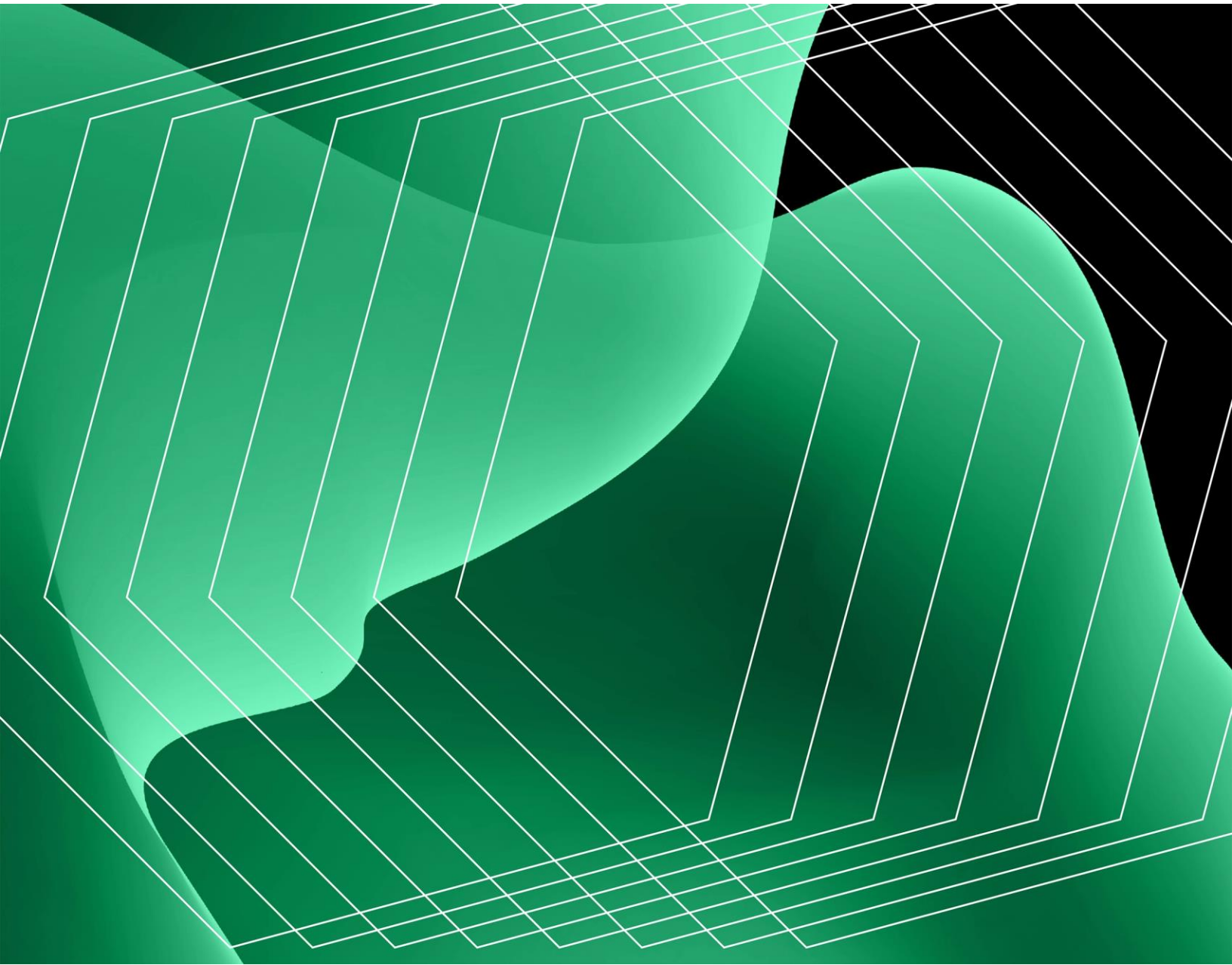
FORRESTER®

The Total Economic Impact™ Of Upgrading To VMware vSphere 8

Cost Savings And Business Benefits Enabled By vSphere 8

A Forrester Total Economic Impact™ Study
Commissioned By VMware, November 2024



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ABOUT FORRESTER CONSULTING

Forrester provides independent and objective research-based consulting to help leaders deliver key outcomes. Fueled by our customer-obsessed research, Forrester's seasoned consultants partner with leaders to execute their specific priorities using a unique engagement model that ensures lasting impact. For more information, visit forrester.com/consulting.

Executive Summary

To stay ahead and succeed in today's fast-paced digital environment, organizations require IT infrastructure that can scale efficiently, ensure robust security, and simplify management. Advanced solutions with capabilities such as high availability, seamless integration, robust security, and automated operations are essential to meet these demands. By adopting this technology, businesses can enhance their agility, drive innovation, and position themselves for sustained growth and success.

VMware vSphere 8 is an enterprise workload engine that combines industry-leading cloud infrastructure technology with DPU- and GPU-based acceleration to boost workload performance. The solution optimizes the IT environment, increases availability, and provides improved lifecycle management and streamlined maintenance to enhance operational efficiency. It provides an infrastructure engine that is secure out of the box and has easy-to-implement hardening guidance for compliance. The vSphere 8 solution accelerates innovation for DevOps and platform teams with enterprise-ready infrastructure-as-a-service (IaaS) capabilities. These include easy self-service access to infrastructure and a built-in Kubernetes runtime to run containers alongside virtual machines (VMs) with one API and consistent operations. With vSphere 8, enterprises can easily build, run, manage, protect, and secure their traditional and next-gen applications.

VMware commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying vSphere 8.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of vSphere 8 on their organizations.

Return on investment (ROI)
151%

Net present value (NPV)
$6.05M

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four representatives with experience using vSphere 8. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization with revenue of $4 billion per year and 24,000 VMs.

Interviewees said that prior to using vSphere 8, their organizations relied on older versions of vSphere, such as vSphere 7. These versions provided a solid foundation for virtualization and supported many critical business functions.

Interviewees reported that after investing in vSphere 8, their organizations saw significant improvements in operational efficiency, security, and support for modern workloads like AI/ML. Key results from the investment include increased productivity due to enhanced capabilities and a reduction in administrative overhead. Additionally, the organizations saw a decrease in costs related to external consultants and improved employee satisfaction due to streamlined processes and better performance.

KEY FINDINGS

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

- **Decreased costs as a result of avoided labor effort and AI/ML workload and GPU access spend, worth $9.1 million over three years.** The support for GPU devices in vSphere 8 significantly improves the composite's AI/ML workload performance, reducing the need for external cloud resources. This leads to substantial cost savings and reduced project timelines, allowing business units to use applications more effectively.
- **Increased operational efficiency due to productivity improvements and reduction in administrative effort, worth $930,000 over three years.** The productivity improvements and administrative effort reductions due to vSphere significantly enhance the composite organization's operational efficiency. This leads to infrastructure teams saving significant time per week on tasks like deploying VMs, adding storage, and configuring networking.

Unquantified benefits. Benefits that provide value for the composite organization but are not quantified for this study include:

- **Improved employee satisfaction.** The introduction of vSphere 8 leads to a more streamlined and efficient work environment. This reduces stress and frustration and helps administrators manage tasks more effectively, which improves job satisfaction.
- **Enhanced security posture.** Advanced security features in vSphere 8 significantly reduce the risk of security breaches and ransomware attacks. These features are crucial in maintaining compliance with stringent regulatory requirements and enhancing overall security.
- **Increased operational flexibility.** The ability to support modern workloads, particularly AI/ML, allows organizations to explore new business opportunities and improve service offerings. Improved GPU support and device group features enable more efficient AI/ML processing, which is essential for large-scale data analysis projects.
- **Reduced administrative overhead.** Automation and streamlined processes introduced with vSphere 8, such as the Lifecycle Manager and improved VM provisioning, reduce the time and effort required for routine administrative tasks. This allows IT teams to focus on more strategic initiatives that improve overall productivity and efficiency.

Costs. Three-year, risk-adjusted PV costs for the composite organization include:

- **Initial implementation costs of $200,000.** The composite organization incurs implementation costs primarily for technical setup, staff training, and necessary hardware upgrades. The organization has a moderate level of existing infrastructure that requires partial upgrades to support the new system. A specific budget is allocated for training sessions to ensure all staff are proficient with the new system. External consultants are engaged to assist with the deployment, which adds to the initial costs.
- **Subscription fees of $516,000 over three years.** The composite organization incurs annual subscription fees based on the number of cores per processor and the total number of processors. The organization has a mix of dual and quad processor servers, with each processor having 24 cores. The per-core per-year

subscription price is $120, based on the vSphere Enterprise Plus edition list pricing. The organization has 30 servers, with 80% being dual processor servers and 20% being quad processor servers.

- **Hardware costs of $2.3 million over three years.** The composite organization incurs annual hardware costs based on the number of servers and the associated support and storage costs. The organization has 30 servers, with each server costing $5,000 on an annual basis, and the support cost is 10% of the total server cost. Each server has 10 TB of storage, with the cost per TB being $2,500. The total annual hardware costs include the cost of servers, support, and storage.
- **Ongoing labor and management costs of $1 million over three years.** The composite organization incurs annual costs of $405,000 for labor and management. This includes two virtualization infrastructure (VI) admin FTEs who manage the deployment of vSphere 8 on an ongoing basis.

The representative interviews and financial analysis found that a composite organization experiences benefits of $10.04 million over three years versus costs of $4.0 million, adding up to a net present value (NPV) of $6.05 million and an ROI of 151%.

> “The support for GPU devices in vSphere 8 significantly improved our AI/ML workload performance, reducing the need for external cloud resources and saving us around $900 per week per workload.”
>
> TECHNICAL ARCHITECT, IT SERVICES AND CONSULTING

Return on investment (ROI)

151%

Benefits PV

$10.04M

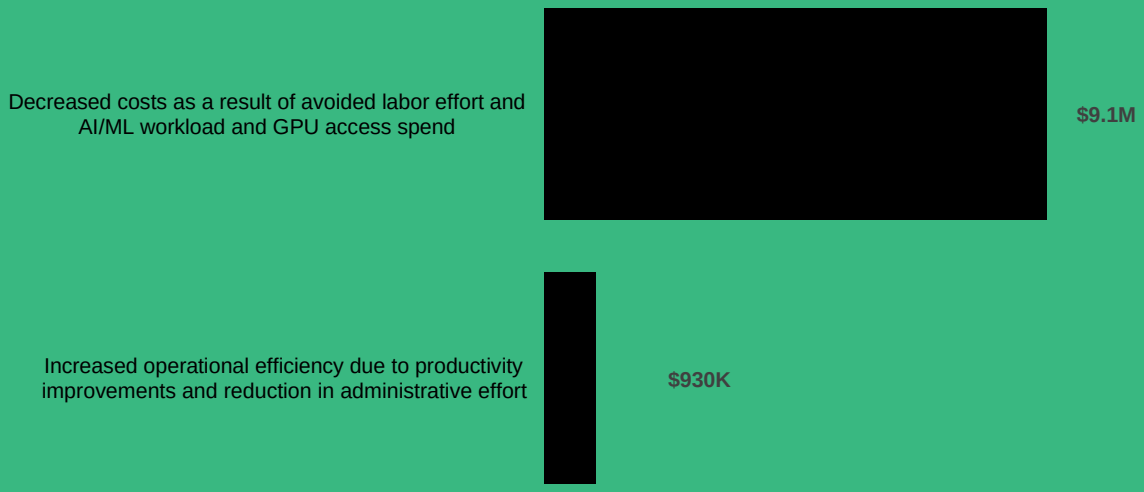
Net present value (NPV)

$6.05M

Payback

<6 months

Benefits (Three-Year)



TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in vSphere 8.

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 vSphere 8 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 ROI 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 vSphere 8.

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.

Due Diligence
Interviewed VMware stakeholders and Forrester analysts to gather data relative to vSphere 8.

Interviews
Interviewed four representatives at organizations using vSphere 8 to obtain data about costs, benefits, and risks.

Composite Organization
Designed a composite organization based on characteristics of the interviewees' 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 interviewees.

Case Study
Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, 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 vSphere 8 Customer Journey

Drivers leading to the vSphere 8 investment

Interviews				
Role	**Industry**	**Revenue**	**Region**	**Employees**
Infrastructure manager	Insurance	$5.9B	Global	10,000+
Director of technology infrastructure sector	IT services and consulting	$232M	Europe	5,000+
Technical architect	IT services and consulting	$11B	Global	10,000+
Chief information security officer	IT and business consulting	N/A	US	2,500

KEY CHALLENGES

Before implementing vSphere 8, interviewees' organizations typically relied on older versions of vSphere, such as vSphere 7, which struggled to support modern workloads like AI/ML and had limited GPU support. These limitations led to inefficient resource utilization and administrative overhead.

The interviewees noted how their organizations struggled with common challenges, including:

- **Limited support for modern workloads.** Prior versions of vSphere were not well-optimized for AI/ML workloads and had limited GPU support. This resulted in performance bottlenecks and inefficiencies because the infrastructure could not handle the demands of modern applications effectively. For example, the number of virtual GPU (vGPU) devices supported was significantly lower. This caused delays and increased complexity in managing these workloads.
- **Higher administrative overhead.** Managing and maintaining the infrastructure required significant manual intervention, leading to increased administrative

overhead. Tasks such as monitoring Secure Shell (SSH) connections and ensuring compliance with security policies were time-consuming and prone to human error. For instance, administrators had to manually check for inactive SSH sessions, which was both inefficient and risky.

- **Lower resource utilization.** The previous state involved suboptimal use of hardware resources, leading to higher operational costs. Organizations struggled with resource allocation and utilization, which affected overall performance and increased the need for additional hardware investments. This inefficiency was particularly evident in the management of GPU resources for AI/ML workloads.
- **Compliance and regulatory challenges.** Ensuring compliance with various regulations and standards was difficult with the older versions of vSphere. The lack of built-in compliance features meant that organizations had to implement additional controls and processes, which added to the complexity and cost of maintaining the infrastructure. This was especially challenging for organizations dealing with highly regulated data, such as those in the healthcare and financial sectors.

SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

The interviewees' organizations searched for a solution that could:

- **Enhance support for modern workloads.** The solution needed to provide robust support for AI/ML workloads and improved GPU support to handle the demands of modern applications effectively.
- **Reduce administrative overhead.** The solution should streamline administrative tasks, such as monitoring SSH connections and ensuring compliance with security policies, to reduce manual intervention and human error.

After a request for proposal (RFP) and business case process evaluating multiple vendors, the interviewees' organizations chose vSphere 8 and began deployment.

- Three out of four interviewees' organizations chose to take a phased approach to deployment.
- The organizations deployed vSphere 8 to between 20% and 50% of users.

- The deployment process included comprehensive training sessions to ensure all IT staff were proficient with the new features and capabilities of vSphere 8.

> "We've gone from weeks to deliver a new application down to days. If I get a request, I can deploy the application and have it ready for the business users within two days. In terms of the agility it gives me, which is one of the huge benefits of the VMware stack, it's massive."
>
> INFRASTRUCTURE MANAGER, INSURANCE

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI 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. The composite organization has the following characteristics:

Description of composite. The composite organization is a global, multibillion-dollar enterprise operating in highly regulated industries, including financial services, healthcare, and government sectors. It provides advanced AI/ML modeling, infrastructure support, and consulting services to a diverse client base, including credit unions, regional hospitals, outpatient clinics, and state and federal government agencies. With a workforce of approximately 10,000 employees, the organization has a strong presence in the United States, Canada, the United Kingdom, and Australia. It manages around 24,000 VMs, with 18,000 VMs on-premises and the remainder in the cloud. The organization is known for its robust technical expertise, particularly in AI/ML workloads, and its commitment to maintaining high security and compliance standards.

Deployment characteristics. The composite organization begins using the solution in Year 1, following a three-month planning and testing period. The initial rollout covers 50% of the on-premises VMs and focuses on high-priority workloads such as AI/ML, SQL databases, and virtual desktop infrastructure (VDI). By the end of Year 2, the deployment scales to 100% of the on-premises VMs, including all geographies and channels. The implementation includes comprehensive training for IT staff, leveraging the new features of the solution. The organization also integrates the solution with its existing servers and GPUs to optimize performance and security. The deployment process is phased: It starts with nonproduction environments and gradually moves to production workloads to ensure minimal disruption and maximum efficiency.

Key Assumptions

$4 billion revenue

10,000+ employees

24,000 virtual machines

High-priority workloads

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	Decreased costs as a result of avoided labor effort and AI/ML workload and GPU access spend	$3,664,980	$3,664,980	$3,664,980	$10,994,940	$9,114,263
Btr	Increased operational efficiency due to productivity improvements and reduction in administrative effort	$374,136	$374,136	$374,136	$1,122,408	$930,421
	Total benefits (risk-adjusted)	$4,039,116	$4,039,116	$4,039,116	$12,117,348	$10,044,684

DECREASED COSTS AS A RESULT OF AVOIDED LABOR EFFORT AND AI/ML WORKLOAD AND GPU ACCESS SPEND

Evidence and data. Interviewees highlighted that vSphere 8's enhanced GPU support and AI/ML workload optimization significantly reduced reliance on external cloud resources and manual configuration efforts. This led to substantial cost savings and improved operational efficiency across their organizations.

- The technical architect at an IT services and consulting company said, "Running AI/ML workloads on-premises with vSphere 8 instead of in the cloud reduced our GPU access costs by approximately 90%, from $1,000 per week to $100 per week per workload."
- The chief information security officer at an IT and business consulting company told Forrester, "The enhanced GPU support in vSphere 8 allowed us to avoid the high costs associated with cloud-based GPU resources, leading to a direct cost saving of around 15%."

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

- The organization previously spent $1,000 per week on AI/ML workloads.
- With vSphere 8, there is a 90% reduction in weekly AI/ML workload spend, reducing it to $100 per week.
- This results in a weekly saving of $900 per AI/ML workload.
- The organization typically runs 20 AI/ML workloads weekly, leading to an avoided annual spend of $936,000.
- The composite's GPU access spend prior to vSphere 8 was $550,000 annually.
- The vSphere 8 solution saves the composite 15% on GPU access spend, resulting an annual savings of $82,500.

Risks. The value of this benefit can vary across organizations due to the following:

- Variability in the complexity and scale of AI/ML workloads, which may affect the extent of cost savings.
- Differences in the existing IT infrastructure and the level of integration with vSphere 8, which may impact the efficiency gains.
- Potential changes in cloud service pricing or GPU hardware costs, which could influence the comparative savings.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $9.1 million.

> **90%**
>
> Reduction in GPU access costs by running AI/ML workloads on-premises with vSphere 8

> “By using vSphere 8’s device groups feature, we streamlined our AI/ML operations, which previously required extensive manual configuration and troubleshooting.”
>
> CHIEF INFORMATION SECURITY OFFICER, IT AND BUSINESS CONSULTING

Decreased Costs As A Result Of Avoided Labor Effort And AI/ML Workload And GPU Access Spend					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
A1	Number of FTEs required to manage previous vSphere deployments prior to vSphere 8	Interviews	20	20	20
A2	Percent FTEs reallocated to more value-added work	Interviews	75%	75%	75%
A3	Number of FTEs required after vSphere 8	A1*(1-A2)	5	5	5
A4	FTEs reallocated to more value-added work	A1-A3	15	15	15
A5	Average fully burdened annual salary for an IT admin FTE	Research data	$203,580	$203,580	$203,580
A6	**Subtotal: Total labor reduction**	**A4*A5**	**$3,053,700**	**$3,053,700**	**$3,053,700**
A7	Previous weekly spend on AI/ML workloads	Interviews	$1,000	$1,000	$1,000
A8	Percent reduction in weekly spend on AI/ML workloads	Interviews	90%	90%	90%
A9	Current weekly spend on AI/ML workloads	A7*(1-A8)	$100	$100	$100
A10	Weekly spend saved on AI/ML workloads	A7-A9	$900	$900	$900
A11	Typical number of weekly AI/ML workloads	Interviews	20	20	20
A12	**Subtotal: Avoided annual spend on AI/ML workloads**	**A10*A11*52**	**$936,000**	**$936,000**	**$936,000**
A13	GPU access spend prior to vSphere 8	Interviews	$550,000	$550,000	$550,000
A14	Percent savings on GPU access spend from vSphere 8	Interviews	15%	15%	15%
A15	**Subtotal: Direct cost savings on GPU access**	**A13*A14**	**$82,500**	**$82,500**	**$82,500**
At	Decreased costs as a result of avoided labor effort and AI/ML workload and GPU access spend	A6+A12+A15	$4,072,200	$4,072,200	$4,072,200
	Risk adjustment	↓10%			
Atr	Decreased costs as a result of avoided labor effort and AI/ML workload and GPU access spend (risk-adjusted)		$3,664,980	$3,664,980	$3,664,980
	Three-year total: $10,994,940			**Three-year present value: $9,114,263**	

INCREASED OPERATIONAL EFFICIENCY DUE TO PRODUCTIVITY IMPROVEMENTS AND REDUCTION IN ADMINISTRATIVE EFFORT

Evidence and data. Interviewees highlighted that vSphere 8's productivity improvements and administrative effort reductions significantly enhanced operational efficiency.

- The infrastructure manager at an insurance firm told Forrester, "With the SSH timeout feature in vSphere 8, we no longer had to manually monitor and disconnect idle sessions, which saved us approximately 30 minutes per week per admin."
- The chief information security officer at an IT and business consulting company explained, "The TPM provisioning policy in vSphere 8 eliminated the need for additional security controls during VM cloning, reducing compliance-related administrative tasks."
- The same interviewee went on to say: "A lot of the work we do is somewhat repetitive, like specific research into some MRI machine or financial modeling for a credit hedge fund. Being able to use our own GPT model is more effective."
- The same interviewee also said: "The device group feature has been a huge benefit for our DevOps team. Previously, setting up and optimizing communication I/O was very bespoke and error prone. Now, it's much more streamlined, which reduces the administrative effort required."
- The director of technology infrastructure sector at an IT services and consulting company said: "We've seen an increase in operational efficiency by about 20% because updates and VMware are now managed by the VMware Lifecycle Manager. This has saved us a lot of money and operational costs."
- The technical architect at an IT services and consulting company told Forrester: "The tasks we used to do in vSphere 7 are more simplified in vSphere 8. Admins or the infrastructure team save about 30 minutes per week on tasks like deploying VMs, adding storage, and configuring networking."

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

- The organization previously required 2 hours per incident for support.
- With productivity improvements, the composite saves 20% in support time, reducing to 1.6 hours per incident.
- This results in an avoided support time of 0.4 hours per incident.
- The fully burdened hourly rate for an FTE engineer handling incident support is $68.
- The organization handles an average of 300 incidents annually that can be reduced with AI, leading to an annual productivity improvement of $8,100.
- The organization experiences a monthly reduction in administrative overhead effort of 400 hours.
- The fully burdened hourly rate for an FTE handling administrative management is $90.

Risks. The value of this benefit can vary across organizations due to the following:

- Variability in the complexity and frequency of incidents, which may affect the extent of time savings.
- Differences in the existing IT infrastructure and the level of integration with vSphere 8, which may impact the efficiency gains.
- Potential changes in regulatory requirements or business processes, which could influence the comparative savings.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $930,000.

> **20%**
>
> Improvement in productivity due to various feature and efficiency enhancements and reduced administrative effort with vSphere 8

> "The productivity improvements and administrative effort reductions significantly enhanced our operational efficiency."
>
> CHIEF INFORMATION SECURITY OFFICER, IT AND BUSINESS CONSULTING

Increased Operational Efficiency Due To Productivity Improvements And Reduction In Administrative Effort					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
B1	Previous support time per incident (hours)	Interviews	2	2	2
B2	Percent savings in support time	Interviews	20%	20%	20%
B3	Current support time per incident (hours)	B1*(1-B2)	1.60	1.60	1.60
B4	Avoided support time per incident (hours)	B1-B3	0.40	0.40	0.40
B5	Fully burdened hourly rate for a full-time engineer handling incident support	TEI standard	$68	$68	$68
B6	Average number of incidents requiring support time that can be reduced	Composite	300	300	300
B7	**Subtotal: Annual productivity improvement**	**B4*B5*B6**	**$8,160**	**$8,160**	**$8,100**
B8	Monthly reduction in administrative overhead effort (hours)	Interviews	400	400	400
B9	Fully burdened hourly rate for an FTE handling administrative management	TEI standard	$90	$90	$90
B10	**Subtotal: Annual reduction in administrative overhead effort**	**B8*B9*12**	**$432,000**	**$432,000**	**$432,000**
Bt	Increased operational efficiency due to productivity improvements and reduction in administrative effort	B7+B10	$440,160	$440,160	$440,160
	Risk adjustment	↓15%			
Btr	Increased operational efficiency due to productivity improvements and reduction in administrative effort (risk-adjusted)		$374,136	$374,136	$374,136
	Three-year total: $1,122,408			**Three-year present value: $930,421**	

UNQUANTIFIED BENEFITS

Interviewees mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- **Enhanced security posture.** The advanced security features in vSphere 8 significantly reduced the risk of security breaches and ransomware attacks. The director of technology infrastructure sector at an IT services and consulting company said, “These features were crucial in maintaining compliance with stringent regulatory requirements, thereby enhancing our overall security posture.”
- **Increased operational flexibility.** The ability to support modern workloads allowed interviewees’ organizations to explore new business opportunities and improve their service offerings. The technical architect in the IT services and consulting sector said, “The improved GPU support and device group features enabled more efficient AI/ML processing, which was essential for our large-scale data analysis projects.”
- **Reduced administrative overhead.** The automation and streamlined processes introduced with vSphere 8, such as the Lifecycle Manager and improved VM provisioning, reduced the time and effort required for routine administrative tasks. The director, technology infrastructure sector at an IT services and consulting company said, “This allowed our IT teams to focus on more strategic initiatives, improving overall productivity and efficiency.”
- **Improved employee satisfaction.** The introduction of vSphere 8 led to more streamlined and efficient work environments, which reduced the stress and frustration associated with managing complex workloads.

20%

Increase in operational efficiency due to streamlined processes and productivity improvements with vSphere 8

FLEXIBILITY

Flexibility benefits of solutions can enable organizations to unlock new business opportunities and pursue them better, faster, or cheaper. Each customer uniquely values flexibility, often realizing additional uses and business opportunities, such as reducing barriers, enhancing agility and scalability, and adopting complementary solutions or services. There are multiple scenarios in which a customer might implement vSphere 8 and later realize additional uses and business opportunities, including:

- **Long-term strategic value.** The infrastructure manager at the insurance company told Forrester, “We expect to expand the use of vSphere 8 as we continuously modernize our legacy systems and move more workloads to the cloud, leveraging the flexibility and scalability of the platform.” The strategic value of vSphere 8 lies in its ability to support organizations’ long-term goals of modernization and cloud integration. By providing a flexible and scalable platform, vSphere 8 enables organizations to adapt to evolving business needs and technological advancements and ensure sustained growth and innovation.
- **Unlocking new business opportunities.** The director of technology infrastructure sector at an IT services and consulting firm told Forrester: “vSphere 8 enabled [our] client, a Quebec government organization, to modernize its applications and move to the cloud. This included using Tanzu for containerization and NSX for network security and performance improvements. The modernization efforts allowed the organization to start new projects that were previously challenging to initiate.”

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

> “We are looking to move to vSphere in the cloud next year. At the end of January, we hope to start moving some pilot workloads to the cloud and for that to be completed by the end of next year. We will move other workloads to the cloud at some point. We’ve learned an awful lot along the journey, and we wouldn’t have been able to do this without the flexibility of the VMware stack.”
>
> INFRASTRUCTURE MANAGER, INSURANCE

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**
Ctr	Initial implementation costs	$200,000	$0	$0	$0	$200,000	$200,000
Dtr	Annual vSphere 8 subscription fees	$0	$207,360	$207,360	$207,360	$622,080	$515,674
Etr	Annual hardware costs	$0	$915,000	$915,000	$915,000	$2,745,000	$2,275,470
Ftr	Ongoing labor and management costs	$0	$405,000	$405,000	$405,000	$1,215,000	$1,007,175
	Total costs (risk-adjusted)	$200,000	$1,527,360	$1,527,360	$1,527,360	$4,782,080	$3,998,319

INITIAL IMPLEMENTATION COSTS

Evidence and data. Interviewees generally described the implementation of vSphere 8 as straightforward and well-documented, with most of their organizations completing the upgrade within two to three months using internal resources. Costs were minimal with no significant expenses up front, and the process involved various teams, including IT, security, finance, and compliance, to ensure a smooth transition.

- The infrastructure manager at an insurance company described the implementation process as “very simple, well-trodden, and well-documented.” The upgrade took about two months and involved one full-time technician and 10% of the service owner’s time. No additional out-of-hours support was required due to the flexibility of the VMware solution.
- The director of technology infrastructure sector at an IT services and consulting company said: “The upgrade process spanned three months, with four team members working approximately 5 to 6 hours per week. No significant up-front costs were incurred because the team was familiar with the upgrade process from previous versions.”

- The chief information security officer at an IT and business consulting firm told Forrester, “The upgrade involved the executive leadership team, IT infrastructure team, security team, finance team, and legal and compliance team.” The process included planning, implementation, and testing phases, with a focus on ensuring compliance and security.

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

- The composite organization incurs initial implementation costs primarily due to technical setup, staff training, and necessary hardware upgrades.
- The organization has a moderate level of existing infrastructure, which requires partial upgrades to support the new system.
- The organization allocates a specific budget for training sessions to ensure all staff members are proficient with the new system.
- The composite organization experiences a learning curve with vSphere 8, which is factored into the initial cost estimates.
- External consultants are engaged to assist with the deployment, which adds to the initial costs.

Risks. The value of this cost can vary across organizations due to the following:

- Variability in existing infrastructure quality. Organizations with outdated systems may face higher initial costs.
- Differences in staff proficiency levels. Organizations with less tech-savvy staff may need to invest more in training.
- Unforeseen technical challenges. Unexpected issues during implementation can lead to additional costs.
- Dependency on external consultants. Relying on external consultants can increase costs if internal expertise is lacking.

Results. To account for these risks, Forrester adjusted this cost upward by 0%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $200,000.

Initial Implementation Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
C1	Initial implementation costs	Broadcom	$200,000			
Ct	Initial implementation costs	C1	$200,000	$0	$0	$0
	Risk adjustment	0%				
Ctr	Initial implementation costs (risk-adjusted)		$200,000	$0	$0	$0
	Three-year total: $200,000			**Three-year present value: $200,000**		

ANNUAL VSPHERE 8 SUBSCRIPTION FEES

Evidence and data. Annual subscription fees for vSphere 8 typically include costs for licensing and support services. Interviewees said these fees are generally consistent with previous versions, ensuring predictable budgeting for organizations.

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

- The composite organization incurs annual subscription fees for vSphere 8 based on the number of cores per processor and the total number of processors.
- The organization has a mix of dual and quad processor servers, with each processor having 24 cores.
- The per-core per-year subscription price is $120.
- The composite organization has 30 servers, with 80% being dual processor servers and 20% being quad processor servers.
- The total number of cores is calculated based on the number of processors and cores per processor.

Risks. The value of this cost can vary across organizations due to the following:

- Variability in server configurations. Organizations with different server setups may experience different subscription fees.
- Changes in subscription pricing. Future changes in pricing by Broadcom could impact the annual costs.

- Fluctuations in the number of servers and processors. Changes in the organization's infrastructure could lead to variations in subscription fees.

Results. To account for these risks, Forrester adjusted this cost upward by 0%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $516,000.

Annual vSphere 8 Subscription Fees						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
D1	Total number of servers	Composite		30	30	30
D2	Number of dual processor servers	D1*0.8		24	24	24
D3	Number of quad processors servers	D1*0.2		6	6	6
D4	Number of processors	(D2*2)+(D3*4)		72	72	72
D5	Number of cores per processor	Research data		24	24	24
D6	Total cores	D4*D5		1,728	1,728	1,728
D7	Per-core per-year subscription price for an enterprise customer	Broadcom		$120	$120	$120
Dt	Annual vSphere 8 subscription fees	D7*D6	$0	$207,360	$207,360	$207,360
	Risk adjustment	0%				
Dtr	Annual vSphere 8 subscription fees (risk-adjusted)		$0	$207,360	$207,360	$207,360
	Three-year total: $622,080		**Three-year present value: $515,674**			

ANNUAL HARDWARE COSTS

Evidence and data. Interviewees said annual hardware costs for vSphere 8 were influenced by the need for hardware refreshes to support the new version, which also led to improved efficiency and reduced expenses.

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

- The composite organization incurs annual hardware costs based on the number of servers and the associated support and storage costs.
- The organization has 30 servers, with each server costing $5,000 annually.

- The support cost is 10% of the total server cost.
- Each server has 10 TB of storage, with the cost per TB being $2,500.
- The total annual hardware costs include the cost of servers, support, and storage.

Risks. The value of this cost can vary across organizations due to the following:

- Variability in hardware configurations. Organizations with different hardware setups may experience different costs.
- Changes in hardware pricing. Future changes in pricing by hardware vendors could impact the annual costs.
- Fluctuations in the number of servers and storage requirements. Changes in the organization's infrastructure could lead to variations in hardware costs.

Results. To account for these risks, Forrester adjusted this cost upward by 0%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $2.3 million.

Annual Hardware Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
E1	Cost per server	Research data		$5,000	$5,000	$5,000
E2	Number of servers	D1		30	30	30
E3	**Subtotal: Annual cost of servers**	**E1*E2**		**$150,000**	**$150,000**	**$150,000**
E4	Support cost (as percentage of total server cost)	Broadcom		10%	10%	10%
E5	**Subtotal: Annual support cost**	**E3*E4**		**$15,000**	**$15,000**	**$15,000**
E6	TB per server	Research data		10	10	10
E7	TB of storage	E2*E6		300	300	300
E8	Cost per TB	Broadcom		$2,500	$2,500	$2,500
E9	**Subtotal: Annual cost of storage**	**E7*E8**		**$750,000**	**$750,000**	**$750,000**
Et	Annual hardware costs	E3+E5+E9	$0	$915,000	$915,000	$915,000
	Risk adjustment	0%				
Etr	Annual hardware costs (risk-adjusted)		$0	$915,000	$915,000	$915,000
	Three-year total: $2,745,000			**Three-year present value: $2,275,470**		

ONGOING LABOR AND MANAGEMENT COSTS

Evidence and data. Interviewees told Forrester that their organizations incur ongoing labor and management costs for vSphere 8 that require FTEs to manage the deployment.

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

- The composite organization incurs ongoing labor and management costs based on the number of FTEs required to manage the infrastructure.
- The organization reduces the number of FTEs from 20 to five, resulting in significant cost savings.
- The ongoing labor and management costs are $100,000 per year.

Risks. The value of this cost can vary across organizations due to the following:

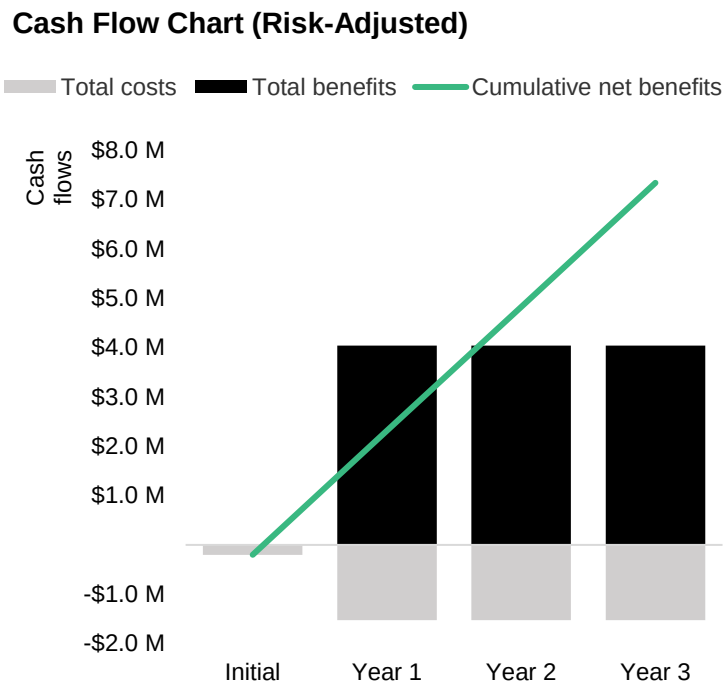
- Variability in labor costs. Organizations with different labor rates may experience different costs.
- Changes in staffing requirements. Future changes in the organization's infrastructure could impact the number of FTEs required.
- Fluctuations in management overhead. Changes in management practices could lead to variations in labor and management costs.

Results. To account for these risks, Forrester adjusted this cost upward by 0%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $1 million.

Ongoing Labor And Management Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	Number of VI admin FTEs	Broadcom		2	2	2
F2	Fully burdened annual salary for a VI admin	Research data		$202,500	$202,500	$202,500
Ft	Ongoing labor and management costs	F1*F2	$0	$405,000	$405,000	$405,000
	Risk adjustment	0%				
Ftr	Ongoing labor and management costs (risk-adjusted)		$0	$405,000	$405,000	$405,000
	Three-year total: $1,215,000			**Three-year present value: $1,007,175**		

Financial Summary

Consolidated Three-Year Risk-Adjusted Metrics



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 Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($200,000)	($1,527,360)	($1,527,360)	($1,527,360)	($4,782,080)	($3,998,319)
Total benefits	$0	$4,039,116	$4,039,116	$4,039,116	$12,117,348	$10,044,684
Net benefits	($200,000)	$2,511,756	$2,511,756	$2,511,756	$7,335,268	$6,046,365
ROI						151%
Payback						<6 months

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."

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.

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.

APPENDIX B: ENDNOTES

[1] 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.

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