SCALITY
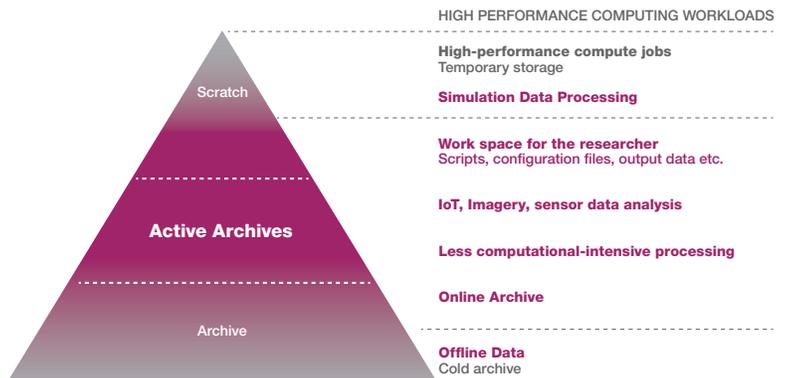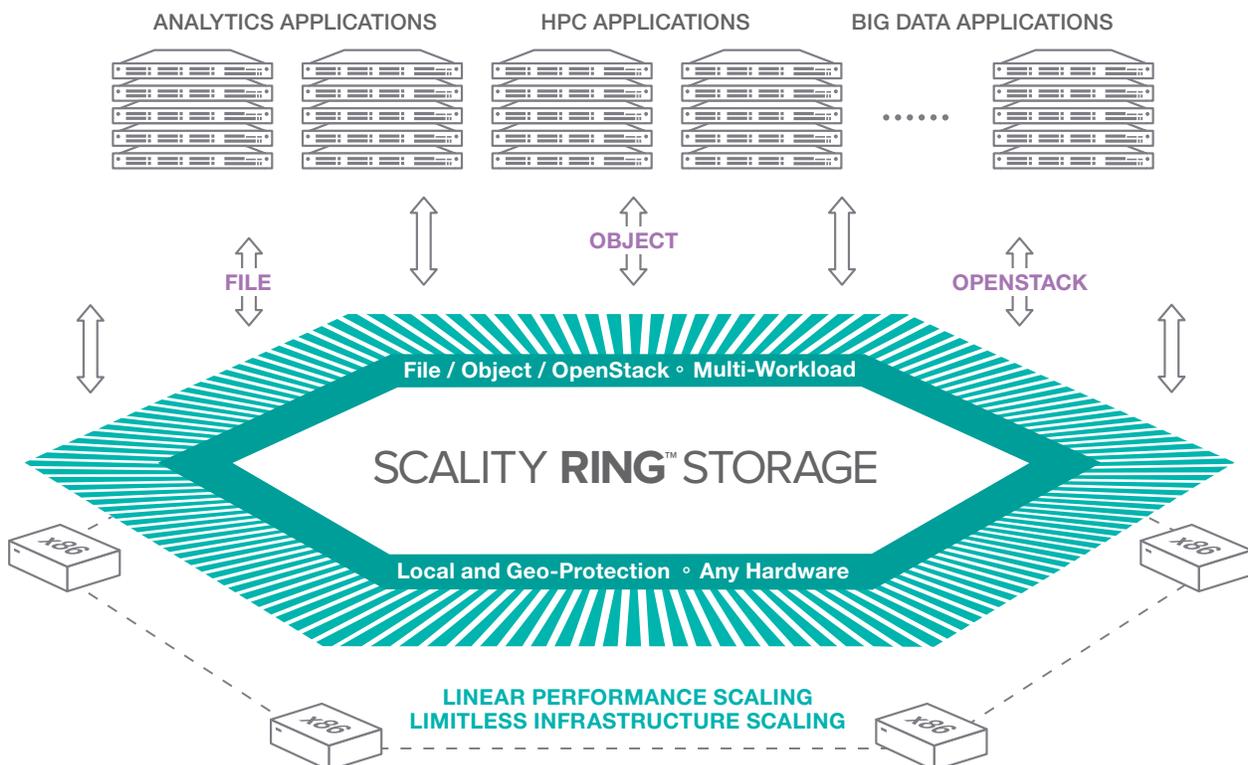
Scality RING for HPC Archives

With a mountain of data to process, Active Archiving is more relevant than ever

In many areas of research, the quantity of data being manipulated is growing exponentially. This is certainly true of numerical simulations but also in all fields using increasingly accurate physical sensors and high-resolution imagery to acquire data. Data growth is dramatic in oil and gas seismic surveys, radar and satellite imaging, electron microscopy, and genome sequencing to name a few.

HIGH PERFORMANCE COMPUTING WORKLOADS

Scratch

High-performance compute jobs
Temporary storage

Simulation Data Processing

Active Archives

Work space for the researcher
Scripts, configuration files, output data etc.

IoT, Imagery, sensor data analysis

Less computational-intensive processing

Online Archive

Archive

Offline Data
Cold archive

Scality RING is the only high-performance storage that combines scratch, home, and active research archives

Interest is growing in storing massive amounts of data and having it readily accessible for further study, increasing its value and furthering research objectives. Scality RING provides massively scalable and instantly accessible online storage to support nearly any type of HPC application.

ANALYTICS APPLICATIONS   HPC APPLICATIONS   BIG DATA APPLICATIONS

FILE   OBJECT   OPENSTACK

File / Object / OpenStack ◦ Multi-Workload

SCALITY **RING**™ STORAGE

Local and Geo-Protection ◦ Any Hardware

x86   x86   x86   x86

**LINEAR PERFORMANCE SCALING
LIMITLESS INFRASTRUCTURE SCALING**

Key Scality RING benefits

> The RING scales linearly and supports very large objects (VLO's) – parallel loading of very large objects is often key in HPC Active Archive projects

> A number of different protocols can be used for the same data set including NFS, Linux FS, SMB and CDMI-REST based interfaces

> The RING shows linear performance increase with added workloads without degradation up to the point of resource saturation

> The RING is easier to manage at scale – the shared nothing and object based architecture of Scality makes it more robust and easier to maintain than traditional systems

> The RING proves to be less expensive to deploy and operate than other technologies rivaling even tape, especially if stored data must be frequently accessed

Customer references

Renault

A leading European car manufacturer has chosen Scality RING running on HP ProLiant SL4540 servers over IBM GPFS or NetApp storage. The granular and gradual scalability of the RING were a key feature as this enabled the business to add hardware capacity as needed, as opposed to installing a massive scale infrastructure up front. The manufacturer has licensed 5PB of Scality software, of which they have used 2PB, and their growth rate is steady at about 1PB every six months. The RING's flexibility will also enable the manufacturer to upgrade hardware in the future without impact on the business, as they plan to extend the platform with larger hard disks.

Los Alamos National Laboratory

Los Alamos National Laboratory (LANL) is responsible for ensuring the safety of the US nuclear arsenal. International test ban treaties have replaced physical device tests with complex computer simulations, which can run for many months. Each exploration generates many petabytes of data. LANL required a cost-effective storage strategy that could ensure data protection using advanced erasure coding, provide unified file and object storage that would be be easy to deploy and manage at scale, and employ standard, consumer-grade disk as the primary storage medium. LANL selected the Scality RING software independent of hardware, since hardware flexibility and interoperability was successfully demonstrated in the proof of concept. The Scality RING will be used as a "home" like second tier behind the supercomputer scratch space, as well as a checkpoint system, and a storage pool for post-treatment of simulation results.