

REGION FOCUS: WORLDWIDE

Business Value of Dell VxRail HCI



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Executive Summary

Recent IDC research has proven the importance of datacenter infrastructure to business outcomes and success for organizations entering the digital business era. Despite uncertain economic conditions, supply constraints, and geopolitical stressors providing headwinds to many technology markets, 65% of respondents in a recent IDC survey indicated that they expected to increase spend on storage, compute, and networking infrastructure, and 14% of them expected their budget to increase by over 20%. Hyperconverged infrastructure (HCI) has been proven to be attractive to organizations for both primary and secondary workloads in a variety of deployments, with use cases ranging from general-purpose computing to hybrid cloud and from business-critical applications to edge and Internet of Things (IoT) workloads.

Dell VxRail HCI is a key component of Dell's offerings to organizations looking to accelerate their transformation into digital businesses while simplifying and modernizing datacenter infrastructure, especially as hybrid cloud deployments become more prevalent.

IDC spoke with organizations that are running business-critical applications on VxRail to understand its impact on their IT and business operations. Study participants described achieving strong value with VxRail by establishing a cost-effective, efficient, and agile IT infrastructure that delivers value to the business through scalability and improved performance.

IDC calculates that these interviewed Dell Technologies customers will achieve benefits worth an annual average of \$54,000 per VxRail node (\$4.5 million per organization) by:

- Optimizing their IT infrastructure costs with the use of an integrated and high-performing platform to run business-critical workloads
- Enabling IT teams to deliver more value by reducing day-to-day operational work, thereby freeing up time to work on high-value IT projects
- Minimizing the costs and risk associated with outages and data loss by reducing the frequency and duration of unplanned downtime events
- Improving the ability to back up, protect, and recover data and virtual machines (VMs)
- Improving business operations and results

Business Value Highlights

Click each highlight below to navigate to related content within this document.

- ➔ **463%**
five-year ROI
- ⬇️ **61%**
lower five-year
cost of operations
- ➔ **11 months**
to payback
- ⬆️ **18%**
more cost-effective
IT infrastructure
- ⬆️ **61%**
more productive
impacted IT teams
- ⬆️ **54%**
faster to deploy
new storage
- ⬇️ **94%**
less end-user
value lost from
unplanned downtime

Situation Overview

The era of digital business has led to a massive increase in the value and volume of data that organizations need to analyze in order to drive innovation and agility. It has also led to a proliferation of new applications and workloads that require new capabilities, performance, and operating models. This in turn has made infrastructure modernization an imperative for organizations hoping to extract value from their data in a timely manner, as those sources of data may be end users, business applications, cloud apps, IoT, or edge devices.

Infrastructure performance is a top buying criteria for IT practitioners, and with good reason. Availability of performant resources makes developers' jobs easier and speeds time to market and time to value for new applications and workloads. Powerful CPUs, low-latency storage with high throughput and capacity, high-speed networking, and hardware accelerators such as GPUs and DPUs can extend the range of workloads capable of being consolidated on a single platform while increasing the number of applications, databases, or VMs per system before redlining IT resources.

Enterprises of all sizes feel that extracting actionable insight from the vast amounts of data that they hold is a formidable task. According to IDC's *Future of Intelligence Survey*, 42% of businesses have underutilized data, and over 50% of the data created and stored does not provide business value—it is not consolidated, analyzed, or integrated into value-added processes. Modernizing and consolidating IT infrastructure is a way to bring that data closer to the business, to remove silos preventing the sharing of data between business groups so it can be managed in a unified manner, ensuring that maximum value can be extracted.

Complexity is a roadblock to organizational transformation—it increases resourcing and skills demands, it slows innovation and digital initiatives, and it can impact security postures, data protection capabilities, and governance and compliance needs. Systems that provide “single pane of glass” unified management capabilities can reduce the administrative overhead seen when companies operate multiple infrastructure providers' technology across the enterprise.

Addressing the vast variety of workloads across the typical enterprise often leads to best-of-breed solutions and multiple infrastructure deployments that create operational complexity. Solutions that can bring a denser consolidation of workloads covering more of the spectrum of high-performance to high-availability to high-capacity demands simplify IT procurement, deployment, and operation. Being able to standardize on a single platform, provided it matches the attributes required by legacy and next-generation applications, leaves more time for administrators to focus on value-added activities and innovation rather than administering multiple systems and allows organizations to get more value from their existing resources.

In addition, that dense consolidation of workloads and VMs can lead to a reduced infrastructure footprint. While especially important in edge locations with space and power constraints, this is also key in the datacenter, where reductions in space, power, and cooling support both economic and environmental, social, and governance (ESG) goals for enterprises.

Vendors address these issues through a variety of infrastructure choices and deployment models, and HCI at the edge, on premises, and as a route to hybrid cloud remains a high-growth area of the market as it ticks many of these boxes. VxRail HCI solutions feature a software-defined architecture, built on Dell PowerEdge servers with multiple storage and networking options, integrating newer technologies such as 100Gb networking and NVMe storage to boost performance, as well as deep integration with VMware for visibility, management, control, and resilience.

Dell VxRail HCI

Dell VxRail was introduced in 2016 as the first and only jointly engineered, validated, and integrated VMware HCI solution—providing compute, storage, and networking resources in an integrated system. Since that time, advances in hardware, software, and management solutions on the platform have led to the emergence of an HCI solution appropriate for deployments from core to edge to cloud, enabling consistent operational and management experiences in today’s complex, hybrid, and multicloud environments.

Performant and Available

PowerEdge servers with Intel Xeon Scalable and Intel Xeon D (VD-4000) processors, NVMe and all-flash storage options, NVIDIA DC GPUs, SmartDPUs, and 100Gb networking provide the infrastructure horsepower required for more next-generation workloads than previous generations of HCI systems. The ability to consolidate a greater number of workloads with a greater scope of attributes is key to the value proposition, just as “6-9s” availability is critical to increasing digital resilience for enterprises. VxRail systems support vSphere 8, DPUs, and the vSAN Express Storage Architecture (ESA), which can offer up to four times the vSAN performance of previous iterations. AMD EPYC processors are also available.

Flexible and Scalable

From a hardware standpoint, common compute, storage, and networking building blocks make up the VxRail integrated system. This allows for seamless and nondisruptive scaling within a cluster from as few as two nodes to a maximum of 64 nodes or the deployment of single satellite nodes to extend the same operational experience to the edge. The ability to increase cluster capacity in single-node increments and seamlessly integrate

next-generation technology without the need to remove or replace previous generations allows users to tune performance to workload requirements without overspending on a “rip and replace” or adding unnecessary capacity. Recently, the smallest form factor VxRail VD-4000 was introduced — as small as 10.5 x 14in. and ruggedized for edge deployments and other space-constrained, low-bandwidth, and high-latency locations. The VD-4000 also includes the “designed for the edge” Intel Xeon D, low power processor, which includes Intel’s QuickAssist Technology which offloads crypto and compression computations that free up processor resources.

Software-Defined

VxRail HCI system software consists of multiple software elements that extend VMware-native capabilities. It includes VxRail Manager (natively integrated into vCenter) to provision, manage, update, upgrade, and expand nodes in a cluster, as well as multicluster management and RESTful APIs for IT automation and cloud extensibility. It also provides several tools for life-cycle management, including automation and orchestration services, as well as life-cycle and compatibility functionality designed to ensure clusters remain in continuously validated states. A single point of contact for all hardware or software issues along with secure connect gateway simplifies the service relationship while ensuring maximum uptime throughout the life of the system.

VxRail is also the sole HCI platform fully integrated with VMware Cloud Foundation (VCF) to provide a simplified “on-ramp” to hybrid cloud via its software-defined datacenter (SDDC). In a single, automated platform, a wide range of applications can be supported and delivered across traditional datacenter environments as well as private and public clouds. Integrated security and software-defined networking (SDN) capabilities and flexible storage options via vSAN and Dell storage arrays provide a consistent experience across deployments and the ability to modernize application development in a cloud-agnostic manner with VMware Tanzu.

Integrated Data Protection

RecoverPoint for Virtual Machines and vSphere Replication is included with VxRail. Deep vSphere integration allows administrators to automate and orchestrate key disaster recovery (DR) activities, including discovery and provisioning, failover and failback, and power-up sequencing with granular access — single or multiple local or remote VMs can be managed through the same interface. VxRail with Dell DD and DP Series data protection appliances provides users with the ability to enhance their data protection capabilities with cloud tiering, deduplication, replication, backup and recovery, and disaster recovery or long-term retention to the cloud.

Dell APEX Private Cloud and Hybrid Cloud

VxRail is the foundational architecture for private and hybrid cloud offerings through Dell’s APEX technology consumption model. Operational flexibility, control, and productivity are key tenets of Dell APEX. APEX Private Cloud on VxRail includes vSphere and vSAN.

Dell APEX Hybrid Cloud, built with VMware Cloud Foundation on VxRail, includes vSphere, vSAN, NSX-T networking, HCX application migration, the SDDC Manager, and Aria (vRealize) Suite. Both versions provide six instance types to cover a range of virtualized or containerized workloads. The private cloud offering is aimed at datacenter and edge deployments, while the hybrid cloud offering is designed to create a consistent experience across all environments, including public cloud.

The Business Value of VxRail

Study Firmographics

Table 1 presents study demographics. The organizations that IDC interviewed had an average base of 6,856 employees and total average annual revenue of \$10.3 billion. These organizations had an average of 98 IT professionals with responsibility for supporting 6,143 employees using 233 business applications. In terms of geographic distribution, seven companies were based in the United States and one company in Canada. The companies represented a wide variety of vertical markets: manufacturing, government, agriculture, education, and hospitality.

TABLE 1

Firmographics of Interviewed Organizations

Firmographics	Average	Median	Range
Number of employees	6,856	2,125	351 to 30,000
Number of IT staff	98	45	6 to 369
Number of employees using IT services	6,143	2,125	330 to 28,500
Number of business applications	233	135	25 to 550
Company revenue	\$10.3B	\$1.3B	\$600.0M to \$53.0B
Countries	United States (7), Canada (1)		
Industries	Manufacturing (3), government (2), agriculture, education, hospitality		

Source: IDC's Business Value research, March 2023

Choice and Use of VxRail

The organizations that IDC interviewed described typical usage patterns for VxRail. They also discussed their rationale for choosing it as a cost-effective, efficient, and agile IT infrastructure. Study participants expanded on their decision criteria, citing the fact that VxRail offered a useful array of self-service features for their developers. They also appreciated being able to optimize performance, maintenance, and update support and use the platform as a means of modernizing their datacenters.

Study participants elaborated on these benefits:

Self-service features for developers:

“In selecting VxRail, we were replacing legacy architecture and felt that hyperconverged was the best for our applications. We have an in-house development team, and the way that HCI works gives us the most bang for the buck when it comes to processes and services. VxRail has great self-service features for our developers.”

Strong performance and update support:

“We evaluated VxRail and two of their competitors. What we really wanted to do was to find a way we could do three things. First, we wanted a simplistic way to process updates, so we can do it where we wouldn’t be relying on a large-scale amount of work to do updates within the system, both on the hardware and the software side. We were also looking at the five-year period and how hardware is exchanged. Finally, we looked at the cost and performance we’re going to get out of that system. We took all that information, and we evaluated them all. We’ve had a long-standing relationship with Dell and ultimately decided to select VxRail.”

Easy support and maintenance:

“My organization wanted to go to a hyperconverged architecture for the ease of support and maintenance and, importantly, not have six different SAN manufacturers at the same time.”

Strong foundation for modernization:

“Our CTO wanted a fully modernized, first-class datacenter. That is why we started looking at VxRail. It has a great foundation, and it was a good solution to get my organization out of the physical hardware world and into the virtualization world.”

Table 2 (next page) provides a snapshot of the IT environments supported by VxRail at the time of interviews. Study participants were using the platform to manage significant IT environments that supported most of their business operations. A more granular view of their overall IT footprints shows that the total number of VxRail core and VCF nodes was 84. In addition, the total number of VxRail VMs was 680, with data and storage capacity in these environments totaling 561TB. Importantly, IDC calculated that 86% of these companies’ revenue base was fully supported by VxRail. Additional metrics are presented. (Note: All numbers cited represent averages.)

TABLE 2

Organizational Usage of VxRail

	Average	Median
VxRail nodes (core, VCF)	84	42
VxRail clusters (core, VCF)	15	7
VxRail VMs (core, VCF)	680	675
VxRail terabytes (core, VCF)	561	333
Business applications	200	155
Internal users of applications	5,724	1,075
Percentage of revenue	86%	100%

Source: IDC's Business Value research, March 2023

Business Value and Quantified Benefits

IDC research demonstrates how study participants used VxRail to optimize their IT infrastructure costs with a fully integrated, high-performing platform for running business-critical workloads. VxRail enabled their IT teams to deliver more value by reducing their day-to-day operational work, thereby freeing up time to work on high-value or business-related IT projects. In addition, companies were able to minimize the costs and risks associated with outages and data loss by reducing the frequency and duration of unplanned downtime events and improving their ability to back up, protect, and recover data and IT resources when events did occur.

Combined, these benefits generated affirmative value for the business in terms of both operations and financial results.

Study participants commented on these benefits:

Easier to scale and maintain:

"VxRail makes it easier to scale up and out as we've standardized on it at different sites that we have acquired. It has become part of our integration plan. VxRail also helps my staff save

time on maintenance, even from a security perspective. I've found that it really makes the infrastructure team more enabled to run those latest updates to keep it more up to date than they would previously with a manual, older-style approach."

Increased staff productivity due to standardization:

"The greatest benefit that my organization has had is that we have been able to grow without having to increase staff because of standardization provided by VxRail. We had 24 clusters, and we had roughly three engineers supporting it when I got here. And we still have three engineers, and we've more than tripled in size and have not added support staff."

Ease of use and lower cost of ownership:

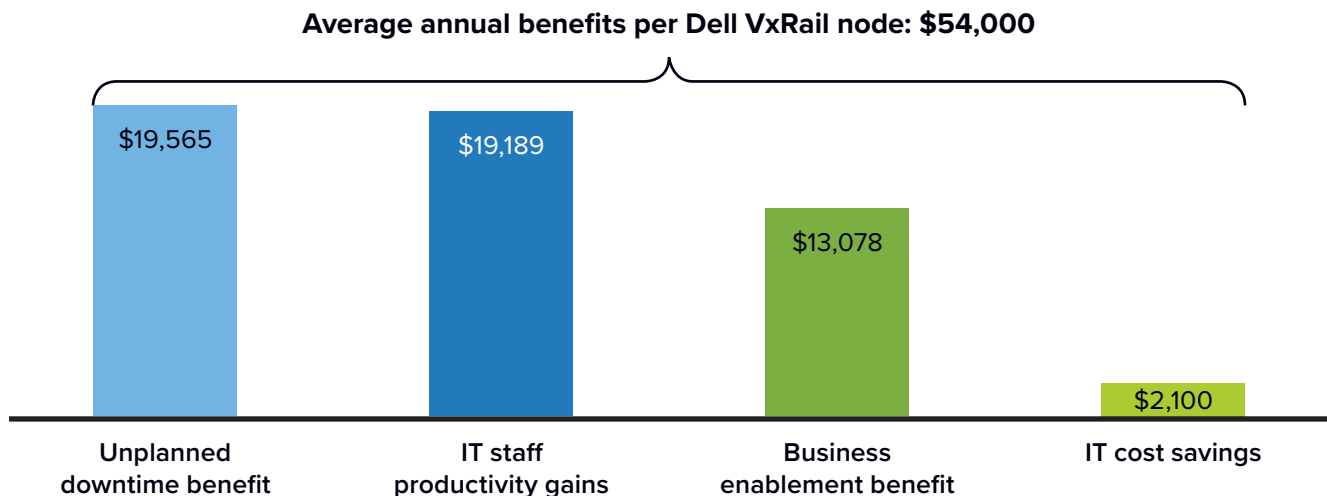
"The most significant benefits of VxRail are easy administration and reduced cost of ownership."

Strong sustainability impact from consolidation of space:

"VxRail has allowed us to condense our storage unit. We went from 8–10U of rack space with our FX2s, down to 5U storing all our VxRails. That also results in less power, less consumption, and less heat."

Figure 1 presents IDC's calculations of cumulative benefits after adoption of VxRail per node. Average annual benefits per node were quantified at \$54,000, or \$4.5 million on a per-organization basis, and are broken out by four major categories as shown.

FIGURE 1
Average Annual Benefits per Dell VxRail Node
 (\$)



n = 8, Source: IDC's Business Value research, March 2023

IT Infrastructure Cost Savings

Interviewed companies reported that VxRail proved to be a cost-effective solution. Over time, replacing distributed on-premises environments with a higher-performing hyperconverged platform with streamlined, efficient, and automated IT functionality provided significant cost savings. Instantiation of the platform allowed them to modernize their IT infrastructure by replacing compute nodes and storage area networks (SANs), thereby fostering the reallocation of budgets toward other important IT needs and priorities. IDC quantified these cost savings over time. **Table 3** provides a five-year infrastructure cost assessment showing an 18% total cost reduction, broken out by power, facilities, and other key categories.

TABLE 3
Total Five-Year Infrastructure Cost Reductions

	Before VxRail	With VxRail	Difference	Benefit
Cost of VxRail — initial	\$3.0M	\$2.6M	\$358,807	12%
Five-year costs — hardware warranty/maintenance	\$289,579	\$254,933	\$34,646	12%
Five-year power costs	\$1.0M	\$780,569	\$229,876	23%
Five-year facilities costs	\$673,896	\$396,027	\$277,869	41%
Total five-year cost	\$5.0M	\$4.1M	\$901,199	18%

Source: IDC's Business Value research, March 2023

IT Staff Productivity Benefits

Study participants reported that their IT teams benefited from reliance on a more integrated and flexible IT infrastructure platform that offered hyperconvergence features and benefits. VxRail offered an array of functionality that saved time through the use of automated deployments, patching, and upgrades. Study participants appreciated the single-console approach to infrastructure management offered by the platform as well as having an easy upgrade process using Dell support. They commented on the advantage of built-in security features coupled with a streamlined backup and recovery process.

Study participants elaborated on these benefits:

Easy upgrade process with Dell support:

“My team likes the upgrade process for the VxRail. It’s a consolidated view. You upload one file into the VxRail, click a button, it does its prechecks and says you’re good to go. If there’s an error, you just contact Dell support; they’ll fix those errors. Then you click another button, and the update happens automatically for you. You don’t have to worry about going to each individual node and making sure every firmware got done. It’s all a prebuilt package. It’s just ready to go.”

Increased time to innovate:

“VxRail has given us back time to work on more special projects instead of having to sub those out. We have better control, and we’re saving money. We’re now able to, as a team, take ownership of everything, top to bottom.”

IDC noted that IT infrastructure teams charged with administration and management benefited from the single-pane-of-glass view provided by VxRail. Further illustrating this statement, one organization noted, *“The most beneficial feature of VxRail for our staff that are managing the infrastructure is that it is an all-in-one console. They can manage the entire infrastructure from one console, with a single-pane-of-glass view. Before we had a lot of separate consoles.”* This consolidated view of infrastructure enabled the team to achieve a significant efficiency increase of 61%, valued at \$545,215 in staff time per year. As a result of using automation and Dell support, organizations needed 5.5 fewer full-time equivalents (FTEs) to manage resources (see **Table 4**). IDC also calculated that VxRail enabled infrastructure teams to be 66% more efficient when managing and working with compute resources. In addition, these teams were 36% more efficient when working with network resources and 30% more efficient with storage resources.

TABLE 4
IT Infrastructure Team — Administration and Management Efficiency Gain

	Before VxRail	With VxRail	Difference	Benefit
Total FTE count	8.9	3.5	5.5	61%
Value of staff time per year	\$891,429	\$346,214	\$545,215	61%

Source: IDC’s Business Value research, March 2023

The automation provided by VxRail to manage and maintain workloads was taken advantage of by application management teams. This functionality helped them support their application environment with greater efficiency. **Table 5** quantifies these benefits. After adoption, interviewed companies saw an efficiency gain of 28%. This amounted to interviewed organizations’ repurposing 4.7 FTEs and resulted in an annual efficiency-based business value of \$470,465 for each organization.

TABLE 5
IT Infrastructure Team—Application Management Efficiency Gains

	Before VxRail	With VxRail	Difference	Benefit
Total FTE count	16.6	11.9	4.7	28%
Value of staff time per year	\$1.7M	\$1.2M	\$470,465	28%

Source: IDC’s Business Value research, March 2023

Interviewed companies also reported that VxRail helped IT infrastructure teams deploy new servers, storage, and VMs with far more speed and agility than they did with approaches used in previous environments. As the key performance indicators (KPIs) depicted in **Figure 2** show, new physical servers were able to be deployed 79% faster and new storage 54% faster.

FIGURE 2
Deployment of Resources KPIs
 (% quicker)



n = 8, Source: IDC’s Business Value research, March 2023

Security is another key area where VxRail added value. Interviewed organizations noted that VxRail offered greater levels of built-in security functionality than their previous solutions. VxRail was easier to patch and upgrade, and as a result, both infrastructure and security teams worried less about maintaining the integrity of their infrastructure environments. For example, VxRail enabled security teams to update security patches 59% faster. Commenting on improved security, one participant noted, *“From a security standpoint, I like that the security is basically built into the fabric of VxRail. The functionality takes worrying about security and stuff working off my plate. The biggest thing I used to worry about was zero-day patches that had to get out right away on 20 different server nodes. With the VxRail, it’s all a prefabricated release through Dell, so I don’t have to do it. It applies it to every node at once.”* **Table 6** summarizes these benefits. With VxRail, security teams had a strong efficiency gain of 43%, resulting in an annual efficiency-based business value of \$287,037 for each organization.

TABLE 6
Security Team Efficiency Gains

	Before VxRail	With VxRail	Difference	Benefit
Total FTE count	6.7	3.9	2.9	43%
Value of staff time per year	\$672,037	\$385,000	\$287,037	43%

Source: IDC’s Business Value research, March 2023

IDC then looked at impacts of VxRail on application development and DevOps teams. After the adoption of VxRail, development teams were more agile and could create more applications and features. There was less pressure to create the perfect application in the first iteration because the workflow system could handle the extra pressure of a less-than-perfect application. This gave developers the ability to fine-tune the application over time and get appropriate feedback from business units. Ultimately, this resulted in better applications being pushed out to business end users.

Addressing the advantages of having a quicker and more streamlined application development, one participant noted, *“VxRail has taken a lot of pressure off us to make every single line of code and SQL 100% efficient. It allowed us to quickly develop an app, put it out there, and it’s a little harder on the server, but the server would compensate for us. This then gives us time to get the application working and over time improve the performances.”*

As shown in **Table 7** (next page), after adoption, interviewed companies saw a productivity boost of 15% for their application development and DevOps teams. This amounted to the equivalent of adding 3.9 FTEs and resulted in an annual productivity-based business value of \$390,000 for each organization.

TABLE 7

Development Team Productivity Gains

	Before VxRail	With VxRail	Difference	Benefit
Equivalent productivity level (FTEs)	26.0	29.9	3.9	15%
Value of staff time per year	\$2.6M	\$3.0M	\$390,000	15%

Source: IDC's Business Value research, March 2023

Downtime Benefits

An important aspect of business resiliency is the ability to mitigate and reduce the incidence of unplanned downtime and to decrease planned downtime as well. Interviewed organizations noted that VxRail was easier to manage, patch, and update than their previous approaches and systems. As a result, VxRail reduced the frequency of unplanned downtime outages while improving the time it took to resolve outages. This in turn enabled and supported greater end-user productivity levels.

Study participants commented on these benefits:

Less downtime impact on end users:

"In our old environment, one server being down would result in multiple servers being down, so there was no real clean way to make it so that we could have a server go down and not see a main host go down and not see servers and applications go down. When we switched to VxRail, we were able to lose a server and keep all of our application servers running on top of that because of the design. It has enabled us to not impact the end users and the outside users. They don't see our downtime now the same way they used to because it just all becomes a little bit of work on our side."

Significantly less unplanned downtime:

"With VxRail, we have not been down, and it has been solid for at least three years. As we've rolled VxRail to each new site and replaced the existing hardware, we have not seen unplanned downtime. Before, probably once a month, we had some level of disruption. It would take 30 minutes to a couple of hours depending on the incident and what was affected and bringing things back up and whatnot."

Extremely resilient and available:

"VxRail has been extremely resilient and provided us with an extremely high level of availability. In 6.5 years, we've not had a single failure in any of our clusters that took an entire cluster down."

Easier environment to manage and patch:

“With VxRail, it is easier to manage, so we can patch better and get better resilience with updates as a result. We had failover before, and features like that, but with VxRail, they are just easier and more.”

Table 8 shows IDC’s calculations for reductions in unplanned downtime. After adoption, the annual frequency of unplanned outages was reduced 68%. Further, when disruptive events did occur, they were remediated 81% faster. These two improvement areas combined for an overall reduction in lost staff productivity of 94% and translated into a value of lost productive time of \$1,255,250 for each organization.

TABLE 8
Unplanned Downtime – End-User Productivity Impact

	Before VxRail	With VxRail	Difference	Benefit
Number of outages per year	5.5	1.8	3.7	68%
Mean time to repair (MTTR) (hours)	3.9	0.8	3.1	81%
Users impacted by downtime	2,470	2,470		
Percentage of productivity loss factor	68%	68%		
Number of FTEs	19.1	1.2	17.9	94%
Value of lost productive time per year	\$1.3M	\$83,171.2	\$1.3M	94%

Source: IDC’s Business Value research, March 2023

Reducing the frequency and severity of unplanned outages also had positive financial impacts for study participants. As shown in **Table 9** (next page), with the use of VxRail, companies were able to save \$3,137,549 annually in revenue losses related to the occurrence of disruptive events.

TABLE 9

Unplanned Downtime – Revenue Impact

	Before VxRail	With VxRail	Difference	Benefit
Number of outages per year	5.5	1.8	3.7	68%
MTTR (hours)	3.9	0.8	3.1	81%
Percentage of revenue-impacting outages	97%	97%		
Revenue loss per hour of outage	\$162,500	\$162,500		
Total revenue loss value per organization	\$3.3M	\$207,890	\$3.1M	94%

Source: IDC’s Business Value research, March 2023

Interviewed organizations reported a decreased need for planned outages after adopting VxRail. Companies were able to release updates during business hours without impacting business units or customers. As stated by one VxRail customer, *“We have less planned downtime because the VxRail solution can be serviced real time. Before, we would try to plan the upgrades after hours to be the least disruptive to everyone. But now, we update them during the day, and it doesn’t even need to be a Saturday or Sunday anymore.”* As shown in Figure 3, the duration of planned outages was reduced 69%, while the frequency was reduced 67%.

FIGURE 3
Planned Outages KPIs
(% decrease)

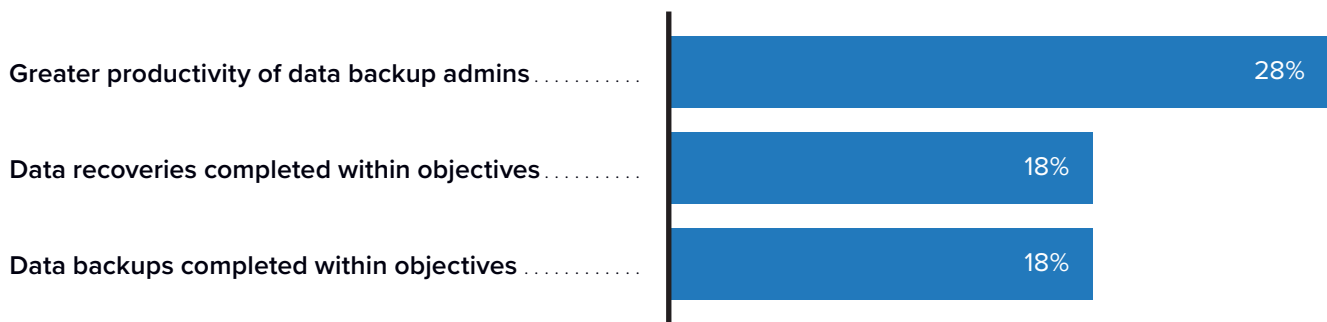


n = 8, Source: IDC’s Business Value research, March 2023

In using integrations or features like Dell PowerProtect Data Manager, in conjunction with VxRail, interviewed organizations reported that they could increase the productivity of their backup administration as well as meet data backup/recovery objectives. Commenting on the benefit of a more streamlined approach to the backup process, one study participant noted, “We have a streamlined backup process now with VxRail. Backups are continuous. Before VxRail, it was very archaic and you were lucky to have a full backup; it used to be an issue for my organization.”

Figure 4 shows backup and protection KPIs. After adoption, the productivity of data backup administration was improved by 28%. In addition, both the number of data recoveries and the number of data backups completed within stated objectives increased by 18%.

FIGURE 4
Backup and Protection KPIs
(% more)



n = 8, Source: IDC’s Business Value research, March 2023

Improved Performance

Interviewed organizations made it clear that VxRail improved the performance and latency of applications and databases. This resulted in users being able to run analytical queries and complete business transactions with far greater speed. As shown in Figure 5 (next page), after the deployment of VxRail, the execution of business transactions was 33% quicker, analytical queries ran 33% quicker, and application performance/latency improved by 28%.

FIGURE 5
Application and Database Performance KPIs
 (% improvement/quicker)



n = 8, Source: IDC's Business Value research, March 2023

Business Operational Benefits

IDC quantified business enablement in relation to end-user productivity enhancements. End users benefited from business-critical applications performing with far less latency and greater availability. As a result, end users were able to work with greater throughput as a direct result of organizational usage of VxRail. **Table 10** shows significant value in end-user productivity, which IDC calculated at \$1,153,688 per year per interviewed organization.

TABLE 10
Business Enablement – End-User Productivity Gains

	Before VxRail	With VxRail	Difference	Benefit
Equivalent productivity level (FTEs)	3,663	3,772	110.00	3.00%
Total FTE count – net	3,663	3,679	16.00	0.45%
Value of staff productivity per year	\$256.38M	\$257.52M	\$1.15M	0.45%

Source: IDC's Business Value research, March 2023

Cost of Operations and ROI Summary

Interviewed companies reported that VxRail proved to be a very cost-effective solution for modernizing their IT infrastructure needs. The higher-performing hyperconverged platform with streamlined and automated IT infrastructure provided significant cost savings. **Table 11** presents a total five-year infrastructure cost of operations. As shown, IDC calculated that the cost of hardware was reduced 18%. In addition, the cost of IT staff involved in infrastructure management was reduced by 61%. Factoring in the previously stated downtime advantage, we calculated that over a five-year period, VxRail cost \$9.5 million less to operate than previous solutions. Additional calculations are shown combining these benefits.

TABLE 11

Total Five-Year Cost of Operations

	Before VxRail	With VxRail	Difference	Benefit
Cost of hardware	\$5.0M	\$4.1M	\$901,199	18.0%
Cost of IT staff time (infrastructure management)	\$4.3M	\$1.7M	\$2.6M	61.0%
Cost of unplanned downtime	\$6.4M	\$397,559	\$6.0M	94.0%
Five-year cost of operations (no downtime)	\$9.2M	\$5.7M	\$3.5M	38.0%
Five-year cost of operations (with downtime)	\$15.6M	\$6.1M	\$9.5M	61.0%

Source: IDC's Business Value research, March 2023

Table 12 (next page) presents IDC's ROI analysis of study participants' use of VxRail. As shown, IDC projects that these companies will achieve five-year discounted benefits worth an average of \$16,279,900 per organization (\$193,042 per VxRail node) through IT cost savings, downtime impacts, staff efficiencies, and improved business performance. These benefits compare with total five-year discounted costs of \$2,893,500 per organization (\$34,310 per VxRail node). These levels of benefits and investment costs are projected to result in an average five-year ROI of 463% and a break-even point in their investment occurring in 11 months.

TABLE 12

Five-Year ROI Analysis

	Per Organization	Per VxRail Node
Discounted benefits	\$16.3M	\$193,042
Discounted investment	\$2.9M	\$34,310
Net present value (NPV)	\$13.4M	\$158,732
Return on investment (ROI)	463.0%	463.0%
Payback period	11 months	11 months
Discount factor	12.0%	12.0%

Source: IDC's Business Value research, March 2023

Customer Case Study

As part of this study, IDC interviewed an organization with a very powerful edge use case. Because of the uniqueness of its VxRail usage, this organization was not included in the overall ROI calculations but served as the basis for a case study.

North American Delivery Organization

IDC interviewed a large United States–based transportation and logistics enterprise that had a purely VxRail edge deployment. For this enterprise, the primary goal of deploying VxRail was to replace a classic physical server implementation at U.S. logistics centers and move to a virtualized solution. VxRail was ultimately deployed to help the organization address life-cycle manageability and process unification challenges it faced with its physical server environment. It also looked to Dell as a trusted advisor for centralized support that would help not only with initial deployment but also with any challenges faced when virtualizing its logistics infrastructure.

This enterprise had an extremely large VxRail edge deployment with nearly 4,000 nodes and over 1,000 clusters, supporting various U.S. branch locations. A major goal in deploying VxRail was to modernize and optimize its infrastructure while decreasing technical debt. This enterprise noted that VxRail was staggeringly more cost-effective per year than its legacy environment, thus helping the enterprise achieve its goal in a significant manner.

Importantly, this enterprise looked to VxRail to increase the agility of IT staff. IT staff benefited from this consolidated view of the infrastructure, as well as built-in functionality like patching and automation, to help them perform at a higher level than was possible with the previous physical server environment. As a result, IT staff such as infrastructure administration, application management, and security teams were markedly more effective and efficient.

From a business perspective, VxRail was more reliable, scalable, and resilient than the enterprise's legacy environment. Business-critical applications were more readily available, as the enterprise had far less unplanned downtime with VxRail. This enabled the enterprise to innovate and go to market with speed. In addition, the transportation and logistics enterprise found that VxRail gave the performance needed to continuously stream applications, features, and updates to its core end users, who were geographically spread across the United States. The availability of up-to-date business-critical applications and features enabled end users to work with greater productivity.

Challenges/Opportunities

As organizations make greater use of HCI solutions across the full spectrum of enterprise workloads, it is imperative that they continue to assess workload attributes and deployment requirements. In the past seven years, we've seen the range of use cases for HCI expand considerably, but datacenter, edge, and hybrid cloud infrastructure are not part of a "one size fits all" procurement process. Care must be taken to ensure that performance, capacity, networking, and management capabilities are matched to workload demands and deployed and operated in ways that tie to business outcomes. The wealth of options in technologies, deployment methodologies, and capex or opex financing is a mixed blessing — managing this complexity can be challenging to buyers who are concerned about the potential for costly forced migrations off inappropriate infrastructure. Future needs for workloads must be considered as well, as scaling HCI deployments to include appropriate compute and storage resources in a cost-effective manner was identified as a challenge by respondents in IDC's *2023 Infrastructure for Storage and Data Management Survey*. Vendors that can de-risk the selection, procurement, and operation of hyperconverged infrastructure and demonstrate ROI and business value are well positioned to take advantage of the expected continued growth in this compelling market.

Conclusion

Enterprises are making infrastructure decisions today to increase agility, competitiveness, and resilience in the digital business era. Rather than adding even more silos to their datacenter infrastructure, they are seeking technologies that reduce complexity, alleviate existing technical debt, consolidate workloads, and operate seamlessly with their existing and next-generation hybrid cloud infrastructure. High-performance compute, storage, and networking capabilities increase the number and types of workloads that can be consolidated to a common technology stack. Platforms with unified management tools and reliably consistent user experiences from datacenter to cloud and edge deployments provide better visibility and operational efficiencies for resource-constrained administrative teams.

IDC conducted in-depth interviews with eight Dell VxRail customers that have extensive experience with the product to examine the benefits those users found with VxRail and to quantify the business value of using the platform. For participants in this study, VxRail supported an average of well over 5,000 users and 200 business applications. Five-year average benefits were \$16.28 million per organization, or \$193,042 per VxRail node. The five-year ROI achieved was 463%, and the payback on the initial investment took 11 months. Higher reliability and greatly reduced downtime costs were key benefits achieved, along with improved performance, greater productivity, increased efficiency, and improved infrastructure management.

Appendix: Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of VxRail and VMware Cloud Foundation on VxRail as the foundation for the model.

Based on interviews with organizations using VxRail and VMware Cloud Foundation on VxRail, IDC performed a three-step process to calculate the ROI and payback period:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of VxRail and VMware Cloud Foundation on VxRail.** In this study, the benefits included IT cost reductions and avoidances, staff time savings and productivity benefits, and revenue gains.

2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using VxRail and VMware Cloud Foundation on VxRail and can include additional costs related to migrations, planning, consulting, 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 the organizations' use of VxRail and VMware Cloud Foundation on VxRail 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.

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 productivity savings. For the purposes of this analysis, IDC has used assumptions of an average fully loaded salary of \$100,000 per year for IT staff members and an average fully loaded salary of \$70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- 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.
- Further, because VxRail and VMware Cloud Foundation on VxRail 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.

About the IDC Analysts



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Megan Szurley is a senior research analyst for the Business Value Strategy Practice, responsible for creating custom business value research that determines return on investment (ROI) and cost savings for enterprise technology products. Megan's research focuses on the financial and operational impact of these products for organizations once deployed and in production. Prior to joining the Business Value Strategy Practice, Megan was a consulting manager within IDC's Custom Solutions division, delivering consultative support across every stage of the business life cycle: business planning and budgeting, sales and marketing, and performance measurement. In her position, Megan partners with IDC analyst teams to support deliverables that focus on thought leadership, business value, custom analytics, buyer behavior, and content marketing. These customized deliverables are often derived from primary research and yield content marketing, market models, and customer insights.

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[More about Dave Pearson](#)

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