

A Forrester Total Economic Impact™ Study
Commissioned By HPE SimpliVity
May 2019

The Total Economic Impact™ Of HPE SimpliVity Hyperconverged Infrastructure

Cost Savings And Business Benefits Enabled
By HPE SimpliVity

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Executive Summary

Hewlett Packard Enterprise (HPE) provides hyperconverged infrastructure solutions that help customers increase the operational efficiency and responsiveness of IT infrastructure to changing business needs. HPE commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential ROI enterprises may realize by deploying hyperconverged infrastructure. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of HPE SimpliVity on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed customers using HPE SimpliVity preintegrated hyperconverged systems to simplify operations for virtualized environments. The scale-out architecture, built on x86-based server building blocks, simplifies architecting and managing infrastructure and improves responsiveness for rapidly changing requirements.

Prior to using HPE SimpliVity, customers faced expensive upgrades to their existing server and storage infrastructure, increasing complexity to keep up with best practices for backup/recovery and disaster recovery, and system shutdowns in the face of rapidly growing virtual desktop infrastructure (VDI) deployments. One IT architect said: “We have petabytes and petabytes of data. We had one particular database on a nonfiber channel with spinning disk that required 22 hours to back up.”

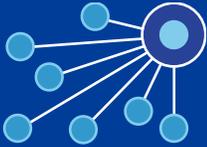
Overall, using HPE SimpliVity resulted in reduced costs of 69%. The IT manager at a financial services firm told Forrester, “I’m able to spend more time finding better solutions for the business instead of spending it on day-to-day maintenance.” Through HPE SimpliVity, backup for the above-mentioned database dropped from 22 hours to just 45 minutes.

Key Findings

Quantified benefits. The following risk-adjusted present value (PV) benefits are representative of those experienced by the companies interviewed:

- › **Avoided cost of storage and server hardware of \$2,132,130.** By implementing six HPE SimpliVity hyperconverged infrastructure nodes, customers avoided major hardware upgrades, retired storage and servers, and avoided the annual maintenance cost on those devices.
- › **Reduced cost of professional services of \$155,471.** The previous server and storage architecture required additional professional services to augment the expertise of the internal team. By implementing HPE SimpliVity, customers were able to reduce spending on professional services to manage and maintain infrastructure.
- › **Avoided cost of data center floor space valued at \$119,070.** Most companies lease raised-floor data center space. Using hyperconverged infrastructure reduced the physical footprint while also lowering power and cooling costs.
- › **Reduced labor to manage backups of \$85,050.** After implementing HPE SimpliVity and leveraging the built-in data protection capabilities of the platform, backup administrators saved 3 hours every day that they previously spent confirming backups and resolving problems.

Benefits And Costs



Avoided cost of storage and server hardware:

\$2,132,130



Reduced cost of professional services:

\$155,471



Cost of HPE SimpliVity hyperconverged infrastructure nodes:

\$879,168



ROI
192%



Benefits PV
\$2.6 million



NPV
\$1.7 million



Payback
7 months

- › **Reduced licensing costs of software tools by \$49,737.** Some companies eliminated the need for software tools with functionality that became redundant to features inherent in a hyperconverged architecture.
- › **Reduced cost of disaster recovery testing of \$32,609.** The organizations conducted disaster recovery (DR) testing twice annually. The effort was reduced from 10 people for two business days to one employee working for about 4 hours.
- › **Avoided cost of performing system updates that cost \$21,263.** The previous infrastructure required system updates several times per year, each of which required 6 hours of staff time to perform.

Unquantified benefits. The interviewed organizations experienced the following benefits, which are not quantified for this study:

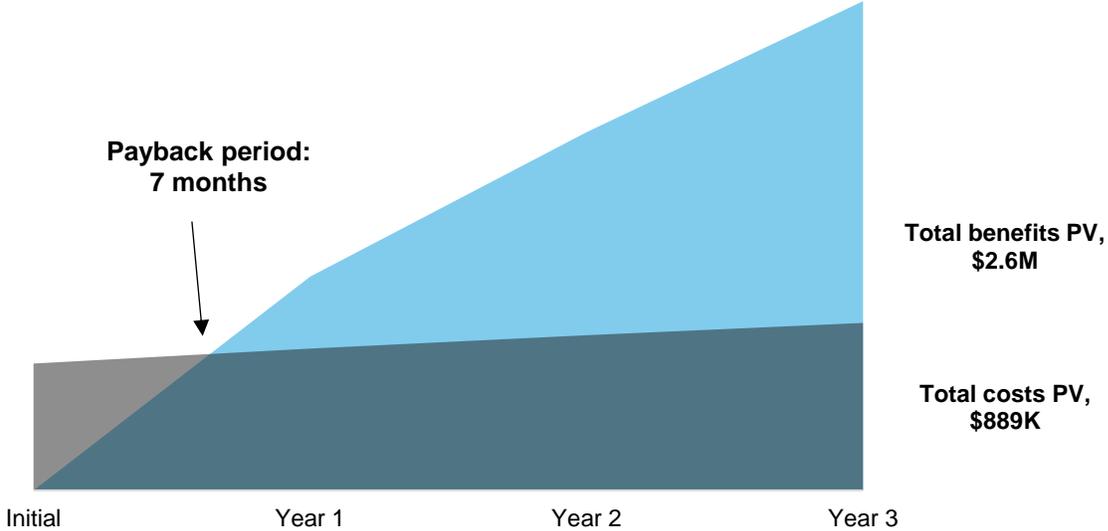
- › **Integrated management console and virtual machine (VM) toolsets.** The backup manager of one company told Forrester: “We wanted to be able to manage everything from one place. HPE SimpliVity allows us to manage the entire virtualized environment from vCenter, which was one piece that was compelling us to adopt HPE SimpliVity.”
- › **Significant reduction of input/output operations per second (IOPS).** One IT manager said: “Getting rid of IOPS during the proof of concept with HPE SimpliVity was an eye opener. Prior to HPE SimpliVity, we had a file server that was running about 700 to 800 IOPS. With HPE SimpliVity, we’ve seen a drastic reduction in IOPS across all 200 servers in our environment.”

Costs. The interviewed organizations experienced the following PV risk-adjusted costs:

- › **Cost of HPE SimpliVity hyperconverged infrastructure totaling \$879,168.** The cost for six HPE SimpliVity nodes and 12% annual subscription fees.
- › **Effort required to move data of \$9,341.** Moving terabytes of data from the old storage system to HPE SimpliVity hyperconverged infrastructure required the effort of two employees for three weeks.

Forrester’s interviews with nine existing customers and subsequent financial analysis found that a composite organization based on these interviewed organizations experienced benefits of nearly \$2.6 million over three years versus costs of \$888,509, resulting in a net present value (NPV) of just over \$1.7 million and an ROI of 192%.

Financial Summary



The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing HPE SimpliVity hyperconverged infrastructure.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that HPE SimpliVity hyperconverged infrastructure can have on an organization:



DUE DILIGENCE

Interviewed HPE SimpliVity stakeholders and Forrester analysts to gather data relative to hyperconverged infrastructure.



CUSTOMER INTERVIEWS

Interviewed nine organizations using hyperconverged infrastructure to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewed organizations.



FINANCIAL MODEL FRAMEWORK

Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.



CASE STUDY

Employed four fundamental elements of TEI in modeling HPE SimpliVity hyperconverged infrastructure's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by HPE and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in HPE SimpliVity hyperconverged infrastructure.

HPE reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

HPE provided the customer names for the interviews but did not participate in the interviews.

The HPE SimpliVity Hyperconverged Infrastructure Customer Journey

BEFORE AND AFTER THE HPE SIMPLIVITY HYPERCONVERGED INFRASTRUCTURE INVESTMENT

Interviewed Organizations

For this study, Forrester conducted nine interviews with HPE SimpliVity hyperconverged infrastructure customers. Interviewed customers include the following:

INDUSTRY	REGION	INTERVIEWEE
Higher education	North America	Senior system administrator
Financial services	North America	IT manager
Healthcare	North America	IT manager
Financial services	Europe	Head of information security
Healthcare provider	North America	Director, infrastructure
Construction	North America	System administrator
Transportation	North America	Network administrator
Education	North America	System administrator
Bioscience research	North America	IT architect

Key Challenges

Before using HPE SimpliVity, each of the interviewed companies:

- › **Faced significant upgrades.** One company was reaching the maximum capacity of its storage system, while another company was facing end-of-life support from the vendor. Each of the companies began evaluating hyperconverged infrastructure solutions because of major, imminent upgrade requirements.
- › **Spent significant time managing storage, including backups.** On average, the organizations purchased 8 hours per week of professional services to help manage, configure, or optimize storage environments. In addition, backup administrators spent 25 hours every week to verify that backups were completed correctly, resolving any possible anomalies.
- › **Deployed an increasing number of virtual desktop infrastructure (VDI) users.** One organization is growing heavily through acquisition and uses VDI to quickly standardize organizations on its enterprise applications. Another organization uses VDI to deploy both enterprise and desktop applications to a diverse set of users who provide their own desktop and mobile devices.

“Costs started to escalate, and we hit a critical mass of our core infrastructure. The hardware was coming up for end-of-life as well as some significant maintenance renewals.”

IT manager, financial services organization



Solution Requirements

The interviewed organizations searched for a solution that could:

- › Improve storage efficiency of IT infrastructure.
- › Allow the user organization to perform VM backups and restores more quickly and more efficiently.
- › Provide the IT team with the bandwidth to focus on more strategic projects that help drive business processes.

Key Results

The interviews revealed that using HPE SimpliVity resulted in:

- › **An average improvement in storage efficiency of 47 to 1.** Six of the nine companies provided Forrester with exact improvements in the storage efficiency from the “always-on inline deduplication, optimization, and compression” of HPE SimpliVity. The improvements experienced were 25 to 1, 25 to 1, 30 to 1, 44 to 1, 45 to 1, and 110 to 1.
- › **Simplified backup operations.** In addition to eliminating the cost for physical storage and server assets, interviewed organizations avoided professional services, reduced the effort required to manage backups, and were able to deploy a robust disaster recovery solution — something that had previously been too difficult to manage.

Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the nine companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

- › **Replaced servers and storage to avoid required upgrade costs and \$720,000 in annual leases.** Based on prices shared by the interview companies, this pricing roughly equates to about 20 TBs of redundant array of independent disks (RAID) storage and 45 physical VM hosts.
- › **Managed two data center locations — one primary center and one backup and disaster recovery facility.** Backups are run nightly and require several hours of management time every day.
- › **Faced end-of-life challenges or significant upgrade expenses for its storage and server environment that totaled \$400,000.** In one case, the expense was a technology upgrade, and in another it was a data center relocation project.

“The way HPE SimpliVity does it is they only have to move the blocks of data that change. What used to take hours to restore a machine literally takes seconds now.”

System administrator



“HPE SimpliVity enabled me to invest my time finding better solutions to business problems instead of spending time on day-to-day maintenance.”

IT manager, financial services organization



Key assumptions

- \$720K in avoided annual leases
- Two data center locations
- Storage and server upgrade expenses of \$400,000

Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Avoided cost of storage and server hardware	\$1,085,760	\$725,760	\$725,760	\$2,537,280	\$2,132,130
Btr	Reduced cost of professional services	\$38,250	\$76,500	\$76,500	\$191,250	\$155,471
Ctr	Avoided cost of data center floor space	\$47,880	\$47,880	\$47,880	\$143,640	\$119,070
Dtr	Reduced labor to manage backups	\$34,200	\$34,200	\$34,200	\$102,600	\$85,050
Etr	Reduced licensing costs of software tools	\$20,000	\$20,000	\$20,000	\$60,000	\$49,737
Ftr	Reduced cost of disaster recovery testing	\$13,113	\$13,113	\$13,113	\$39,338	\$32,609
Gtr	Avoided costs of performing system updates	\$8,550	\$8,550	\$8,550	\$25,650	\$21,263
	Total benefits (risk-adjusted)	\$1,247,753	\$926,003	\$926,003	\$3,099,758	\$2,595,330

Avoided Cost Of Storage And Server Hardware

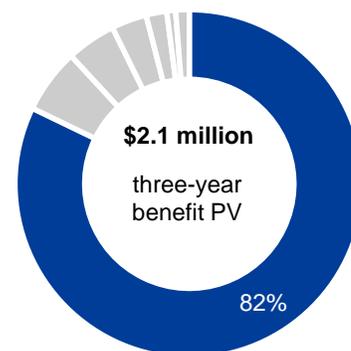
Among the companies that Forrester interviewed:

- › Most were motivated to adopt hyperconverged infrastructure solutions because they faced major upgrade or refresh costs looming in the near future. Specifically:
 - One company was using a storage platform that was becoming obsolete and would soon be no longer supported.
 - Another company faced a significant cost to relocate some of its data centers.

While the exact nature of the cost varied, the composite company:

- › Avoided \$400,000 in upgrade costs by adopting HPE SimpliVity.
- › Avoided annual lease costs for the previous infrastructure (both servers and storage racks) that totaled \$720,000.
- › Avoided \$86,400 in annual maintenance fees.

The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of nearly \$2.6 million.



Avoided cost of storage and server hardware:
82% of total benefits

Due to the fact that the value of this benefit was relatively consistent among the companies that Forrester interviewed, Forrester risk-adjusted this benefit downward by 10%, resulting in a three-year total PV of \$2,132,130.

Avoided Cost Of Storage And Server Hardware: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
A1	Avoided cost of pending infrastructure upgrade or related fixed cost		\$400,000		
A2	Avoided lease costs for storage and server infrastructure		\$720,000	\$720,000	\$720,000
A3	Avoided maintenance fees	A2*12%	\$86,400	\$86,400	\$86,400
At	Avoided cost of storage and server hardware	A1+A2+A3	\$1,206,400	\$806,400	\$806,400
	Risk adjustment	↓10%			
Atr	Avoided cost of storage and server hardware (risk-adjusted)		\$1,085,760	\$725,760	\$725,760

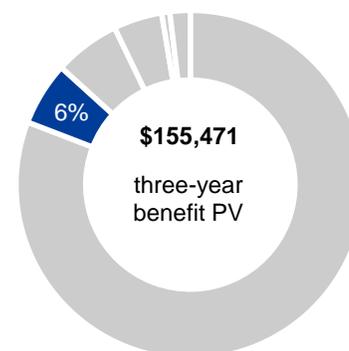
Reduced Cost Of Professional Services

The organization spent a regular amount on professional services to help configure and manage its technical environments before adopting HPE SimpliVity. Larger organizations hire in-house staff rather than paying for professional services, but Forrester found that this savings applies to all company sizes.

For the composite organization, Forrester assumes that:

- › On average, the organization purchased 8 hours of professional services per week.
- › After adopting HPE SimpliVity, the composite organization cut back the level of professional services by 50% during the first year, while migrating and retiring its current solutions.

As shown in the following table, the savings over three years totaled \$191,250. Due to some organizations incurring significant costs for professional services, while other companies spent little, if anything, on professional services, Forrester risk-adjusted this benefit downward by 15%, resulting in a three-year total PV of \$155,471.



Reduced cost of professional services: 6% of total benefits

Reduced Cost Of Professional Services: Calculation Table

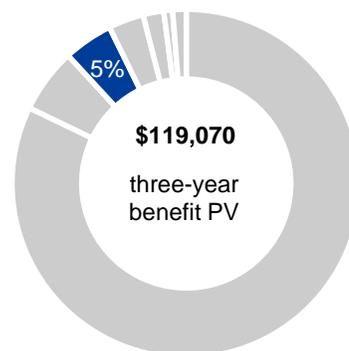
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
B1	Avoided hours of professional services (assumes 50 billable weeks per year)	Year 1: 50%; Years 2 to 3: 100%	200	400	400
B2	Average cost per user		\$225	\$225	\$225
Bt	Reduced cost of professional services	B1*B2	\$45,000	\$90,000	\$90,000
	Risk adjustment	↓15%			
Btr	Reduced cost of professional services (risk-adjusted)		\$38,250	\$76,500	\$76,500

Avoided Cost Of Data Center Floor Space

As organizations eliminated storage and server assets, they also avoided paying the associated fees for data center floor space, the power to run the equipment, and the cost of cooling. Interview customers told Forrester:

- › The average power immediately shifted downward from 2,700 kilowatts to 1,500 kilowatts.
- › It replaced 120 rack units of data center space with 12 rack units (RUs) of HPE SimpliVity hyperconverged infrastructure nodes (e.g., six 2 RU systems) resulting in a 10-to-1 reduced data center footprint.

The average savings for the interviewed companies was \$4,200 per month for a total of \$143,640 over three years. Since each of the companies experienced this result, Forrester risk-adjusted this benefit downward by 5%, resulting in a three-year total PV of \$119,070.



Avoided cost of data center floor space: 5% of total benefits

Avoided Cost Of Data Center Floor Space: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
C1	Reduced cost of data center space, power reductions, and cooling cost reductions	\$4,200 per month	\$50,400	\$50,400	\$50,400
Ct	Avoided cost of data center floor space		\$50,400	\$50,400	\$50,400
	Risk adjustment	↓5%			
Ctr	Avoided cost of data center floor space (risk-adjusted)		\$47,880	\$47,880	\$47,880

Reduced Labor To Manage Backups

Each of the companies told Forrester that using HPE SimpliVity reduced the effort of their backup administrators by an average of 15 hours per week for a total productivity improvement over three years of \$102,600. Since each of the companies had a similar experience, Forrester risk-adjusted this value downward by 5%, resulting in a three-year total PV of \$85,050.

Reduced Labor To Manage Backups: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	Hours saved for backup admins	15 hours* 52 weeks	780	780	780
D2	Full-time employee equivalence	D1/2,080 hours	0.4	0.4	0.4
D3	Average burdened salary for backup admins		\$90,000	\$90,000	\$90,000
Dt	Reduced labor to manage backups	D2*D3	\$36,000	\$36,000	\$36,000
	Risk adjustment	↓5%			
Dtr	Reduced labor to manage backups (risk-adjusted)		\$34,200	\$34,200	\$34,200

Reduced Licensing Costs Of Software Tools

Companies avoided the need for specific software tools. The most common tools were for backup and recovery activities. The director of infrastructure at the healthcare provider told Forrester, “We were completely compliant with licensing, and using HPE SimpliVity helped us avoid gray areas that big software vendors try to expose you to when using shared storage.”

Due to the fact that only some companies experience this benefit, Forrester risk-adjusted the value downward by 20%, resulting in a three-year total PV of \$49,737.

Reduced Licensing Costs Of Software Tools: Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
E1	Reduced software licensing and related tools		\$25,000	\$25,000	\$25,000
Et	Reduced licensing costs of software tools	E1	\$25,000	\$25,000	\$25,000
	Risk adjustment	↓20%			
Etr	Reduced licensing costs of software tools (risk-adjusted)		\$20,000	\$20,000	\$20,000

Reduced Cost Of Disaster Recovery Testing

Companies leverage HPE SimpliVity to simplify and automate disaster recovery (DR) for VM and site failover and failback to reduce costly business downtime. Several of the interviewed companies conducted regular testing to confirm the failover and failback functionality of their DR strategy and tools. In most cases, the tests were conducted over a weekend and included a collection of IT professionals, database administrators, and application managers. In one case, the company also brought a few business users into the testing to validate the end user’s experience.

To calculate this benefit for the composite organization, Forrester based the benefit on 10 staff members that previously required two days of time to conduct each test, which they conducted twice annually. The result was a time investment of 160 hours per year. Companies repeatedly told Forrester that with HPE SimpliVity, DR testing required just a few hours and that it could easily be conducted by one employee.

To account for varying degrees of investment in DR testing, Forrester risk-adjusted the value downward by 5%, resulting in three-year total PV of \$32,609.

Reduced Cost Of Disaster Recovery Testing: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
F1	Previous testing (10 people for 2 business days) twice per year	16 hours*10 staff *2 times annually	320	320	320
F2	Testing with SimpliVity		1.0	1.0	1.0
F3	Average cost per person per hour		\$43	\$43	\$43
Ft	Reduced cost of disaster recovery testing	F1*F2*F3	\$13,803	\$13,803	\$13,803
	Risk adjustment	↓5%			
Ftr	Reduced cost of disaster recovery testing (risk-adjusted)		\$13,113	\$13,113	\$13,113

Avoided Cost Of Performing System Updates

The infrastructure in place before HPE SimpliVity required an average of 12 system updates per year. Each update required 12 hours of professional services, costing a total of \$9,000 per year or \$27,000 over three years. Forrester risk-adjusted this benefit downward by 5%, resulting in a three-year total PV of \$21,263.

Avoided Costs Of Performing System Updates: Calculation Table

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
G1	Hours spent performing system updates	12 hours* 12 updates/year	144	144	144
G2	Full-time employee equivalence	G1/2,080	0.1	0.1	0.1
G3	Average burdened salary for backup admin		\$90,000	\$90,000	\$90,000
Gt	Avoided cost of performing system updates	G2*G3	\$9,000	\$9,000	\$9,000
	Risk adjustment	↓5%			
Gtr	Avoided cost of performing system updates (risk-adjusted)		\$8,550	\$8,550	\$8,550

Unquantified Benefits

In addition to the benefits quantified thus far, Forrester's interviews with HPE SimpliVity's customers highlighted additional benefits that they were unable to quantify. These unquantified benefits include:

- › **Integrated management console and VM toolsets.** The backup manager of one company told Forrester: "We wanted to be able to manage everything from one place. HPE SimpliVity allows us to manage everything from vCenter, which was one piece that was compelling us to adopt HPE SimpliVity."
- › **Significant reduction of IOPS.** One IT manager explained: "Getting rid of IOPS during the proof of concept with HPE SimpliVity was an eye opener. Prior to HPE SimpliVity, we had a file server that was running about 700 to 800 IOPS. With HPE SimpliVity, we've seen a drastic reduction in IOPS across all 200 servers in our environment."
- › **Improved disaster recovery.** Customers benefited from reduced cost and complexity orchestrating DR, including site-to-site failover. Customers are able to quickly audit and test their DR process faster with fewer resources. The confidence extends to executives who trust that IT has a strategy to reduce business downtime when a real incident occurs.

Flexibility

The value of flexibility is clearly unique to each customer and the measure of its value varies from organization to organization. Customers might choose to implement hyperconverged infrastructure and later realize additional uses and business opportunities, including:

- › **Providing the IT team with additional bandwidth so that they can work on strategic projects.** With HPE SimpliVity hyperconverged infrastructure, customers mentioned that their IT professionals now had time to work on projects that they previously did not have time to address. Multiple customers noted that they now had sufficient time to update their websites and develop features that enhanced their customers' experiences.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

"HPE SimpliVity gives us a significantly lower cost, significantly lower application complexity, and an improved disaster recovery solution."

Backup manager, educational institution



Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so.

Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE

Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Htr	Cost of HPE SimpliVity hyperconverged infrastructure nodes	\$664,380	\$86,369	\$86,369	\$86,369	\$923,488	\$879,168
Itr	Effort required to move data	\$9,341	\$0	\$0	\$0	\$9,341	\$9,341
	Total costs (risk-adjusted)	\$673,721	\$86,369	\$86,369	\$86,369	\$932,829	\$888,509

Cost of HPE SimpliVity Hyperconverged Infrastructure Nodes

The composite organization experienced costs associated with six hyperconverged infrastructure nodes and the effort required to move the data. These represent the mix of internal and external costs experienced by the composite organization for initial planning, implementation, and ongoing maintenance associated with the solution.

The organization purchased a total of six HPE SimpliVity nodes, three for the company's primary data center and three to facilitate DR for the secondary location. The six nodes cost a total of \$664,380 along with 13% annual maintenance fees. Forrester did not risk-adjust this cost, resulting in a three-year total PV of \$923,488.

As an alternative to this fixed price model, HPE offers the Flexible Capacity consumption-based model. Using the HPE Flexible Capacity model, customers would only pay for the HPE SimpliVity resources that are consumed on a monthly basis. The Flexible Capacity model would derive a different ROI and financial outcome.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of \$888,509.

Cost Of HPE SimpliVity Hyperconverged Infrastructure Nodes: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
H1	Cost of HPE SimpliVity nodes		\$664,380			
H2	Annual maintenance fee	H1(Initial)*13%		\$86,369	\$86,369	\$86,369
Ht	Cost of HPE SimpliVity nodes	H1+H2	\$664,380	\$86,369	\$86,369	\$86,369
	Risk adjustment	0%				
Htr	Cost of HPE SimpliVity nodes (risk-adjusted)		\$664,380	\$86,369	\$86,369	\$86,369

Effort Required To Move Data

Setting up the HPE SimpliVity hyperconverged infrastructure nodes and moving data onto them took only a nominal effort by the organization. Two employees required 10 hours per week for three weeks in order to move terabytes of data, for a total labor cost of \$2,596.

The setup costs were similar from organization to organization. The organization paid HPE SimpliVity an additional \$6,300 to assist with configuration and data migration. As such, Forrester risk-adjusted this cost upward by 5%, resulting in a three-year total PV of \$9,341.

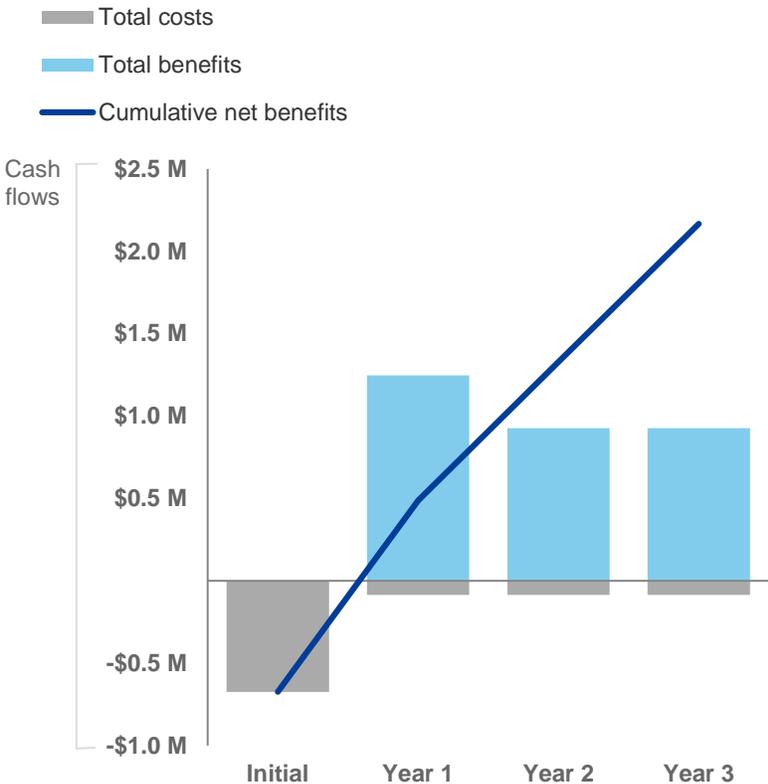
Effort Required To Move Data: Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
I1	Internal hours required	3 weeks *2 employees *10 hours	60			
I2	Hourly rate (rounded)	\$90,000/ 2,080 hours	\$43			
I3	Total internal effort (rounded)	I1*I2	\$2,596			
I4	HPE SimpliVity professional services		\$6,300			
It	Effort required to move data	I3+I4	\$8,896	\$0	\$0	\$0
	Risk adjustment	↑5%	□			
Itr	Effort required to move data (risk-adjusted)		\$9,341	\$0	\$0	\$0

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.



These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	(\$673,721)	(\$86,369)	(\$86,369)	(\$86,369)	(\$932,829)	(\$888,509)
Total benefits	\$0	\$1,247,753	\$926,003	\$926,003	\$3,099,758	\$2,595,330
Net benefits	(\$673,721)	\$1,161,383	\$839,633	\$839,633	\$2,166,929	\$1,706,821
ROI						192%
Payback period						7 months

HPE SimpliVity Hyperconverged Infrastructure: Overview

The following information is provided by HPE. Forrester has not validated any claims and does not endorse HPE or its offerings.

Hewlett Packard Enterprise can help you reduce risk, optimize costs, and quickly migrate with the right mix of technologies, services, and financing. HPE's strategy is to make hybrid IT simple and power the intelligent edge, and HPE has the expertise to make it happen.

As part of its strategy, HPE acquired SimpliVity Corporation in early 2017 and now offers HPE SimpliVity hyperconverged infrastructure based on HPE ProLiant and HPE Apollo compute platforms.

HPE SimpliVity building blocks dramatically simplify IT by combining all infrastructure and advanced data services for virtualized workloads — including guaranteed data efficiency, data protection, and VM-centric management and mobility — with the world's most secure server platforms for virtual environments.

HPE SimpliVity hyperconverged infrastructure represents a significant improvement over early forms of convergence and hyperconvergence, changing existing infrastructure paradigms in three ways: data efficiency, built-in data protection, and global unified management. All IT components are combined in a single shared pool of commodity x86 resources which enable a scalable, modular building-block approach that not only controls upfront capital investment but also reduces opex. The modularity of HPE SimpliVity enables high scaling in small server/storage increments. All resources and workloads contained in the collective federation are centrally managed.

- › **Data efficiency:** The HPE SimpliVity data architecture dedupes, compresses, and optimizes all data at inception, inline, with no impact to performance. Data is handled at a fine grain of 4KB to 8KB once and forever, across all phases of the data life cycle, tiers within the system data centers, and geographies. Median data efficiency in deployed environments has been 47 to 1, with one-third of HPE SimpliVity customers realizing data efficiencies of 100 to 1 or higher.
- › **Built-in data protection:** The solution provides fully integrated local and remote backups at the VM level. Remote backups, to another site or to the cloud, can occur in ten-minute RPO intervals. Given the data efficiency capabilities of the platform, the solution provides instant VM recoverability. Each backup is a full logical backup with no need to manage snaps or delta copies of the data.
- › **Global federated architecture:** An intelligent network of collaborative systems provides scale-out capabilities with VM-centric global management through a single unified interface for the entire global infrastructure. This feature enables a single administrator to manage all data centers and branch offices located anywhere globally, while giving visibility and control to take action on a per-VM basis.

HPE SimpliVity's hyperconverged infrastructure offers distinct advantages over more conventional infrastructure choices by delivering next-generation IT infrastructure that delivers improved application performance; faster and more reliable data protection; global management across distributed environments from a central console; and ease of scale to meet growth demands — all while dramatically reducing costs.

Enterprises have typically leveraged public cloud service providers for agility and automation. Now, many of these organizations are building on-premise clouds based on hyperconverged infrastructure, getting the friction-free scalability of public cloud, plus improved control over physical resources and automated provisioning. Intelligent networking fabric plays a foundational role in these on-premises infrastructures. HPE SimpliVity with Composable Fabric allows the software-defined aspects of compute, storage, and network infrastructure to talk to each other behind the scenes via APIs, exchanging data about its own system's state, health, and capabilities. The infrastructure-aware network automates most of the processes that were previously manual. Workloads are routed, processed, and stored with greater speed, capacity, security, and response times across the network.

To support HPE SimpliVity customers on their journey, HPE provides expert, world-class support via HPE Pointnext. HPE Pointnext brings innovative IP (i.e., an extensive library of enterprise class designs and blueprints from over 11,000 successful implementations), decades of experience across our services team who works closely with HPE technologists and HPE Labs, and a partner ecosystem to deliver the advanced enterprise grade solutions. HPE Pointnext offers a variety of services and enables Flexible Capacity, pay-as-you-go, consumption options for customers.

For more information, visit www.hpe.com/simplivity.

Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

Total Economic Impact Approach



Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.



Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.



Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.



Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.



Present value (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.



Net present value (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.



Return on investment (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.



Discount rate

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.



Payback period

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.