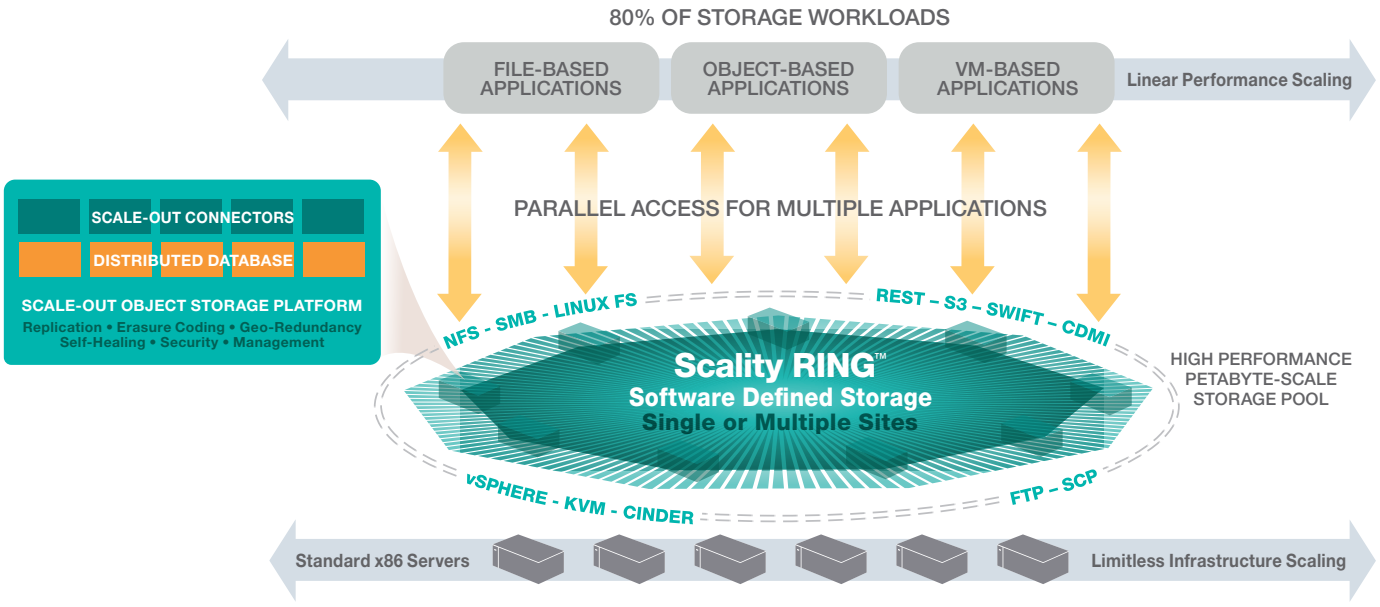
SCALITY

Scality RING Software Defined Storage at Petabyte Scale

The Scality RING is a software-defined storage platform that runs on standard x86 Servers and is designed for multi-application environments with mixed-workload performance requirements at petabyte scale. The RING collapses traditional NAS and object storage, and addresses the 80% of storage workloads that do not require expensive flash-based SAN, including file, object, and VM-based applications.

The RING provides companies with a storage solution designed to scale linearly across multiple active sites and thousands of servers. Acting as a single, distributed system, the RING **supports scaling beyond petabytes** and hosting an unlimited number of objects. The RING provides a range of data protection schemes including replication and erasure coding achieving up to fourteen 9s of durability. A unique hardware-agnostic architecture enables **continuous uptime through hardware and software issues and upgrades,** and enables customers to take advantage of future server and media innovation. Powered by a rich choice of protocols and interfaces, the RING provides high throughput and IOPS performance, and organizations can utilize a Scality storage infrastructure without having to make any changes to their applications.

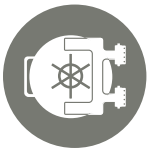


SCALITY RING KEY BENEFITS

Hardware-agnostic, runs on standard x86 servers	The RING software is fully hardware-agnostic, designed for industry standard servers with support for SSD & HDDs. Customers can rapidly adopt new hardware and media innovations, with no need for data migration on hardware refresh. Support is simpler and deployments are highly adaptable. Overall, this significantly reduces acquisition and operating costs and increases project flexibility.
Supports mixed applications & workloads	Scality RING has the performance and latency characteristics to manage mixed storage workloads in a single pool that encompasses file, object, and VM-based applications. This enables data consolidation to increase utilization and economies of scale, and eliminate storage silos. Customers can reduce time to market by integrating existing applications using standard protocols and rich API's. Applications can simply leverage other interfaces (such as object) in the future.
Continuous uptime through hardware failures and maintenance	Customers can maintain availability through hardware failures, capacity expansions, software upgrades, and hardware generations, with minimal intervention. This enables carrier-grade service levels and improved end user satisfaction.
Scales to petabytes and beyond	A RING storage infrastructure scales out linearly as a single system across multiple active sites, thousands of servers, hundreds of petabytes, and unlimited objects without adding administrators or additional disparate components. This enables massive consolidation and significantly reduces operating costs.

SCALITY RING USE CASES

The RING enables many different applications, including aggregating multiple applications into a single storage environment. This eliminates silos, drives increased utilization, and creates cloud-like economies of scale.



ACTIVE ARCHIVES

The Scality RING enables organizations to build Exabyte-scale active archives that have all the performance benefits of disk storage at a cost point that is comparable to tape.

CONTENT DISTRIBUTION

The RING enables organizations to build scalable distribution infrastructures that meet all the performance requirements for high definition media streaming at a fraction of the cost of storage at CDN providers as well as enabling new non-linear content distribution models such as nDVR/nPVR and VoD.

WEB & CLOUD

The RING enables Web Application and Cloud Service providers to build petabyte-scale storage infrastructures that meet all the performance, availability, and durability requirements for scale-out web applications at a much lower cost than public cloud offerings. The Scality RING features a wide range of interfaces and protocols to enable easy application integration.

DISTRIBUTED COMPUTING

The RING is ideal for highly distributed or parallel computing, offering high performance, Exabyte scalability, and high data durability with low overhead.

GLOBAL ENTERPRISE CLOUD

The RING provides a ubiquitous storage platform with file, object, & VM storage capabilities with a substantially lower TCO through software and hardware unbundling, a wide range of standard x86 server options, and high durability with low overhead.

SCALITY RING FEATURES

One Storage Pool	No storage silos: object storage technology abstracts underlying storage servers to create a uniformly scalable storage pool, and data that is concurrently accessible by file and object interfaces.
Peer-to-peer Shared Nothing Design	Scality has the performance and low latency to address 80% of storage workloads across small and large files, high bandwidth and IOPS, in a single multi-application environment that encompasses file, object, and VM-based applications
Carrier-grade Uptime	Designed to keep running through hardware failures, hardware refreshes, capacity upgrades, and software upgrades.
Scales to petabytes and beyond	A RING storage infrastructure scales out linearly as a single system across multiple active sites, thousands of servers, hundreds of petabytes, and unlimited objects without adding administrators or additional disparate components. This enables massive consolidation and significantly reduces operating costs.
End-to-End Parallelism	Both the access layer and the storage layer are independently scalable to thousands of nodes, all of which can be accessed directly and concurrently.
Flexible Deployment	A RING environment may be deployed to a single site, stretched over multiple sites, or replicated locally and/or across sites.
Advanced Data Protection and Customizable Availability and Failure Domains	Customer configurable data protection policy at the object level • Replication up to 6 copies (object level replicas) • ARC (Erasure Coding) to reduce overhead for large objects Tolerate site failure and multiple rack/server/disk failures
Geo-Distribution	Single or Multi-RING Sync (ARC/ARC, Rep/ARC) & Replication at file level
Self-healing	Self-healing after component failures; replace failed disks as a scheduled
Rich Management Portal and CLI	Full management and control with Supervisor and CLI
Simple Operations & Management	• System capacity and performance expansion • Automated disk failure detection and handling framework • Automatically rebuild failed drive data on remaining drives • Automated storage rebalancing
File Features	• Fully parallel and POSIX compliant file system • NFS v3, SMB 3.0, and FUSE (Linux file system) interfaces • Unique internal distributed database (MESA) – for full scale-out support of object key values, file system metadata and POSIX methods, and block volumes • Kerberos-based authentication: NFS client authentication (supports ADS) • Space quotas for NFS & SOFS
Object Features	• HTTP/REST, Amazon S3-compatible APIs, & CDMI interfaces • Virtually unlimited object capacity • No size limit on objects (including multi-part upload for RS2)
VM Storage Features	• VMware vSphere and KVM datastore support • Virtually unlimited numbers of VM datastores
Near-linear Performance Scalability	File performance: • Very large file (1GB) file reads per Scality server (replication mode): 2.8GB/sec • Very large file (1GB) file reads per Scality server (ARC 4/2 mode): 1.7 GB/sec Object performance: • Small object (4KB) performance per Scality server (replication mode): 6060 GETs/sec • Medium object (1MB) performance per Scality server (replication mode): 1.1 GB/sec • Large object (10MB) performance per Scality server (ARC 4/2 mode): 1.1 GB/sec
IO Optimization	• Read-ahead cache for sequential IOs: System detects sequential access patterns and repeatedly doubles the amount of data fetched into cache. • Cache striping optimization for small file random IO: System by default reads only the requested number of bytes into cache (avoids fetching whole stripes – unless sequential access is detected as above).

SCALITY RING SPECIFICATIONS

Interfaces	File Storage / NAS: • FUSE: POSIX-compliant Linux file system (Scality sfused) • NFS v3 • SMB 3.0 (based on Samba 3.5 and later) • FTP & AFP for legacy applications Object Storage: • HTTP / REST (Scality sproxyd) • RS2 / RS2 Light (Amazon S3-compatible APIs) • CDMI (SNIA Cloud Data Management Interface) • OpenStack Swift plug-in VM Storage: • NFS v3 • OpenStack Cinder API (Scality REST block driver)
Rich Management Portal and CLI	Full management and control with Supervisor and CLI • Full Topology View: RING status with Zone, Server & Node details. SNMP MiB support and graphical usage monitoring
Licensing Requirements	Licensing for the Scality RING software is based on usable capacity. Only the original data counts against this capacity. For example, a 10 MB file replicated 5 times counts only as 10 MB of used capacity. The software comes in two different flavors, both of which are available for either a single site or multi-geo configuration: • Scality RING Core • High Performance Flash RING The core bundle includes basic HTTP/REST and OpenStack Swift connectivity. The following connectors are optional add-ons: • RS2 • FUSE (Linux file system) • NFS/SMB • CDMI • KVM VM support
Operating System Support	• CentOS 6 and up on x86_64 • Red Hat 6 and up on x86_64 • Ubuntu 12.04 LTS (Precise) on amd64 • Ubuntu 14.04 (Trusty Tahr) on amd64
Scality Software Warranty	Worldwide, 24-hour support is available. Customers are provided with complete installation services and given access to advanced services such as proactive health checks and migration assistance.

ABOUT SCALITY

Scality is the industry leader in petabyte-scale, software-defined storage. Founded in 2009, Scality has deployed software-based storage solutions that deliver billions of files to more than 150 million users daily with 100% availability. The Scality RING software runs on any standard x86 servers and makes it scale to hundreds of petabytes and billions of objects. The RING's end-to-end parallel architecture provides unsurpassed performance, while its patented object storage core increases availability and durability and dramatically reduces operational costs. The RING integrates with applications through standard storage protocols such as NFS; S3; OpenStack Swift and Cinder. Scality's customers include four of the world's largest media companies, two of the largest telecommunications firms, and other market leaders throughout the US, EU, and Japan.

SCALITY FACTS

Founded: 2009

Customers (partial list):
Comcast, Dailymotion, Los Alamos National Laboratory, German Aerospace Agency (DLR), Host Europe, RTL interactive, SFR, Time Warner Cable, Telenet

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