

TECHNICAL OVERVIEW OF NEW AND IMPROVED FEATURES OF DELL EMC ISILON ONEFS 8.0.1

ABSTRACT

This introductory white paper provides a technical overview of the new and improved enterprise grade features introduced in Isilon OneFS 8.0.1. OneFS 8.0.1 includes improvements in security, networking, manageability, efficiency and scalability.

October 2016

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Non-disruptive Upgrades and Rollback

OneFS 8.0.1 provide full support for non-disruptive upgrades (NDUs). This functionality allows a cluster administrator to upgrade the storage OS while their end users continue to access data without error or interruption. Updating the operating system on an Isilon cluster is a simple matter of a rolling upgrade. During this process, one node at a time is upgraded to the new code, and the active NFS and SMB3 clients attached to it are automatically migrated to other nodes in the cluster. Partial upgrade is also permitted, whereby a subset of cluster nodes can be upgraded. The subset of nodes may also be grown during the upgrade.

Additionally, OneFS 8.0.1 also supports upgrade rollback. This feature provides the ability to return a cluster with an uncommitted upgrade to its previous version of OneFS.

CloudPools proxy support

OneFS 8.0.1 introduces proxy support for CloudPools, a cloud storage tiering capability. CloudPools enables data to be stored in a cold or frozen data tier or archive, thereby taking advantage of lower-cost, off-premise storage. CloudPools proxy support increases security by removing direct external network exposure of a cluster, avoiding the need for crafting complex firewall traversal rules, while allowing multiple Isilon nodes to simultaneously tier to the cloud.

Enhanced Mac OSX Support

OneFS 8.0.1 enables Mac OS specific features like color tagging of files and extended metadata. This allows Apple MAC OS users to leverage powerful Mac features to sort, tag files for efficient file categorization. There are also improvements in directory listing speed from Mac clients, particularly for large directories.

These enhancements are particularly impactful for Media and Entertainment customers, who rely heavily on the use of Mac tools in the post-production workflow.

HDFS Enhancements

OneFS 8.0.1 delivers support for and integration with Apache Ambari 2.0 and Ranger.

A single management point now allows Ambari operators to seamlessly manage and monitor Hadoop clusters with OneFS as the HDFS storage layer. Configuration of the Ambari agent is per OneFS access zone. Ambari 2.0 includes Ambari Metrics and Alerts, which provide centralized control of health checks and alerts for all the services running in a Hadoop cluster.

Ranger is an important security management tool for Hadoop, allowing admins to define and apply authorization policies across Hadoop components, including HDFS. OneFS 8.0.1 honors Ranger authorization policies, in addition to native file access control. The Ranger integration feature benefits all customers using Hortonworks and ODP-I compliant Hadoop distributions with OneFS. Features include Kerberos encryption to secure and encrypt data between HDFS clients and OneFS, and Datanode load balancing, avoiding overloading nodes and increasing cluster resilience

WebUI and CLI at Scale

OneFS 8.0.1 delivers improved performance and usability for the SMB share and NFS export pages. The OneFS WebUI can now handle long lists, and the backing stores are proven up to 40,000 records. The WebUI now returns ten items per page, simplifying navigation to a specific entry.

Audit performance enhancements

OneFS 8.0.1 delivers improved performance enhancements for audit at scale – now up to 50 million audit events per node.

The OneFS 8.0.1 file access and configuration auditing infrastructure records all access and configuration events and forwards them to the Dell EMC Common Event Enabler (CEE). OneFS 8.0.1 now supports load balancing of audit events across up to five CEE servers. OneFS 8.0.1 will continue to support all the certified audit vendors

AIMA enhancements

OneFS 8.0.1 delivers performance enhancements for AIMA, including ensuring that proper user access to an Isilon cluster is maintained with server consolidation (e.g. forest/domain collapse) by supported SID History. Additionally, negative caching helps reduce the load placed on authentication providers by caching the information that a user or group does not exist in any authentication provider, thereby reducing authentication lookup latencies and preventing any Denial of Service attacks.

Storage Efficiency for Healthcare PACS Applications

OneFS 8.0.1 enhances small file storage efficiency in healthcare's PACS & VNA applications, by packing small files that would otherwise be mirrored, into larger shadow stores that are protected with erasure coding. In addition to providing an overall improvement in storage efficiency for diagnostic imaging, this feature helps provide healthcare users with a faster display of specific images rather than entire exam. This storage efficiency feature provides a method to pack, unpack, and repack data into containers, while controlling fragmentation and providing the benefit from cooperative caching.

SyncIQ compliance mode failover/failback

OneFS 8.0.1 introduces support for SyncIQ failover and failback with compliance mode SmartLock, delivering automated disaster recovery for financial services SEC-17a4 regulatory compliance.

This allows customers to fail over from one Isilon cluster running in compliance mode to another if, for example, the primary cluster becomes unavailable. You can then fail back to a primary cluster if the primary cluster becomes available at a later time. You can revert failover if you decide that the failover was unnecessary, or if you failed over for testing purposes.

Performance Resource Management

OneFS 8.0.1 introduces new performance statistics for OneFS jobs and services. This new view enables a much clearer view of performance resources used when services like SyncIQ, SmartDedup, FSA, etc. data services and Isilon job services such as CELOG, etc. are being executed. This new monitoring capability enables customers to make better decisions on how to adjust and balance storage resources between system and production workloads. Performance statistics available include throughput, operations per second, CPU usage, cache hit rates and disk read/write statics, which are tabulated separately for each job and service by node and refreshed every 30 seconds. Statistics are available and configurable through PAPI, CLI and InsightIQ.