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Sponsored by: **Scality**

Authors:
Matthew Marden
Amita Potnis
Mutaz Shegewi

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The Business Value of Scality RING Scale-Out Storage for Healthcare Organizations

Business Value Highlights

28%
lower cost to deploy and use storage over three years

46%
less staff time to manage storage platform

52%
faster to deploy additional new storage

26%
faster initial storage deployment

IDC OPINION

The digitization of information and life means that more data is injected into our day-to-day organizational workflows and personal lives. No industry is exempt from this change, not even healthcare. Today, medical imaging such as x-rays, CT scans, and MRI studies is delivered digitally and shared with multiple caregivers across several locations. Diagnostics and treatment are at its core, but defensive medicine also influences medical imaging utilization. Whatever the reason, however, the medical imaging life cycle can be costly, resource intensive, and siloed in the healthcare provider ecosystem. In addition, the promise of personalized medicine has driven massive advances in genomics and introduced new sources of high-volume real-world data. These realities are reshaping how business gets done in healthcare, such as how images are captured, delivered, analyzed, and retained over time. Underlying the success of digital transformation in healthcare is a shift from being data rich to data driven, which entails effectively managing the data life cycle from creation to long-term retention, while providing analysis to drive insights. And yet, while data is increasingly valuable, its growth in terms of sheer volume is a serious concern for IT departments charged with storing, preserving, and managing that data.

IDC spoke with IT leaders at organizations providing healthcare services and conducting genomics research about their experiences with Scality RING scale-out storage solutions. Those interviewed at healthcare organizations (four hospital systems and a genomics research organization) described facing significant challenges in terms of handling rapidly growing data environments related to their imaging, genomics, and other healthcare-related services and applications. However, they reported that Scality has helped them address these challenges by serving as a cost-effective and flexible storage platform that enables them to handle and use growing volumes of data.

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Specifically, interviewed organizations reported:

- Lowering the cost of storing and retaining rapidly growing amounts of patient and clinical data

- Reducing the storage team time required to manage their storage platforms

- Delivering storage capacity to meet demand in a timely manner

- Minimizing data-related operational risk by having a resilient and secure storage platform

- Enhancing caregiving and analytical activities by making data more readily available through performance and scalability

SITUATION OVERVIEW

Organizations of all sizes face similar storage infrastructure challenges in today's age. Data growth, support for traditional and next-generation applications, storage optimizations, and tightened budgets are the norm across any organization. A successful organization implements the best-of-breed solution that focuses on addressing the abovementioned issues.

The most common concerns for end users contending with data growth while pursuing business strategy include:

- **Aligning IT projects.** Rightsizing infrastructure for applications with large amounts of unstructured data is a strategy to future-proof IT and ensure cost-effectiveness. Integrated solutions that can scale capacity and performance to support growing data sets while keeping data accessible at all times are essential to business continuity and efficiency.

- **Cost and efficiency.** Organizations can keep costs in check by adopting new storage technologies such as software-defined storage, cloud strategies, and other solutions. Particularly for unstructured data sets, data tiering to the optimal storage tier ensures effective cost savings, and this is especially important today when regulations require data sets to be retained for extended periods of time.

- **Mitigating risk.** To keep business running and to prevent financial losses, it is imperative that data be secured by implementing appropriate data protection and recovery technologies, staying compliant to data governance regulations, and offering application-based quality of service (QoS). Several industries, particularly healthcare, will be especially

concerned with the risk of data loss as it directly impacts reputation (and in turn lost business), trust, and safety.

- **Analytics and governance.** Data collected and stored over an extended period is a gold mine for driving insights. Depending upon the type of data, it may need to be stored for specific periods of time per regulatory requirements. Data durability, visibility, and control across deployment locations, therefore, are important considerations.

SCALITY SCALE-OUT STORAGE SOLUTIONS FOR HEALTHCARE ORGANIZATIONS

Scality is a privately held long-standing provider of distributed file and object storage software called RING, and Scality's RING has been one of the recognized brand names in the object storage space. Scality RING combines an object store and native scale-out file system for broad compatibility with file-based and modern object-based (e.g., S3) applications. And its eXtended Data Management (XDM) functionality extends data management to bring to customers the ability to take advantage of hybrid and multicloud deployments.

Scality boasts hundreds of worldwide customers across various industries including media and entertainment and finance. The company has made many new customer acquisitions in the highly regulated healthcare and life science industries and is poised to grow in this segment. Increasing technology capacity and scale is a top goal for these industries, in addition to advancing quality and customer engagement and experience. Storage plays a vital role by amassing the data to support workflows, especially as needs shift and new challenges arise over time.

The portfolio of Scality enables its customers to manage data at scale across deployment locations at optimal costs. In addition to its object store and scale-out file system, the Scality portfolio includes Zenko, a multicloud deployment model, which enables data mobility from on-premises third-party NAS and object storage to public cloud storage targets of choice. Scality also brought to market eXtended Data Management, which integrates Zenko technology for multicloud management into RING (global namespace, search, cloud replication, and life-cycle management) with bundled pricing. RING8 XDM provides an integrated solution for hybrid cloud use cases including archiving, bursting, and data protection in the public cloud. More recently, Scality announced NAS Archiver, which enables customers to automatically move cooler data from high-performant, expensive NAS to the RING to optimize storage and costs while keeping data online and available.

Scality's RING has been one of the recognized brand names in the distributed file and object storage space. Over the years, Scality has proven that it is a well-established product that can scale to hundreds of petabytes with the added advantage of data integrity and security. Scality has listened to customer feedback and made heavy investments in ease of deployment and maintenance of the RING. The findings in the customer interviews conducted by IDC are a testament to the company's commitment to ensuring customer satisfaction and support.

THE BUSINESS VALUE OF SCALITY RING SCALE-OUT STORAGE SOLUTIONS FOR HEALTHCARE ORGANIZATIONS

IDC's interviews with IT leaders at healthcare organizations demonstrate the strong value of using Scality RING scale-out storage solutions to maintain — and keep available for use — increasing amounts of data related to their healthcare operations, including medical imaging and genomics-related data. Interviewed healthcare organizations reported that Scality is more cost effective, efficient, and scalable while also providing the required levels of resiliency, availability, and performance demanded by their clinical, research, IT, and business operations.

Firmographics

IDC interviewed IT leaders at five healthcare organizations about their use of Scality RING scale-out storage solutions. Interviews were in-depth in nature and focused on understanding the impact of the organizations' use of Scality RING. As noted, four interviewed organizations were hospitals or hospital systems that provide care directly to patients, with the sample also including a genomics research organization.

Table 1 provides details about these interviewed organizations from a firmographic perspective. Overall, they are large organizations with an average of 27,904 employees (median 14,500). Their use of Scality is driven by the significant amounts of patient- and care-related data that they continually generate through images, health records, genomics sequencers, and other sources of data, reflected in their average data environments of 4PB, of which 2.8PB is deployed to support file- and object-based storage. Interviewed organizations operated in France (4) and the United States (1).

TABLE 1 Firmographics of Interviewed Healthcare Customers

Firmographics	Average	Median
Number of employees	27,904	14,500
Number of IT staff	264	125
Number of business, research, and clinical applications	611	300
Total overall data environment (TB)	4.0	3.0
Storage capacity deployed to support file- and object-based storage (PB)	2.8	2.2
Revenue per year	$2.61 billion	$1.44 billion
Countries	France (4), United States (1)	
Industries	Hospitals (4), genomics research (1)	

n=5   Source: IDC, 2019

Drivers of Scality Use

Interviewed healthcare organizations' use of Scality RING was driven above all by their need to maintain, support, and use significant and growing volumes of clinical and operational data. Their data growth relates to deeper use of existing medical technologies, adoption of new technologies, and greater use of data-driven analytics. An IT manager at an interviewed hospital system provided a common explanation of its data-related challenges: *"Over the last few years, we have noticed that there is strong growth in the volume of data generated as well as a diversity of files, both in terms of size — both in terms of very large files or very small files and in very large numbers or in small numbers — and criticality."*

Study participants concluded that Scality offered the right mix of cost-effectiveness, scalability, and performance to address these data-related challenges and put the healthcare organizations on a longer-term path toward successfully using data in support of their operations. Data-related challenges differed slightly between the hospitals and genomics institution interviewed as described in the sections that follow.

Hospitals

The four hospitals and hospital systems interviewed for this study run significant caregiving operations with an average of 12 hospitals providing 6,772 beds and 5,134 physicians and 18,351 nurses providing care (see Table 2). This scale of operations creates significant volumes of patient data, especially in terms of imaging, health records, and related activities, including electronic health record (EHR), accounting, and CCTV operations. Meanwhile, trends impacting hospitals such as increasing use of data-heavy imagery, new and improved medical

technologies that generate more data, and prolonged regulatory data retention requirements are stressing their ability to maintain, support, and use data. Interviewed Scality customers spoke to these challenges:

- **Improved medical imaging devices that create higher volumes of data:** *"Imaging is a major data generator for us that produces petabytes of data. In imagery, there is a regular increase in storage requirements because technology becomes more sophisticated and produces images that are richer and richer and thus bigger and bigger."*

- **Increasing data volume and complexity related to use cases:** *"Our use of data is changing because of the proliferation of complex radiology, complex laboratory systems, and the ever-increasing reach of our EMR platform, all of which are absolutely driving the size and the complexity of unstructured data in our system."*

IT managers interviewed for this study from hospitals cited their need to address these data-related challenges as driving their choice of Scality RING as a scale-out storage solution. In particular, they described having to prepare their storage environments to handle these challenges on an ongoing basis:

- **Finding balance of cost with security and availability needs:** *"With the growth of data volume, we needed to reduce the underlying storage and archiving costs while keeping a high level of data security and integrity. Because we know we are going to address multiple use cases in the future, we needed a scalable solution as well."*

- **Need to improve data governance:** *"We needed a platform that was sophisticated and flexible enough to allow us to tighten up our data governance process. With hospitals, data governance falls upon the applications and infrastructure far more heavily than it would on an organization that does governance properly first and then technology second. We had to put technology in the foreground to focus on governance."*

TABLE 2 Caregiving Environments, Interviewed Hospitals, and Hospital Groups

	Average	Median
Number of hospitals	12	4
Number of beds	6,772	3,134
Number of physicians	5,134	3,158
Number of nurses	18,351	12,100

n=4 Source: IDC, 2019

Genomics

The interviewed genomics organization faces data-related challenges both similar to and different from the interviewed hospitals. The interviewed IT manager described needing to handle and apply constantly escalating volumes of data related to patient DNA sequences for purposes of understanding the cause of rare cancers and other diseases, reflecting its primary research-driven operational focus. The genomics organization uses Scality RING to house the DNA data both upon receipt and for results upon analysis completion. The nature of the data it uses and maintains requires absolute security for patient data, while the amount of data these activities generate on a continual basis — which the organization estimated would require analyzing 30–40TB of data per month — made implementing an efficient storage platform essential. The interviewed IT manager alluded to these dual challenges in explaining the conclusion that Scality offered the right balance between cost-effectiveness and functionality:

- **More robust sequencing that generates more data:** *"In the genomics field, data volume keeps growing driven by always more efficient sequencers generating more and more data per patient, with higher quality. Traditional NFS storage no longer meets this need for high-quality data volume. This is why we tend to move to distributed solutions such as Scality."*

- **Avoiding risk of patient data loss:** *"With Scality, we were looking for a secured archival solution, in the sense that data must be duplicated on multiple sites so that we can face some downtime without losing data. It is patient's health data, and we cannot lose it and ask for a patient to provide another sample again. Data must be available, always."*

Beyond these baseline operational benefits, the interviewed IT manager at the genomics organization also noted that Scality RING would allow for more seamless growth to its genomics-related data environments. In particular, he noted that Scality had the engineer resources to help build an architecture to accommodate this growth, while using an open source alternative would require the investment of significant amounts of its staff's time. This will be very important as the organization begins working on new genomics sequencers, which will thereby push its data environments up to an even greater extent.

Overview of Scality Use

Interviewed organizations support substantial and critical portions of their healthcare operations with Scality RING storage solutions. As noted, they are using Scality for various mission-critical applications both related directly to patient care and genomics and operational applications, including:

- PACS/imaging (4)

- Patient electronic health records (3)

- Genomics and genomics sequencers (2)

- Biomedical, CCTV, EMR, radiology, and accounting (1 each)

Interviewed IT managers reported integration of Scality environments with various ISV solutions, including backup software solutions from Commvault and Veeam; PACS applications from General Electric (GE Healthcare), Carestream, Fujifilm, and Sectra; and data management solutions such as iRODS.

Table 3 evidences the significant scale of study participants' Scality use, with usable capacities averaging over 2.5PB (2,681TB) and supporting applications serving an average of 7,537 employees. As noted, interviewed organizations chose Scality in part to address their expanding operational data environments, with 13% average annual growth to these environments.

TABLE 3 Scality's Use by Interviewed Healthcare Organizations

	Average	Median
Number of physical servers	9	8
Usable capacity (TB)	2,681	2,200
Growth rate (percentage per year)	13	12
Number of business applications	54	7
Number of internal users	7,537	8,500

n=5 Source: IDC, 2019

Value of Scality Scale-Out Storage for Healthcare Organizations

Interviewed IT managers described a strong value proposition for their healthcare organizations of using Scality scale-out storage solutions related to having the ability to cost effectively and efficiently handle rapid growth to their data environments, alongside storage scalability, reliability, and performance. Several interviews covered these benefits concisely:

- **Lower cost and needed levels of security/availability:** *"With Scality, we can store and archive data at a better price, with the same level of security, integrity, and availability we had so far. Compared with [our previous solution], we address the same needs at a lower ratio cost*

per TB and with a more scalable solution … In addition, we have received excellent support from Scality from the very beginning."

- **Move storage away from specific infrastructure decisions, a longer-term solution:** *"Scality gives us serenity. It's long-term storage. We no longer have to move our data based on new infrastructure developments. We therefore see Scality as a storage solution that will last for a long time and that the data stored on the RING won't need to be moved to another storage system."*

Cost-Effective Storage to Meet Growing Data Requirements

Interviewed IT managers cited their organizations' ability to deliver storage capacity to meet growing data volumes in a cost-effective way as a foundational benefit of Scality RING. They pointed to cost efficiencies in terms of both storage software and hardware. From a software perspective, they attributed efficiencies to Scality's ability to handle large amounts of file- and object-based data, add new capacity with ease through software-defined policy, and integrate efficiently with platforms creating data. From a hardware perspective, they linked savings to not needing to use certain storage hardware platforms, thereby optimizing hardware costs. Combined, these cost efficiencies contributed to what they described as creating a longer-term storage platform. In other words, their organizations regard Scality as the right storage platform as their operations become increasingly data focused because of escalating volumes related to imaging, genomics, and other healthcare applications. They noted:

- **Software defined lowers costs and enables scalability/agility:** *"With ever-growing PACS data volume, we had to buy a new array every 18 months, but older arrays required costly maintenance … We chose Scality because we needed a scalable storage solution ... Moreover, Scality is a software-defined solution, so we can scale out by adding servers with bigger capacity and licenses without thinking about the hardware."*

- **Ease of integration and lowering cost per storage unit:** *"We chose Scality because it is an open protocol and because of the ease of integration. Moreover, its architecture is recent and based on a software-defined technology. Scality also had the best ratio of cost per TB."*

- **Enables efficient, flexible private cloud:** *"We needed to create an internal cloud, which meant key foundational technologies, like storage, needed to adopt this methodology ... Very few companies could do this, but Scality is one of the few that can because it is software and you don't have to buy hardware from them."*

As shown in Figure 1, interviewed healthcare organizations have realized significant storage-related cost savings with Scality, bringing down the cost of storage by 28% over three years. This includes storage hardware–related cost efficiencies of an average of 34% and storage

software efficiencies of 21%. Combined, these efficiencies reduce the cost of providing storage by an average of almost $270,000 per petabyte over three years.

FIGURE 1 Average Three-Year Cost of Deploying and Running Storage per Petabyte


n=5 Source: IDC, 2019
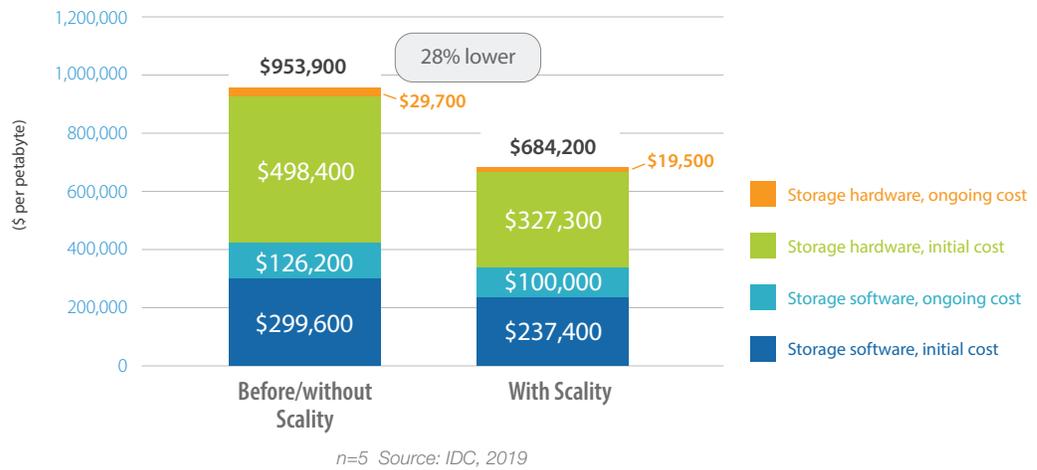
Efficient Storage Management

Several interviewed IT managers described efficiencies for their healthcare organizations in managing their storage environment as important to their choice of Scality. As with cost-effective provisioning of new storage, they view efficient management as a foundation in establishing a sustainable and longer-term storage platform to serve their operations dependent on growing data volumes. They spoke to these management efficiencies:

● **Consolidated storage environment that provides management efficiencies:** *"Scality is a new technology that does not require a lot management effort, unlike a SAN system ... Using Scality has allowed us to consolidate our storage arrays, which reduced the amount of heterogeneous systems to manage for a unified backup system."*

● **Less staff time to deploy, manage, and maintain storage:** *"The main operational benefit for us of Scality is the reduction of time required to operate, the time to deploy, and maintain the storage. That's what we were looking for with Scality."*

● **Sustainable and cost-effective storage:** *"Scality is long-term storage so it will not create challenges with regard to the skills that our storage solution requires ... Scality's solution is resilient, so there are fewer operations to be done to ensure that the data is properly replicated. It's done natively."*

As shown in Figure 2, study participants reported needing 46% less staff time to manage Scality than their legacy storage platforms. This frees up valuable staff time and resources to focus on other initiatives, including imaging and genomics activities that are increasingly important to interviewed organizations' operations.

FIGURE 2 Storage Team — Time Managing Solution

n=5 Source: IDC, 2019
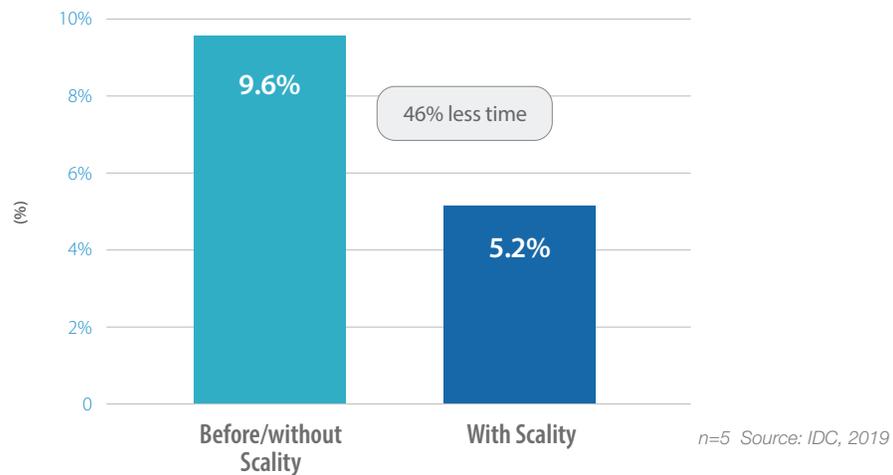
## *Flexibility in Delivering Storage to Address Demand*

Healthcare study participants are able to both deploy Scality in a fast and efficient manner and expand their storage environments to address new demand with ease. They gain this storage-related flexibility and scalability because Scality allows them to add capacity incrementally with software-defined processes. Several interviewed IT managers described the increased speed with which they can deploy storage capacity with Scality:

● **Faster to deploy and extend storage to meet operational needs:** *"Our Scality deployment took two weeks but would have taken around two months with an open source solution since we would have needed to manage the whole deployment and learn how to use the software."*

● **Speed of adding capacity:** *"We can add capacity quickly with Scality — it takes us 24 hours to add storage capacity when we receive equipment. This is one of the main pros of Scality."*

Figure 3 demonstrates the average improvements in storage deployment times for interviewed healthcare organizations with Scality. They reported needing an average of 26% less time for their initial Scality deployments and 52% less time to extend their Scality environments with additional capacity. For study participants, the ability to deliver new storage in less time is both an operational efficiency by requiring less staff time to execute deployments and an

operational enabler by allowing them to put storage in place to support new or extended activities at an earlier time.

FIGURE 3 Time to Add and Deploy New Storage

Initial time to deploy	**26%**
Time to deploy additional storage	**52%**

(Faster)
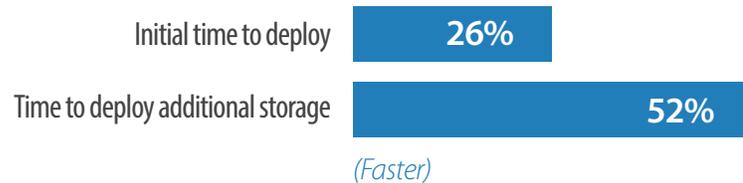
Source: IDC, 2019

Minimizing Data-Related Risk

Interviewed organizations must operate in ways that avoid significant potential operational and financial risk due to the nature of the services they provide and the data they handle as healthcare providers and organizations. They must manage the challenges of using, maintaining, and securing very sensitive patient data. They can ill afford patient data loss or even data compromise, as these events would carry the potential for significant regulatory compliance penalties and fines, leaving aside the significant but less easily quantifiable reputational loss costs they could incur.

Interviewed IT managers reported that Scality has served as a reliable and secure storage platform, allowing them to minimize or maintain low levels of data-related operational risk:

- **Architecture that ensures continuity and avoidance of data loss**: *"We can better protect health records and images because Scality has intrinsic data protection functions: the erasure coding function distributes data on several servers and guarantees continuity between RING servers."*

- **System resiliency despite problems with servers:** *"By design, Scality's RING architecture is very resilient, so we have little to no stress or constraint when we lose one or two servers. We can lose half of the servers and the solution remains accessible."*

- **Improved control over access to data:** *"We optimize security in terms of accessibility. In particular, security is stronger with the S3 connectors. Security is part of Scality's culture, and they have higher standards than most other storage vendors ... Because of the implementation of S3, security is improved in terms of access to the data. We have a better control over who can access data and how."*

Supporting Business and Operational Requirements

Interviewed IT managers also provided various examples of how Scality has enabled concrete improvements from an operational perspective for their organizations through performance and extensibility. As noted, almost every type of operation or activity that interviewed healthcare organizations undertake is based on, and creates, data. This means that, without a storage platform in place that can handle data requirements created in a cost-effective and high-performant manner, study participants must give more consideration about whether they can extend activities or even move into these operational areas.

Interviewed IT managers provided a number of specific examples of how specific teams and practices have benefited from Scality's performance and greater flexibility:

- **Ability to archive indefinitely, avoid tape inefficiencies:** *"Before Scality, PACS archives were downloaded on tapes that ended up saturated. With Scality, we now have an indefinite archive for these archives. We can now archive all exams in real time, which was not the case before — it used to take 10–15 minutes to read/display an image stored on tape compared with 15 seconds with Scality to display the same image."*

- **Ability to take on new imaging capabilities:** *"Scality now helps support other operational and caregiving projects such as electroencephalogram, electrocardiogram, genomic sequencing, archiving of different data equipment, and video protection. Having this storage space available with Scality makes it easier for us to do run and scale out these projects."*

- **Ability to support specific teams:** *"The anatomical pathology team will greatly benefit from Scality. Today, doctors working in this field store their data on external portable hard drives or on low-cost NAS, which is not properly secured. Tomorrow, they are going to have storage space on the RING infrastructure, and this will provide real added value. They will benefit from the strengths of Scality: resilience of the RING and easy-to-manage clustering."*

CHALLENGES AND OPPORTUNITIES

Healthcare and life science organizations are quickly evolving to organize around high-value, high-growth digital transformation use cases. Scality's image as an established object storage provider remains deeply grounded since the time of the company's inception to now. Scality's vision to anticipate the need for new features or offerings and ability to deliver them on a regular cadence are signs of the company's commitment to changing market needs and demands. Scality is committed to addressing the market needs (e.g., recognizing the growing cloud-first strategy) and, therefore, entered a partnership with Microsoft Azure on furthering

hybrid and private cloud and edge strategies for customers. This will help further penetration and keeps with modern infrastructure demands.

These developments allowed Scality to enter new market segments such as healthcare by proven support for PACS applications across several hospitals around the world. While PACS remains widely established, healthcare provider organizations have been increasingly adopting enterprise imaging in response to clinical and operational performance and cost pressures. PACS is now transitioning to broader enterprise imaging solutions, so Scality has worked to ensure compatibility with a wide range of PACS solutions so that customers can implement this today. The more "universally compatible" and exchangeable nature of enterprise imaging will make flexible, easily scaled storage with universal applications interfaces even more important, and Scality RING brings the future proofing that will help organizations through the transition. While the overall number of customers within the healthcare and life science segment that Scality supports today is a small percentage of its overall customers, the positive feedback from existing customers is indicative of future success in this space. IDC recommends customers in these industries as well as others call for proof of concept to evaluate the benefits Scality can bring to their organization.

CONCLUSION

Scality has been a long-standing provider of object storage and has been recognized as a Leader in *IDC MarketScape: Worldwide Object-Based Storage 2019 Vendor Assessment* (IDC #US45354219, December 2019). Scality's partnerships, proven platform, expanded portfolio, and continued commitment to excellence make its value proposition appealing to current and potential customers.

IDC's research underscores both the demands that rapid growth to data place on organizations providing healthcare services and conducting genomics research and the extent to which Scality RING scale-out storage solutions can help address these challenges. IT leaders at hospital systems and genomics research organizations interviewed for this study noted the extent to which their imaging, genomics, and other healthcare-related services and applications were creating huge amounts of new data; however, they explained that Scality RING has enabled them to store, manage, and leverage such data in a cost-effective manner while also providing the levels of performance and scalability that their organizations require. As a result, they can better leverage patient and clinical data to support their caregiving and analytical operations.

APPENDIX

Methodology

IDC's standard Business Value and ROI methodology was utilized for this project. This methodology is based on gathering data from healthcare organizations currently using Scality storage solutions as the foundation for the model. IDC collected quantitative benefit information during the interviews using a before-and-after assessment of the impact of using Scality storage solutions for interviewed healthcare organizations. In this study, the benefits included storage-related cost savings and staff productivity gains.

Note: All numbers in this document may not be exact due to rounding.

IDC Research, Inc.

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-insights-community.com
www.idc.com

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