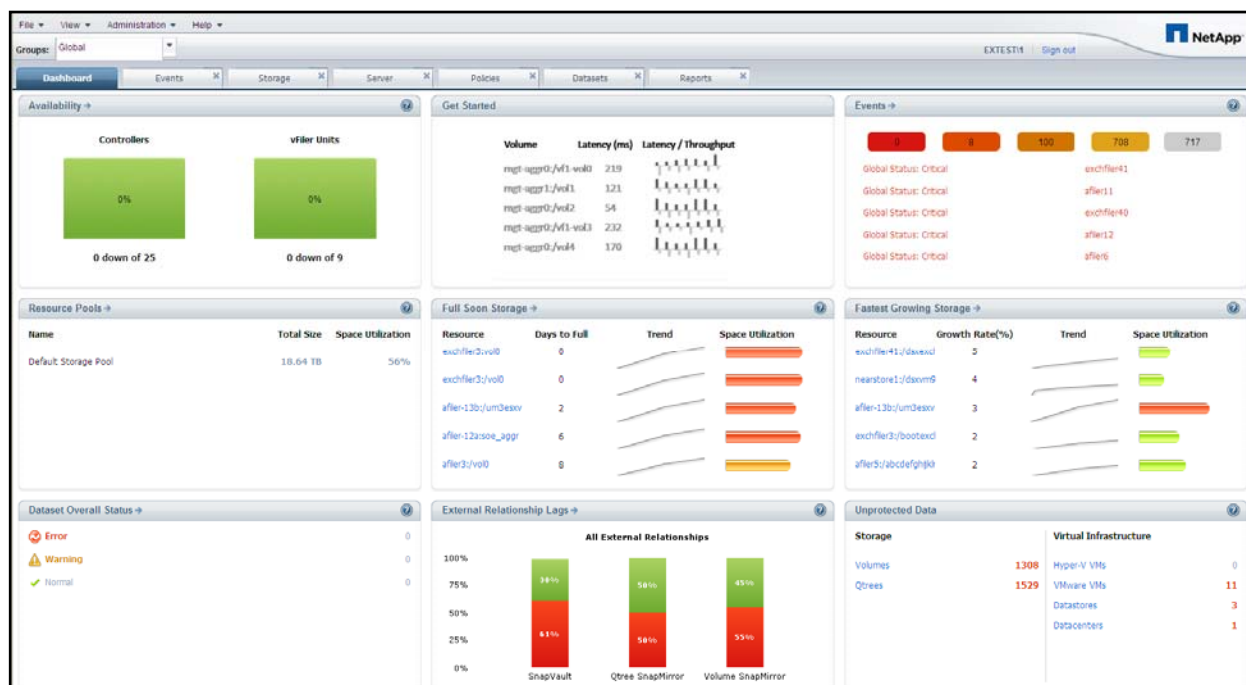
As the illustration above shows, IT organizations have traditionally faced steady growth in technology and management requirements, reflected in the increasing amounts spent year after year. Though growing, this curve has been manageable if not predictable. What radically changed the equation in the past few years is the virtualization of resources; this has caused exponential growth in virtual elements that exceeds the physical device count two to five times and has created a “virtualization management gap.”

To close this gap requires a change in how IT infrastructure is managed. NetApp OnCommand, the storage solution for managing physical and virtual storage resources, provides an end-to-end view of the entire storage infrastructure and enables automation, service orientation, and analytics to reduce complexity and lower costs.

2 THE ONCOMMAND PRODUCT

OnCommand management software is designed to make NetApp storage a superior solution for physical, virtual, and cloud environments.

Figure 2) OnCommand dashboard unifies the view of the storage environment.



OnCommand unified manager is a product that combines key functions of storage management. The user sees a single view and experiences management with integrated system elements, a unified back-end architecture, and a common configuration repository. OnCommand integrates storage across the IT environment to meet the challenges of growing data and delivers the efficiencies demanded by the business.

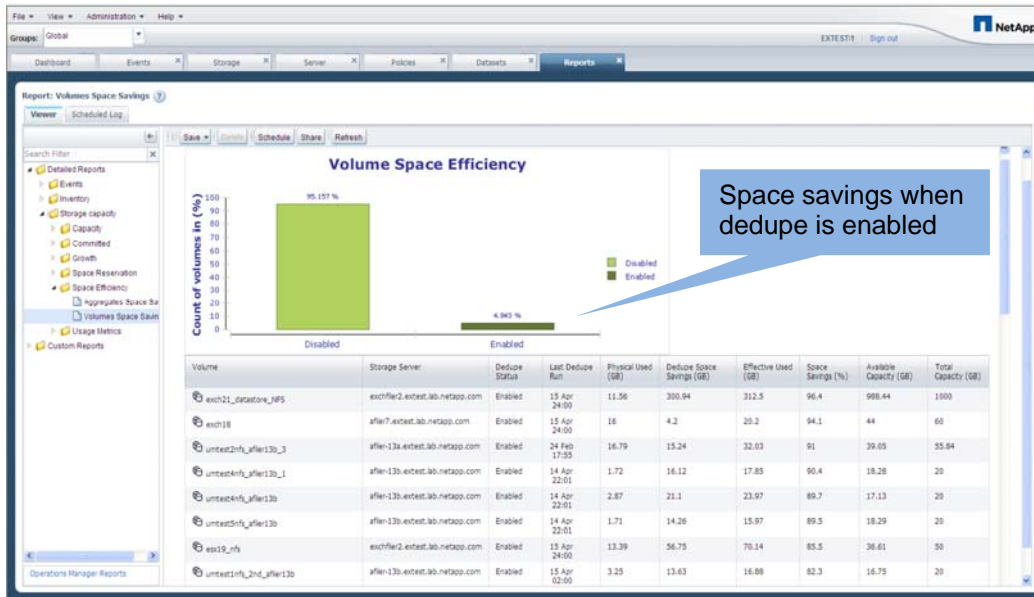
STORAGE OPERATIONS WITH ONCOMMAND

OnCommand is intuitive and helps improve the productivity of storage administrators. The operations capability of the product helps storage administrators resolve problems faster and improve capacity utilization by providing a full picture of NetApp storage resources. With just a few clicks, administrators can drill down to detailed storage system information. And by replacing repetitive, time-intensive tasks with policy-based automation, administrators become more productive.

Role-based access control on the centralized console makes it possible for server and database administrators to perform self-service provisioning. Because these tasks are performed only within the limits of policies defined by IT architects and based on company business requirements, the system remains stable, efficiently configured, and under control. Policies that can be ascribed to datasets include capacity, storage reliability, space provisioning requirements, access mechanisms, and security settings.

Another valuable dimension of operations management is monitoring and reporting. With OnCommand, you can continuously monitor and analyze the health of your storage environment, and can thus maintain visibility of what is being deployed and how it is being utilized. This improves both storage capacity utilization as well as administrator efficiency.

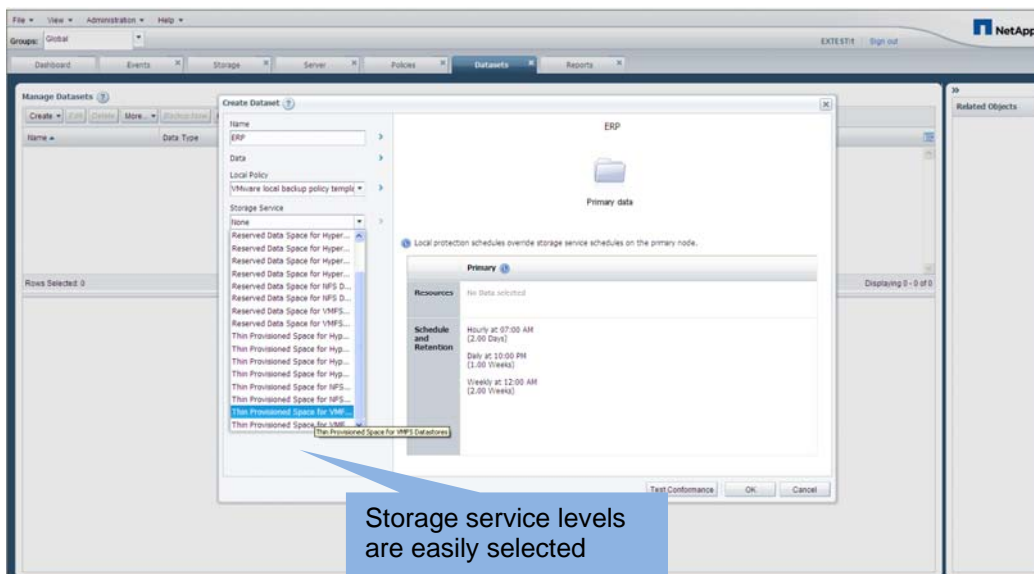
Figure 3) OnCommand reports the potential benefits of deduplication on space efficiency.



PROVISIONING WITH ONCOMMAND

OnCommand increases operating efficiency and eliminates hands-on complexity by streamlining provisioning. It allows you to provision and protect data at the same time—no additional steps or time are required.

Figure 4) A data file is assigned the appropriate level of storage service to meet corporate policy.



Provisioning with OnCommand allows the automation of complex provisioning processes. Services can be defined granularly by the storage architect, and then can be easily and consistently selected by downstream administrators.

To maximize use of your resources, OnCommand automates NetApp storage efficiency features including thin provisioning and primary data deduplication. This eliminates unnecessary and wasteful overprovisioning and provides storage only when needed. In addition, during the provisioning process, OnCommand can automatically select the best resource to meet a request. As resource pools approach full allocation, the system can also automatically alert and suggest ways to increase available space.

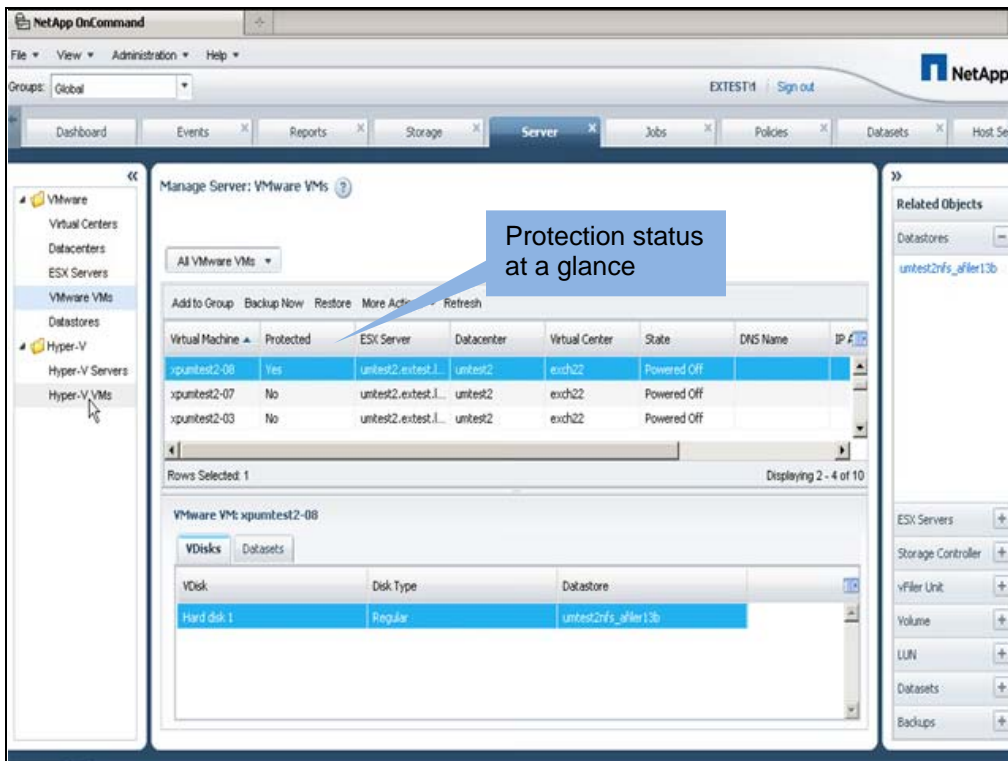
PROTECTING YOUR DATA WITH ONCOMMAND

OnCommand protects data by providing administrators with an easy-to-use management console to quickly configure and control all SnapMirror®, SnapVault®, Open Systems SnapVault (OSSV), and SnapManager® family operations. This allows administrators to apply data protection policies consistently, automate complex protection processes, and pool backup and replication resources.

OnCommand simplifies the process of protecting enterprise data by allowing administrators to group data with similar protection requirements into datasets and then apply preset policies. It automatically correlates datasets and underlying physical storage resources, so administrators do not need to think in terms of the storage infrastructure.

A simple dashboard depicts comprehensive data protection information, including for unprotected data, at a glance. The software allows administrators to apply predefined policies to the data, minimizing the potential for error inherent in manual management. OnCommand also provides e-mail alerting to allow rapid analysis and correction of issues before they have a significant impact on data protection.

Figure 5) VMs are shown as protected or unprotected at a glance.



OTHER IMPORTANT PRODUCTS WITHIN THE ONCOMMAND FAMILY

OnCommand Insight includes products that provide visibility into your end-to-end infrastructure to help you optimize your shared IT infrastructure. With OnCommand Insight you can optimize performance, plan your capacity requirements, and determine that you are delivering to your promised service levels.

SnapManager software provides the ability to automate protection of your data from the management console with which you are most familiar. SnapManager software supports a wide variety of environments including Microsoft®, VMware®, Oracle®, and SAP®.

OnCommand plug-ins for VMware and Microsoft provide access to OnCommand control and automation features from those respective management frameworks.

System Manager provides simple, workflow-based wizards to automate the most common device management tasks. With System Manager, administrators can quickly set up and efficiently manage NetApp SAN and NAS systems.

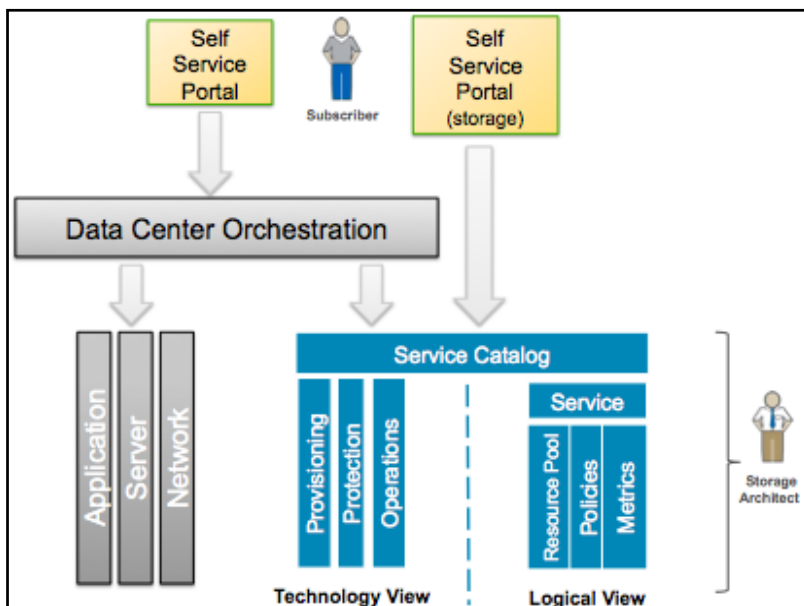
My AutoSupport™ is a Web-based tool containing system configuration details, performance charts, event alerts, configuration comparisons, Data ONTAP® Upgrade Advisor, and storage efficiency profiling features.

The OnCommand SDK and open APIs enable integration with any orchestration and management framework to enable all the benefits of NetApp storage products.

3 STORAGE EFFICIENCY THROUGH AUTOMATION AND CLOUDS

Automation is a key component of a cloud infrastructure, providing end users with on-demand access to hardware resources and enabling enterprises to dynamically scale their services in accordance with client demand. Automation can also be used to integrate multiple disparate technologies and processes to provide higher-value service to internal customers via a self-service interface.

Figure 6) Architecture of a storage service.



OnCommand enables NetApp storage platforms to be employed across a shared storage infrastructure, either NAS or SAN, which can be centrally managed from a single console. A Storage Service Catalog is the primary means OnCommand uses to enable an automated storage cloud resource. The Storage Service Catalog represents a key NetApp differentiator that enables integration of storage provisioning policies, data protection policies, and storage resource pools into a single service offering that administrators can choose when provisioning storage. This not only automates much of the provisioning process but also automates a variety of storage management tasks associated with the policies.

The Storage Service Catalog provides a layer of abstraction between the storage consumer and the details of the storage configuration. The service levels created with the Storage Service Catalog automatically specify and map policies to the attributes of your pooled storage infrastructure. This higher level of abstraction between service levels and physical storage helps you encapsulate storage and operational processes together for optimal, flexible, and dynamic allocation of storage.

A Storage Service Catalog can be deployed either to assist administration, or, more powerfully, as a means to enable business users to self-serve storage resources. The user benefits from a self-service portal by having access to the infrastructure 24/7 to provision resources as needed, with minimal or no IT support. Because these resources are grouped into specific levels of capabilities, the user is in a better position to understand the service-level agreements he or she will receive when using the resources; the policies associated with how the resources are provisioned, maintained, and protected; and specific information about how the resource is being utilized.

4 THE NETAPP ECOSYSTEM: A UNIQUE VALUE

NetApp is developing an ecosystem that delivers the unique value of partner products while providing flexibility and choice for the customer. The result is a solution that better fits the unique needs of the end-customer environment. Key technologies that enable this differentiation are an open API and a free Software Development Kit.

Companies providing IT integration in this ecosystem represent some of the most well-known names in the industry. These include virtualization management solutions from Microsoft, VMware, and Citrix, as well as enterprise management frameworks from BMC Software, CA, HP, IBM, and Fujitsu.

5 SELECT ONCOMMAND RESOURCES

The OnCommand Community is a public forum for peer engagement on the topic of OnCommand administration and best practices:

http://communities.netapp.com/community/products_and_solutions/storage_management_software

The OnCommand storage management software Flash video illustrates the benefits of the product along with a high-level view of management capabilities in the context of “Automate, Analyze, and Control”:

<http://communities.netapp.com/videos/1668>

Additional information about the NetApp OnCommand product family is available on the Web:

<http://www.netapp.com/OnCommand>

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