

## DataStax Enterprise - Automatic Management Services

Increasing the productivity of technology groups charged with managing database management systems (especially new and/or unfamiliar database technology like NoSQL) is a challenge faced by both large and small enterprises. Tasks like performance monitoring and troubleshooting, backup and disaster recovery, capacity planning, and other similar database maintenance functions can consume most of the day for database administration and operations groups, leaving little time to devote to other critical areas of the business.

DataStax Enterprise provides a suite of management services that help database administration and operations staffs automate many of the most needed and common tuning and maintenance functions so that their database systems are optimized for the highest possible performance, uptime, and protected against data loss. Most all of DSE's management services can be accessed and controlled in command line fashion via REST API or visually in DataStax OpsCenter.



*DataStax Enterprise delivers constant uptime and linear scale performance for online applications needing transactional, analytical, search, and in-memory workload support in a single platform.*

### Repair Service

In a widely distributed database cluster where multiple copies of data exist for redundancy and performance reasons, there are situations that can cause some copies of data to get out of sync with other copies. Detecting when this happens and re-synchronizing all copies of data so they are the same across a cluster can be challenging for a busy operations staff.

DataStax Enterprise supplies an automated Repair Service that can transparently handle the re-synchronizing of data across a cluster with no need for staff involvement. The Repair Service constantly keeps a cluster's data consistent with little to no performance impact on the cluster. The Repair Service can be invoked, scripted and managed via the command line. In addition DataStax OpsCenter provides a visual way of enabling the Repair Service and monitoring its operations, which makes the maintenance of a cluster's data consistency very easy.

### Capacity Service

DataStax Enterprise makes capacity planning easy by automating every function of the process. For historical trend analysis and reporting, key diagnostics and metrics on the database cluster are automatically collected into a repository that can be easily accessed. Using OpsCenter, historical trend analysis can be performed that allows administrators to easily spot trends such as peak workload periods, increasing data volumes, and more. Forecasting capabilities are built into the Capacity Service so that forecasting future needs and events is push button simple.

### Best Practice Service

DSE's Best Practice Service is designed to periodically scan database clusters and automatically detect issues that threaten a cluster's security, availability, and performance. It utilizes a set of expert rules that span a variety of different categories (e.g. security, replication, etc.) and analyze many different aspects of each database cluster. Any best practice deviations are reported back to administrators along with expert advice on how to fix each found issue.

The Best Practice service can be completely customized to utilize certain rules for certain clusters, and be scheduled to run as often as needed. DataStax Enterprise's Best Practice Service ensures all clusters are configured, secured and optimized to run as efficiently as possible taking the burden away from database staff.

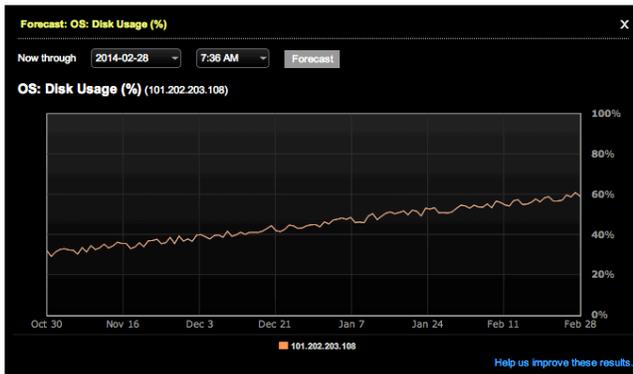


Figure 1 – Forecasting Future Disk Consumption.

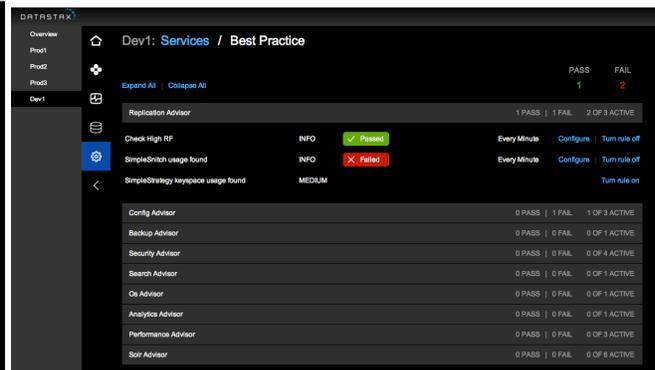


Figure 2 – The Best Practice Service's Visual Interface.

## Backup Service

Data protection is the #1 job of database administration and operations staff. Designing a bulletproof backup and disaster recovery plan can be hard enough for single-box relational databases, let alone for distributed databases that are spread across 10's, hundreds, or a thousand-plus machines. DataStax Enterprise provides a Backup Service that delivers intelligent, enterprise-class backup and disaster recovery capabilities that guard against data loss on managed database clusters. The Backup Service includes the ability to:

- Perform and schedule full and smart incremental backup operations, including backups of ancillary support files/logs.
- Backup information to targeted backup servers or to the cloud (e.g. Amazon S3).
- Automatically compress backup files to save storage costs.
- Specify retention policies on backups, which keeps only needed backup data.
- Easily carry out full, table-level, and point-in-time restores for a distributed cluster.
- Notify operations staff should backup or restore operations fail.
- Resume partially completed backup and restore operations.
- Clone database clusters (e.g. copy a production cluster to a development cluster).
- Generate detailed backup and restore reports.

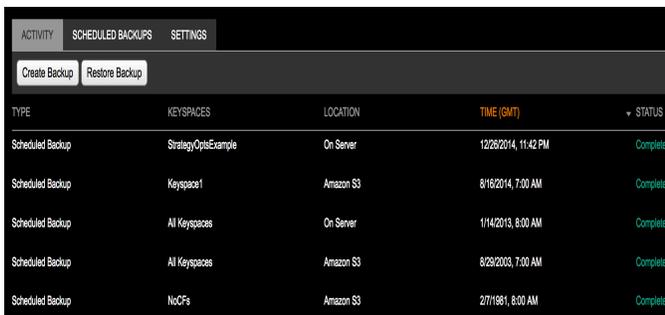


Figure 3 – The Backups Interface in OpsCenter.

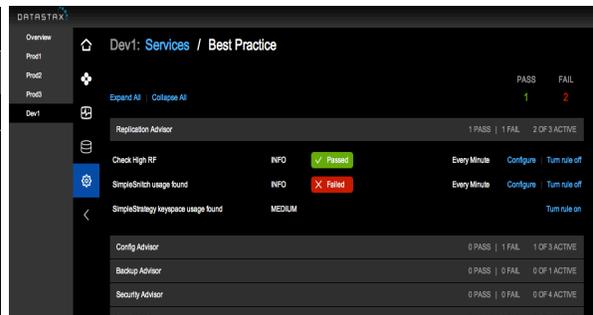


Figure 4 – The Visual Performance Service in OpsCenter.

## Visual Performance Service

OpsCenter’s brand new Visual Performance Service lets you to quickly diagnose performance issues within the Cluster. By enabling this service, OpsCenter proactively identifies problem areas and provides context specific recommendations on possible causes and suggests potential ways to fix the issues thereby helping avoid a lot of manual effort during troubleshooting.

OpsCenter Performance Service empowers administrators to:

- Visually enable metrics they want to monitor and eliminate the need for custom scripting
- Track metrics at different times of the day for exploration/analysis the results.

## Management Services Differences Between Open Source Cassandra / DataStax Enterprise

Management Feature	Open Source Cassandra	DataStax Enterprise
Data Consistency / Repair Service	No	Yes
Capacity Planning Service	No	Yes
Performance Service	No	Yes
Best Practice Service	No	Yes
Backup Service	No	Yes
Advanced Visual Management	No	Yes

## Further Reading

The advanced security option of DataStax Enterprise provides the type of enterprise-class data protection needed by today’s Web, mobile, and IoT applications. For more resources and [downloads](#) of DataStax Enterprise, visit [www.datastax.com](http://www.datastax.com) today.