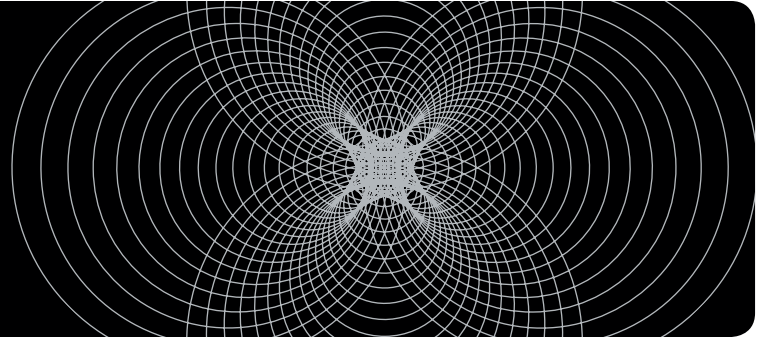


SmartPools™

Single File System for Multiple Tiers with
Automated, Transparent Data Movement



Key Benefits

- **Reduced Management**
Manage multiple price/performance tiers with a single file system and management point.
- **Application Consolidation**
Combine multiple price/performance tiers into a single file system, single volume.
- **Policy-Driven Automation**
Automatically move data between tiers based on workflow-centric policies.
- **Investment Protection**
Seamlessly expand and upgrade price/performance tiers with no end-user impact.
- **Improved Efficiency**
Maximize working set performance while minimizing overall cost per terabyte.

Powerful, Yet Simple

SmartPools enables you to deploy a single file system, single volume for multiple price/performance tiers with unparalleled simplicity of management, operation, and interoperability.

The Isilon IQ scale-out storage platform, powered by the OneFS® operating system, provides a single volume, single file system, and a single namespace with a suite of enterprise software applications to form the cornerstone of an enterprise data center. The OneFS operating system gives enterprises the power to scale capacity and performance, on-demand, transparently and without downtime – within a single volume and single file system.

Now, Isilon has advanced its leading scale-out storage platform with the addition of SmartPools. With SmartPools, multiple tiers of Isilon IQ storage nodes (including S-Series, X-Series, and NL-Series) can exist within a single file system, with a single point of management. Storage administrators and application architects can now right-size and accelerate their working set while automatically and transparently moving inactive data to more cost-effective storage. In addition, SmartPools unlocks the ability for storage administrators to aggregate and consolidate applications – providing workflow isolation, higher utilization, and independent scalability – with a single point of management. SmartPools is policy-driven, which allows application architects and business leaders to define the value of the data within their workflows – and SmartPools will automatically align the data to the appropriate price/performance tier over time.

SmartPools moves data across the Isilon scale-out storage backend network, Infiniband, which eliminates traffic on the client network and ensures data movement is absolutely seamless – including in-flight read/write activity, locking semantics, backup application interaction and underlying file identification. Smart Pools provides file-level granularity and control with automatic policies, manual control, or API interface – allowing IT administrators to control performance and layout, storage tier alignment, and protections settings at the file and directory level – completely transparent to the end-user.

How it Works

Create policies to move files among different price / performance tiers of storage based on their value to your business.

Storage Tiers ("Storage Pools")

A tier is a "pool" of like nodes. Combine a performance tier (S-Series) and an archive tier (NL-Series) in the same cluster. Add a tier for latency sensitive data (S-Series with SSDs). Decrement older nodes and add new ones as a new tier in the same cluster.

S-Series	IOPS-Intensive Applications
X-Series	High-Concurrent and Sequential Throughput Workflows
NL-Series	Cost-Effective, Highly-Saleable Nearline Storage

Policy Templates

Migrate data based on the policies that make sense to your business. Several default policy templates are available which you can use as is or modify. If you prefer, create your own custom policy via simple point and click process in the UI.

Archive	Move older files to older storage
Extra Protection	Protect a subset of files at a higher protection level
Performance	Assign files to the performance pool based solely on their path
Vmware Files	Set Vmware files for random access

Performance and Protection Options

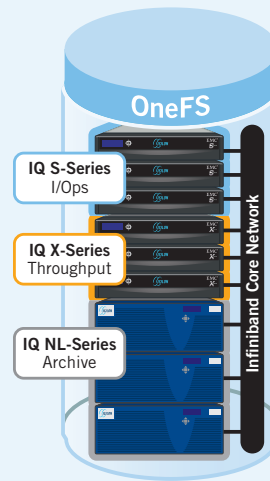
As the policy templates above indicate, you can also customize performance and data protection specifications in your policies. Raise the protection level for more critical data and optimize for random or sequential access as different workflows and data types dictate.

Performance	Random or Sequential IO
Protection	N+1, N+2, 2:1, N+3, N+4

Policy Triggers

You can control data migration based on any combination of its age, size, file type, owner, location or when it was last accessed or modified. Policies can be combined and prioritized so your approach can be as broad brush or tuned as you require.

Age	Creation Date
Size	File Size
Type	File Type
Owner	User Attribute
Location	Path
Accessed	When Accessed
Changed	When Changed



- Single Cluster
- Single File System
- Single Namespace
- S-Series for I/Ops
- X-Series for MBps
- NL-Series for Archive
- Automated Data Movement
- Policy-Based
- HTTP/REST API

SmartPools enables enterprises to:

Easily deploy a single file system to span multiple tiers of performance and capacity.

- Eliminate multiple storage silos with a single volume, single namespace for all tiers and workflows.
- Utilize policy-based automatic data movement within a single namespace, single file-system without complex links, stubs, or manual data migration.
- Add capacity and/or performance in 60 seconds, enabling seamless expansion of any tier, on-demand.
- Consolidate and aggregate multiple applications into a single storage system, eliminating data movement and simplifying management.
- **No professional services, specialized training or complex system design is required.**

Take advantage of a single file system that automatically adapts to business data and application workflows over time.

- Align application needs with performance, capacity, and economics – automatically.
- Respond quickly to changes in workflow and demand for new performance and capacity.
- Seamlessly adapt to workflow changes without affecting applications or workflows.
- Provide workflow isolation for critical applications without increasing management complexity.

Align the business value of data with optimal storage performance and cost.

- Isilon pay-as-you-grow scalability maximizes utilization across tiers.
- Automatically align the value of data with optimal storage performance and cost without modifying applications or notifying users.
- Eliminate costly data migration and manual data movement between price/performance tiers.