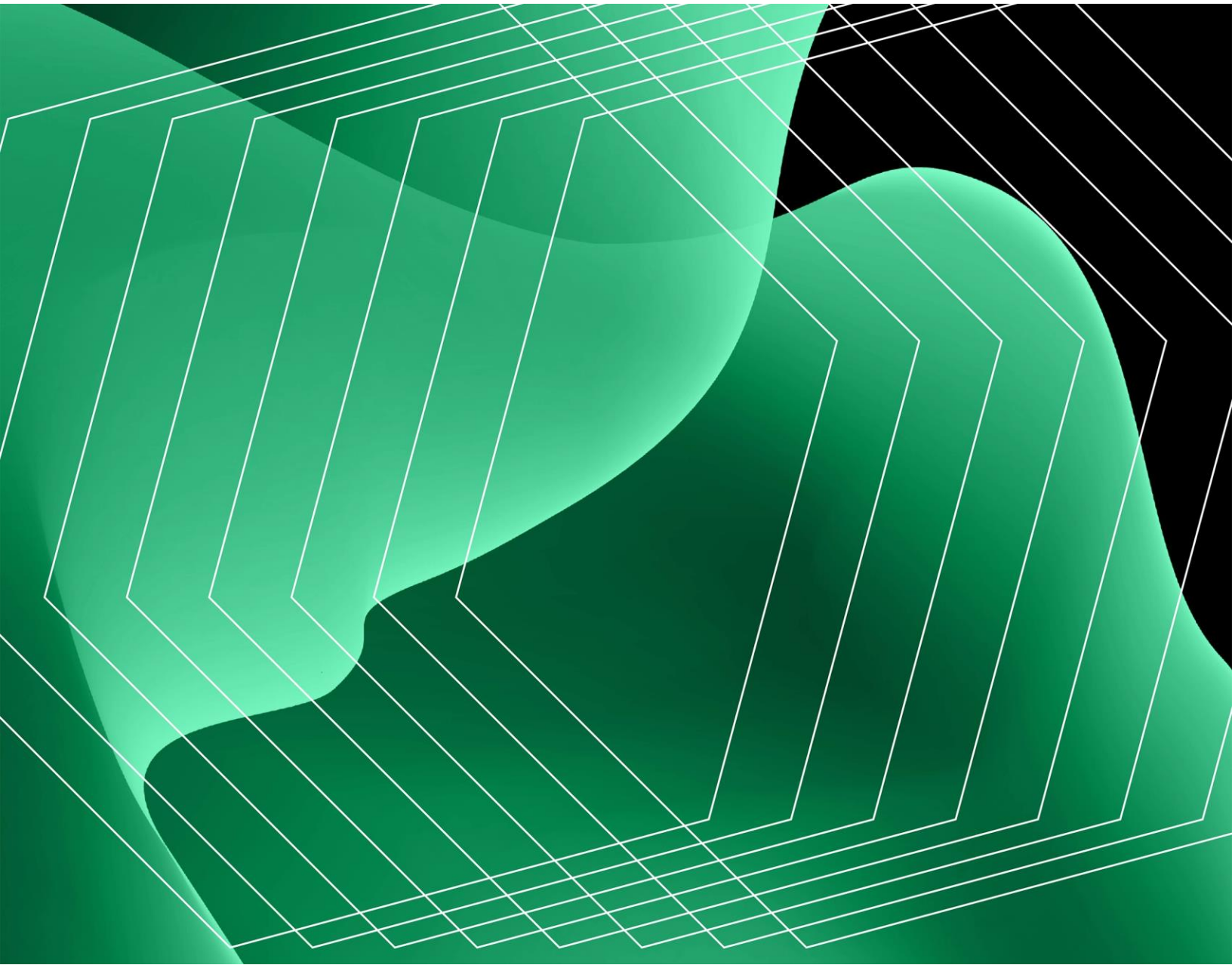
FORRESTER®

The Total Economic Impact™ Of VMware Cloud Foundation Operations

Business Benefits Enabled By VMware Cloud Foundation Operations

A FORRESTER TOTAL ECONOMIC IMPACT™ STUDY COMMISSIONED BY VMWARE, APRIL 2024



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ABOUT FORRESTER CONSULTING

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Executive Summary

Virtualization and cloud computing continue to play key roles for digital transformation leaders. Unlike the extreme ends of the enterprise technology spectrum like mainframe administration or IoT and AI/machine learning (ML), there has not been a major shift in resourcing for virtualization activities.[1] Across 11 virtualization capabilities, at least 75% of organizations have completed some degree of planning or implementation for each capability.[2] Selecting an effective IT operations and infrastructure-monitoring tool becomes vital in the continued path toward digital transformation.

VMware Cloud Foundation Operations provides organizations with visibility into physical, virtual, and cloud infrastructure from virtual machines (VMs) and containers to applications. This visibility allows organizations to optimize infrastructure instead of continually deploying too much or too little, monitoring, and alerting for issues for rapid remediation.

VMware commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential benefits and financial impacts enterprises may realize by using VMware Cloud Foundation Operations.[3]

To better understand the benefits and risks associated with this investment, Forrester interviewed four representatives with experience using VMware Cloud Foundation Operations. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization.

Benefits present value (BPV)
$15.1M

MTTR workload reduction
20%

As VMware Cloud Foundation Operations has been in the market for more than five years, this study focuses more on the value of continued use and benefits that come with upgrades rather than benefits from initial deployment. While TEI studies cannot be compared across products or years because each study may focus on unique customer

interviewees and experiences, readers who are interested in the TEI of an initial deployment use case for VMware Cloud Foundation Operations can refer to the March 2019 version.[4] The benefit categories in this study have some overlap with the 2019 study, but capital expenditure (capex) benefits (e.g., capacity management and workload optimization) in an initial deployment use case are more pronounced, while operational expenditure (opex) benefits are more pronounced in this study's continued use and upgrade use case.

VMware Cloud Foundation Operations

VMware Aria Operations – a component of VMware Cloud Foundation and VMware vSphere Foundation – provides Operations capabilities including continuous performance optimization, efficient cost and capacity management, and integrated compliance. VMware Cloud Foundation helps organizations modernize their infrastructure and implement a highly efficient cloud operating model that provides the scale and agility of public cloud with the security and performance of private cloud. VMware vSphere Foundation is VMware's enterprise workload engine for data center optimization in vSphere environments. These products are designed to provide an integrated set of capabilities that cater to a wide range of business needs from an enterprise workload platform to a fully integrated private cloud environment.

Interviewees said that prior to using VMware Cloud Foundation Operations, their organizations had little to no consolidated visibility into infrastructure issues. This resulted in inefficient infrastructure management and a constant emphasis on "keeping the lights on" (KTLO). This took resources away from iterating on progress, innovation, and more proactive work.

After the investment in VMware Cloud Foundation Operations, the interviewees' organizations were able to reduce downtime and issue-resolution workloads, and capture savings in both hardware and software through optimization activities. Achieving operational efficiency and installing functional alerts have given the interviewees' organizations the ability to focus on proactive service development and peace of mind at the end of each workday.

KEY FINDINGS

Quantified benefits. Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **Reduced relative downtime by 5x.** The composite organization leverages alerts from VMware Cloud Foundation Operations, applying what-if scenarios and carefully optimizing capacity to reduce unplanned downtime. The composite organization's downtime affects portions of its 30,000 employees 90% of the time and the majority of its external-facing, revenue-generating e-commerce site 10% of the time. This reduction in unplanned downtime is worth $12.2 million over three years.

Revenue and productivity saved with improved uptime

$12.2 million

- **Reduced mean time to resolution (MTTR) for issues by 20% and gained 50% in team coordination efficiency.** On a team of 15 FTEs, 20% of the issue-resolution workload is reduced and the time is reallocated to other activities. In addition, weekly issue review and coordination meeting length is also halved as preparation and metric reviews are more easily completed with VMware Cloud Foundation Operations dashboards. This reduction in MTTR and efficiency improvements are worth $720,000 over three years.
- **Improved operational efficiency by more than 75%.** VMware Cloud Foundation Operations impacts three categories of operational tasks for the

composite organization: upgrades, chargeback modeling, and report preparation. The composite organization realizes efficiency gains of 77% in upgrades, 79% in chargeback modeling, and 75% in report preparation. This improvement in operational efficiency is worth $34,000 over three years. Readers should consider adjusting these portions of the model based on their time and effort estimates for these tasks.

> "We shift capacity between teams a lot, even across borders. One time, our Canadian team needed capacity during peak season, and we found a cluster with capacity. No delays, no need to buy more servers, no shipping — we saved $100,000 to $200,000."
>
> SENIOR ENGINEER OF INFRASTRUCTURE AND PLATFORMS, RETAIL

- **Reduced storage monitoring software tool costs by 100%.** The composite organization is able to identify redundant software that is rarely used and can be decommissioned. Its storage-monitoring tool becomes superfluous, and the company avoids $500,000 in fees each year through tool consolidation. This benefits is worth $1.1 million over three years.
- **Reduced last-minute hardware costs by 100%.** The composite organization's business ebbs and flows based on retail peak seasons, as well as its ambitious approach to acquiring related media outlets and websites to complement and influence its online retail offering. In that environment, both unique aspects have historically put strains on the infrastructure team and required last-minute incremental capacity. After deploying VMware Cloud Foundation Operations, the composite proactively manages capacity and avoids buying unneeded physical infrastructure. This reduction in hardware cost is worth $1.0 million over three years.

The representative interviews and financial analysis found that a composite organization experiences benefits of $15.1 million over three years.

Reduction in relative downtime

5x

MTTR workload reduction

20%

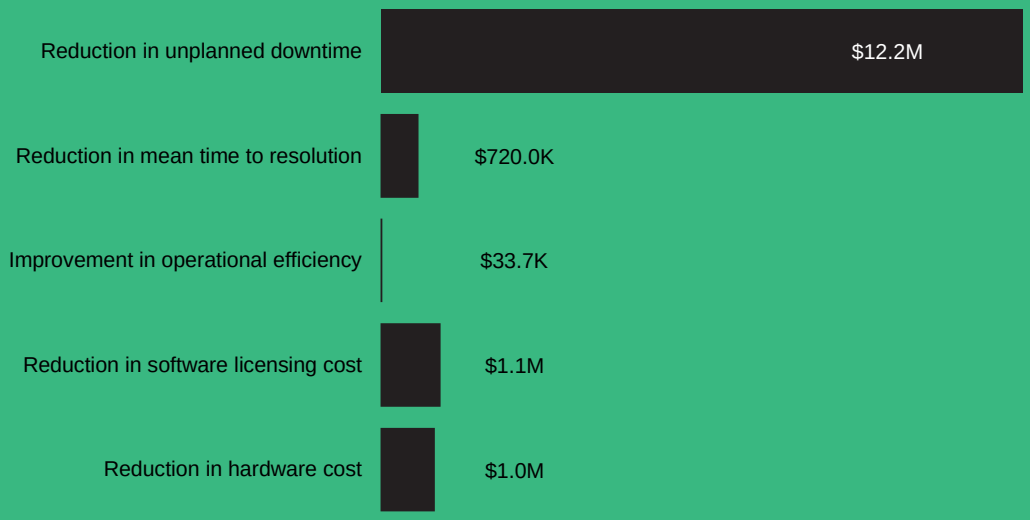
Average operational efficiency gain

77%

Reduction in last-minute hardware costs

100%

Benefits (Three-Year)



“Infrastructure issues don’t just go away, but the difference with VMware Cloud Foundation Operations is getting notified ahead of time instead of being woken up at night and having to worry about those fires without any predictability.”

DIRECTOR OF SYSTEMS ENGINEERING, FINANCIAL SERVICES

TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment VMware Cloud Foundation Operations.

The objective of the framework is to identify the benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that VMware Cloud Foundation Operations can have on an organization.

DISCLOSURES

Readers should be aware of the following:

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

Forrester makes no assumptions as to the potential benefits that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in VMware Cloud Foundation Operations.

VMware 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.

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

1. **Due Diligence**
   Interviewed VMware stakeholders and Forrester analysts to gather data relative to VMware Cloud Foundation Operations.
2. **Interviews**
   Interviewed four representatives at organizations using VMware Cloud Foundation Operations to obtain data about benefits and risks.
3. **Composite Organization**
   Designed a composite organization based on characteristics of the interviewees' organizations.
4. **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 interviewees.
5. **Case Study**
   Employed four fundamental elements of TEI in modeling the investment impact: benefits, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The VMware Cloud Foundation Operations Customer Journey

Drivers leading to the use of VMware Cloud Foundation Operations

Interviews			
Role	**Industry**	**Region**	**Annual Revenue**
Senior engineer of infrastructure and platforms	Retail	North America	$43 billion
Director of systems engineering	Financial services	Global	$5 billion
Principal technical architect	Automotive	US and international	$7 billion
Senior IT infrastructure analyst	Education	South America	$200 million

KEY CHALLENGES

Prior to deploying VMware Cloud Foundation Operations, interviewees noted their organizations used existing infrastructure and enterprise-monitoring tools — several of which overlapped in functionality. Most interviewees noted their organizations might have had some version of VMware Cloud Foundation Operations (e.g., version 6.x) as well, but did not use it exclusively or to its full potential until a newer release (version 8.x).

The interviewees' organizations struggled with common challenges, including:

- **Being mired in KTLO concerns with little visibility into and predictability of the next major issue.** Interviewees noted their infrastructure teams were less effective in operating an environment and continually improving services when a material amount of workload shifted from operations to operational issue resolution. The interviewees' organizations struggled not only with their issue resolution workloads themselves, but also the inability to forecast or manage those issues ahead of time. This resulted in teams frequently having to resolve urgent issues that could have been avoided with earlier intervention.
- **Lacking capability in capacity management and planning.** Without the ability to manage, allocate, reallocate, or plan capacity, interviewees' organizations

would often purchase hardware based on annual or periodic estimates. While some refresh exercises were justified, interviewees said their organizations often overspent as they were not able to identify open resources.

- **Lacking a chargeback model or justification for a shared-service organization.** For many of the interviewees, the justification for investment in a shared service organization stemmed from the ability to accurately showcase the value provided to the business against the cost. Without an effective monitoring tool, building a chargeback model proved difficult, and the data needed to inform the model was also cumbersome to find and update. Moreover, without a chargeback model and cost outlined internally, the interviewees' organizations had difficulty making comparisons and strategic decisions regarding whether to place workloads on company-owned, on-premises environments versus private or public cloud.

SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

The interviewees' organizations searched for a solution that could:

- Provide visibility into physical, virtual, and cloud infrastructure regardless of operating system.
- Integrate effectively into existing toolsets while requiring minimal training and onboarding time.
- Demonstrate additional features such as scenario planning and intelligent issue remediation.

After evaluating several options and testing VMware Cloud Foundation Operations, the interviewees' organizations developed their business cases. Each chose VMware Cloud Foundation Operations because it:

- Provided a single pane of glass for monitoring across operating systems and modes of infrastructure.
- Meshed well with existing infrastructure tools and team experience.
- Comes with both services and customer support on a global scale.

> “We compared multiple tools, and VMware Cloud Foundation Operations was the only one that provided a single pane, was OS-agnostic, talked to the end points we needed, and [was] not too heavy or cumbersome.”
>
> DIRECTOR OF SYSTEMS ENGINEERING, FINANCIAL SERVICES

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a benefits analysis that illustrates the areas financially affected. The composite organization is representative of the four interviewees, and it is used to present the aggregate financial analysis in the next section. It has the following characteristics:

Description of composite. The composite organization is an online retail business that sells a range of branded and unbranded products to consumers. In addition, the composite organization also owns and periodically acquires several media outlets and websites that diversify its holdings while also contributing to driving and influencing its core retail business. The e-commerce business makes up 92% of its revenue; its media channels make up the remaining 8% through sponsorships, events, and paid advertising. The company has 30,000 employees and operates mainly in the US, with a few global operations offices and outlets.

Deployment characteristics. The composite organization deploys VMware Cloud Foundation Operations to monitor its 1,500 hosts and 22,500 VMs.

KEY ASSUMPTIONS

$6 billion annual revenue

30,000 employees

1,500 hosts

22,500 VMs

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	Reduction in unplanned downtime	$4,622,293	$4,919,315	$5,236,558	$14,778,165	$12,201,937
Btr	Reduction in mean time to resolution	$281,520	$289,966	$298,665	$870,150	$719,959
Ctr	Improvement in operational efficiency	$12,569	$13,601	$14,685	$40,855	$33,700
Dtr	Reduction in software licensing cost	$460,000	$460,000	$460,000	$1,380,000	$1,143,952
Etr	Reduction in hardware cost	$414,000	$414,000	$414,000	$1,242,000	$1,029,557
	Total benefits (risk-adjusted)	$5,790,382	$6,096,881	$6,423,908	$18,311,171	$15,129,105

REDUCTION IN UNPLANNED DOWNTIME

Evidence and data. Most of the interviewees noted their organizations experienced a material improvement in their ability to manage and reduce unplanned downtime. Visibility into the general health and availability of systems, alerts related to disk space, CPU utilization, and broader capacity management allowed the interviewees' organizations to reduce unplanned downtime. Teams could proactively manage hosts and even extend the life of infrastructure to potentially push out refresh cycles.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite organization starts with 99.4% uptime before investing in VMware Cloud Foundation Operations.
- With VMware Cloud Foundation Operations, it achieves over 99.9% uptime.
- Ninety percent of downtime impacts internal productivity, with the remaining 10% impacts external e-commerce sales.
- Five percent of the organization's staff is impacted by downtime.

Risks. Factors that could impact the size of this benefit for organizations include:

- The degree VMware Cloud Foundation Operations can reduce downtime from a high-uptime prior state.
- The degree downtime impacts employees or external activities.
- The degree visibility can impact managing capacity.

Results. To account for these risks, Forrester adjusted this benefit downward by 8%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $12.2 million.

Reduction In Unplanned Downtime					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
A1	Legacy uptime	Composite	99.4%	99.4%	99.4%
A2	Current uptime	Composite	99.9%	99.9%	99.9%
A3	Downtime effect to internal productivity	Composite	90%	90%	90%
A4	Downtime effect to external e-commerce sales	Composite	10%	10%	10%
A5	Total staff	Composite	30,000	31,500	33,075
A6	Affected staff	Composite	5%	5%	5%
A7	Average salary	TEI standard	$100,000	$103,000	$106,090
A8	Productivity conversion rate	TEI standard	80%	80%	80%
A9	**Subtotal: Improved uptime productivity value**	**(A2-A1)*(24*365) *A3*(A7/2,080)* (A5*A6)*A8**	**$2,274,231**	**$2,459,581**	**$2,660,036**
A10	E-commerce revenue	Composite	$5,500,000,000	$5,775,000,000	$6,063,750,000
A11	**Subtotal: Improved uptime e-commerce value**	**(A2-A1)*(24*365) *A4*(A10/8,760)**	**$2,750,000**	**$2,887,500**	**$3,031,875**
At	Reduction in unplanned downtime	A9+A11	$5,024,231	$5,347,081	$5,691,911
	Risk adjustment	↓8%			
Atr	Reduction in unplanned downtime (risk-adjusted)		$4,622,293	$4,919,315	$5,236,558
	Three-year total: $14,778,165			**Three-year present value: $12,201,937**	

REDUCTION IN MEAN TIME TO RESOLUTION

Evidence and data. Interviewees reported that VMware Cloud Foundation Operations significantly helped their organizations handle infrastructure issues. The interviewees stated that VMware Cloud Foundation Operations reduced the total amount of issues and speeding up the resolution of those issues that remained. It did so by making data vital for preventing and resolving issues more easily accessible. Interviewed representatives also noted that increased visibility and access to data made coordination and planning meetings much faster, reducing the amount of time required to prepare for meetings and making discussion within the meetings simpler.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite organization reduces its issue-resolution workload by 20%.
- Three members of the 15-member issue resolution team reallocate their time to new projects.
- Weekly coordination meeting time is cut in half.

Risks. Factors that could impact the size of this benefit for organizations include the degree to which VMware Cloud Foundation Operations can improve issue resolution and coordination over prior state.

Results. To account for these risks, Forrester adjusted this benefit downward by 8%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $720,000.

20%

Workload reduction on infrastructure issues

Reduction In Mean Time To Resolution					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
B1	Infrastructure and virtualization FTEs	Composite	15	15	15
B2	Workload reduction	Composite	20%	20%	20%
B3	Annual salary	TEI standard	$120,000	$123,600	$127,308
B4	Workload reduction value	(B1*B2)*B3	$360,000	$370,800	$381,924
B5	Legacy weekly coordination hours	Composite	1	1	1
B6	Current weekly coordination hours	Composite	0.5	0.5	0.5
B7	Coordination efficiency gain	(B5-B6)/B5	50%	50%	50%
B8	Coordination hours saved	(B5*52)-(B6*52)	26	26	26
B9	Coordination hours saved value	B8*B1*(B3/2080)	$22,500	$23,175	$23,870
B10	Productivity conversion rate	TEI standard	80%	80%	80%
Bt	Reduction in mean time to resolution	(B4+B9)*B10	$306,000	$315,180	$324,635
	Risk adjustment	↓8%			
Btr	Reduction in mean time to resolution (risk-adjusted)		$281,520	$289,966	$298,665
	Three-year total: $870,150			**Three-year present value: $719,959**	

IMPROVEMENT IN OPERATIONAL EFFICIENCY

Evidence and data. VMware Cloud Foundation Operations enabled many of the interviewees' organizations to realize efficiency gains across a variety of tasks:

- Several interviewees stated that upgrades required less time than their prior state.
- The interviewees' organizations were able to conduct chargeback modelling leveraging an existing setup, rather than having to start from scratch each month.
- Reporting tasks, such as preparing and delivering reports to C-level executives, were also reduced.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite organization reduces its upgrade time for applications, VMs, and other aspects of its infrastructure by 77%, from 26 hours to 6 hours. These upgrades are conducted four times per year and require two FTEs to manage.
- Chargeback modeling time is reduced from 8 hours per month to an initial 8-hour setup followed by 1 hour of data entry per month.
- Report preparation time for the composite organization is reduced by 75%, from 60 minutes to 15 minutes. Daily reporting is required for the CIO for four months of Year 1, five months of Year 2, and six months of Year 3.

Risks. Factors that could impact the size of the benefit for organizations include:

- The degree VMware Cloud Foundation Operations can improve from a highly efficient prior state.
- Frequency of task execution.
- Types of tasks impacted by VMware Cloud Foundation Operations.

Results. To account for these risks, Forrester adjusted this benefit downward by 8%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $34,000.

Improvement In Operational Efficiency					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
C1	Legacy upgrade hours per occurrence	Composite	26	26	26
C2	Current upgrade hours per occurrence	Composite	6	6	6
C3	Upgrade efficiency gain	(C1-C2)/C1	77%	77%	77%
C4	Upgrade frequency	Composite	4	4	4
C5	Upgrade FTEs	Composite	2	2	2
C6	Annual salary	TEI standard	$120,000	$123,600	$127,308
C7	**Subtotal: Upgrade efficiency value**	**(C1-C2)*C4*C5*(C6/2,080)**	**$9,231**	**$9,508**	**$9,793**
C8	Legacy chargeback modeling hours	Composite	96	96	96
C9	Current chargeback model setup hours	Composite	8	8	8
C10	Current chargeback model data entry hours	Composite	12	12	12

C11	Chargeback modeling efficiency gain	(C8-(C9+C10))/C8	79%	79%	79%
C12	**Subtotal: Chargeback model efficiency value**	**(C8-(C9+C10))* (C6/2,080)**	**$4,385**	**$4,516**	**$4,652**
C13	Alternative report preparation hours per day	Composite	1	1	1
C14	Current report preparation hours per day	Composite	0.25	0.25	0.25
C15	Report preparation efficiency gain	(C13-C14)/C13	75%	75%	75%
C16	Peak period days requiring daily reporting	Composite	80	100	120
C17	**Subtotal: Reporting efficiency value**	**(C13-C14)*C16* (C6/2,080)**	**$3,462**	**$4,457**	**$5,509**
C18	Productivity conversion rate	TEI standard	80%	80%	80%
Ct	Improvement in operational efficiency	(C7+C12+C17)*C18	$13,662	$14,784	$15,962
	Risk adjustment	↓8%			
Ctr	Improvement in operational efficiency (risk-adjusted)		$12,569	$13,601	$14,685
	Three-year total: $40,855			**Three-year present value: $33,700**	

> “With more proactive infrastructure management, we’ve been able to reduce issues by 10% to 15%, time-to-issue resolution by 20% to 30%, and overall operational workload by 35% to 40%. Managing our virtual and physical environments has become more effective and smoother.”
>
> **SENIOR IT INFRASTRUCTURE ANALYST, EDUCATION**

REDUCTION IN SOFTWARE LICENSING COST

Evidence and data. All interviewees told Forrester that their organizations either already had or were considering multiple infrastructure- or enterprise-monitoring tools. VMware Cloud Foundation Operations provided functionality that rendered several of these tools redundant, enabling them to be decommissioned.

Modeling and assumptions. Based on the interviews, Forrester assumes the composite organization identifies a storage-monitoring tool and legacy storage solution that can be decommissioned.

Risks. Factors that could impact the size of this benefit for organizations include:

- Amount of software or solutions redundant with VMware Cloud Foundation Operations.
- Cost of decommissioned/redundant software or solutions.

Results. To account for these risks, Forrester adjusted this benefit downward by 8%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1.1 million.

Reduction In Software Licensing Cost					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
D1	Average license saving per software decommissioned	Composite	$500,000	$500,000	$500,000
D2	Software decommissioned	Composite	1	1	1
Dt	Reduction in software licensing cost	D1*D2	$500,000	$500,000	$500,000
	Risk adjustment	↓8%			
Dtr	Reduction in software licensing cost (risk-adjusted)		$460,000	$460,000	$460,000
	Three-year total: $1,380,000			**Three-year present value: $1,143,952**	

REDUCTION IN HARDWARE COST

Evidence and data. Interviewees told Forrester that VMware Cloud Foundation Operations improved their overall infrastructure planning.

Many interviewees told Forrester that VMware Cloud Foundation Operations improved capacity management capabilities. These improved capabilities helped avoid unplanned purchases of hardware during urgent requests for additional capacity.

Modeling and assumptions. Based on the interviews, Forrester assumes the following about the composite organization:

- The composite organization spends $150,000 on each urgent request for additional capacity.
- Before VMware Cloud Foundation Operations, the composite organization has three urgent requests for additional capacity per year.
- VMware Cloud Foundation Operations enables the composite organization to completely avoid these urgent requests via better capacity management.

> "Historically, app dev teams had no visibility into their infrastructure costs. Now they do, across on-prem [and] multicloud, and it enables us to really plan."
>
> SENIOR ENGINEER OF INFRASTRUCTURE AND PLATFORMS, RETAIL

Risks. Factors that could impact the size of this benefit for organizations include:

- The degree VMware Cloud Foundation Operations can identify capacity that can be reallocated.
- Average hardware lifespan.
- Individual organization optimization activities.

Results. To account for these risks, Forrester adjusted this benefit downward by 8%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1.0 million.

Reduction In Hardware Cost					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
E1	Average hardware saving per optimization activity	Composite	$150,000	$150,000	$150,000
E2	Optimization activity frequency	Composite	3	3	3
Et	Reduction in hardware cost	E1*E2	$450,000	$450,000	$450,000
	Risk adjustment	↓8%			
Etr	Reduction in hardware cost (risk-adjusted)		$414,000	$414,000	$414,000
	Three-year total: $1,242,000			**Three-year present value: $1,029,557**	

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement VMware Cloud Foundation Operations and later realize additional uses and business opportunities, including:

Improved visibility into cloud health. Developing a chargeback model enables organizations to gain a better grasp of virtualization and on-premises costs. This could enable organizations to make better decisions around infrastructure management and cost optimization surrounding their cloud health.

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

> "We can now plug in cost data and tag applications, groups, and users, and have a dashboard and reports natively instead of exporting utilization data, creating custom report in a web app every month."
>
> SENIOR ENGINEER OF INFRASTRUCTURE AND PLATFORMS, RETAIL

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, allowing for a full examination of the effect of the technology on the entire organization.

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 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."

Benefits Present Value (PV)

The present or current value of (discounted) benefit estimates given at an interest rate (the discount rate).

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%.

All cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total benefit estimate. Sums and present value calculations of the Total Benefits may not exactly add up, as some rounding may occur.

APPENDIX B: SUPPLEMENTAL MATERIAL

Related Forrester Research

The New Economics Of On-Premises Infrastructure, Forrester Research, Inc., June 1, 2023.

The Forrester Wave™: Hybrid Cloud Management, Q4 2020, Forrester Research, Inc., November 30, 2020.

The Forrester Wave™: Cloud Cost Management And Optimization, Q4 2020, Forrester Research, Inc., October 28, 2020.

The Forrester Wave™: Infrastructure Automation Platforms, Q3 2020, Forrester Research, Inc., August 10, 2020.

APPENDIX C: ENDNOTES

[1] Source: Forrester Business Technographics Infrastructure Survey, 2020.

[2] Ibid.

[3] 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.

[4] Source: "The Total Economic Impact™ Of VMware Cloud Operations" a commissioned study conducted by Forrester Consulting on behalf of VMware, March 2019.

ABOUT FORRESTER CONSULTING

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