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Business Value Highlights

505%
five-year ROI

8 months
to payback

50%
lower five-year cost of operations

83%
faster storage deployments

96%
reduced unplanned downtime

32%
faster application development life cycle

Business Value of VxRack and ScaleIO

EXECUTIVE SUMMARY

Software-defined storage (SDS) is bringing about a real transformation in terms of how companies procure and provision storage resources. Although the concept is not entirely new, the available features and market awareness of today's software-defined storage solutions are better aligned with contemporary datacenter challenges than any other time in the past. As a result, we see an increasing number of companies looking to software-defined storage solutions as a way to drive new levels of capital and operational efficiencies throughout their datacenters.

To measure the impact of SDS, IDC interviewed 10 organizations that are supporting various business operations with the EMC ScaleIO software-defined block storage. IDC's study shows that organizations are deriving significant business value from their investment in software-defined storage with EMC ScaleIO. IDC calculates that these organizations will realize business value worth an average of \$1.74 million over five years. As a result, IDC projects that these organizations will achieve an average return on investment (ROI) of 505% and break even on their investment in eight months because EMC ScaleIO:

- » Enables business operations by providing an elastic, scalable, and flexible storage environment
- » Automates and accelerates the provisioning of storage to meet business-driven technology initiatives
- » Minimizes the frequency of application downtime related to storage environments
- » Requires less time to manage, administer, and update
- » Costs less to operate than alternative traditional storage solutions considered

The SDS paradigm will evolve storage buying habits in terms of not only selecting systems based on their capacity, performance, reliability, cost, and ease of use but also further allowing a decoupled acquisition model in which hardware and software are acquired independent of each other.

Situation Overview

Software-defined storage fundamentally alters how storage platforms are packaged and delivered by suppliers and how they are procured and consumed by buyers. IDC refers to software-defined storage as storage systems (hardware plus software) that deliver a full suite of storage services via an autonomous software stack that runs on (but is not necessarily tied to) industry-standard hardware platforms. The SDS paradigm will evolve storage buying habits in terms of not only selecting systems based on their capacity, performance, reliability, cost, and ease of use but also further allowing a decoupled acquisition model in which hardware and software are acquired independent of each other.

As noted previously, the concept of software-defined storage is not entirely new. That said, IDC has observed a real shift in how suppliers and buyers perceive software-defined storage in recent years. Over the past decade, the most commonly deployed software-defined storage solutions were referred to as storage virtualization and were almost always deployed for one of the following reasons:

- » Federating multiple scale-up external storage systems in a datacenter to consolidate management
- » Federating scale-up external storage systems at multiple sites for disaster recovery purposes
- » Reducing the time and risk associated with data migration during infrastructure refresh projects
- » Giving new life to systems that had remained in use longer than the initial support contract

While these remain important reasons for deployment, the use cases and capabilities driving modern software-defined storage demand have expanded considerably. Most of the modern drivers of software-defined storage are associated with:

- » Reducing capital costs:
 - By building an external storage system with industry-standard x86 servers as the core SDS building blocks
 - By completely virtualizing the storage services that are normally run on physical SAN-attached shared storage systems

- » Improving agility and operational costs through the increased use of automation and reduced reliance on storage specialists for management
- » Improving capacity planning and availability by deploying scale-out storage architectures that can start small and scale only as needed and in a nondisruptive manner
- » The growing desire to deploy cloud instances to augment the availability, scale, and geographic reach of internal datacenter resources

EMC ScaleIO

In 2013, EMC acquired ScaleIO, which forms the basis for several of EMC's software-defined storage offerings today. Although ScaleIO was a software-only offering at the time of the acquisition, EMC has expanded ScaleIO's deployment choices to better meet the needs of the storage market's diverse set of storage consumers. Today, customers can consume ScaleIO technology as purely software (ScaleIO software), as a scale-out block storage appliance built with industry-standard x86 servers (VxRack Node¹), or as a complete converged system that is fully integrated by VCE, EMC's Converged Platforms Division (VCE VxRack System 1000 with FLEX Nodes). All three models are built with the same ScaleIO SDS technology but allow users to choose the consumption model that best fits their needs.

ScaleIO software enables users to create a virtual pool of server-based storage by logically combining SSDs, PCIe flash cards, and HDDs — or any combination of these devices.

Simply stated, ScaleIO software enables users to create a virtual pool of server-based storage by logically combining SSDs, PCIe flash cards, and HDDs — or any combination of these devices. ScaleIO can be deployed in a "storage only" configuration to create a feature-rich, high-performance external storage system with x86 server nodes, or it can be deployed in a hyperconverged environment that converges compute and storage resources into a scale-out architecture, running directly on the same server resources that host the application and virtual servers. Regardless of how it is deployed, ScaleIO software combines all available server resources to create a large pool of virtual shared storage. The constructs of the ScaleIO architecture eliminate the complexity and cost of a traditional SAN deployment, which requires not only HBAs and a Fibre Channel (or iSCSI)-based storage system and switches but also adequate power, cooling, floor space, and host ports to support the infrastructure. According to EMC, ScaleIO software has been designed to consume the minimum computing resources required for operation and thus has a negligible impact on the applications running in the hosts. An important distinguishing aspect of ScaleIO (regardless of how it is deployed) is its high-performance characteristics and its ability to scale to thousands of nodes. This has made the offering particularly appealing to larger enterprise customers and cloud service providers.

¹As of September 2016, EMC changed the name VxRack Node to ScaleIO Ready Node.

The Business Value Of EMC ScaleIO Software-Defined Block Storage

Study Demographics

IDC interviewed 10 organizations supporting various workloads with ScaleIO to understand its impact on their IT and business operations. These EMC customers represented a cross-section of industries, were evenly split between enterprises and providers of IT and cloud services, and ranged in size from fewer than 100 employees to 200,000 employees, with an average of 25,600 employees and a median of 1,800 employees (see Table 1). These organizations have substantial customer bases — more than 1 million on average — that they are supporting in part with their ScaleIO infrastructures.

These organizations are using the deployment options offered by EMC for ScaleIO discussed previously to match their IT and business needs. Five of the organizations are using ScaleIO as only a software solution (i.e., deploying it with their existing hardware), while the other five organizations reported using VxRack Node² at least in part. At the time of the interviews, the organizations were using ScaleIO for an average of 96 physical servers, with an average of 408TB of storage and 2,071 virtual machines running in their EMC ScaleIO environments.

Interviewed EMC customers reported running a variety of workloads on ScaleIO, including:

- » A number of IT and cloud services providers supporting their customer-facing “as a service” operations, including WiFi as a service and IaaS
- » Several enterprise organizations using ScaleIO as the standard environment for their virtualized application environments
- » A media company supporting database and application servers
- » An IT services provider running transactional workloads, including SQL, as well as supporting VDI and non-transactional workloads

² As of September 2016, EMC changed the name VxRack Node to ScaleIO Ready Node.

TABLE 1

Demographics of Interviewed Organizations Using EMC ScaleIO		
	Average	Median
Number of employees	25,600	1,800
Number of IT staff	404	66
Number of IT users	21,700	1,305
Number of servers — EMC ScaleIO environment	96	27
Number of virtual machines (VMs) — EMC ScaleIO environment	2,071	238
Number of terabytes — EMC ScaleIO environment	408	330
Countries	United States, Switzerland, and Estonia	
Industries	Service providers, telecom, hospitality, media, IT services, healthcare, and insurance	

n = 10

Source: IDC, 2016

As an IT manager at a cloud services provider explained, “We were looking for a software-defined storage platform that would offer scale-out, high performance, and resiliency. As we looked through the options, EMC ScaleIO really shined in these areas.”

Financial Benefits Analysis

Interviewed organizations described similar reasons for choosing EMC ScaleIO. They needed a storage platform that could support scalable and elastic IT operations while providing resiliency and strong performance. As an IT manager at a cloud services provider explained, “We were looking for a software-defined storage platform that would offer scale-out, high performance, and resiliency. As we looked through the options, EMC ScaleIO really shined in these areas.”

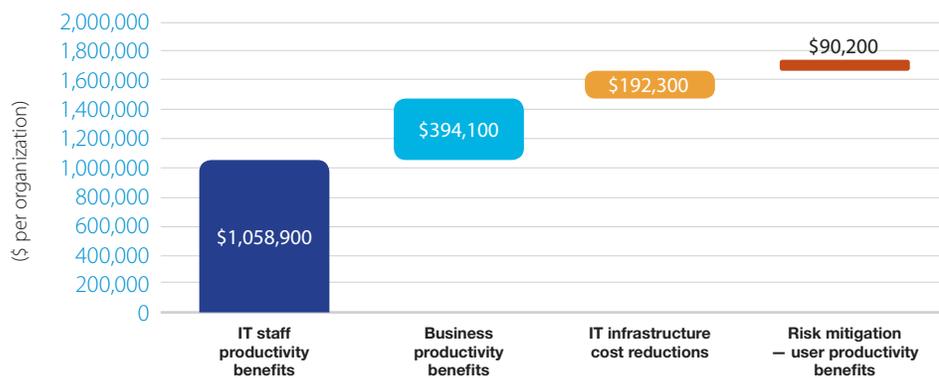
The advantages with EMC ScaleIO are translating to substantial business value for interviewed organizations compared with their previous environments. Most interviewed organizations migrated to EMC ScaleIO from legacy three-tier SAN-based architectures, although several organizations have deployed it at least in part to support net-new workloads. Based on interviews with IT managers at the surveyed organizations, IDC projects that these organizations will achieve business benefits equivalent to an average of \$1.74 million per annum over a five-year period (\$425,900 per 100TB in their ScaleIO environments) in the following areas (see Figure 1):

EMC ScaleIO provides business agility and empowers organizations to dynamically address business opportunities. As a result, these organizations capture more revenue and provide timely access to high-performing business applications by speeding up delivery and getting applications into production sooner.

- » **IT staff productivity benefits.** EMC ScaleIO provides a more efficient environment for application development teams and teams responsible for managing and provisioning storage and other hardware. The ease of provisioning storage enables application developers to do more, while automation, streamlined provisioning, and higher reliability save IT infrastructure staff time on activities such as data migrations and capacity planning. IDC projects that interviewed organizations will achieve IT staff productivity gains worth an average of \$1.06 million per year over five years (\$259,900 per 100TB).
- » **Business productivity benefits.** EMC ScaleIO provides business agility and empowers organizations to dynamically address business opportunities. As a result, these organizations capture more revenue and provide timely access to high-performing business applications by speeding up delivery and getting applications into production sooner. IDC calculates that the interviewed organizations will realize additional revenue and employee productivity gains worth an average of \$394,100 per year over five years (\$96,700 per 100TB).
- » **IT infrastructure cost reductions.** EMC ScaleIO enables organizations to reduce storage-related costs, including retiring or avoiding buying Fibre Channel switches, and other datacenter operating expenses by helping them better align their storage infrastructure with business demand and avoid overprovisioning. IDC projects that these organizations will save an average of \$192,300 per year over a five-year period (\$47,200 per 100TB).
- » **Risk mitigation — user productivity benefits.** EMC ScaleIO provides reliable and seamless access to services and applications. IDC projects that by reducing the impact of storage-related outages on business operations and users, interviewed organizations will achieve value worth an average of \$90,200 per year over five years (\$22,100 per 100TB).

FIGURE 1

Average Annual Benefits per Organization



Average annual benefits per organization: \$1.74 million

Source: IDC, 2016

Enabling Storage Agility, Scalability, and Performance

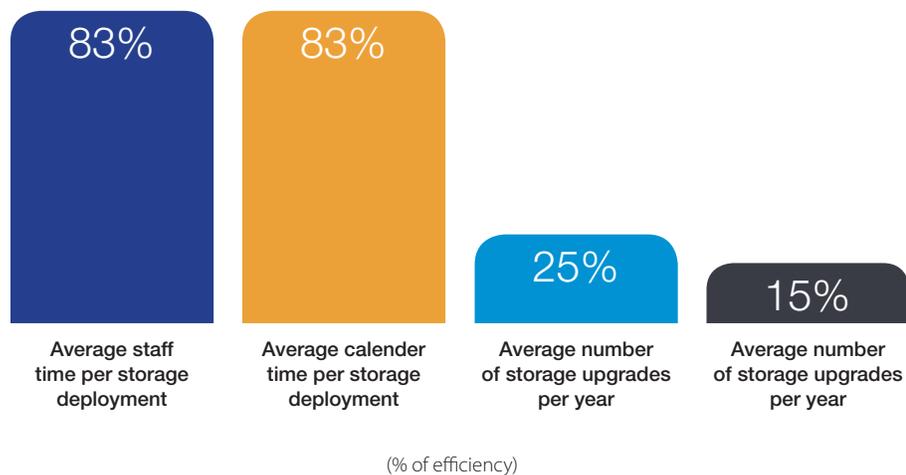
A significant portion of the financial benefits that interviewed organizations attribute to EMC ScaleIO relate to it providing them with an agile and scalable storage infrastructure as well as the improved performance of their storage infrastructures. By taking advantage of a software-defined pool of common storage with EMC ScaleIO, surveyed organizations have minimized the extent to which deploying storage delays or impedes the development process for applications and services. As a result, IT staff members spend less time provisioning storage, application developers enjoy a more seamless development environment, and customers and users benefit from the timely delivery of services and applications. Interviewed organizations now need an average of 83% less calendar and staff time to deploy storage with ScaleIO, going from needing more than two weeks to two days on average (see Figure 2).

Agility and scalability within storage environments have benefited both EMC's enterprise customers and IT and cloud service providers. Interviewed organizations provided the following examples:

- » **Cloud services provider:** *"We've seen a tremendous increase in our speed to provision cloud users with EMC ScaleIO. Now, we can provision in less than an hour, whereas it used to take days or even weeks."*
- » **Enterprise:** *"EMC ScaleIO impacts our application developers because they can provision storage automatically, so the infrastructure basically works dynamically with the applications as required."*

FIGURE 2

Storage Agility Metrics: EMC ScaleIO



Source: IDC, 2016

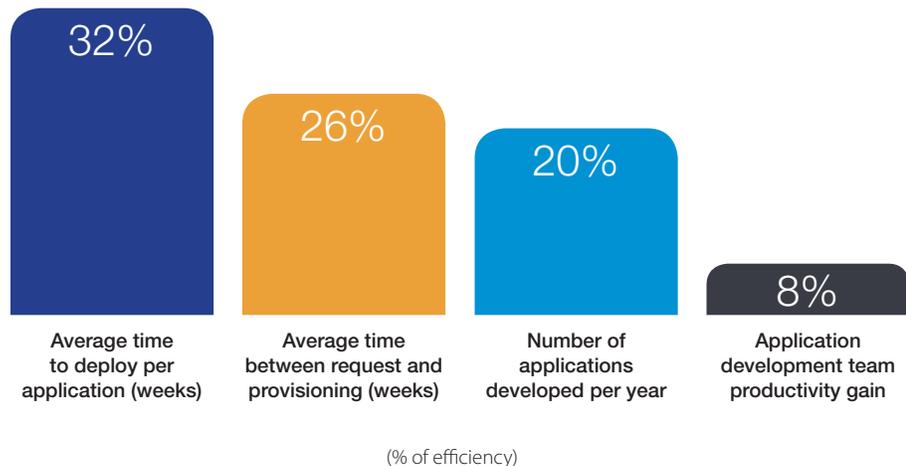
“Our application developers are more productive with EMC ScaleIO because the base systems are running faster ... We can get out more applications and new features because we can scale faster and move them into production in less time.”

IT Staff Productivity Benefits

EMC ScaleIO empowers IT teams at surveyed organizations by allowing them to better support technology-driven business growth while spending less time on day-to-day maintenance and support activities. For these organizations, a core benefit of the agility, scalability, and flexibility that EMC ScaleIO provides is improved productivity of their application development teams. The ability to dynamically provision storage resources means that application developers have real-time access to testing environments. The result is that business applications are delivered in less time (32% faster), and the time between user or customer requests for applications or services being made and delivery is shortened (26% less time) (see Figure 3). As an IT manager at an organization in the hospitality industry commented, “Our application developers are more productive with EMC ScaleIO because the base systems are running faster ... We can get out more applications and new features because we can scale faster and move them into production in less time.” For interviewed organizations, enabling their application development teams to provide the services and applications demanded by customers and users in less time represents a significant operational improvement that translates through to their businesses.

FIGURE 3

Application Development Team Efficiencies: EMC ScaleIO



Source: IDC, 2016

Interviewed EMC customers are also able to manage their storage environments more efficiently with ScaleIO. They benefit from automation, managing and provisioning from a shared pool of storage resources, and needing to respond to fewer storage-related problems. On average, these organizations manage their EMC ScaleIO environments 40% more efficiently than their previous environments, devoting 75% less staff time to respond to

storage-related help desk tickets and spending 83% less time provisioning storage (see Table 2). An IT manager at a cloud and managed services provider articulated the overall impact for his team as follows: *“We can really support ScaleIO with less IT staff resources — two staff members. Before, with a smaller system, it was probably double that. These staff members should have been doing other things but were dedicating their time to helping manage storage because it was not reliable.”*

TABLE 2

IT Staff Efficiencies: EMC ScaleIO

Hours per Year per 100TB	Before EMC ScaleIO	With EMC ScaleIO	Difference	Change (%)
Storage management	843	502	340	40
Other infrastructure management	4,337	3,770	567	13
Call center	645	159	487	75
Storage deployment	146	24	121	83

Source: IDC, 2016

Interviewed organizations attribute higher revenue — an average of \$1 million per year — to EMC ScaleIO, and they report increased productivity for employees who use business applications on a daily basis that perform better running on the EMC ScaleIO platform.

Business Productivity Benefits

Benefits of EMC ScaleIO such as agility, scalability, and high performance translate into improved business and operational outcomes for interviewed organizations. With ScaleIO, interviewed organizations are leveraging technology as a catalyst for business growth. This is especially true for EMC’s IT and cloud service provider customers that must meet demand from their customers in near real time, but it also applies to EMC’s enterprise customers that increasingly depend on IT-driven business initiatives to support growth. As a result, interviewed organizations attribute higher revenue — an average of \$1 million per year — to EMC ScaleIO, and they report increased productivity for employees who use business applications on a daily basis that perform better running on the EMC ScaleIO platform than their legacy three-tiered and traditional SAN storage infrastructures (see Table 3).

Interviewed organizations provided a number of examples of the impact of EMC ScaleIO on their businesses and operations:

- » **Scaling to meet business demand.** As an IT manager at a cloud services provider explained, *“EMC ScaleIO has really changed how we do business. We’ve put together automation scripts that deploy the ScaleIO software in a fully automated fashion, so we can take our ERP systems, put orders in them, and automatically deploy more VxRack Node³.”*

³ As of September 2016, EMC changed the name VxRack Node to ScaleIO Ready Node.

... This means two things. First, we can better tune price to our costs as appropriate for a customer's use case. Second, the automation software fits storage resources to the appropriate use cases and groups them together, which means that we don't have to overprovision storage and we can just add what we need."

- » **Scaling to meet changing operational demands.** As an IT manager at an enterprise commented, "EMC ScaleIO gives us the ability to scale up as needed. That's important to us because we often have to scale up quick. We acquire partnerships, and then we'll have to onboard 100–200 users all of a sudden. We can do this in a day now compared with a week before."
- » **Competing better.** An IT services provider explained that it can better compete for customers: "EMC ScaleIO has helped us align our costs to our revenue. As a service provider, it's allowed us to become more flexible and more comfortable offering customers shorter terms and better consumption models ... With traditional storage, you purchase storage arrays up front, and with ScaleIO, we can now basically take out that storage array."

TABLE 3

Business Productivity Benefits: EMC ScaleIO		
	Per Organization	Per 100TB
Increased user productivity		
Number of impacted users	192	192
Productivity gain	2.0%	2.0%
Additional productive hours per year	7,210	1,769
Value of increased productivity per year	\$245,600	\$60,300
Higher revenue — business impact		
Additional revenue per year	\$1 million	\$243,000
Operating margin assumption	15%	15%
Increased operating margin per year	\$148,500	\$36,443

Source: IDC, 2016

“The biggest benefit for us of EMC ScaleIO is that we can replace hardware without having to buy the software again rather than rebuying the entire hardware platform with the software on top of it — this reduces our costs by half.”

“All of the applications that we deliver to our customers are mission critical. And one of the things that has been tremendous with EMC ScaleIO is that it has so much redundancy built into it that we literally have had no downtime related to storage since migrating to it.”

IT Infrastructure Cost Reductions

EMC’s customers have also lowered storage-related costs with ScaleIO. They capture efficiencies from moving from more traditional tiered datacenter architectures to more seamless architectures with software-defined storage. The result is not only lower cost of storage and retiring or avoiding buying network hardware such as Fibre Channel switches but also savings for operating expenses such as power, cooling, and datacenter space. As an IT manager at an interviewed organization noted, *“We’re decommissioning our other storage and will save on that. If you look at maintenance alone, it’s around 9 cents/gig per month and that goes down to about 3 cents/gig per month with EMC ScaleIO. This is just the cost of operations — ScaleIO is also more efficient in terms of utilization.”* Further, the ability of organizations to match storage resources to business demand dynamically helps them avoid overprovisioning storage. As an IT manager at another organization stated, *“Before ScaleIO, we overbought raw storage — we always kept a safety margin of not utilizing more than 50% because we needed capacity if we had a surge in demand. Now, we don’t have to do that.”*

Interviewed organizations also benefit from being able to use ScaleIO as a storage-only solution or as a hyperconverged solution. An IT manager at a cloud services provider explained how this flexibility benefits his organization: *“The biggest benefit for us of EMC ScaleIO is that we can replace hardware without having to buy the software again rather than rebuying the entire hardware platform with the software on top of it — this reduces our costs by half.”*

Risk Mitigation and Availability

Organizations using EMC ScaleIO credited it with providing them a reliable, secure, and stable storage platform for providing customer-facing services and running key business applications. Features of ScaleIO such as more efficient distribution of storage resource consumption and the ability to scale without friction or downtime mean fewer impactful outages (38%), faster resolution of problems (16%), and less impact on users of IT services (96%) (see Table 4). Further, the enhanced reliability of their storage platforms provides interviewed organizations with confidence that they can deliver services at the standard required by their demanding customers. As an IT manager at a cloud services provider explained, *“All of the applications that we deliver to our customers are mission critical. And one of the things that has been tremendous with EMC ScaleIO is that it has so much redundancy built into it that we literally have had no downtime related to storage since migrating to it.”*

TABLE 4

Risk Mitigation and Unplanned Downtime: EMC ScaleIO				
Hours per Year per 100TB	Before EMC ScaleIO	With EMC ScaleIO	Difference	Change (%)
Number of instances of unplanned downtime per year	2.4	1.5	0.9	38
MTTR (hours)	3.8	3.2	0.6	16
Productive hours lost per 100TB per year	60.3	2.2	58.1	96

Source: IDC, 2016

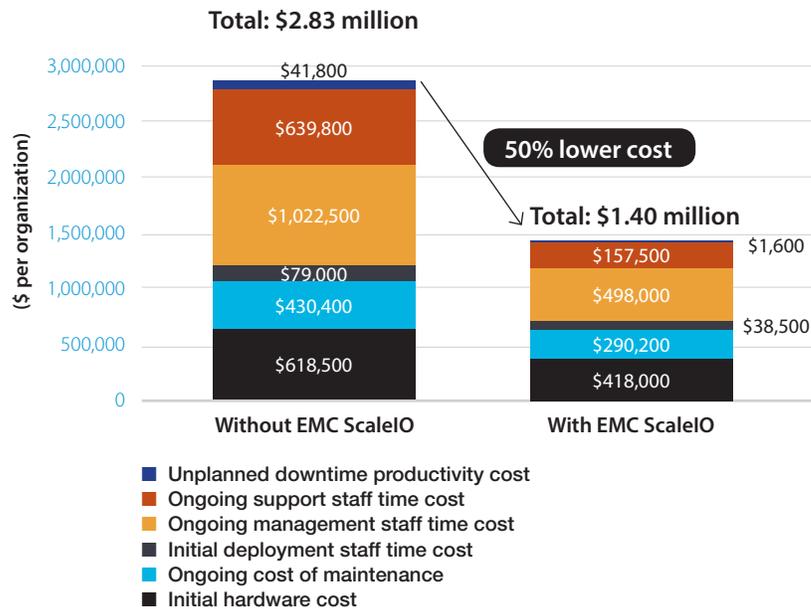
IDC calculates that these organizations will incur costs that are an average of 50% lower for operating EMC ScaleIO over five years thanks to IT infrastructure cost reductions and avoidances; IT staff efficiencies in terms of deploying, maintaining, and supporting EMC ScaleIO; and the reduced impact of unplanned outages on users (see Figure 4).

Total Cost of Operations

Interviewed organizations reported that they have been able to deploy and operate EMC ScaleIO at a substantially lower cost, for the workloads they are running on it, than with a more traditional tiered-architecture approach. IDC calculates that these organizations will incur costs that are an average of 50% lower for operating EMC ScaleIO over five years thanks to IT infrastructure cost reductions and avoidances; IT staff efficiencies in terms of deploying, maintaining, and supporting EMC ScaleIO; and the reduced impact of unplanned outages on users (see Figure 4).

FIGURE 4

Five-Year Cost of Operations per Organization: EMC ScaleIO



Source: IDC, 2016

ROI Analysis

IDC interviewed 10 organizations running a variety of workloads on the EMC ScaleIO software-defined block storage and recorded their results to inform this study's analysis. IDC used the following three-step method for conducting the ROI analysis:

- 1. Gathered quantitative benefit information during the interviews using a before-and-after assessment.** In this study, the benefits included IT staff and employee productivity gains and time savings, increased revenue, and IT-related cost reductions.
- 2. Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of deploying EMC ScaleIO and can also include costs related to the solution, including migrations, planning, consulting, configuration or maintenance, and staff or user training.
- 3. Calculated the ROI and payback period.** IDC conducted a depreciated cash-flow analysis of the benefits and investments for these organizations' use of EMC ScaleIO over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

Table 5 presents IDC's analysis of the average discounted benefits, discounted investment, and return on investment for the EMC customers interviewed for this study. IDC projects that these organizations will make a discounted investment of an average of \$1.01 million per organization over five years (\$0.25 million per 100TB) in EMC ScaleIO. In return, IDC calculates that they will achieve discounted benefits worth a five-year average of \$6.13 million per organization (\$1.50 million per 100TB). This means that these organizations would realize an average five-year ROI of 505% and break even on their investment in EMC ScaleIO in an average of eight months.

TABLE 5

Five-Year ROI Analysis		
	Per Organization	Per 100TB
Benefit (discounted)	\$6.13 million	\$1.50 million
Investment (discounted)	\$1.01 million	\$248,690
Net present value (NPV)	\$5.12 million	\$1.26 million
Return on investment (ROI)	505%	505%
Payback period	8 months	8 months
Discount rate	12%	12%

Source: IDC, 2016

IDC calculates that they will achieve discounted benefits worth a five-year average of \$6.13 million per organization (\$1.50 million per 100TB). This means that these organizations would realize an average five-year ROI of 505% and break even on their investment in EMC ScaleIO in an average of eight months.

Software-defined storage solutions need not be an all-or-nothing deployment strategy that results in complete replacement of external storage systems. Indeed, one can expect SDS to be blended into an overarching strategy that identifies key scenarios in which SDS-based deployments are targeted where they can be most beneficial.

Challenges And Opportunities

Though advancements made to software-defined storage solutions in recent years are truly impressive, available features are not always on par with the more mature external storage systems widely deployed today. This can often be attributed to the maturity of the solutions and the use of dedicated silicon. Indeed, traditional external storage systems benefit from decades of development and refinement, during which time technology suppliers have proven their ability to meet the most demanding availability- and performance-related service requirements with almost no compromises to either. Traditional external storage systems also offer tight integration with a broader set of applications, databases, and infrastructure software (e.g., data protection, systems management software, hypervisor) than many SDS offerings. However, software-defined storage solutions need not be an all-or-nothing deployment strategy that results in complete replacement of external storage systems. Indeed, one can expect SDS to be blended into an overarching strategy that identifies key scenarios in which SDS-based deployments are targeted where they can be most beneficial. Such strategies, however, are likely to require some aspects of the SDS solutions to be managed alongside traditional external storage systems. That said, the downsides of needing to manage SDS and traditional storage systems independently are likely to be offset by the capital and operational cost savings associated with the workloads running on SDS solutions. Last, IDC notes that software-defined storage solutions can be a transformative experience both organizationally and technologically and over time should be seen as an opportunity to transform infrastructure procurement and management.

Summary And Conclusion

The impact of software-defined storage technology will take time to ripple through the massive \$37 billion enterprise storage systems market. That said, there is no question that the rapid evolution seen within software-defined storage solutions in recent years has ushered in a new era of datacenter infrastructure. Software-defined storage has already begun to fundamentally alter how storage solutions are designed, delivered, procured, and consumed. Indeed, the genie is out of the bottle, and the future of enterprise storage appears to be inextricably tied to solutions that are server based and software defined.

IDC's research for this study demonstrates that EMC customers are realizing significant business value by moving to a software-defined storage approach with ScaleIO. Interviewed organizations unanimously credited ScaleIO with making their storage environments more agile and scalable, which is enabling them to deliver business applications to users and customers with more flexibility and agility and driving improved business outcomes.

As a result, software-defined storage with EMC ScaleIO has become a foundation for the efforts of these organizations to meet evolving demand from their customers and lines of business.

Meanwhile, they also reported that ScaleIO is more cost effective and efficient for them than traditional storage approaches and has helped them improve the performance of critical business applications and customer-facing services. As a result, software-defined storage with EMC ScaleIO has become a foundation for the efforts of these organizations to meet evolving demand from their customers and lines of business.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of EMC ScaleIO as the foundation for the model. Based on these interviews, IDC performs a three-step process to calculate the ROI and payback period:

- » Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and improved revenue over the term of the deployment.
- » Ascertain the investment made in deploying EMC ScaleIO and the associated migration, training, and support costs.
- » Project the costs, savings, and other benefits over a five-year period and calculate the ROI and payback.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- » Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.
- » Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- » The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- » Lost productivity is a product of downtime multiplied by burdened salary.
- » Lost revenue is a product of downtime multiplied by the average revenue generated per hour.
- » The net present value of the five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.

Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

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

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