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The Business Value of Modernizing Mission-Critical Applications with Dell EMC VxBlock Systems

Business Value Highlights

66%
more efficient IT operations

61%
lower cost of operations

34%
faster application development life cycle

99%
less unplanned downtime

8 months
to payback

640%
five-year ROI

IDC OPINION

Digital transformation is the process of creating value, growth, and competitive advantage through new offerings, business models, and business relationships that are data centric and data driven. It's about changing the way that business gets done. This transformation also places IT at the forefront when making strategic business decisions related to redefining business processes and operational efficiencies, shifting work and employee productivity, changing customer relationships, increasing buyer loyalty, and transforming product and service revenue streams. IDC believes that IT organizations must assume a critical role in the forthcoming digital reinvention by assuming the position of being a critical business innovation platform.

As part of this new repositioning of IT, end users are steadily moving beyond traditional, standalone compute, storage, and network deployments and adopting converged solutions that allow them not only to more efficiently run their operations but also to more quickly take advantage of technologies such as software-defined infrastructure, accelerated computing (e.g., GPUs), solid state storage, and next-generation networks that offer greater flexibility and function. These modern converged solutions provide a stable, reliable, and operationally efficient platform for mission- and business-critical applications while ensuring those systems have the performance and scalability to be critical elements in new digital business efforts.

IDC interviewed organizations that have chosen Dell EMC converged infrastructure, Dell EMC VxBlock Systems,[1] as their primary IT platform to understand the impact on their business and IT operations. Study participants reported that VxBlock Systems have enabled them to better deliver and run modern applications core to their businesses. As a result of improved performance, agility, and reliability, these organizations are capturing more business, even as

[1] *Note: Customers interviewed had either Dell EMC VxBlock or Vblock Systems. Because VxBlock Systems can be configured similar to Vblock Systems, and because they offer additional levels of flexibility with VMware NSX support, for the remainder of this document, we will utilize VxBlock Systems as the solution term.*

they benefit from having a cost-effective and efficient business platform. IDC puts the average annual value of benefits from running these applications on the VxBlock Systems at $274,642 per 100 users over five years, which results in a five-year ROI of 640%. VxBlock Systems help organizations achieve these improvements by:

- Increasing IT performance and agility to address more business opportunities
- Reducing the impact of unplanned outages on business operations
- Requiring less staff time to deploy, manage, and support, thereby freeing up time for innovation and other activities
- Costing less than other IT platforms considered

TECHNOLOGY IS DRIVING THE NEXT WAVE OF BUSINESS INNOVATION

IDC's conversations with leading companies around the world reveal that a key to successful digital transformation is the conversion of the IT organization from being the back-office enabler of internal business processes to playing a prominent role as the engine powering digital business flows between people, things, and data. IDC finds that leaders in driving this critical IT transformation focus on three goals:

- Modernizing their core IT infrastructure to meet exponential increases in the performance and scale of critical systems of record that underpin business transformation efforts without sacrificing integrity or reliability
- Automating the provisioning and delivery of IT resources through adoption of cloud-based IT infrastructure to speed time to develop, deploy, and upgrade existing systems of engagement and insight at the heart of digital transformation
- Accelerating business innovation through adoption of a modular, standardized infrastructure that enables rapid creation and exploitation of large, fast-growing central data sets and/or timely deployment of new data-intensive services at many edge locations without sacrificing security

The IT organization is the team that must drive this new thinking and ensure that these efforts are complementary, resilient, scalable, and secure.

Digital Transformation Requires a Modernized Datacenter

A modern datacenter infrastructure is agile, flexible, service ready, cloud based, and capex friendly. In addition, it is standardized, software defined, and secure. Rather than the monolithic, siloed focus of traditional infrastructure, a modern datacenter must have infrastructure that supports both next-generation applications and modernized versions of existing mission-critical applications that are evolving to make greater use of extended memory and solid state storage resources.

Converged infrastructure systems play a critical role in fulfilling these requirements while providing a tested, reliable, and extensible platform. Companies can leverage converged infrastructure to manage the shift to modern memory-based applications, and importantly, these systems are easier to maintain and support than traditional build-your-own infrastructure.

A converged infrastructure offering is typically one or two racks preconfigured with server, storage, and networking products; is preloaded with software from one or more vendors; and often includes an integrated management GUI that provides a single point of administration for all the products in the stack. These offerings can be purchased under a single SKU and speed deployment (because of their preconfigured nature) and are often easier to manage (because of the single, integrated management or monitoring GUI) and simpler to maintain and support (because of their single-vendor approach and the solution life-cycle management approaches) than products purchased separately that are managed through separate GUIs and sourced from multiple vendors.

IT departments at organizations in all industries are increasingly turning to converged systems to improve utilization rates of their infrastructure, reduce time to deployment of new applications, ease infrastructure management and support burdens, and reduce the risk of downtime.

THE BUSINESS VALUE OF VXBLOCK SYSTEMS

IDC interviews with organizations running substantial portions of their business operations on VxBlock Systems demonstrate the significant value they are achieving in terms of cost and staff efficiencies, improved infrastructure resiliency and performance, and a modern datacenter that supports new business opportunities. The VxBlock infrastructures of the study participants have become the foundation for the modern mission-critical applications that drive the business success of their organizations.

Firmographics of Study Participants

IDC interviewed 10 organizations for this study, asking them a variety of quantitative and qualitative questions about the impact of deployed Dell EMC VxBlock Systems on their operations, businesses, and costs. The average number of employees in the organizations interviewed was 11,515, while the average revenue base was $6.2 billion per year, demonstrating the scale of the organizations' operations. The average number of business applications across all companies was 236. The sample of companies involved in the study represented the experiences of various vertical industries, including entertainment, healthcare, pharmaceutical, retail, and transportation. Table 1 summarizes this information along with other relevant demographic attributes.

TABLE 1 Demographics of Interviewed Organizations

	Average	Median
Number of employees	11,515	6,300
Number of IT staff	275	230
Number of business applications	236	250
Revenue per year	$6.2 billion	$4.0 billion

n = 10 Source: IDC, 2017

Use of VxBlock Systems by Study Participants

Surveyed organizations reported deploying VxBlock Systems because they needed an infrastructure platform that could not only support the business in terms of delivering needed performance, agility, and reliability but also be operated efficiently. Most of the interviewed organizations migrated to VxBlock Systems from legacy three-tiered infrastructures that were no longer sufficiently efficient or effective for the scale of operations they were required to support. One interviewed organization commented on its decision to move to VxBlock Systems: "The IT challenges of our previous infrastructure were impacting the business — in particular, the complexity to scale the infrastructure and the administrative overhead associated with the infrastructure."

Surveyed organizations have modernized their datacenters by moving most of their IT operations to their VxBlock Systems, with more than 80% of their total business applications running an average of three VxBlock Systems with 149 servers. Table 2 provides detailed information on the use of VxBlock Systems infrastructure deployed by study participants.

TABLE 2 VxBlock Systems Use by Interviewed Organizations

	Average	Median
Number of VxBlock Systems	3	2
Number of servers	149	66
Number of business applications	197	200
Number of users	6,860	1,700
Number of terabytes	827	343

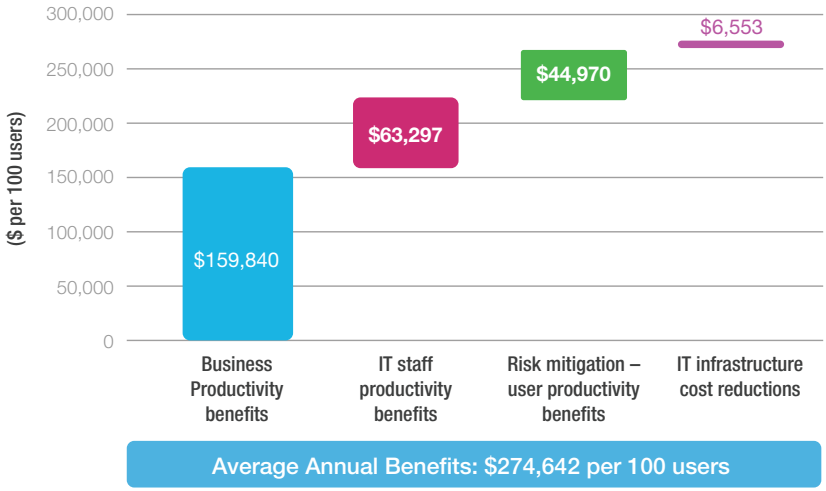
n = 10 Source: IDC, 2017

Quantifying the Value of VxBlock Systems

IDC's research demonstrates that study participants are achieving significant returns on their investment in VxBlock Systems as a platform for running their core modern business applications. While the bulk of these benefits is being realized in terms of generating additional revenue and creating business efficiencies, organizations are also seeing value from cost and operational efficiencies. IDC puts the average value that surveyed organizations will achieve with VxBlock Systems at $274,642 per 100 users over five years ($18.84 million per organization) in the following areas (see Figure 1):

- **Business productivity benefits.** Improved application and system performance, agility, and reliability enable organizations to address more business opportunities and better support operations. IDC projects that study participants will achieve value worth an average of $159,840 per 100 users ($10.96 million per organization) over five years in higher recognized revenue and user productivity gains.
- **IT staff productivity benefits.** Ease of management and deployment and high performance mean that less IT staff time is needed for day-to-day operations, while greater resource agility enables application development teams. IDC calculates that these teams will save time or gain efficiencies worth $63,279 per 100 users ($4.34 million per organization) over five years.
- **Risk mitigation — user productivity benefits.** Reductions in the frequency and duration of application and system outages minimize the financial impact of such outages on employee productivity and business operations. IDC puts the value of improved staff productivity and revenue losses avoided at an average of $44,970 per 100 users ($3.08 million per organization) over five years.
- **IT infrastructure cost reductions.** Consolidation of datacenter resources means lower expenditures on power, facilities, and licensing. IDC projects that study participants will save an average of $6,553 per 100 users ($0.45 million per organization) over five years, while their total infrastructure costs will be 30% lower with VxBlock Systems than with legacy or alternative approaches.

FIGURE 1 Average Annual Benefits per 100 Users



Source: IDC, 2017

Business Productivity Benefits: Enabling the Business

Study participants reported leveraging their VxBlock Systems to enable their businesses to a substantial extent. The VxBlock Systems integrate compute, network, storage, virtualization, and management resources into a single engineered, factory-assembled, and pretested system that eliminates slow, complex, and costly processes associated with traditional infrastructure approaches, while flash storage and pooled compute and storage resources ensure sufficient capacity to meet business demand. These attributes coalesce to ensure a modern, high-performing, reliable, and agile IT platform that can run a full spectrum of business applications and services. For study participants, this has provided an infrastructure foundation for business expansion that has brought higher revenue as well as operational efficiencies.

Reliability, Scalability, and Performance

Interviewed Dell EMC customers cited the reliability, scalability, and performance of their VxBlock Systems as driving significant value for them as a platform for running their most business-critical applications.

The reliability of the VxBlock Systems allows organizations to confidently run their most important business applications on the platform. Dell EMC customers interviewed reported fewer impactful unplanned outages (91%) and have brought down productivity losses caused by unplanned downtime to mere minutes per user per year (99% reduction) (see Table 3). These organizations indicated that being able to deliver more reliable services is helping them minimize risk and focus on their business. One study participant explained: *"Because VxBlock is overall more reliable … it's allowed us to focus elsewhere and solve other problems that we otherwise wouldn't have time for. So not only are we reducing all the problems in the VxBlock environment, we're able to reduce problems beyond it."*

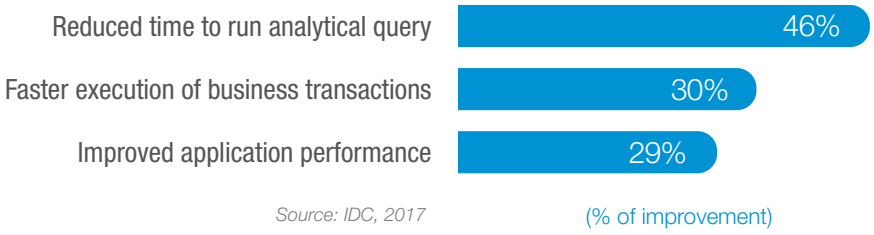
TABLE 3 Impact of VxBlock Systems on Unplanned Downtime

	Before VxBlock	With VxBlock	Difference	Benefit (%)
Unplanned outages per year per organization	3.8	0.3	3.5	91
Mean time to resolution (MTTR) (hours)	5.3	3.3	2	37
Hours of lost productivity per user per year	6.8	0	6.8	99
FTE impact, lost user productivity per year	24.9	0.2	24.7	99

n = 10 Source: IDC, 2017

Study participants also cited strong performance as core to the value proposition of the VxBlock Systems as a platform for application modernization (see Figure 2). On VxBlock Systems, these organizations reported lower latency levels, improved application performance, and faster processing of business transactions, with increased flash storage capacity contributing significantly to these benefits. Organizations can leverage this improved system and application performance to better serve their businesses. One organization said: *"Performance is a big advantage with VxBlock. It has gone up seven times. So has standardization, which helps with being repeatable and helps us be quicker in delivering services and servers. We have set records for how many servers we've been able to deliver in a month for peak demand."*

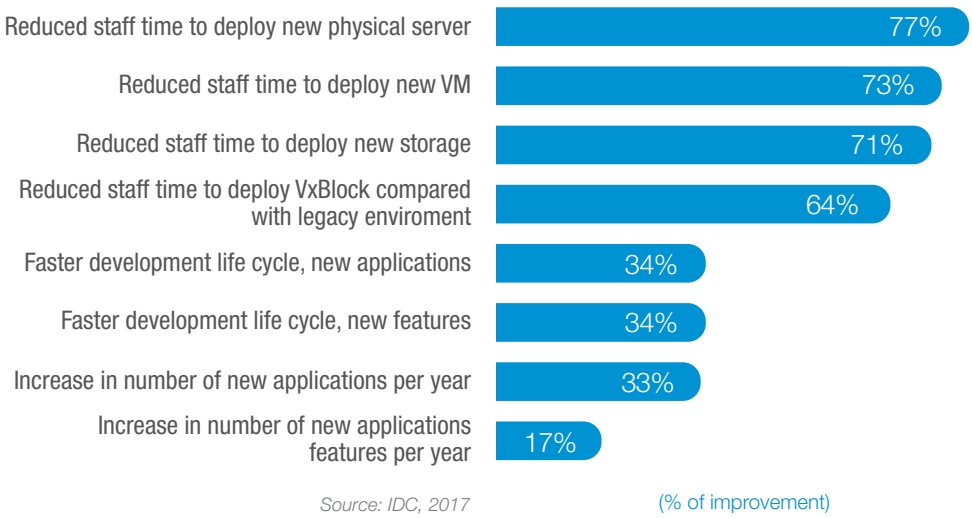
FIGURE 2 Impact of VxBlock Systems on Performance



Source: IDC, 2017

Meanwhile, VxBlock Systems also enabled study participants by improving their ability to scale to meet business demand (see Figure 3). Deployment of new physical server and storage resources requires 77% and 71% less time, respectively, while increased capacity and virtualization density allow for growth. IT agility is ensured via 73% faster and automated provisioning of compute and other IT resources. One result is more efficient and effective application development efforts, with study participants reporting the delivery of new applications in 34% less time with VxBlock Systems. One interviewed IT manager commented: *"For a physical server with VxBlock, once we get it, we really just need a couple of hours to deploy it. Before, we didn't have profiling, so it would probably take a full day — so two hours of staff time versus eight hours before."*

FIGURE 3 Impact of VxBlock Systems on IT Agility and Application Development



Source: IDC, 2017

Generation of New Revenue and Operational Efficiencies

The benefits cited previously in terms of reliability, performance, and scalability help IT and line-of-business (LOB) teams achieve business goals, address new opportunities, and deliver high-performing new applications and services in a timely manner to customers and employees. This has allowed study participants to capture additional revenue, which they attribute to their VxBlock Systems, while substantially increasing employee productivity:

- **Revenue growth.** One survey respondent commented: *"I think there's been an impact on our business results with VxBlock. We're growing at 10% a year. Without VxBlock, we couldn't keep growing at that rate — it would probably be 6%."* Another noted: *"The agility, scalability, and performance of VxBlock help us increase revenue. The quicker we get a product or service to market, the faster we can realize revenue."*

- **Application performance enabling users.** One interviewed organization described how much performance improved on its VxBlock Systems in terms of a payroll operation. Previously, the operation took two to three hours to complete; now, it is completed in approximately 30 minutes, putting needed information in the hands of employees substantially earlier.

Table 4 delineates additional specifics concerning the business productivity impacts of deploying VxBlock Systems. The business impact is especially notable, at an average of $47.4 million in additional revenue per organization per year. Further, study participants are avoiding an average loss of $9.0 million in revenue due to reducing downtime.

TABLE 4 Impact of VxBlock Systems on Unplanned Downtime

	Per Organization	Per 100 Users
Revenue impact due to better addressing business opportunities		
Additional revenue per year	$47.4 million	$690,682
Recognized revenue per year — IDC model*	$7.1 million	$103,602
Revenue impact due to unplanned downtime		
Additional revenue per year	$9.0 million	$131,511
Recognized revenue per year — IDC model*	$1.4 million	$19,727
User productivity impact		
Number of users impacted	2,828	41
Equivalent FTE gain	55	0.8

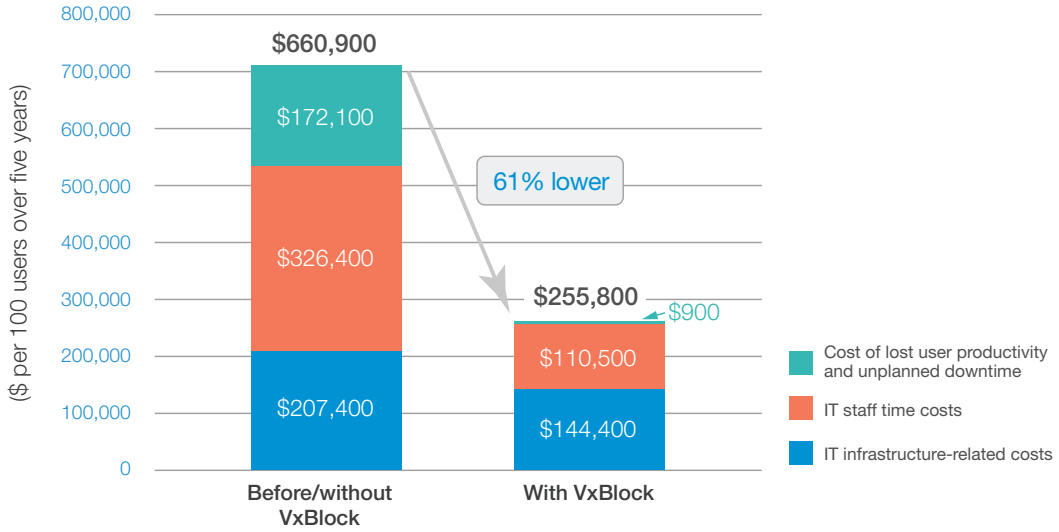
* The IDC model assumes a 15% operating margin for all additional revenue.

Source: IDC, 2017

Operational Efficiencies of VxBlock Systems

A core component of the VxBlock Systems value proposition is operational efficiency, in terms of both cost and staff support time requirements. Study participants reported that VxBlock Systems cost significantly less to operate than their previous environment or an alternative platform they considered in terms of the costs for hardware, IT staff time, and user productivity. One organization referenced more efficient life cycles with VxBlock as especially impactful: *"Without VxBlock, the life cycle would be more expensive . . . . We're in a cycle where over the next few years, we're consolidating and migrating onto fewer VxBlock Systems, and we save several months of work for 10–15 people with each migration."* IDC calculates that the organizations interviewed for this study will enjoy a 61% lower total cost of operations over five years, including 30% lower IT infrastructure costs and 66% lower IT staff time costs, as shown in Figure 4.

FIGURE 4 Five-Year Cost of Operations



Source: IDC, 2017

IT Infrastructure Cost Reductions: Cost-Effective IT Platform

Study participants reported that VxBlock Systems are serving as a cost-effective IT platform for the workloads they are running. IDC's analysis shows that VxBlock Systems are 30% more cost effective in terms of hardware, maintenance, and ongoing costs compared with legacy or alternative solutions, even though they deliver greater performance capabilities. Further, customers confirmed that VxBlock Systems accommodate growth in a cost-effective way because additional resources can be quickly deployed, and VxBlock Systems have sufficient compute and storage capacity to handle service and business application growth. As one manager commented: *"Projects consistently come in under budget and on time. We don't have to go out and purchase additional resources. It doesn't matter if the requirement is for 2 or 30 servers … . If we had gone with other solutions, we would have had to purchase more resources for newer projects. We have projected some resource increases would have been up to millions of dollars more without VxBlock."* Another organization commented: *"Our storage capacity has grown greatly with VxBlock, and our utilization rate is way up. We have no concerns about having the storage necessary to run our workloads now and in the future as the business continues to grow."*

The VxBlock Systems drive new efficiencies by increasing virtualization density (79% more VMs) and offering far greater flash storage capacity (29 times more). The consolidated nature of VxBlock and its ability to accommodate greater density of virtualization mean that organizations need fewer physical servers to support growing workloads. Organizations are also

taking advantage of converged infrastructure to cut costs for hardware, power and facilities, and software licenses. With respect to licensing costs, being able to "bundle down," as one organization described it, can generate substantial cost savings. In terms of power and facilities, substantial consolidation is evident with reductions in the number of racks, thereby avoiding server and hardware sprawl, which in turn leads to more efficient use of power and cooling.

IT Staff Productivity Benefits

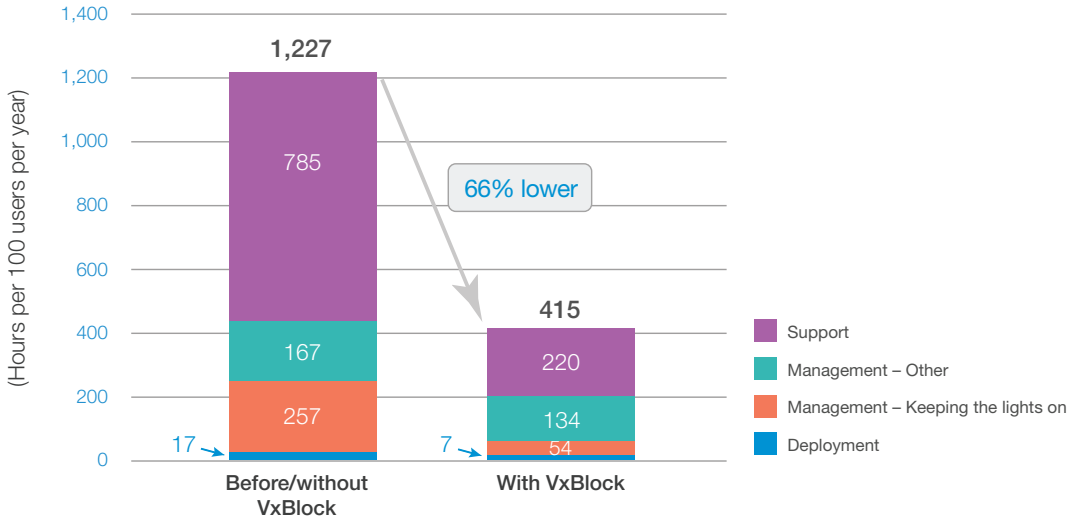
Study participants reported that VxBlock Systems deployments also affected the overall efficiency of their IT operations, especially in terms of day-to-day administration and management. The breaking down of departmental and technical silos combined with the advantages of automation contributes to a more efficient platform. One manager commented: *"Before we had fully leveraged the VxBlock Systems implementation, we had 7 people managing servers, 2 people managing databases, and 3 people on the storage side. Today I have only 1 person managing servers, 1 person managing databases, and nobody responsible for storage — that's handled by a single server-support person . . . . instead, we're working on proactive services and identifying issues before they become problems."*

Other interviewed participants echoed this theme of leveraging time saved with VxBlock Systems to enable focus on more valuable activities. These activities often result in an additional layer of value for study participants in terms of user enablement or cost savings. Examples provided include:

- Implementing a unified communications solution that is saving "tons of money" and ensuring better service levels for users
- Time to thoroughly test and vet productivity-enhancing applications to be used by LOBs, thereby ensuring their functionality and robustness
- Time to take on other infrastructure projects such as upgrading a wireless network

As shown in Figure 5, these IT staff efficiencies were significant across the board in terms of deployment, management, and support. IDC's analysis shows that overall, these IT operations will require 66% less staff time with VxBlock Systems than surveyed organizations' previous environments. The shift of staff time from "keeping the lights on" day-to-day activities to other activities, including innovation, has been equally as dramatic. As a percentage of overall staff management time, organizations spend 52% less time (down from 61% to 29% of time) keeping the lights on, whereas on a comparative before-and-after basis, staff are enabled to spend a significant 79% less time (down from 257 hours to 54 hours per 100 users per year) on these types of activities. As noted previously, this transformation leaves more staff time available to invest in other tasks that contribute to business success.

FIGURE 5 IT Staff Productivity Benefits



Source: IDC, 2017

ROI Analysis

IDC based the ROI analysis on interviews with organizations that are using VxBlock Systems as a primary IT infrastructure platform for their business workloads. Based on these interviews, IDC has calculated the benefits and costs to these organizations of deploying and running VxBlock Systems. IDC used the following three-step method for conducting the ROI analysis:

- **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of VxBlock Systems.** In this study, the benefits included revenue gains, operational efficiencies, staff time savings and productivity benefits, and IT-related cost reductions.
- **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using VxBlock Systems and can include additional costs related to migrations, planning, consulting, and staff or user training.
- **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of VxBlock Systems 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 benefits and costs of using VxBlock Systems for study participants. IDC projects that these organizations will invest a discounted average of $131,984 per 100 users over five years ($9.05 million per organization) and can expect to achieve $976,761 per 100 users in discounted benefits ($67.00 million). This level of benefits and costs would mean a five-year ROI of 640%, with average breakeven in investment in VxBlock Systems happening in eight months.

TABLE 5 ROI Analysis

	Five-Year Average per Organization	Five-Year Average per 100 Users
Benefit (discounted)	$67.00 million	$976,761
Investment (discounted)	$9.05 million	$131,984
Net present value (NPV)	$57.95 million	$844,776
Return on investment (ROI)	640%	640%
Payback period	8 months	8 months
Discount rate	12%	12%

Source: IDC, 2017

CHALLENGES/OPPORTUNITIES FOR DELL EMC

For enterprise customers transitioning from a traditional environment to a modernized datacenter defined by a continuum of application and data services stretching from core to edge, Dell EMC is well positioned to be a critical technology partner. IDC notes that Dell EMC has Enterprise Hybrid Cloud and Native Hybrid Cloud offerings that operate on VxBlock Systems and other Dell EMC infrastructure on-premises while integrating with major public cloud offerings, including Amazon AWS, Microsoft Azure, and Virtustream. Dell EMC must continue to support work to ensure that its VxBlock solutions are well integrated with the growing range of cloud solutions that companies are also using to extend the reach and scope of their new digital services.

Dell EMC must also continue to expand customer choice when it comes to consumption models for these solutions. As more enterprises seek to tie IT investments directly to business cycles and also minimize investment risk for new initiatives, they will desire a broader range of acquisition and pay-as-you-use options for their converged systems investments. Dell EMC has already begun to introduce a variety of financial offerings aimed at enabling transformation via flexible,

variable usage consumption models that include options ranging from the individual device to the datacenter. The company needs to ensure that customers and prospects are aware of and able to leverage these offerings.

CONCLUSION

Businesses that are currently pursuing digital transformation strategies need a modern datacenter infrastructure that is multipronged, supporting the creation of next-generation applications while ensuring that businesses can quickly take advantage of modern versions of existing mission-critical applications. Increasingly, organizations are deploying converged infrastructure to facilitate this transformation. IDC studied organizations that have deployed Dell EMC's VxBlock Systems to determine the impact on IT operations and the business. Our research finds that these organizations achieved significant benefits including reduced operational and infrastructure costs and increased additional revenue.

APPENDIX

Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Vblock and/or VxBlock (referred to simply as VxBlock Systems) as the foundation for the model. Based on interviews with 10 organizations using Vblock and/or VxBlock, IDC performed a three-step process to calculate the ROI and payback period:

- Measure the benefits from the use of VxBlock in terms of IT infrastructure cost savings and avoidances; IT staff time savings and productivity gains; user productivity gains; and revenue attributed to the use of Vblock and/or VxBlock.
- Ascertain the investment made in deploying VxBlock and associated migration, training, and support costs.
- Project the costs and savings over a five-year period and calculate the ROI and payback for VxBlock.

IDC bases the payback period and ROI calculations on assumptions that are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and productivity savings. IDC assumes a fully burdened salary of $100,000 per year for IT staff, including developers, and $70,000 for other employees, with an assumption of 1,880 hours worked per year.
- 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.
- 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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