



Quantifying the Business Value of Enhanced IT Agility and Performance with HPE Synergy

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Navigating this White Paper

Click on titles or page numbers to navigate to each section.

Business Value Highlights	3
Executive Summary	3
Situation Overview	4
HPE Synergy: A Composable/Disaggregated Infrastructure Platform	6
The Business Value of HPE Synergy	7
Study Demographics	7
Choice and Use of HPE Synergy	8
Business Value Results	10
IT Staff Efficiencies	11
Cost of Operation Benefits	13
Agility and Development Benefits	15
Business and Operational Benefits	16
ROI Analysis	18
Challenges/Opportunities	19
Essential Guidance for IT Buyers	19
Conclusion	21
Appendix	21
IDC's Market Definition of Composable/Disaggregated Infrastructure	21
IDC's Business Value and ROI Methodology	22
About the Analysts	24

BUSINESS VALUE HIGHLIGHTS



Click on highlights below to navigate to related content within this white paper.

284%
five-year ROI

35% lower
cost of operations

22% lower
IT infrastructure costs

237% more
IT infrastructure staff
time for innovation

41% more
efficient IT
infrastructure teams

3.8% higher
user productivity

Executive Summary

Digitization has become an essential business mandate for most organizations worldwide. Organizations embarking on digitization initiatives across their business must also examine the role of IT infrastructure. They must make a shift toward IT infrastructure investments as a strategic imperative in a manner that enables and enhances business resiliency. Timely investments in IT infrastructure not only yield superior business outcomes but also provide the foundation necessary to transform the business digitally. From an IT infrastructure perspective, this means introducing newer applications and data sets, introducing newer approaches to analytics like artificial intelligence, and creating a modern information architecture. It also means maintaining a solid infrastructure foundation for revenue-generating business applications and infusing it with additional investments for performance and capacity optimizations. IT departments can approach this in a strategic way by moving toward an infrastructure that supports current- and next-generation applications, which have somewhat diverse infrastructure requirements and service-level objectives.

Composable/disaggregated infrastructure (CDI) solutions have been designed to inherently meet this infrastructure requirement of concurrently hosting current- and next-generation apps. By pooling compute, storage, and networking resources, CDI solutions can provide a simple, scalable, and easy-to-manage platform for the entire datacenter. IDC estimates the market for CDI will follow a trajectory similar to that of the market for hyperconverged systems and cross \$4.7 billion in revenue by 2023.

HPE Synergy is a full-stack CDI system comprising the disaggregated hardware platform and a suite of management software that allows rapid provisioning and seamless ongoing management of resources. IDC interviewed organizations about their use of HPE Synergy to run and support various business applications to understand its impact on IT costs, staff, and business operations.

Interviewed organizations described achieving strong value with HPE Synergy through infrastructure cost savings, IT staff time savings and productivity gains, and higher user productivity, which IDC quantifies as benefits worth an average of \$13,900 per physical server per year (\$6.37 million per year), by:

- ▶ **Establishing more efficient and cost-effective infrastructure platforms**, thereby enhancing the productivity of IT infrastructure teams and spending less to buy and run IT infrastructure for equivalent applications and workloads.
- ▶ **Becoming substantially more agile**, which enables higher-value development activities and ensures that IT organizations can respond to business demand and user needs.
- ▶ **Delivering higher-quality and more timely application functionality to users and customers**, thereby providing a better user experience and capturing the value of higher employee productivity levels.

Situation Overview

Organizations of all types and sizes and across all industries are undergoing an aggressive transformation as they look to do business in an increasingly digitized world. Along the way, many of them face IT-related challenges, which need to be handled appropriately for businesses to move forward.

Much of the focus then shifts to how IT infrastructure supports this digital transformation. The future of digital information — and the ability of the business to use this information to stay competitive, relevant, and differentiated in the future — thus rests on digital infrastructure. Digital infrastructure is no longer just infrastructure that supports a partially digitized organization; rather, it is infrastructure that enables an organization to operate digitally end to end. Therefore, the focus is not on the technologies themselves given that they are a means to an end and not the end itself. Instead, the focus ought to be on the transformational business outcomes that such technologies can bring about in the organization with their rapid adoption.

Organizations embarking on digitization initiatives across their business must also examine the role of IT infrastructure. They must make a shift toward IT infrastructure investments as a strategic imperative in a manner that enables and enhances business resiliency. Timely investments in IT infrastructure not only yield superior business outcomes but also provide the foundation necessary to transform the business digitally. From an IT infrastructure perspective, this means introducing newer applications and data sets, introducing newer approaches to analytics like artificial intelligence, and creating a modern information architecture. This also means maintaining a solid foundation for revenue-generating business applications infusing existing infrastructure investments with performance and capacity optimizations. IT departments can approach this in a strategic way by moving toward an infrastructure that supports current- and next-generation applications, which have somewhat diverse infrastructure requirements and service-level objectives.

A likely scenario for the next several years is that next-generation applications coexist with traditional or current-generation applications, as the latter support day-to-day revenue-generating business operations. That means that in the immediate future, IT departments must manage an infrastructure “duality” — the ability to deploy and manage current- and next-generation applications, each with vastly diverse infrastructure requirements and service-level objectives. Unlike current-generation apps, next-generation apps do not assume infrastructure resiliency and are stateless and horizontally scalable, are built with analytics-first design principles, utilize newer compute vehicles such as containers, and are deployed using newer methodologies such as DevOps. Traditional infrastructure is not optimized for next-generation apps. Cohosting next-generation apps with current-generation apps requires businesses to embrace a new infrastructure paradigm. A new class of composable/disaggregated infrastructure solutions has been designed to inherently handle the current- and next-generation infrastructure duality. CDI solutions disaggregate compute, storage, and networking fabric resources into shared resource pools that can be available for on-demand allocation (i.e., “composable”).

IDC estimates the market for CDI will follow a trajectory similar to that of the market for hyperconverged systems and cross \$4.7 billion in 2023. HPE Synergy is a full-stack CDI system comprising the disaggregated hardware platform and a suite of management software that allows rapid provisioning and seamless ongoing management of resources.

The three key foundational design elements of HPE Synergy that enable IT organizations to deploy a shared, flexible, and agile infrastructure to host current- and next-generation apps concurrently are as follows:

- ▶ **Unified application programming interfaces (APIs)** allow organizations to implement infrastructure as code — a single line of code that abstracts all infrastructure. This enables developers to integrate infrastructure provisioning commands directly into the application development process, which in turn allows for quicker deployment of applications. It also allows integration into third-party applications and tools.
- ▶ **Software-defined intelligence** enables organizations to take a template-driven approach to workload composition and management. This minimizes hiccups caused by operational activities such as OS patching and firmware upgrades, thereby improving IT efficiency and reducing opex costs.
- ▶ **Fluid resource pools** provide the ability to compose compute (CPU, GPU, and memory), network fabric, and storage in a few clicks and execute in minutes instead of the long process of change orders and bouncing between IT teams that are separately responsible for servers versus networking versus storage. This also reduces the waste and overhead caused by overprovisioning of resources and thus capex costs.

HPE Synergy: A Composable/Disaggregated Infrastructure Platform

In late 2015, HPE announced an evolution from converged architecture systems with HPE Synergy. It is built to further HPE's vision of a fully composable/disaggregated infrastructure. HPE Synergy is designed to serve as a bridge for businesses that are in the thick of current-generation apps but are rapidly transitioning to support next-generation app environments. From that perspective, it serves as the best of both worlds — for applications with infrastructure resiliency requirements and for applications that do not assume infrastructure resiliency.

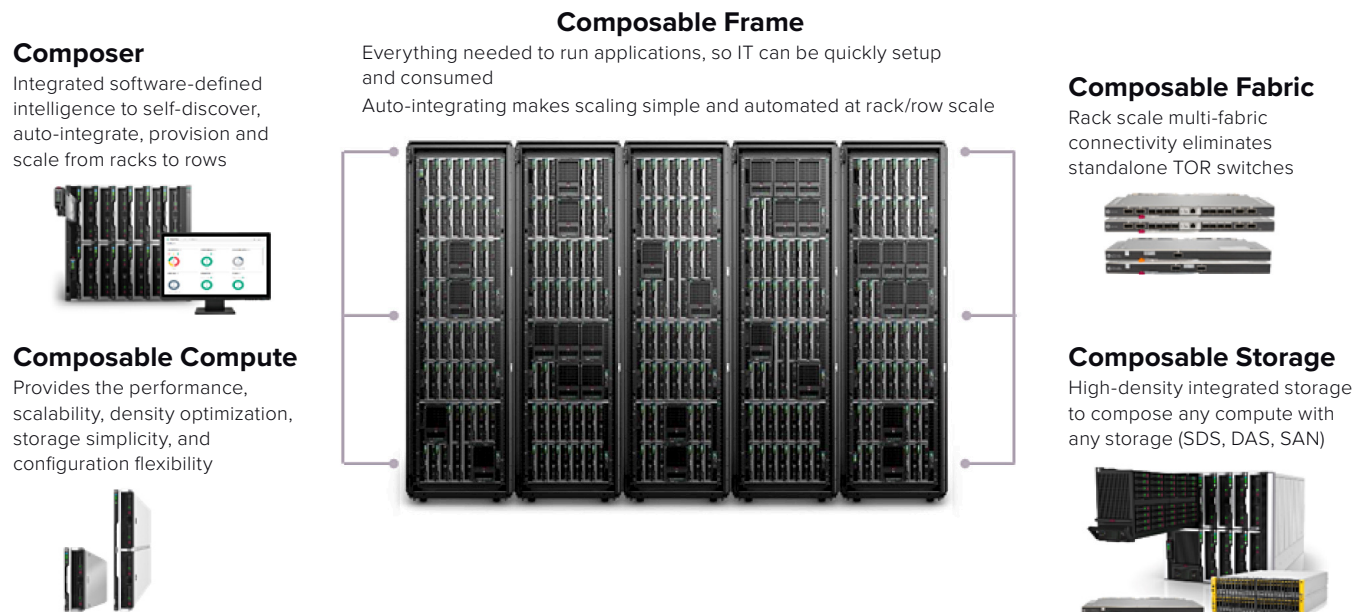
Figure 1 (next page) illustrates the main components of HPE Synergy. They are:

- ▶ **Composable frame (includes compute, fabric, storage, and management modules):** The frame houses compute, storage, fabric, and switch modules. Compute modules provide CPU, memory, local storage, and fabric resources. A shared storage module can contain up to 40 HDD or SSD DAS SAS or SATA drives, with up to 1.2PB per storage module that can be zoned in several ways and mapped to one or more compute modules. Each frame can support up to five of these storage modules for a total capacity of 200 drives and a total of 6PB of storage. These drives can be shared across the frame with software-defined storage (SDS). The Synergy fabric/switch modules work with SDS to share storage across frames. The fabric modules can uplink to the datacenter directly with 10G, 20G, 25G, and 50G Ethernet speeds and up to 32G Fibre Channel speeds. Internally, the common air-gapped management fabric is separate from the data fabric for optimum security and can link multiple frames/racks for a single management network.
- ▶ **Composable software suite:** A key element of the HPE OneView composable software stack is HPE Composer, which is the provisioning engine that allows resources from the frame to be carved into pseudo-physical compute and persistence units. Powered by OneView, Composer manages compute, storage, and fabric infrastructure elements as a pool of resources that can be provisioned for physical, virtualized, or containerized applications; contains software-defined intelligence from a single interface that matches logical software structures to available resources for rapid workload implementation and reuse with orchestrated template-driven operations; and enables unified API access for integrations, automations, and customizations by utilizing simple programming of every infrastructure element to easily automate IT operational processes and applications.

HPE Synergy also supports remote object, file, or SAN storage to be connected to the frame. In the case where the external storage supports the composable API (such as HPE Primera, 3PAR StoreServ, or HPE Nimble arrays), the provisioning domain can be extended to include such storage as part of the composable infrastructure.

While in theory most hardware might be disaggregated, the hardware must truly be capable of disaggregation at all levels to deliver full disaggregation benefits. This is where the HPE Synergy design is truly different. HPE Synergy is a unique infrastructure that allows customers to define in software how to assemble the resources required for workloads. If more compute or storage is needed, the software can be told what to do, and it makes those changes happen. When needed by the business, resources can be returned to the pool and reassembled for new workload demands.

FIGURE 1
HPE Synergy: Powering Your Hybrid Cloud Transformation



Source: HPE, 2021

The Business Value of HPE Synergy

Study Demographics

IDC conducted research that explored the value and benefits for organizations in adopting HPE Synergy to run their business operations and applications with composable, software-defined infrastructure. The project included seven interviews with individuals who had experience and knowledge about the benefits and costs of using the HPE Synergy platform at their organizations. The interviews posed quantitative and qualitative questions about the impact on the organizations' IT operations, costs, and business results.

Table 1 presents study demographics. The significant scale of companies' business operations is reflected in an average employee base of 13,190 and average annual revenue of \$2.92 billion (medians of 10,000 and \$1.34 billion, respectively). In terms of geographical distribution, companies are in New Zealand (2), Italy, the Netherlands, Spain, Switzerland, and Kazakhstan. They span an array of vertical markets: financial services (2), manufacturing (2), consumer internet, professional services, and semiconductor.

TABLE 1
Demographics of Interviewed Organizations

	Average	Median
Number of employees	13,190	10,000
Number of IT staff	927	67
Number of business applications	1,985	250
Revenue per year	\$2.92 billion	\$1.34 billion
Countries	New Zealand (2), Italy, the Netherlands, Spain, Switzerland, and Kazakhstan	
Industries	Financial services (2), manufacturing (2), consumer internet, professional services, and semiconductor	

n = 7, Source: IDC In-depth Interviews, December 2020

Choice and Use of HPE Synergy

Interviewed organizations discussed their selection criteria for HPE Synergy and how they used it to support their business operations and applications. A key factor in their decision to adopt the platform was its ability to accommodate a wide variety of application types including but not limited to VDI, database systems, and customer-facing web services, alongside often substantial application development environments. Study participants also cited the advantage of having a single consolidated platform that provides a simplified view of the systems, datacenters, and cloud environments that make up their IT environments. They also appreciated HPE Synergy's core value proposition (i.e., treating infrastructure resources as code to provide a seamless digital experience).

Study participants offered detailed comments on these decision factors:

► Integrated, unified IT platform:

"HPE Synergy is an enabler. Business is the driver, and the reason that we're going with HPE Synergy is that it provides a single view across many systems, countries, datacenters, and cloud provider environments."

► **Platform to address business disruptions:**

“Our customer and business needs are changing, and we want to be prepared for new and disruptive business models and innovation. We must provide a seamless digital experience ... With their composable infrastructure that treats everything as code, HPE Synergy was able to deliver infrastructure as code.”

► **Simplicity of management:**

“We chose HPE Synergy primarily because of simplicity of management ... We are a small business, so we don’t have loads of staff ... We also wanted to reduce risk, so having fewer moving parts with HPE Synergy makes that significantly easier.”

IDC gathered data that provides a snapshot of how interviewed organizations are using the HPE Synergy platform (see Table 2). They are running substantial numbers of virtual machines (VMs) and applications on the platform (2,144 and 1,913 on average, respectively). Their average data capacity in terms of direct access storage was 1,751TB, coupled with an external storage capacity of 2,480TB. It is worth noting that almost all IT users (90%) were using applications running on HPE Synergy.

TABLE 2
HPE Synergy Use by Interviewed Organizations

	Average	Median
Number of physical servers	483	38
Number of VMs	2,144	460
Number of applications	1,913	250
Direct access storage capacity	1,751TB	104TB
External storage capacity	2,480TB	575TB
Internal IT users	90%	100%

n = 7, Source: IDC In-depth Interviews, December 2020

Business Value Results

Interviewed organizations reported that they have leveraged HPE Synergy to establish a more efficient and agile IT platform in support of business operations. As a result, they can better match shifting business demand for timely and high-performing application functionality.

Study participants spoke to these benefits of HPE Synergy:

► Flexibility that enables business capacity:

"The advantage with HPE Synergy is that we have everything up and ready. We have increased the number of activities that we are doing by five times because of the flexibility we have ... We have also reduced the time to recreate a new demo or new training that we want to have. This is an advantage for the business because we can do more with the same time."

► Speed and scalability:

"HPE Synergy has allowed us to bring resources online quicker than we had been able to in the past and to grow and be more responsive through quicker scaling."

► Standardization and automation:

"We benefit from standardization and automation. If you have servers from different vendors and different models, then it is very difficult to manage them and difficult to automate the deployment ... With HPE Synergy, once the frames are connected and configured in the network, the installation of the servers can be done very quickly."

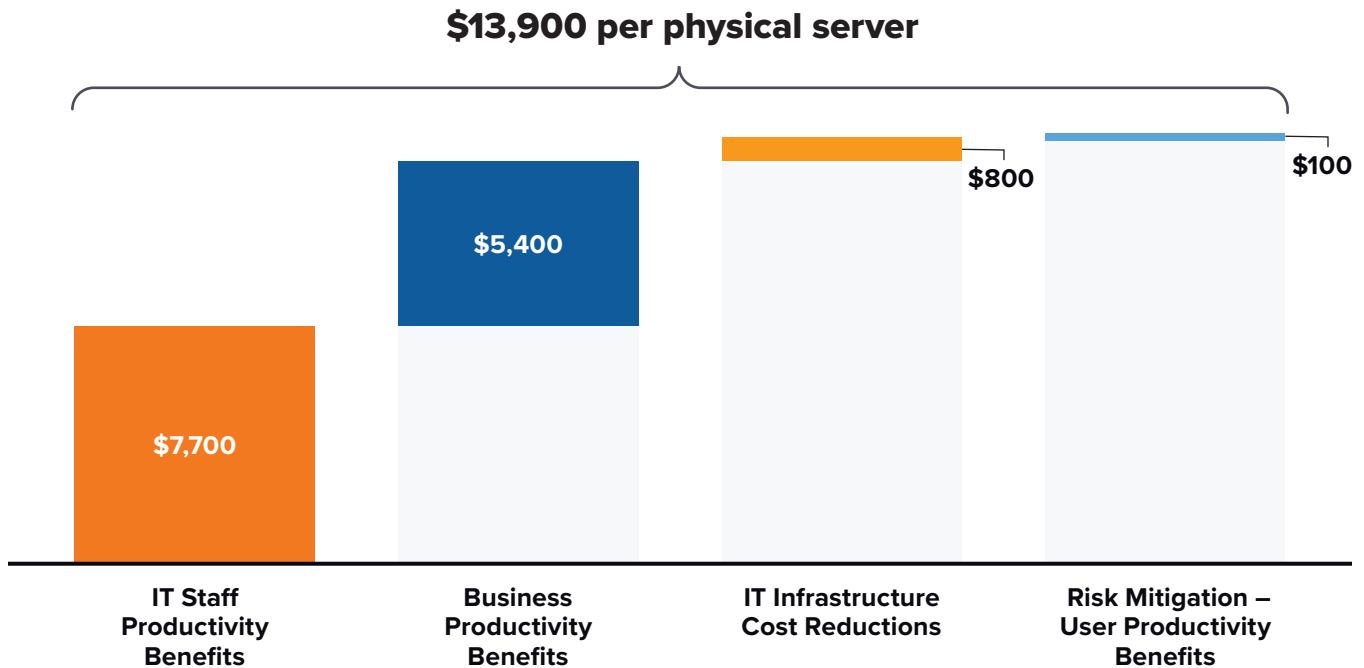
IDC's analysis demonstrates the significant value that study participants are achieving with HPE Synergy through IT efficiencies and business and operational enablement.

IDC calculates that interviewed HPE customers will realize benefits worth an average of \$13,900 per physical server per year (\$6.37 million per organization) in the following areas (see Figure 2, next page):

- **IT staff productivity benefits:** By having a consolidated, automated, and high-performing IT platform, IT infrastructure and application development teams work more efficiently and effectively. IDC quantifies the value of time savings and productivity gains for these IT teams at an annual value of \$7,700 per physical server (\$3.72 million per organization).
- **Business productivity benefits:** By delivering more timely and higher-quality applications and services to employees and customers, study participants will achieve user productivity gains that IDC values at an annual average of \$5,400 per physical server (\$2.59 million per organization).
- **IT infrastructure cost reductions:** By establishing more virtualized and optimized IT infrastructure foundations, study participants can run equivalent application environments for a lower cost. They also reported lowering associated costs, including licensing, power, and facilities costs. IDC projects that interviewed HPE customers will realize cost savings worth an annual average of \$800 per physical server (\$0.39 million per organization).

- ▶ **Risk mitigation — user productivity benefits:** By delivering a highly resilient and available IT infrastructure platform, study participants minimize risk associated with unexpected outages and reduce productivity losses associated with such outages. IDC calculates that study participants will gain back productive employee time worth an annual average of \$100 per physical server (\$0.04 million per organization).

FIGURE 2
Average Annual Benefits per Physical Server



n = 7, Source: IDC In-depth Interviews, December 2020

IT Staff Efficiencies

With the benefit of a consolidated, automated, composable, and software-driven platform, IT infrastructure and application development teams can perform their work more efficiently and effectively on the HPE Synergy platform. Study participants reported that these teams benefited from easier deployment and management of their virtualized environments and achieved greater visibility across the full array of applications and resources in their environments.

As shown in Table 3 (next page), after adoption of HPE Synergy, IT infrastructure teams were 41% more efficient, which equates to 70% higher productivity on average. These efficiencies could be traced back to the fact that many routine operations such as VM deployment, patching, and updates can be done faster and easier on the automated HPE Synergy platform. For example, study participants reported that firmware updates

took 43% less time and installing security patches required 28% less time. One study participant commented about how the built-in automation features of HPE Synergy resulted in substantial staff time savings related to these types of tasks:

“Our IT infrastructure team saves about 50% of their time compared to the old solution because of automation with HPE Synergy. Also, we can deploy 3–5 times more VMs per workload.”

TABLE 3
Impact of HPE Synergy on IT Infrastructure Teams

	Before / Without HPE Synergy	With HPE Synergy	Difference	Efficiency with HPE Synergy	Productivity Gain with HPE Synergy
Staff time to manage infrastructure (FTEs)	48.9	28.8	20.0	41%	70%
Hours of staff time per server per year	190	112	78	41%	70%
Equivalent value of staff time to manage per organization per year	\$4.89 million	\$2.88 million	\$2.00 million	41%	70%

n = 7, Source: IDC In-depth Interviews, December 2020

These efficiencies open opportunities for IT teams to spend less time on day-to-day tasks while shifting their efforts to other projects that more directly support business innovation. IDC quantified these benefits as shown in Figure 3, next page.

After adoption of HPE Synergy, interviewed companies were able to spend 32% less time “keeping the lights on” while increasing the time spent on innovation and direct business support by a very significant amount (237%):

► **Reallocation of staff to business activities:**

“HPE Synergy costs less and is easier and faster with just one console for management, so we can manage most everything we have over there ... We can do more and save time. HPE Synergy saves one to two staff members per tier, in terms of the number of hours dedicated to redeploying, reinstalling the configuration, and recreating it. Instead, these team members are now producing, doing consultancy, or going to customers, doing trainings ... They are now creating business instead of keeping the lights on.”

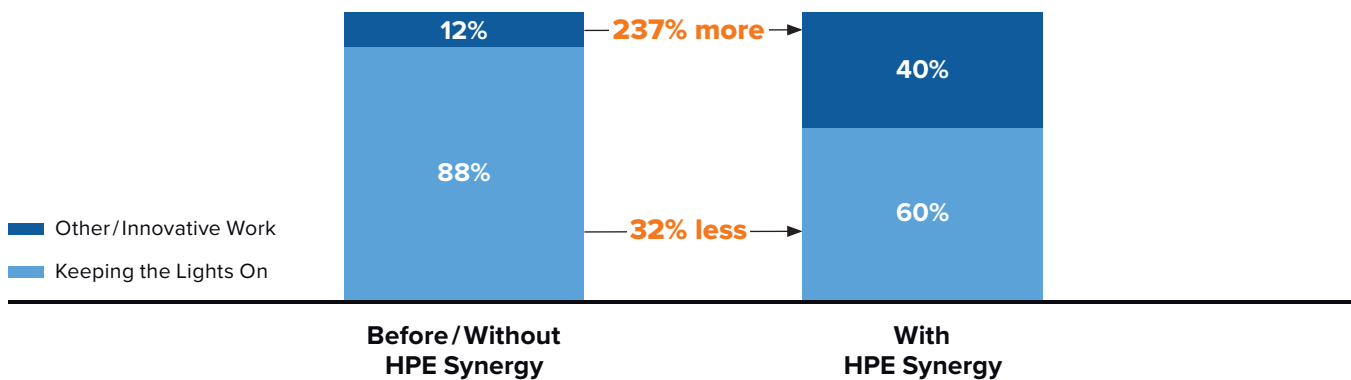
► **Higher staff engagement:**

“We didn’t put it in the business case for HPE Synergy, but talent attrition is an important factor. In general, our technology staff like modernization and feel like their careers are better if they work with HPE Synergy.”

FIGURE 3

IT Infrastructure Team: Keeping the Lights On and Innovation

(% of time)



n = 7, Source: IDC In-depth Interviews, December 2020

Cost of Operation Benefits

By using HPE Synergy to establish more virtualized and optimized IT infrastructure environments, study participants reported lowering infrastructure-related costs, including those associated with licensing, power, and physical facilities. These operational efficiencies, combined with optimized use of hardware, allows them to run equivalent applications at lower infrastructure costs — 22% lower on average. The capabilities that make these infrastructure-related savings possible included higher overall performance and built-in features and efficiencies that a composable IT environment provides.

Study participants also cited the advantage of having higher compute allocation capacity and noted that these cost benefits also extended to networking resources by eliminating the need for additional network hardware as they extend their HPE Synergy environments:

► **Ability of platform to manage substantial compute requirements:**

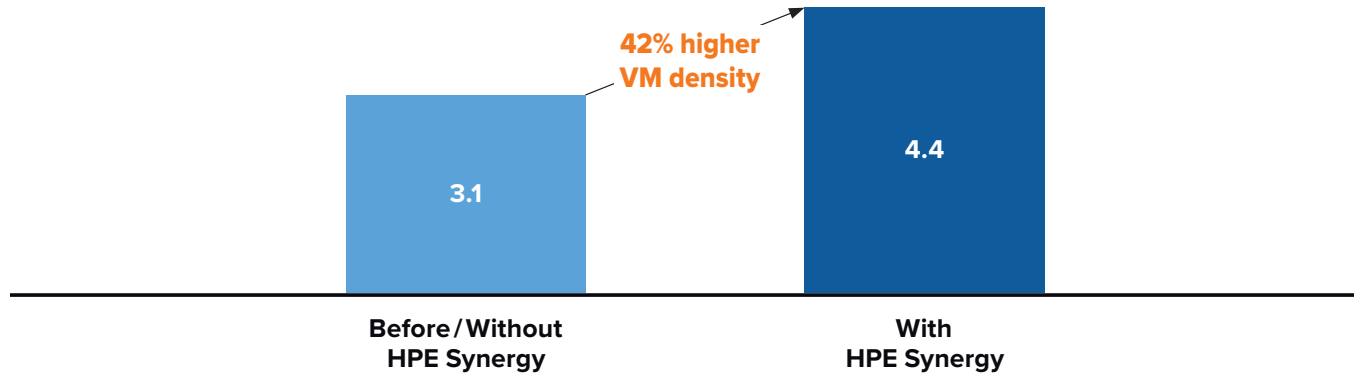
“We had a requirement for a project that required a huge amount of compute, and by using the new HPE Synergy servers with the new CPUs, they had more cores per system than the competitors. That’s why we chose them.”

► **Networking cost savings:**

“HPE Synergy has reduced networking costs ... With HPE Synergy, we only need four network connections, whereas if we put in servers individually, we would need 72 network connections ... Also, the frame will have a longer lifetime than the server blades ... [because] we can use the same enclosure with HPE Synergy and don’t need to do the networking part again.”

Figure 4 quantifies benefits related to server virtualization density, which is a key driver of the ability of the interviewed organizations to establish and run streamlined and cost-effective IT platforms. By increasing virtualization levels, these organizations require less hardware to run equivalent workloads. With HPE Synergy, the companies were able to improve VM density by an average of 42%.

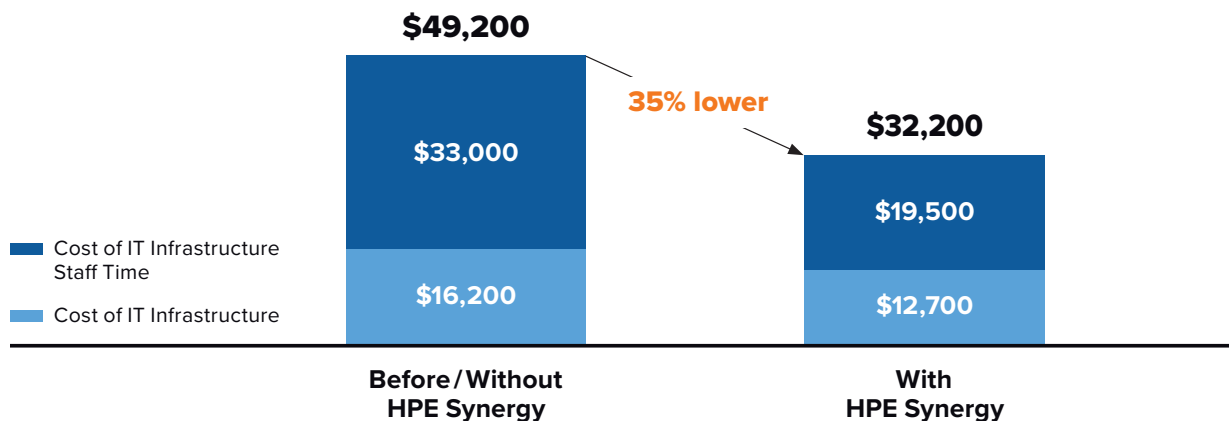
FIGURE 4
Server Virtualization Density
(VMs per physical server)



n = 7, Source: IDC In-depth Interviews, December 2020

Based on these infrastructure-related cost savings and IT infrastructure team efficiencies, IDC calculated the five-year cost of operations for interviewed companies and found that, on average, they were able to run their HPE Synergy environments at 35% lower cost than legacy or alternative environments (see Figure 5). This equates to saving an average of \$17,000 per physical server over five years, a significant cost and operational efficiency for study participants across HPE Synergy environments that number well into the hundreds of physical servers on average.

FIGURE 5
Five-Year Cost of Operations
(\$ per physical server)



n = 7, Source: IDC In-depth Interviews, December 2020

Agility and Development Benefits

Study participants reported that HPE Synergy is a more agile and flexible IT platform that helps them respond to and keep up with business requirements. Improved agility across the full spectrum of IT operations has reduced the time required for provisioning business-critical IT resources and enabled more effective application development efforts. Study participants appreciated the benefit with HPE Synergy of being able to expand system resources without needing major reconfigurations as well as the flexibility offered by built-in automation features.

They commented as follows:

► Consolidation and flexibility:

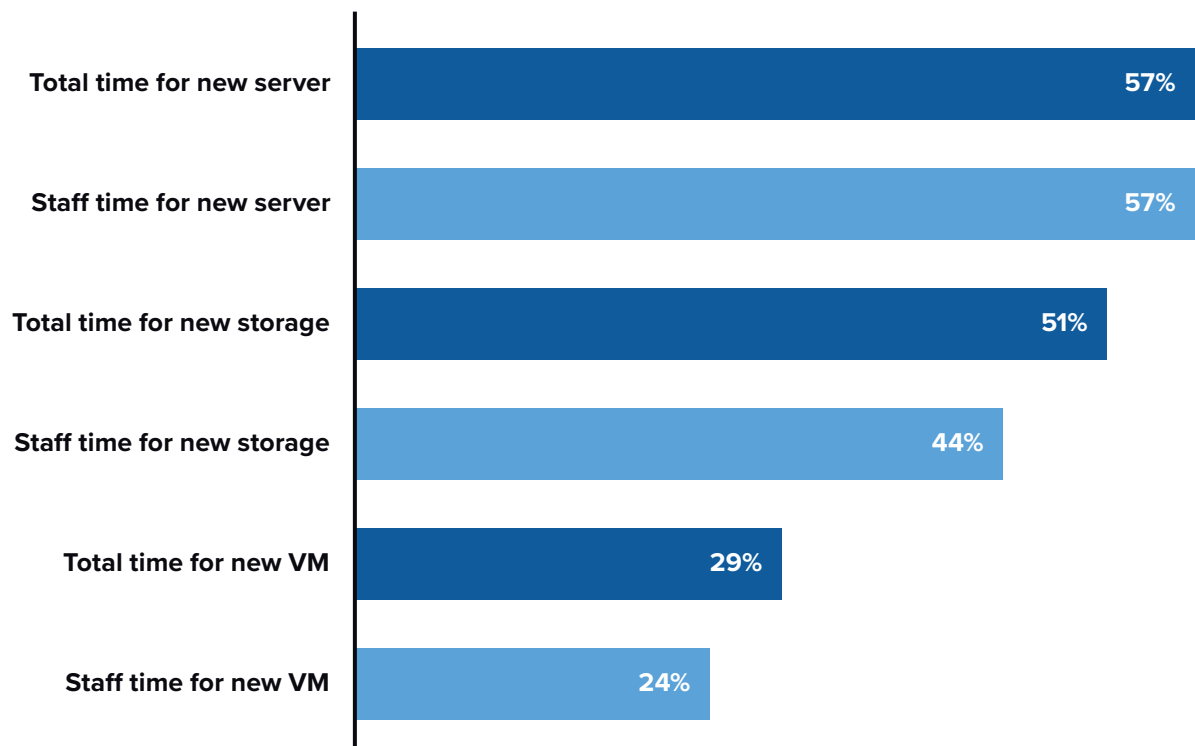
"We find a lot of benefits with HPE Synergy in terms of consolidation. With just a single point of intelligence in HPE Synergy, we can expand the system without reconfiguring ... The extension of the system is very easy, very simple ... and very quick for us."

► Automation that ensures ease of deployment:

"HPE Synergy provides an API that we can easily program against. We've made big steps in automation, mainly in terms of the deployment of the equipment, and there you see the increased flexibility."

IDC identified a series of operational metrics related to agility to quantify the impact of HPE Synergy. As shown in Figure 6, IT infrastructure teams were able to deploy new server resources 57% faster and new storage resources 51% faster, among key findings.

FIGURE 6
Impact on IT Agility
(% faster)



n = 7, Source: IDC In-depth Interviews, December 2020

Study participants tied more timely and enhanced delivery of compute and storage resources to the efforts and performance of their application development teams. In today's environments, these teams are tasked with delivering high-value applications that ultimately drive the success of their businesses. To accomplish this in optimal fashion, development teams require timely access to IT resources for developing and deploying new applications, features, and releases.

Interviewed organizations identified specific benefits for their development teams tied to their use of HPE Synergy. They reported that platform adoption has helped minimize resource bottlenecks that can hinder development efforts, while self-service automation features have allowed for more direct and timely access to IT resources. As a result, several organizations noted that HPE Synergy has supported their efforts to transition to more DevOps-focused activities.

Development-related efficiencies were confirmed in the average 14% productivity gains for application development teams that they attributed to HPE Synergy. Study participants commented as follows:

► **Development enabled by self-service automation:**

"Because of automation with HPE Synergy, we are able to save time and manpower. We need a lot less time to manage the whole technology stack than before, maybe 50% less. Our management is very happy that we can provide self-service automation ... [and] developers are very happy because they can provision for themselves, and that's also work that's gone from the IT staff."

► **Much-reduced time to market:**

"With HPE Synergy, we have reduced time to market from weeks to days or even hours if needed. We are able to fulfill customer needs faster than ever."

► **Transition to DevOps-driven organization:**

"With HPE Synergy, we have changed more from a reactive organization to a DevOps kind of environment, where the operation is done by the DevOps teams. The infrastructure team still spends 80% of their time in operational work, but they now have time to work on new development and new improvement."

Business and Operational Benefits

By delivering more timely and higher-quality applications and services with HPE Synergy, study participants also benefited from operational efficiencies in the form of employee productivity gains. Higher performance of critical applications such as VDI and databases is essential to employees' ability to work effectively, while customer satisfaction depends in large part on the quality of services and digital interactions. Improvements in application and system performance and agility have helped study participants bring their core offerings to market faster, be more responsive to business demands, and provide external users and customers with quality online experiences. They also served to limit business risks associated with unplanned downtime.

Study participants commented on how better ability to innovate, coupled with improved service levels, helped further these goals and gave them greater ability to respond to customer needs:

► **Scalability to ensure service levels:**

"We believe we can quantifiably get more information out of the platform with HPE Synergy by having a single view about how it's operating ... I'd like to think that we do a good job, and we were successful with the old way of doing things, but you can't scale a business if you have to look at everything ... HPE Synergy helps us ensure service levels and provides confidence."

► **Agility to ensure ability to innovate:**

"With HPE Synergy, we are very agile with innovation. If we see something, we make a change or we get management to look at a new technology ... As a result, we have faster time to market and faster automated deployment to stay ahead of customer needs."

► **Self-service to generate substantial line-of-business (LOB) efficiencies:**

"If we didn't have the self-service with HPE Synergy, there would be thousands of requests going to IT. Those requests are no longer happening. Around four hours would be required to resolve those. That's a lot of time."

► **Improved ability to react to customer requirements:**

"Because everything is so reliable with HPE Synergy, we are able to do things with customers that would have been almost impossible in the past. We can do that in different time frames now and rely on the fact that HPE Synergy is going to be working without any issues."

IDC further evaluated business productivity benefits by quantifying the value of higher user productivity. Table 4 shows that deployment and use of HPE Synergy resulted in a \$2.76 million productivity-based value tied to the improved IT performance, reliability, and agility of the platform.

TABLE 4
Business Productivity Benefits

User productivity impact	Per Organization	Per 100 Users
Number of users impacted	5,975	51
Average gross productivity gain	3.8%	3.8%
Equivalent productivity gain in FTEs per organization	39.0	0.3
Total recognized value of higher productivity per year*	\$2.76 million	\$23,500

n = 7, Source: IDC In-depth Interviews, December 2020

* IDC assumes a 15% margin for user productivity

Interviewed organizations also reported that they have minimized the frequency and impact of unplanned downtime through HPE Synergy's automated reliability. For internal end users, business partners, marketing channels, and customers, this translates into an improved IT experience with less business and operational risk stemming from potential outages involving key business applications and services. On average, HPE customers have reduced the impact of disruptive events by more than half (51%), resulting in an annual productivity-based value of \$39,000 per organization (see Table 5).

TABLE 5
Impact of Unplanned Downtime

	Before/ Without HPE Synergy	With HPE Synergy	Difference	Benefit
Value of lost productive time per organization per year (FTEs)	1.1	0.5	0.6	51%
Lost productivity in minutes per year per user	10.6	5.2	5.4	51%
Equivalent value of lost productive time per organization per year	\$76,800	\$37,800	\$39,000	51%

n = 7, Source: IDC In-depth Interviews, December 2020

ROI Analysis

Table 6 (next page) presents IDC's return-on-investment (ROI) analysis for study participants' use of HPE Synergy. As shown, IDC projects that the study participants will achieve five-year discounted benefits worth an average of \$23.89 million per organization (\$49,500 per physical server) through IT staff efficiencies, improved application development, cost savings, better business performance, and reduced risk. These benefits compare with total five-year discounted costs of \$6.21 million per organization (\$12,300 per physical server). These levels of benefits and investment costs are projected to result in an average five-year ROI of 284% and a break-even point in their investment in HPE Synergy in 13 months.

TABLE 6
ROI Analysis

	Five-Year Average per Organization	Five-Year Average per Physical Server
Benefit (discounted)	\$23.89 million	\$49,500
Investment (discounted)	\$6.21 million	\$12,300
Net present value (NPV)	\$17.67 million	\$36,600
Return on investment (ROI)	284%	284%
Payback period	13 months	13 months
Discount rate	12%	12%

n = 7, Source: IDC In-depth Interviews, December 2020

Challenges/Opportunities

Essential Guidance for IT Buyers

From a systems perspective, any composable/disaggregated architecture consists of two parts: The first is the ability to disaggregate IT resources into compute, storage, and fabric pools, and the second is the ability to compose consumable resources from such disaggregated pools via a unified API (in other words, consume infrastructure as code). Therefore, intelligent software is needed to manage all the distinct assets and to compose the optimal configuration for a specific application. All the elements inside the installed infrastructure are pooled and require management, including discovery and location of resources.

Monitoring and life-cycle management software is necessary to provide full awareness of the hardware assets and application workloads. Further considerations include:

- ▶ **Self-discovery, provisioning workloads, orchestration, and healing.** It will be essential to have visibility into the utilization of discrete resources and understand the load on resource elements in order to answer the following types of questions: How much is the application consuming? Which resources (such as processor and storage) are reaching thresholds or are underutilized?
- ▶ **Orchestration and automation layer.** It will be essential to enable a catalog of compute, storage, networking, and memory in an orchestration layer and define resource requirements for specific applications and compose them in a set that is optimized for the workload.

CDI implementations necessitate the deployment of infrastructure analytics (i.e., data metrics are needed to understand how to optimally configure hardware for the applications).

These data metrics are also valuable feedback to enable orchestration and template provisioning. The dynamic nature of application capacity means manual processes, which consume time and are a source of potential errors, must be reduced as much as possible.

IDC sees these as necessary factors for composable systems to be successful in the enterprise in accelerating provisioning times, improving IT utilization, and simplifying overall IT operations.

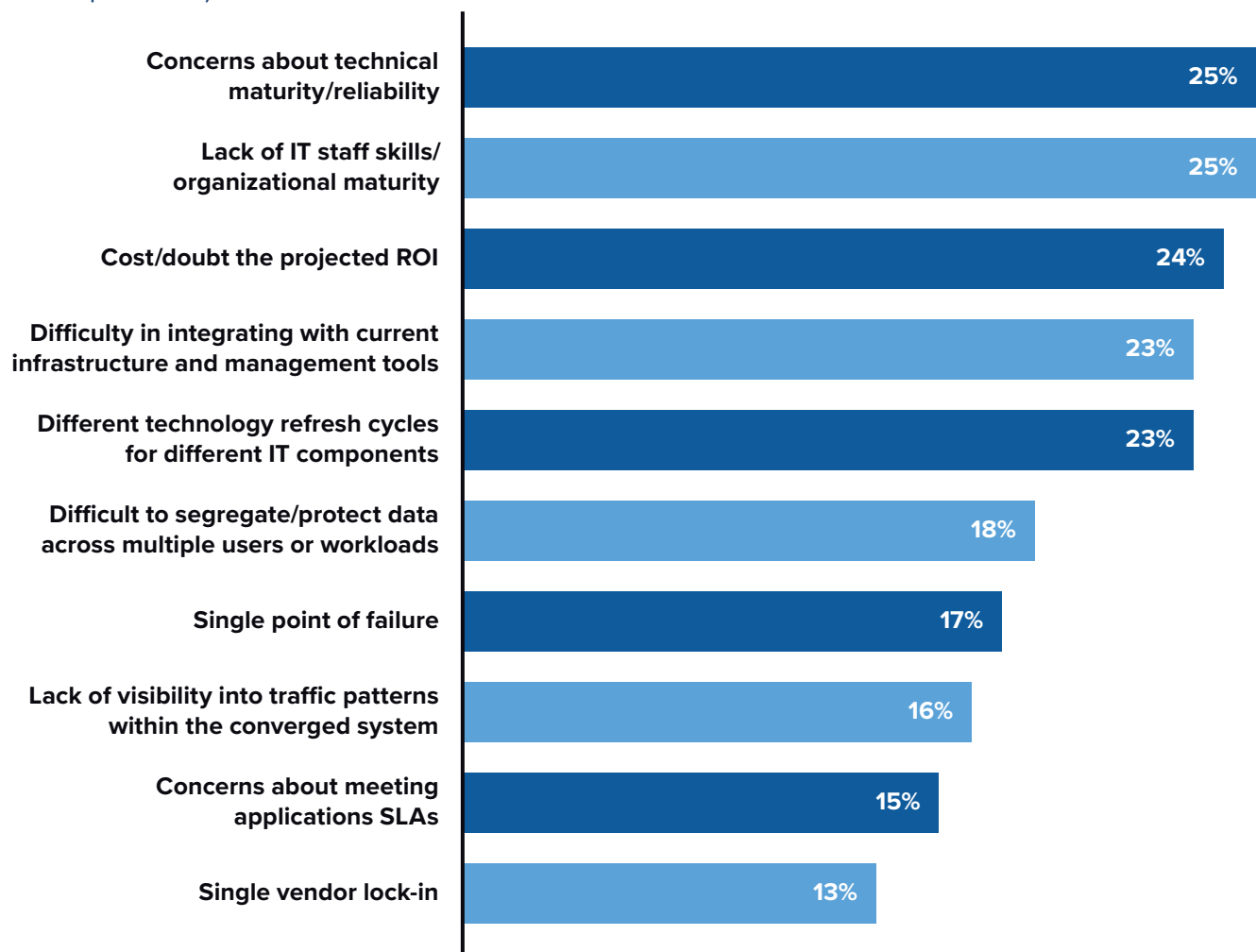
Figure 7 illustrates the top challenges for businesses in embracing composable infrastructure. Concerns about technical maturity and reliability, the ability of staff to manage a new platform, doubts about promised ROI, and difficulty integrating with existing tools are top of mind for respondents. To dominate this space, system vendors such as HPE must address these concerns. Their credibility and their decades of collective experience in building enterprise infrastructure platforms are what will count.

FIGURE 7

Top Challenges in Adopting Composable Systems

Q: What do you see as the top 2 challenges in moving to composable systems?

(% of respondents)



n = 301, Base = All respondents

Source: IDC's *Infrastructure Usage and Overprovisioning Trends Survey*, November 2016

Note: Data is weighted by the company workforce size.

Conclusion

Over the years, the benefits of composable/disaggregated platforms such as HPE Synergy have become clearer. Further, these platforms are now mature to the point where IT organizations can deploy them for consolidation of their current- and next-generation infrastructure. Digital transformation and the adoption of next-generation apps driven by shifts in business strategy will continue to fuel the demand for composable infrastructure. This emerging category of computing platforms is a definitive approach for gaining greater business agility, lowering operational costs, and increasing application performance. Businesses must stay open to embracing these platforms to usher in ease of management and extend their return on investment.

IDC's research continues to establish the significant value that organizations achieve by using HPE Synergy as the foundation for infrastructure consolidation. Interviewed HPE customers emphasized their ability to deliver more agile and efficient IT services in support of business operations, which not only has reduced their costs of running equivalent workloads but also has enabled them to better meet business demand for timely and high-performing application functionality. As a result, study participants have captured value from operational efficiencies in the form of higher user and developer productivity levels, as well as IT infrastructure cost savings and core IT team efficiencies. IDC calculates that these benefits will result in an average five-year ROI of 284%, demonstrating the value of the HPE Synergy platform for interviewed organizations.

Appendix

IDC's Market Definition of Composable/Disaggregated Infrastructure

This white paper assesses the set of technologies and solutions that are collectively classified as “composable/disaggregated infrastructure,” or CDI for short, with a specific focus on how it is implemented through HPE Synergy. It also discusses workloads, applications, and customers that are driving demand for these technologies and solutions.

The term *composable/disaggregated* is used to imply that the two terms are complementary to each other. The two terms are not interchangeable, even though a “/” may imply otherwise. According to IDC's taxonomy on “composable/disaggregated infrastructure”:

- ▶ **“Composable” implies the ability to create a set of virtually consumable infrastructure entities from physically disparate resources “disaggregated” at a component level via unified APIs.** “Composability” is driven at the software (API) level, and “disaggregation” is primarily driven at the hardware level. To fully implement the design principles of composable infrastructure, the hardware it operates on must support partial or full disaggregation (in which resources are pooled down to a component level).

- ▶ **“Composable” and “disaggregated” have different evolutionary trajectories.** The enabling technologies for these systems are in different stages of maturity: Some — such as common APIs offering infrastructure-as-a-code capabilities — are becoming available, whereas others — such as silicon photonics — are still in development. “Composable infrastructure” software is designed to operate on any type of compute and storage hardware that supports a composable API.
- ▶ **IDC views composable/disaggregated systems as an evolution of converged and hyperconverged infrastructure.** While the new technology is a significant leap forward, the gist of this evolution is that the hardware side is moving toward disaggregation, whereas the software side is moving toward composability — via a unified API-based provisioning, orchestration, and automation layer.
- ▶ **The composable stack, which is basically a collection of software tools and stacks, will be tracked under an existing or newly defined “infrastructure software” functional market (to be determined).** The “disaggregated” hardware stack (i.e., partially disaggregated or fully disaggregated hardware for now) will be tracked in the existing computing platforms (aka server) markets. If there are external systems such as storage arrays and networking equipment that are part of this infrastructure, they will be tracked in their respective space. The hardware itself could be in a category of its own, but it is too early to say so.
- ▶ **For more information,** refer to *Composable/Disaggregated Infrastructure and Rackscale Architectures — Market Background, Trends, and Taxonomy, 2016* (IDC #US41633516, August 2016).

IDC’s Business Value and ROI Methodology

IDC’s standard Business Value and ROI methodology was utilized for this white paper. This methodology is based on gathering data from organizations currently running business applications on HPE Synergy as the foundation for the model. Based on interviews with these study participants, IDC has calculated the benefits and costs to these organizations of using HPE Synergy.

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 of the impact of using HPE Synergy to run various business applications and workloads.** In this study, the benefits included staff time savings and productivity benefits and IT infrastructure–related cost reductions.
2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using HPE Synergy 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 HPE Synergy 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 several 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. For purposes of this analysis, based on the geographic locations of the interviewed organizations, 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 for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- ▶ **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 interviewed organization 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 monthly 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 Analysts



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Ashish Nadkarni is Group Vice President within IDC's Worldwide Infrastructure Practice. He leads a team of analysts who engage in delivering qualitative and quantitative research on computing, storage, and data management infrastructure platforms and technologies, via syndicated research programs (subscription services), data products (IDC Trackers) and custom engagements. Ashish's vision for his team is to take a holistic, forward-looking and long-term view on emerging as well as established infrastructure-related areas in the datacenter, in the cloud and at the edge. His core research starts with an objective assessment of heterogeneous, accelerated, fog, edge and quantum computing architectures, silicon, memory and data persistence technologies, composable and disaggregated systems, rackscale design, software-defined infrastructure, modern operating system environments, and physical, virtual and cloud computing software. It is complemented by research on current and next-gen applications and workloads, vertical and industry-specific use cases, emerging storage and server form factors and deployment models, and upcoming IT vendors. Ashish also takes a keen interest in tracking the ongoing influence of open and open-source communities like OpenStack and Open Compute Project on infrastructure.

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Matthew Marden is a Research Director in the IDC Business Value Strategy team. He is responsible for carrying out custom business value research engagements and consulting projects for clients in a number of technology areas with a focus on determining the return on investment (ROI) of their use of enterprise technologies. Matthew's research often analyzes how organizations are leveraging investment in digital technology solutions and initiatives to create value through efficiencies and business enablement.

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