

## Solution Brief

# End-to-End Storage Provisioning for MongoDB

Deploying NetApp OnCommand Workflow Automation for MongoDB

### Key Features

#### Increase Business Agility and Leverage Data Faster

- Access the industry's only multiple-data-center, end-to-end provisioning automation solution
- Implement the NoSQL database most widely used by enterprise organizations
- Increase your organization's ability to quickly monetize new data
- Extract valuable business intelligence from large amounts of unstructured data

#### Simplify and Decrease Time Required for New Deployments

- Provision storage based on database architecture and dataset size
- Simplify provisioning for complex environments
- Implement a repeatable process that eliminates deployment errors
- Automatically apply best practices
- Deploy dev/test environments much faster across your organization

#### Maximize Availability with Robust, Storage-Efficient Data Protection

- Leverage enterprise-grade backup, restore, and compliance capabilities
- Maintain data availability even in the event of a catastrophic failure
- Reduce database restore time from days to minutes
- Manage, secure, and protect your data across the hybrid cloud

### Challenges

#### Leverage big data and simplify data management

Effectively leveraging the massive and growing amounts of big data is mission critical for enterprise organizations. Enterprises must not only monitor and protect big data, they must also quickly extract valuable business intelligence from huge amounts of unstructured data. In the current highly competitive environment, that intelligence is a requirement for survival and profitability.

Features that were once optional, such as robust, storage-efficient data protection and instant, free clones of data for DevOps, are now required. Because of the large size of these datasets, cost savings are more important than ever. In many cases, the need to reduce costs drives enterprise-class organizations to the cloud for data protection and for workflow execution. Given the mission-critical nature of these workflows, continuous availability of both the data and the applications is necessary. Downtime, slow performance, and data loss are completely unacceptable.

In addition to the requirements for enterprise data protection and management features, enterprise organizations are under increasing pressure to simplify and decrease the time to roll out new deployments. This business pressure is driven by the need to reduce costs, increase the agility of the organization to quickly monetize new data, and leverage the data to improve customer service and gain market share.

### The Solution

#### NetApp OnCommand Workflow Automation for MongoDB

NetApp® OnCommand® Workflow Automation (WFA) for MongoDB is the industry's only multiple-data-center, end-to-end provisioning automation solution. It enables flexible deployment of MongoDB with Data Fabric for on-premises, hybrid cloud, and multicloud configurations. MongoDB is the NoSQL database that is most widely used by enterprise organizations today. NetApp ONTAP® data management software deployed by using OnCommand WFA brings enterprise-class data protection and data management to MongoDB.

OnCommand WFA for MongoDB simplifies any deployment of ONTAP data management software for MongoDB by allowing a database administrator (DBA) or developer to provision storage in terms of database architecture and dataset size. It automatically implements best practices and simplifies provisioning for complex environments, such as multiple-data-center deployments. In addition, it fully supports both replica sets and sharded clusters. As a result, organizations that use MongoDB can quickly respond to the changing needs of their customers. MongoDB environments can be configured much more quickly, which reduces the time required for the enterprise to begin monetizing data.

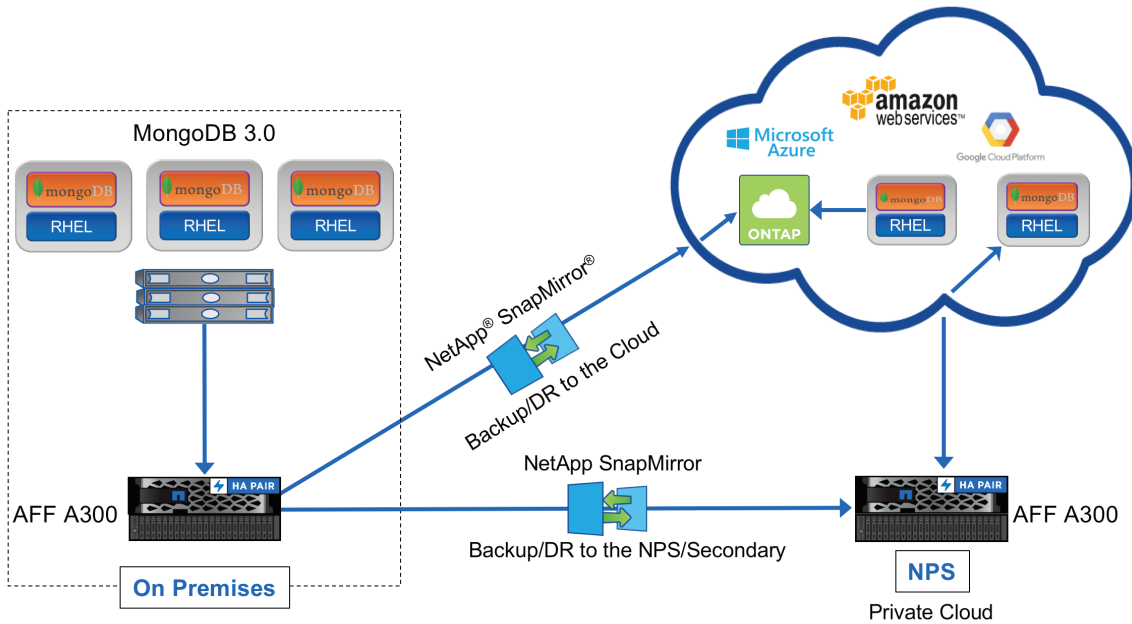


Figure 1) Simple on-premises configuration with NetApp Data Fabric.

### MongoDB

MongoDB is a very popular open-source scale-out NoSQL database. It powers modern big data analytics applications that require low latency for reads and writes, high availability (HA), and advanced data management. Key use cases for MongoDB include real-time analytics, product catalogs, content management, and mobile applications.

### NetApp Data Fabric

Data Fabric is NetApp's vision for the future of data management. A Data Fabric seamlessly connects different data management environments across disparate clouds into a cohesive, integrated whole. The NetApp Data Fabric helps organizations maintain control and choose the way they manage, secure, protect, and access their data across the hybrid cloud, no matter where it is. Although a Data Fabric evolves constantly, organizations can start taking advantage of it today by using NetApp technologies that enable data management and seamless data movement across the hybrid cloud.

Figure 1 shows a basic MongoDB deployment with ONTAP storage. The on-premises instance has been provisioned by using WFA. Once that instance has been created, NetApp SnapMirror® replication can be used to replicate data copies into a public or private cloud. In this example, data is mirrored to an ONTAP cloud instance in the public cloud or to an ONTAP NetApp Private Storage system, in a collocated data center. Data copied to either location can be accessed by public cloud compute resources, and public cloud storage can be used as a low-cost data archive. For the on-premises deployment, WFA supports both replica sets and sharded clusters.

Figure 2 shows MongoDB deployed across three data centers. This type of deployment is increasingly popular with enterprise organizations to guarantee 100% data availability, even in the event of the catastrophic failure of an entire data center. In this configuration, an entire data center can go offline and the data will still be available. NetApp is the industry leader in providing automation and simplified deployment for this type of configuration.

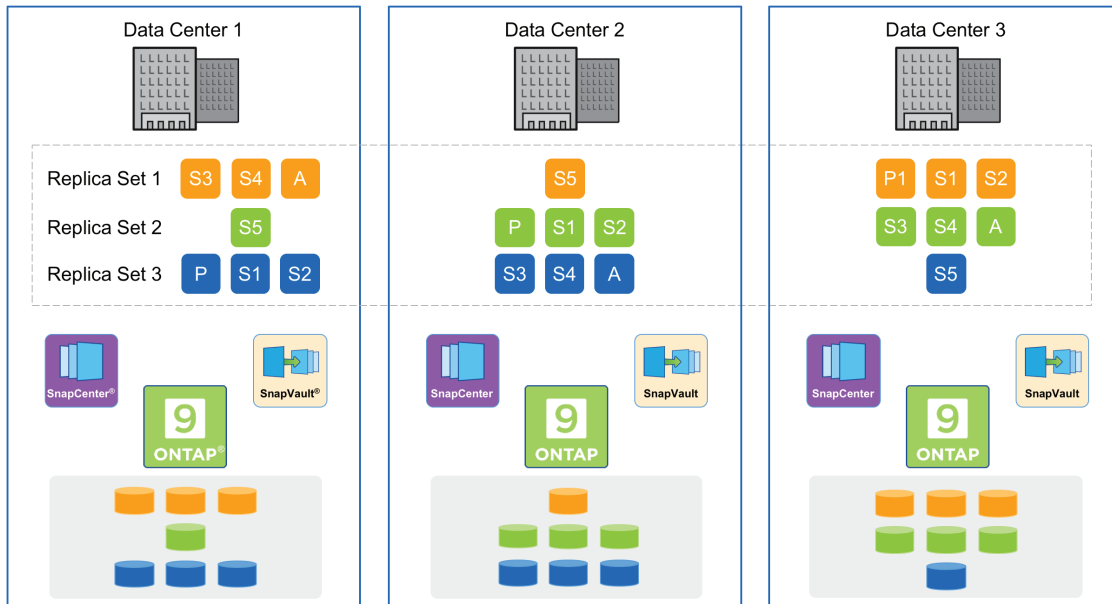


Figure 2) Triple data center design with WFA.

## Customer Deployments

This section describes use cases of three customers who automated MongoDB workflows using OnCommand Workflow Automation.

### Financial services company saves time and improves quality

A financial services company needed to reduce the time required for a MongoDB deployment, reduce the potential for error, improve the quality of service, and guarantee high availability. The NetApp WFA for MongoDB solution was applied in a pilot project, resulting in a 2-week reduction in deployment time. In addition, the MongoDB QoS improved, and the automation resulted in the elimination of common deployment errors.

### University improves disaster recovery and reduces need for IT support

A major university needed to deploy an online learning platform to increase student enrollment over a broader geographical area. The platform had to have 24/7 availability for students and to span multiple geographical locations. The university decided to implement an HA model with a 2-hour service-level agreement for disaster recovery. By using WFA, the university was able to complete its MongoDB deployment project within 2 months. The university network can now recover within 5 minutes of a crash. WFA also eliminated the need for 24/7 IT support. The solution is extensible and can easily be expanded to accommodate future growth.

### Telecommunications provider rolls out new services significantly faster

To remain competitive, a telecommunications service provider needed to reduce the time required to roll out new services. The old method of manual scripting of deployment by using custom scripts was prone to error and took too long to meet customer demand. On at least one occasion, this method resulted in application bugs that could have been prevented. The implementation of NetApp WFA for MongoDB reduced the time required for storage provisioning from 1 week to 1 hour. Other benefits included a repeatable procedure that eliminated deployment errors, automatic implementation of best practices, reduction of database restore time from 7 days to about 5 minutes, and much faster deployment of dev/test environments across the company.

### OnCommand WFA for MongoDB Deployment

The OnCommand WFA for MongoDB solution provides a guided process and an intuitive GUI for provisioning MongoDB. WFA turns storage provisioning into a self-service, policy-based effort. This simple and effective workflow enables the MongoDB DBA to easily provision MongoDB because the storage is provisioned per the provided input. Each workflow can be repeated as needed to deploy the desired MongoDB configuration.

The WFA solution provides a template that guides the user through the entire process of provisioning and configuring storage for a new MongoDB environment. The DBA specifies the WFA storage sizing and configuration by using familiar MongoDB vocabulary. Simply put, the DBA provides a description of the required MongoDB environment, and the WFA automatically configures the required storage.

The user doesn't have to specify the volumes, LUNs, igroups, or virtual interfaces (VIFs). The workflow template converts the MongoDB architectural requirements into storage requirements, and then provisions that storage. Both MongoDB and NetApp ONTAP storage best practices are built in, resulting in optimal performance and eliminating the potential for costly configuration errors.

Users can download WFA for MongoDB and the corresponding product documentation from <http://mysupport.netapp.com/>. For detailed instructions on how to deploy WFA for MongoDB, see [TR-4674: End-to-End Storage Provisioning for MongoDB](#).

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### About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit [www.netapp.com](http://www.netapp.com). #DataDriven