White Paper

The Business Value of Hitachi Unified Compute Platform

Sponsored by: Hitachi Data Systems

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EXECUTIVE SUMMARY

Years of constant and steady improvements in datacenter infrastructure technologies have helped drive considerable benefits to important datacenter metrics such as utilization rates, datacenter agility, and application resiliency. Many of these benefits have had a stronger impact on capital expenditure (capex) improvements than on operating expenditure (opex) improvements. Over the years, this has resulted in a widening gap between datacenter capex and opex. On average, companies spend more money to manage, power, and cool datacenter infrastructure than they have at any time in the past. This is driving companies to adopt converged systems, which tend to offer a better balance of opex and capex benefits through the consolidation of disparate datacenter technologies that they can acquire, deploy, manage, and support as though they were a single system. Fundamentally, converged systems are differentiated from traditional hardware platforms and architectures in that they are designed to be deployed quickly using a modular building block approach to rapidly scale up resources and workloads. Real-world integrated systems deployments typically include servers, disk storage systems, networking equipment, and system infrastructure software.

Business Value Highlights

- Average 360% five-year ROI
- Payback period of 9.4 months
- Average five-year discounted benefits of $32.7 million per organization
- Average annual benefits of $143,814 per 100 users per year
- Average additional revenue of $284,833 per year
- 100% less unplanned downtime — zero instances reported with UCP

This white paper measures, via interviews conducted by IDC, the benefits that Hitachi's Unified Compute Platform (UCP) provides to organizations.

To better understand the value of Hitachi's converged infrastructure platform, IDC conducted interviews with four organizations that use UCP. IDC's study has revealed that organizations derive significant business value from their investment in UCP. IDC has computed average benefits worth $32.7 million per organization over a five-year cycle. This equates to $512,213 per 100 users per organization among organizations that utilize UCP and an average five-year return on their investment of 360%. IDC believes that the surveyed organizations will achieve this value because UCP:

- Enables organizations to benefit from improved performance and efficiencies from consolidating business applications on a reliable, agile, cost-efficient, and scalable converged infrastructure platform
- Empowers IT departments to prioritize their resources by reducing the number of full-time employees (FTEs) required to manage IT infrastructure and reallocate their time toward other initiatives — 44% less time spent by the IT department on "keeping the lights on"
- Improves productivity, resiliency, and reliability — zero instances of unplanned downtime per year with UCP and 50% fewer planned downtime instances
- Accelerates the application development process — time to develop and deploy an application improved by an average of 39% for the surveyed organizations

In total, the surveyed organizations have leveraged UCP to achieve their broader business objectives by implementing a converged infrastructure platform that is reliable, optimizes IT resources, improves productivity and agility, and accelerates the application development process. As one customer noted: "*UCP helps reduce management overhead by a significant amount, increases agility and flexibility, brings up workloads much faster, and enables better reporting out of the system.*"

OVERVIEW OF HITACHI'S UNIFIED COMPUTE PLATFORM AND UCP DIRECTOR

Hitachi Data Systems (HDS) has been a key player in the rapidly growing converged systems market for many years. The company offers a portfolio of converged systems solutions that includes hardware, software, support, and services. The core of Hitachi Data Systems' converged systems portfolio is the company's Unified Compute Platform family and the accompanying management software, Hitachi Unified Compute Platform Director. UCP and Unified Compute Platform Director combine four core datacenter technologies — storage systems, servers, networking, and management software — into a single solution. To be clear, UCP is not a simple bundling of disparate systems. Hitachi has put substantial resources and time into the engineering of UCP and Unified Compute Platform Director to ensure that they can be deployed, scaled, managed, and supported as a single system. Importantly, Hitachi extends UCP beyond its core components as it has long-standing relationships with key independent software vendors such as SAP, VMware, and Microsoft. The company also ensures maximum flexibility through comparable relationships with third-party infrastructure vendors such as Brocade and Cisco.

The advanced management capabilities that UCP Director enables are an important part of the real-world benefits achieved by those leveraging UCP solutions. Hitachi understands that many organizations have migrated tier 1 enterprise applications to virtualized environments and now rely upon management suites such as VMware vCenter to control numerous aspects of their virtual environments. As such, the company has designed its Unified Compute Platform Director software to plug directly into VMware vCenter or the Microsoft System Center management suite where users can deploy, provision, and manage their UCP resources directly from a console that they use to manage many other parts of their virtual environments. This helps keep productivity high by allowing users to

work within a platform they already know well and ensuring that physical and virtual assets can be controlled within a single pane of glass. Through native integration, Hitachi Unified Compute Platform Director seamlessly extends the capabilities of VMware vCenter and Microsoft System Center to provide key UCP management tasks such as provisioning, monitoring, protecting, and problem remediation of an organization's integrated infrastructure. Health and status information of the organization's UCP systems is provided through the same integration into vCenter or System Center. From this same pane of glass, users get an aggregated view of all components. Those leveraging Unified Compute Platform Director to manage their systems are able to drill down and inspect all elements of these systems within the servers, storage switches, top-of-rack switches, and storage systems. This unified view can be extended to multiple systems and datacenters through the use of the Unified Compute Platform Director operations center feature, which allows customers to monitor and operate multiple UCP systems from the same single pane of glass. In short, Hitachi Unified Compute Platform Director provides customers with a truly unified view of the entire converged stack (servers, storage, and networking) and ensures that all components of these systems can be managed efficiently from a single, familiar pane of glass.

Hitachi Unified Compute Platform Director also lets customers automate certain tasks. This is an important capability because automation has become an imperative for organizations looking to effectively scale datacenter infrastructure beyond what traditionally has been possible. The automation capabilities of UCP with Unified Compute Platform Director allow customers to increase the scale of the systems they deploy without commensurately scaling personnel. The automation capabilities of Hitachi's integrated systems also help ensure that customers don't introduce the human error often associated with managing datacenter infrastructure at a large scale. Hitachi automates UCP firmware updates, for example, to ensure that updates for each of the system components are done centrally and nondisruptively. Hitachi does this by first testing all new firmware and then providing customers with updated packs that address all components of the system at once and without taking the system offline.

THE BUSINESS VALUE OF HITACHI UCP

Study Demographics

IDC interviewed HDS' customers about their use of UCP. The four customers interviewed were of varying sizes and from different industries. Customers included an emerging IT services provider with 80 employees and one of the largest global IT professional services firms delivering infrastructure solutions to one of its banking clients through UCP. In addition, IDC interviewed a legal services firm and a United States–based public sector organization. The majority of organizations interviewed depend on their HDS converged infrastructure environment to support their engagements with a significant number of external users and/or customers.

The study reflects how UCP works in a range of organizations to meet their IT infrastructure requirements. By size, interviewed organizations ranged from 80 employees to 35,000 employees, with an average of 10,345 employees. Of the total number of employees, the number of users dependent on the UCP environment ranged from 64 users to 20,000 users, with an average of 6,358 users. A considerable number of business applications among the surveyed organizations run on the UCP environment — 83 on average. The demographics of the surveyed organizations are highlighted in Table 1.

TABLE 1

Firmographics of Interviewed Organizations

	Average	Median	Range
Number of employees	10,345	3,150	80–35,000
Number of IT staff	335	68	4–1,200
Number of users	9,408	3,025	80–31,500
Number of business applications	83	62	9–200
Number of UCP users	6,358	2,738	64–20,000
Number of UCP business applications	83	62	9–200
Number of UCP servers	90	73	13–200
Regions	North America and EMEA		
Industries	IT services, public sector, legal services, and financial services		

n = 4

Source: IDC, 2016

Financial Benefit Analysis

The surveyed organizations implemented UCP because their business operations demanded a more cost-effective, scalable infrastructure platform that they also could manage and maintain efficiently. The surveyed organizations benefit from improved performance and efficiencies in different areas within the organization through the consolidation of business applications on a cost-effective, reliable, and agile converged infrastructure platform.

The benefits derived by the interviewed organizations translate to substantial business value for these organizations. Based on the interviews, IDC was able to calculate the effect of UCP on the organizations' costs, operations, and businesses. IDC projects that the surveyed organizations will achieve business benefits equivalent to an average of $9.1 million per year over a five-year period. This equates to $143,814 per 100 users.

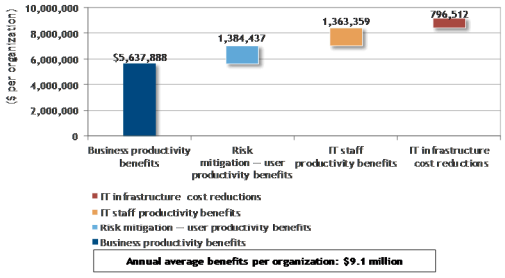
IDC has grouped the benefits of using UCP into the following four categories (see Figure 1):

- **Business productivity benefits:** Through UCP, the surveyed organizations have benefited from improved application performance, reduction in the time required to provision infrastructure, and faster time to bring business applications to market, all of which contribute to more efficient operations and higher user productivity. IDC projects that the interviewed organizations will achieve higher user productivity and increased revenue equivalent to an average of $88,302 per 100 users per year over a five-year period. This equates to $5.64 million per organization.

- **Risk mitigation — user productivity benefits:** UCP brings a high level of resiliency, performance, and efficiency to an organization's IT infrastructure environment. IDC projects benefits worth an average of $21,683 per 100 users per organization. This is equivalent to an average of $1.38 million per organization. Organizations witnessed a 100% reduction in unplanned downtime instances and a 50% reduction in the number of planned downtime instances. IDC discovered that as a result of implementing UCP, the surveyed organizations experienced zero unplanned downtime instances in their HDS environment.
- **IT staff productivity benefits:** UCP has brought efficiencies to IT departments within the surveyed organizations by minimizing the time required to manage their IT infrastructure, accelerating the time to provision new infrastructure, and supporting the rapid launch of new applications. IDC expects that as a result of improved efficiency among IT departments, organizations will achieve benefits worth an average of $21,353 per 100 users per year. Benefits worth an average of $1.36 million per organization are projected. UCP has enabled the surveyed organizations to reallocate the time of five full-time employees who were previously managing IT infrastructure to other strategic areas. By migrating to UCP, IT staff among the surveyed organizations spent 44% less time on "keeping the lights on" for their IT infrastructure environment.
- **IT infrastructure cost reductions:** The surveyed organizations have achieved efficiencies in provisioning and deploying compute, storage, and networking resources through the implementation of HDS' converged infrastructure solution. As a result of implementing UCP, the surveyed organizations have been able to reduce infrastructure-related costs by 37%, which translates to savings of $12,475 per 100 users. Infrastructure-related savings have been computed to an average of $796,512 per organization.

FIGURE 1

Annual Average Benefits per Organization



Source: IDC, 2016

Business Productivity Benefits

Deploying UCP has helped the surveyed organizations support their users and business-facing operations by providing a better-performing consolidated infrastructure platform for mixed workloads. This has helped drive faster time to service, supported business continuity initiatives and governance, and improved the ability to address risk and compliance challenges. As a result, organizations with UCP as their IT infrastructure solution have benefited from better-performing applications and databases, business agility, increased revenue, and improved employee productivity.

Performance Improvement of Applications and Databases

UCP enhances the performance of applications and reduces the time to execute critical business and operational tasks. For example, a legal services firm was able to accelerate input/out (I/O) processes because of improved performance: "*We did performance testing, and the testing that we did was based on density. My density went from one time faster, which was just the baseline of what it was, to three times faster. And we did some load testing, which was three times faster as well. But it wasn't just density; our workload is very I/O intensive. And we got a 300% improvement in total I/O.*"

Table 2 highlights various metrics that attest to the impact of UCP on the surveyed organization. Organizations are able to reduce time spent on running queries from their databases by 45%. It is evident that the benefits of UCP extend into other areas within organizations – such as accelerating the rate at which the organizations can extract, consolidate, and analyze data.

TABLE 2

Performance Improvement of Applications and Databases

	Performance Improvement (%)
Improved application performance	24
Reduced time to run queries	45
Faster execution of business processes	8
Reduced time to run batch processes	8

Source: IDC, 2016

The surveyed organizations also have accelerated critical operational tasks such as executing business processes and reducing the time to run batch processes. The increased speed of business processes has resulted in increased levels of customer engagement. A service provider interviewed in this study attributed increased levels of customer engagement and business growth to improved application performance: "*UCP has enabled business growth for us because our total speed as a service provider increased, as did our possible throughput. This enables us to do more work for more customers on more cases.*"

The same service provider has also benefited from improved customer satisfaction and retention: "*We had a couple of customers that were going to leave because of performance, and we completed our upgrade, turned performance around, and the customers didn't leave.*"

In total, implementing UCP has resulted in better end-user satisfaction, acceleration of critical business processes, and improvement in application performance and, ultimately, facilitated business growth among the surveyed organizations.

Business Agility: Faster Deployment and Provisioning

Organizations have achieved significant business agility, particularly in the area of application development, through UCP. HDS' converged infrastructure platform has improved the ability of organizations to provision infrastructure as and when the demand arises. The surveyed organizations can provision a virtual server within 20 minutes — a 91% reduction in time compared with their previous IT infrastructure environment. The surveyed organizations also were able to accelerate their application development cycle. The time needed to develop and deploy applications has decreased by almost four weeks — an average reduction of 38% compared with the organizations' previous IT infrastructure environment.

The increase in agility has helped organizations bring applications to market faster and supported their strategic technology initiatives. For example, UCP has enabled a legal services firm to develop applications for IT and business users focused on system management. The firm stated that before implementing UCP, this was not possible: "*We're building tools to manage the systems a little bit better, whether that be tools specifically for IT or tools for the application and business owners. Four years ago, we never thought we'd get to this point.*"

Impact of UCP on Supporting Business and Users

Organizations running applications on HDS' converged infrastructure platform have achieved significant productivity gains for users and have increased revenue. The accelerated development and deployment of critical business applications have empowered users with the technology required to execute their day-to-day tasks. In addition, the scalable and elastic nature of HDS' converged infrastructure platform has enabled organizations to support the development of new business applications by providing datacenter capacity as and when required. Application developers within the surveyed organizations are now able to develop and deploy applications in four weeks less time on average compared with their previous environment. This has provided end users with the necessary business applications in a timely manner.

The benefits to end users have resulted in a substantial number of additional productive hours for users within the interviewed organizations. An average of 2,353 hours were gained per 100 users per year by implementing UCP. In monetary terms, this translates into an annual average of $5.6 million worth of increased value per surveyed organization and $87,633 per 100 users.

From a business perspective, the interviewed organizations found a direct correlation between implementing UCP and their annual revenue. UCP facilitated business growth by allowing organizations to scale their infrastructure capacity in significantly less time than in a traditional server environment. As one professional services firm delivering UCP for a customer noted: "*If their business doubles, I can double the current capacity and manage the new business growth and have the required infrastructure up and running in about 1 week to 10 days, say 2 weeks of time. For traditional servers, it would be 4 weeks or at least 3 weeks.*"

The surveyed organizations also agreed that UCP has helped them drive strategic goals. For example, an HDS customer articulated the diverse spectrum of benefits and how UCP is helping them achieve strategic goals: "*It [UCP] reduces management overhead by a significant portion – increases our agility and flexibility. I can bring up workloads much faster. I get better reporting out of my system.*"

Revenue will increase by an annual average of $284,833 over five years for the surveyed organizations. IDC applies a 15% assumed operating margin to revenue increases, meaning that interviewed organizations will be able to increase their operating margin by $42,725.

Details on the productivity and revenue gained by the surveyed organizations are provided in Table 3.

TABLE 3

User and Business Operations Impact

	Per Organization
User productivity	
Number of impacted users	5,076
Productivity gain — attributable to UCP	4%
Additional productive time per year per organization	150,270 hours
Additional productive time per year per 100 users	2,353 hours
Value per year of increased productivity per organization	$5,595,200
Value per year of increased productivity per 100 users	$87,633
Business impact	
Additional revenue per year (attributable to UCP)	$284,833
Operating margin assumption	15%
Increase to operating margin (used in the model)	$42,725

Source: IDC, 2016

IT Staff Productivity Benefits

The interviewed organizations reported significant benefits among their respective IT departments. The ability of UCP to consolidate siloed IT infrastructures has resulted in significant productivity gains for the organizations' respective IT departments. As one organization noted, HDS has enabled it to move beyond exclusively focusing its time on the day-to-day responsibilities associated with maintaining and running IT infrastructure: "*Instead of just keeping the lights on, keeping things going, we're finally able to start looking at how we're doing things, and why we're doing things, and figure out a more efficient way to do it – to reduce licensing costs, to reduce overhead, and to become more agile.*"

Another organization's IT department benefited by shifting IT staff time to business enablement-related tasks: "*They [10 IT members] will be able to work more on catching up on backlog, things like patching and getting off old operating systems, and also moving toward greater integration with our customers – meeting them and providing greater customer support.*"

The capabilities of UCP also helped IT departments within the surveyed organizations bring applications to market faster: "*Yes, definitely, we can get our applications out faster. Because of UCP, the solution on the top of the UCP Pro, called the UCP Director, allows you through a portal to set up a new VM, a new application, and a new environment in 10 minutes compared to 1-2 hours before – so a lot of reactivity. I'm not saying that the user and the business are in need of that much reactivity, but sometimes, they definitely are. It's a huge improvement.*"

In total, IT departments within the interviewed organizations now spend less time on managing their infrastructure environment and have reallocated their time to other strategic areas. IDC's analysis has

shown that the surveyed organizations' IT staff spent 44% less time on "keeping the lights on" (see Table 4). The increased productivity accrued by IT departments also can be attributed to the stark reduction in issues raised by end users to the IT help desk. The reliable nature of UCP and the ability to provision infrastructure faster have created an environment where users are less concerned by issues relating to their IT infrastructure environment. As a result, the IT help desk has witnessed an average decrease of 47% in the number of calls received per year (see Table 5). In particular, fewer infrastructure-related help desk calls benefited one of the service providers that IDC interviewed: "*We [services provider] are getting very few [calls] related to UCP. Our customers are very happy with the deployment. We get a call maybe once a week. Before, it would probably be 10 per week.*"

TABLE 4

IT Staff Impact

	Before UCP	With UCP	Difference	Change (%)
IT staff management for the UCP environment (FTE)	10.3	5.4	5	48
Time for "keeping the lights on" (%)	85	48	38	44

Source: IDC, 2016

TABLE 5

Impact on Help Desk Operations

	Before UCP	With UCP	Difference	Change (%)
Number of calls (annually)	338	179	159	47
Average call time (hours)	1.6	1.6	0	0
Productive time lost due to responding to calls (hours)	549	291	258	47
Equivalent FTEs (annually)	0.3	0.2	0.1	47

Source: IDC, 2016

Risk Mitigation and Availability

Organizations interviewed reported a significant improvement in the reliability, security, and stability of their IT infrastructure environment with a UCP solution. Among the most noteworthy benefits is the 100% reduction in unplanned downtime. All of the surveyed organizations reported zero unplanned downtime instances for their UCP environment. As a result, organizations gained an average of 115 hours that were previously lost due to unplanned downtime per 100 users. This enabled improved business continuity without interruptions among the surveyed organizations.

IDC also witnessed an average decrease of 50% in the frequency with which interviewed organizations undertook planned downtime (see Table 6). In fact, the UCP architecture enabled one of the interviewed service providers to complete upgrade cycles for its customers without taking planned downtime: "*Due to redundancy of UCP, we don't have to take any planned downtime. If we need to upgrade, we can upgrade equipment while the rest of the environment continues to run.*"

TABLE 6

Unplanned and Planned Downtime

	Before UCP	With UCP	Difference	Change (%)
Unplanned downtime				
Number of instances per year	1.2	0	1.2	100
MTTR (hours)	1.8	0	1.8	100
Productive time lost per 100 users due to unplanned downtime (hours)	115	0	115	100
Planned downtime				
Number of instances per year	12	6	6	50
MTTR (hours)	4.3	1.9	2.4	56
Productive time lost per 100 users per year (hours)	650	140	510	78

Source: IDC, 2016

Apart from reliability, the significant decrease in downtime speaks volumes about HDS' commitment to transfer risk from the customer to the vendor. As one customer articulated: "*Yes, I think UCP decreases the risk. We transferred the risk to our vendor partners. So they are on the hook for making the hardware work and certifying all the parts, whereas before, it was my staff sitting down and figuring out how things fit together.*"

IT Infrastructure Cost Reductions

The surveyed organizations have achieved a diverse spectrum of business benefits, all while reducing their costs related to IT infrastructure. The infrastructure-related cost savings can be attributed to a decrease in hardware requirements, power- and facilities-related costs, and costs and resources required to manage and upgrade the UCP environment. By adopting a simpler and centralized IT

infrastructure platform that consolidates disparate environments, HDS customers have reduced the various components that often form an enterprise's legacy IT infrastructure environment. The surveyed organizations essentially have been able to collapse siloed IT infrastructures that required them to provision compute, storage, and network resources separately. As a result, the interviewed organizations have significantly reduced their costs related to datacenter hardware and operating expenses such as power and facilities. For example, an HDS customer highlighted its ability to improve the rate of storage utilization and avoid overprovisioning storage: "*Storage utilization rate with UCP? Say about 75% provisioned. It's much higher than it used to be because the performance improvements were so much that I'm able to get more out of it. With the others, it would be different. I'd still be using the same amount of storage, but I'd have 80TB or 90TB provisioned.*"

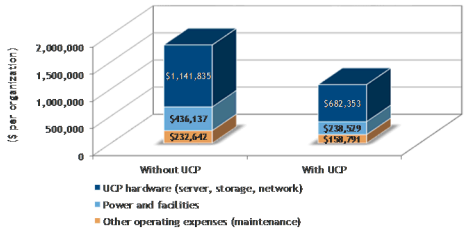
The surveyed organizations also benefited from the scalable nature of UCP and reduced infrastructure costs by avoiding the need to constantly provision new infrastructure to meet demand: "*Our consistent problem was having enough capacity, so we are avoiding the situation where we were constantly running low on capacity. We're in the process of decommissioning servers. It takes us a long time; while we were in the process of putting new servers in place, we had a substantial project at the statewide level that created a demand for something like 600 new operating systems, and we had about 1,600 operating systems in our datacenter before the demand for 600 more. The only way that we met that demand was using UCP. The UCP servers have a lot of virtual servers on them. We virtualized everything so far on those.*"

IDC calculates that the interviewed organizations will realize an average reduction of 37% in their IT infrastructure costs. The ability to avoid an average of 79 physical servers per organization resulted in significant cost savings.

Figure 2 analyzes the reduction in IT infrastructure in detail and showcases why the interviewed organizations credit HDS for reducing their costs related to IT infrastructure.

FIGURE 2

IT Infrastructure Cost Reductions per Organization



Source: IDC, 2016

Total Cost of Operations

IDC projects that in comparison with organizations' previous IT infrastructure environments, UCP will enable organizations highlighted in this study to reduce their total cost of operations (TCO) by an average of $7.1 million – a 47% decrease. A reduction in capital and operating costs, as well as productivity gains resulting from IT staff management and improved reliability, contributes to the significant reduction in the TCO (see Table 7).

TABLE 7

Five-Year TCO Analysis

	Before UCP	With UCP	Difference	Change
Datacenter capex (servers, storage, network)	$5,709,177	$3,411,767	$2,297,410	40%
Datacenter operating (power, facilities, maintenance)	$3,343,894	$1,986,601	$1,355,442	41%
IT staff deployment	$180,159	$105,742	$74,417	41%
IT staff ongoing management	$4,841,282	$2,613,882	$2,227,400	46%
Risk mitigation — user productivity	$1,185,021	$0	$1,185,021	100%
Total — with risk mitigation	$15,259,533	$8,117,992	$7,141,541	47%

Source: IDC, 2016

ROI Analysis

IDC interviewed four organizations using UCP as their converged infrastructure solution. IDC has calculated total average benefits worth $32.7 million per organization over a five-year period. This equates to $512,213 per 100 users. Therefore, IDC expects that the surveyed organizations will achieve an average five-year ROI of 360%. In addition, organizations will start to see a return from their investment in just over nine months (see Table 8).

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 employee productivity gains and time savings, increased revenue, reduced IT staff time needed to support the IT infrastructure environment, accelerated application development, and infrastructure-related cost reductions.
2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the annual costs of using UCP and can include additional 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 the organizations' use of UCP 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 8

Five-Year ROI Analysis

	Per Organization	Per 100 Users	Per UCP Server
Benefit (discounted)	$32,703,525	$512,213	$364,385
Investment (discounted)	$7,107,244	$111,316	$79,189
Net present value	$25,596,281	$400,897	$285,195
ROI (NPV/investment)	360%	360%	360%
Payback period	9.4 months	9.4 months	9.4 months
Discount rate	12%	12%	12%

Source: IDC, 2016

CHALLENGES/OPPORTUNITIES

The converged systems market recently surpassed $10 billion in annual sales after only a few short years of product availability. This rapid market adoption can be attributed to its ability to drive real improvements to key datacenter metrics such as agility of IT staff, time to service, quality of service, cost of operations, and business availability. The market remains dynamic, with many changes occurring at the solution level and within the technology supplier community. IDC offers the following list of challenges and opportunities to those looking for the best way to move forward within the converged systems market:

- **Make flexibility a part of the entire solution.** Flexibility of solutions will be critical for the market to expand into the widest range of use cases. Converged systems vendors need to make flexibility a part of their entire solution, beyond their hardware. This includes flexibility in pricing, support/service levels, and even deployment models (i.e., software only).
- **Consider service and support when evaluating.** A single source of support is an important benefit of converged systems. When engaging today's converged systems customer, vendors would do well to highlight service and support advantages.
- **Reduce storage provisioning barriers.** To truly gain the full benefits of converged systems, traditional physical storage provisioning barriers must be reduced through storage service catalogs, storage virtualization, and seamless integration of storage tasks with other management frameworks.
- **Integrate management and automation functions.** With consolidation, management is the key. With the proliferation of converged systems comes consolidation. The motivations for this consolidation stem from a desire to reduce operational management overhead costs as well as application prioritization and rationalization and increased virtualization. As such, solutions

must integrate management and automation functions within the converged systems stack, outside of the stack, across datacenter orchestration frameworks, across open source initiatives (i.e., OpenStack), and within virtual management solutions.

SUMMARY AND CONCLUSION

The integrated nature and performance of UCP is a prime example of how an infrastructure solution can drive benefits to different areas within an organization. The benefits associated with implementing UCP have spread across a diverse spectrum of areas within the surveyed organizations. It is evident from this study that UCP has empowered organizations with increased agility and user productivity while reducing the costs involved with operating an IT infrastructure environment. IDC has discovered that the following benefits are associated with implementing UCP:

- Increased revenue
- Improved customer engagement for service providers delivering solutions supported by UCP
- Increased user productivity
- Improved IT staff management
- Reduced IT infrastructure–related costs
- Accelerated development and deployment of applications
- Enhanced ability to provision infrastructure based on end-user demand
- Improved reliability and accessibility of the IT infrastructure environment
- Integrated disparate sets of infrastructure components on a consolidated platform
- Brought elasticity to an organization's IT infrastructure environment by empowering the organization to scale capacity based on business needs

APPENDIX

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Hitachi UCP 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 the solution and the associated migration, training, and support costs.
- Project the costs and savings over a five-year period and calculate the ROI and payback for the deployed solution.

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.

About IDC

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