



Unlimited storage for the Higher Education sector

A Scality briefing paper



A must read for Higher Education institutions

In countries around the world, Higher Education sectors are facing a range of common challenges. Effective use of technology is central to meeting these challenges, but current IT infrastructures are often unable to meet the new demands facing modern Higher Education institutions.

So what is the solution? This paper shows the way forward by examining:

- > Why IT transformation is essential for today's Higher Education sector
- > The challenges created by today's outdated IT infrastructures
- > The role that technology can play in enabling better results and more effective use of resources
- > The role of Scality's software-defined Object Storage in meeting the needs of modern Higher Education institutions

“Data is transforming business, and leading educational institutions are using data to accelerate innovation.”

*Paul Turner
CMO, Scality*

The pressures on today's Higher Education systems

From increasing student numbers and greater competition to regulatory and political pressures, Higher Education sectors across the globe are facing a number of common challenges.

Rising demand

Many countries have seen significant rises in the numbers entering Higher Education over the last two decades, putting huge strain on existing infrastructures and resources.

Budget squeezes

As demand rises, budgetary pressures increase and many Higher Education institutions – particularly in countries where provision is wholly or partly publicly funded – are facing funding challenges, which have resulted in under-investment in facilities and infrastructure.

Sharper competition

At the same time, long-established universities and other Higher Education institutions are facing increased competition, both for students and research grants.

Alternative delivery models, providing online, adaptive and hybrid learning are offering many more students access to high quality curricula, more cost effectively. This situation is being compounded by the emergence of new international competitors in Asia, offering alternative – and often lower-cost – study options.

Digital developments

Current generations of students have grown up as digital natives and assume that technology will be an integral part of their learning experiences. They expect easy access to learning resources via their tablets and smartphones, as well as new learning techniques such as video recording of lectures.

Alongside these pressures, governments are increasingly focusing on ensuring that the quality of learning delivered by universities reflects the large sums invested in Higher Education. One example being the UK government's Teaching Excellence Framework, which will see governmental monitoring and assessment of the quality of teaching and learning in UK universities.

Regulatory and political changes

The ways Higher Education establishments retain, store and process data are now subject to regulatory and political scrutiny. To comply with federal grant requirements, for example, US universities face demanding requirements around the retention of research data.

New demands are also being imposed by data privacy and protection legislation relating to both student records and research data, including the European General Data Protection Regulations being implemented in 2018.

New pressures, new responses

All of this contributes to the need for colleges and universities to adapt to change. Higher Education institutions need to exploit new opportunities – from expanding into overseas markets and commercializing more of their research IPR, to taking advantage of new learning delivery models such as video and online.



28 years

The period for which research data in Europe has to be retained for EU-funded projects



3 million

The number of students in Germany entering Higher Education in 2015/16, nearly a million more than 10 years ago¹



3-4%

The growth of student numbers per annum in France in recent years²



> 1 million

The number of course enrolments at the European-based iversity.org, an online education platform launched in October 2013³



54%

The percentage of young adults in Germany who have stated that they have been using e-learning, demonstrating a clear appetite for newer learning techniques⁴

¹ <http://www.spiegel.de/lebenundlernen/schule/oecd-bericht-zur-bildung-deutschland-spart-an-seinen-studenten-a-1112377.html> ² <http://www.nature.com/news/france-s-research-minister-lays-out-his-priorities-1.19868> ³ <https://iversity.org/en/pages/about> ⁴ <https://de.statista.com/statistik/daten/studie/254128/umfrage/nutzung-von-e-learning-in-deutschland-nach-altersgruppen/>

How technology can help

Technology has a key role to play in enabling the Higher Education sector to respond to today's challenges.

Technology-enabled opportunities include:

- > **Enabling new learning delivery methods** (such as video) to reach new audiences

35 million

The number of students who signed up for MOOCs (Massive Open Online Courses) in 2015 – more than the previous three years combined¹

- > **Improving collaboration across research teams** by enabling better sharing of data
- > **Delivering new insights from research data** by using advanced/cognitive analytics
- > **Using student devices (such as smartphones) as learning tools** to enable learning anywhere at any time

- > **Improving measurement of learning outcomes** using tools such as learning analytics – the UK's National Union of Students says "Learning analytics has massive power and potential to tackle some of the problems and challenges that currently exist in UK Higher Education"

26% CAGR

The rapid growth of the market for learning analytics solutions²

- > **Centralizing IT provision** across different campuses or colleges to reduce costs
- > **Enhancing campus security** by expanding the use of CCTV

Why current IT infrastructures are holding back Higher Education

The limitations of current IT infrastructures mean that many Higher Education and research establishments cannot take advantage of these opportunities. In fact, they are struggling to even manage what they have. Key limitations include:

Siloed, departmental systems

These are often inefficient and costly, preventing a collaborative approach to technology usage as well as pushing up overall IT spend.

\$6.6 billion

The estimated total spend on ICT by US education institutions in 2015³

Lack of system interoperability

Barriers to effective collaboration within or between departments and institutions are now a critical issue given the trend towards mergers in the sector, and the push in many countries for Higher Education establishments to work more closely together on research initiatives.

€900 million

The French government's endowment to support mergers of French universities

Fragmented data across multiple systems

An inability to get a complete view of an organization's data impedes effective use of analytics to derive new insights in areas such as student performance.

Inability to manage growth of unstructured data

Existing platforms simply cannot cope with the massive growth in unstructured data that Higher Education and research establishments need to accommodate. Current platforms also struggle to handle new data types – such as video – which limits the use of innovative learning techniques and business models.

Fragmented systems

With most university systems tending to be fragmented, it is difficult to apply standard security and compliance policies – increasing the risk of both breaches and the loss of valuable intellectual property.

10%

The percentage of data breaches that occur in the Education sector, behind only Healthcare and Retail⁴

To meet the demands and realize the opportunities of today's digital environment, Higher Education IT infrastructures need to transform to platforms that are more scalable, more efficient, more flexible and more open.

The role of software-defined Object Storage

A newer type of storage platform – software-defined Object Storage – has a key role to play in addressing many of the IT challenges faced by the Higher Education sector. Critical advantages over traditional storage platforms include:

- > The ability to scale beyond petabytes
- > Easy management at scale
- > Cloud-like cost efficiencies
- > Advanced system security and reliability
- > Hardware freedom with broad compatibility
- > The versatility to support both static and unstructured data – delivering maximum flexibility to support both new and legacy applications from a single platform

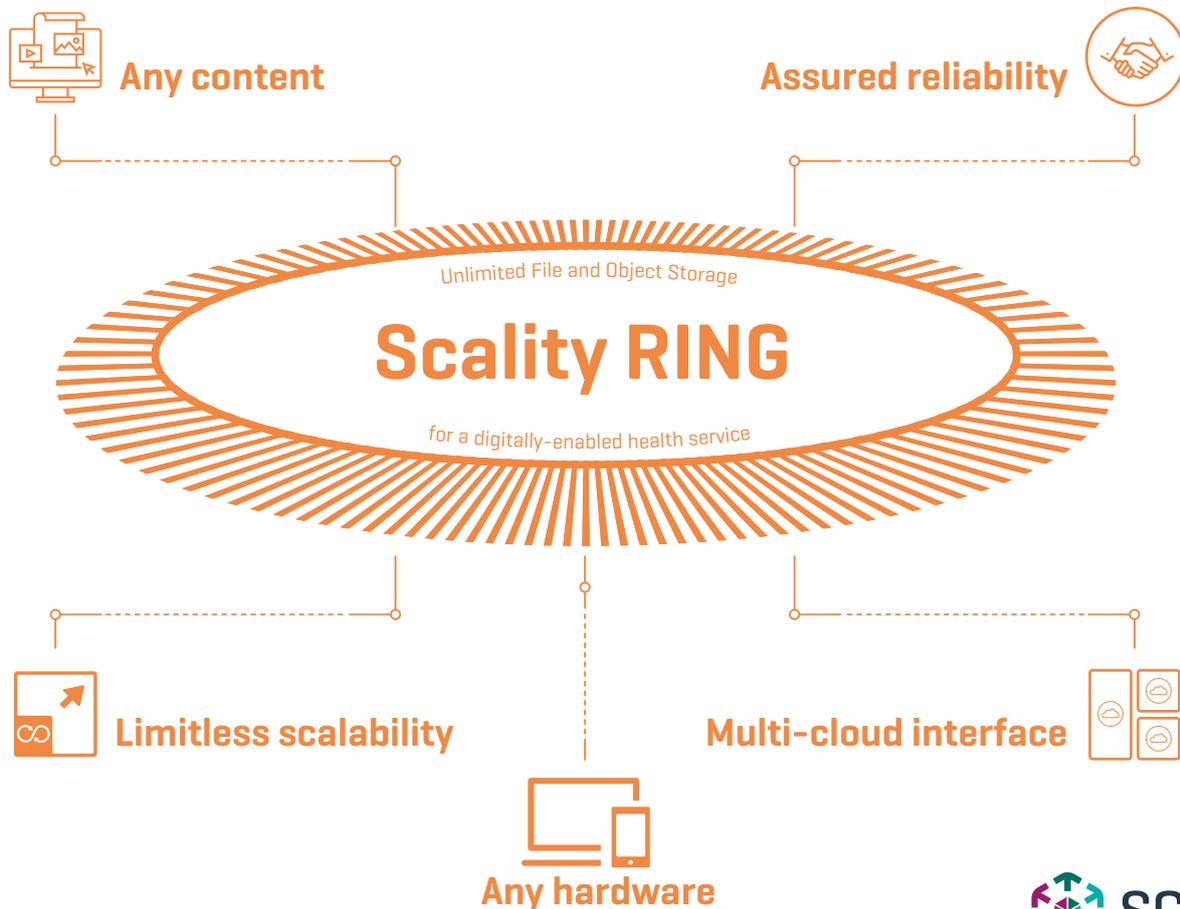
The superiority of Scality RING

Scality RING is the market-leading Object Storage software that turns any standard x86 servers into web-scale storage. With the Scality RING, institutions of Higher Education can store any amount of data, of any type, with outstanding efficiency.

Scality RING provides a range of significant benefits:

- > **Any content** – access, store and manage all legacy and digital content from one platform. Scality RING, the only storage platform with native support for both File and Object, maximizes storage flexibility
- > **Any hardware** – total hardware freedom enables any standard x86 server to be used
- > **Multi-cloud interface** – launch public or private cloud services with a proven storage foundation, with AWS S3 and file systems compatible interfaces for maximum flexibility
- > **Assured reliability** – a shared-nothing, distributed architecture provides geographical redundancy and no single point of failure
- > **Limitless scalability** – scales to hundreds of petabytes to manage billions of small or large files.

Areas within the Higher Education sector where software-defined Object Storage platforms deliver huge positive impact include active archives, research collaboration, video capture (such as campus CCTV and video lectures) and learning analytics.



Why unlimited storage from Scality RING is right for the Higher Education sector

For the Higher Education sector, Scality RING provides the unlimited storage platform that enables the consolidation of multiple separate infrastructures on to a single storage platform – delivering reduced costs and greater agility.



Improving efficiency and driving down storage costs

Scality's technology drives down storage costs and eliminates expensive and time-consuming hardware refresh cycles:

- > Unlimited ability to scale with mixed x86 hardware eliminates the need for costly three-year migration cycles
- > Unique architecture increases storage efficiency at scale
- > The ability to use high-density x86 servers lowers hardware costs
- > Multiple workloads can be consolidated onto the same storage platform, even across multiple locations
- > Resilient architecture eliminates back-up requirements
- > Right-tiering reduces Storage Area Network (SAN) costs



Enabling new insights and revenue streams

Supporting the realization of digital Higher Education, the combination of Scality and our extensive partner eco-system enable the extraction of new insights from research data.

By collapsing existing siloes and aggregating data, we make consolidated analysis possible. We also ensure that more historical data is online and accessible to researchers, students and education partners.

Standards-based interfaces and varied file and object support make it easier to develop new apps and support new data types, such as video.

Scality RING enables the use of advanced analytics solutions that provide actionable, data-driven insights to improve learning outcomes. Acting as a 'data lake', it provides a large single storage namespace for multiple workflows and applications. Having insight into such a large set of data points helps analytics solutions achieve better accuracy.

What's more, Scality's geo-distribution feature protects data better and supports overseas expansion by providing data mirroring and site-level disaster recovery across multiple sites.



Reducing the risk of IPR theft and compliance breaches

By consolidating workloads and data on to a single platform, Scality RING improves manageability, which reduces the risk of IPR loss and compliance breaches.

With multiple separate platforms, it is usually impossible to have standard policies in place that ensure best practice. With Scality RING's consolidation of workloads and data onto a single platform, it is much easier to apply common policies and controls – enabling a more holistic approach to IPR protection and compliance.

Scality also offers numerous options for controlling access to data, enabling simpler policy enforcement. Plus, by providing a common, flexible platform for storing and sharing files it makes it easier for people to do the right thing – reducing the need for shadow IT and the temptation to use insecure methods for storing and sharing data (such as USB sticks or Dropbox).

Scality's first customer in 2010 – Telenet – has run multiple generations of applications, hardware and the RING over seven years with no downtime.



Ensuring data is available and accessible

Scality RING helps ensure that data is easily accessible by those who need it, and that systems are always available and responsive – no matter how much data volumes grow – even through failures.

Greater openness is achieved through standards-based interfaces (such as AWS S3), that deliver enhanced interoperability across systems. The result is improved collaboration, both between departments and across research teams.

Scality RING also provides numerous features that ensure scalable performance, including:

- > Linear performance scale to many petabytes of data
- > No increase in latency regardless of number of nodes or objects in the system
- > Unlimited scaling – with no data migration or disruption – ensures optimal performance at all times

The availability of applications and data is assured through Scality RING's shared-nothing, distributed architecture, which enables up to 100% data availability and zero downtime. All of which is backed up by rigorous SLAs.

Scality RING also delivers assured business continuity through built-in durability and disaster recovery features, and provides data integrity assurance through self-healing processes.



Building an institution-wide storage strategy

The combined resources of Scality and our partner ecosystem provide comprehensive support to help build a forward-looking storage strategy, meeting the broad requirements of Higher Education institutions. We help balance the need for increased standardization with faculty-level flexibility.

Scality is both a pioneer and an innovator in Object Storage, with seven years' experience of helping digital organizations transition to web-scale storage.

With our partners, the range of our professional services support encompasses developing storage strategies (including data discovery and classification), business cases and transition planning.



Minimizing transition risks and disruption

With 150+ cloud-scale deployments to date, Scality RING is proven technology.

Unique features that help ensure seamless transition to a new Object Storage platform include:

- > Flexible support for File and Object Storage, enabling any unstructured data type and multiple applications to be transitioned – consolidating on one storage platform while individual departments keep running their existing applications
- > Easy integration of new and existing applications – for example, with full S3-compatibility and Microsoft Active Directory and AWS IAM support

Our total transition support features:

- > Migration of existing apps
- > Comprehensive change management support
- > Staff training



\$8 Million Cost Savings - 229% ROI

In 2016, Forrester's Total Economic Impact study (TEI) looked at the benefits of the Scality RING compared with traditional NAS storage arrays. For a customer with 2 petabytes growing to 4 petabytes, Scality RING was shown to deliver \$8m in expected cost savings (over \$3m from capital savings alone) and a 229% ROI over the life of the storage. It also delivered a capital payback within just six months.

About Scality

Scality is a pioneering innovator of software-defined, multi-cloud data storage at petabyte scale. Recognized as a leader in distributed File and Object Storage by Gartner and IDC, Scality assures data control and freedom to manage data across clouds. Our products scale on-demand, non-disruptively, and drive lower cost for today's leading enterprise companies.

Be sure to get your complimentary copy of the **Gartner Magic Quadrant for Distributed File Systems and Object Storage** report.



Gartner Magic Quadrant for Distributed File Systems and Object Storage report
(<http://bit.ly/2ip1NSh>)



800 billion +
objects managed by Scality



150 clouds +
Scality cloud implementations

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