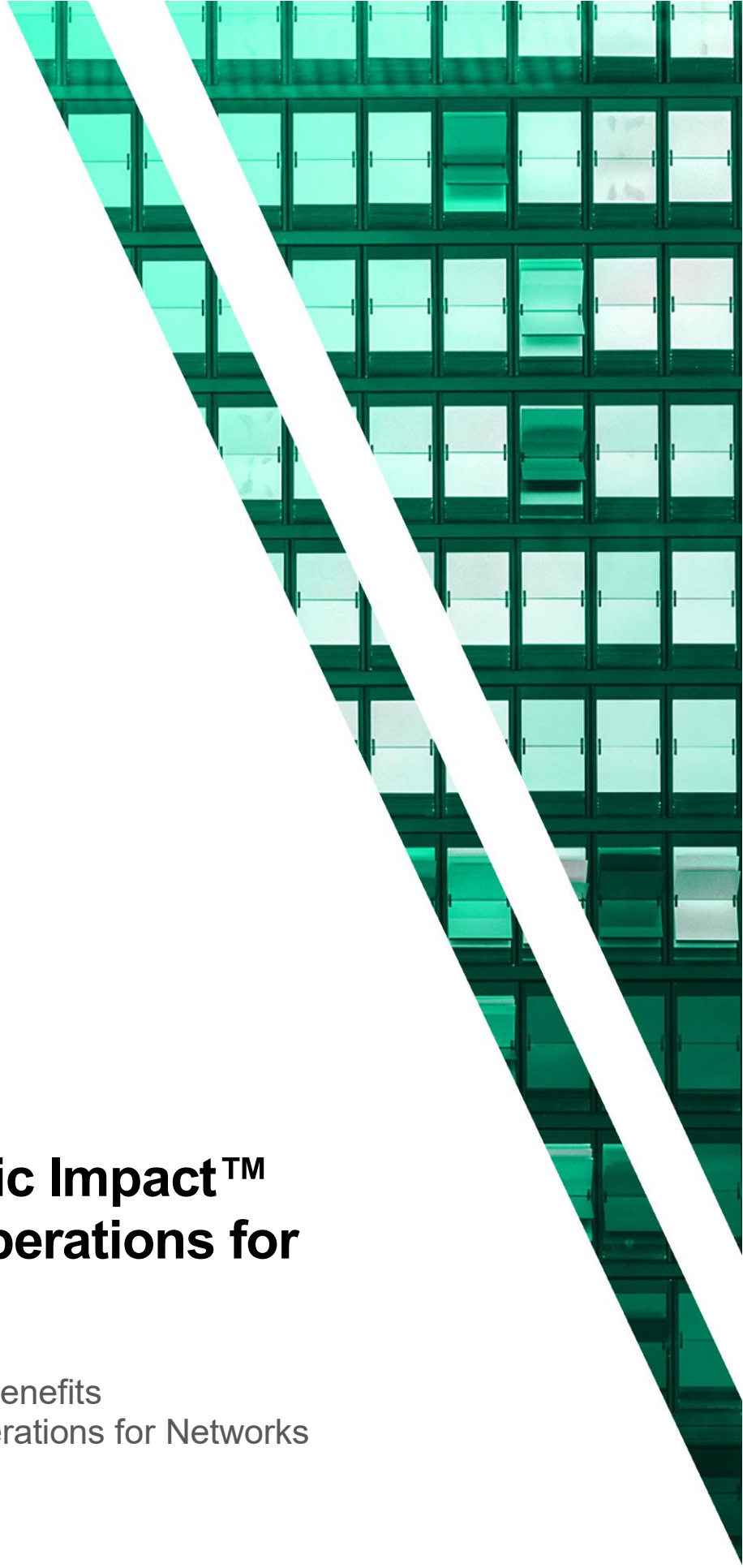
FORRESTER®



The Total Economic Impact™ Of VMware Aria Operations for Networks

Cost Savings And Business Benefits
Enabled By VMware Aria Operations for Networks

MARCH 2022

Table Of Contents

Executive Summary 1

The VMware Aria Operations for Networks Customer Journey 6

Key Challenges 6

Composite Organization 7

Analysis Of Benefits 8

Increased Network Mapping Efficiency 8

Decreased Network Outages 10

Reduced Time Spent Monitoring Network 11

Improved Troubleshooting 12

Unquantified Benefits 14

Flexibility 15

Analysis Of Costs 16

License And Support 16

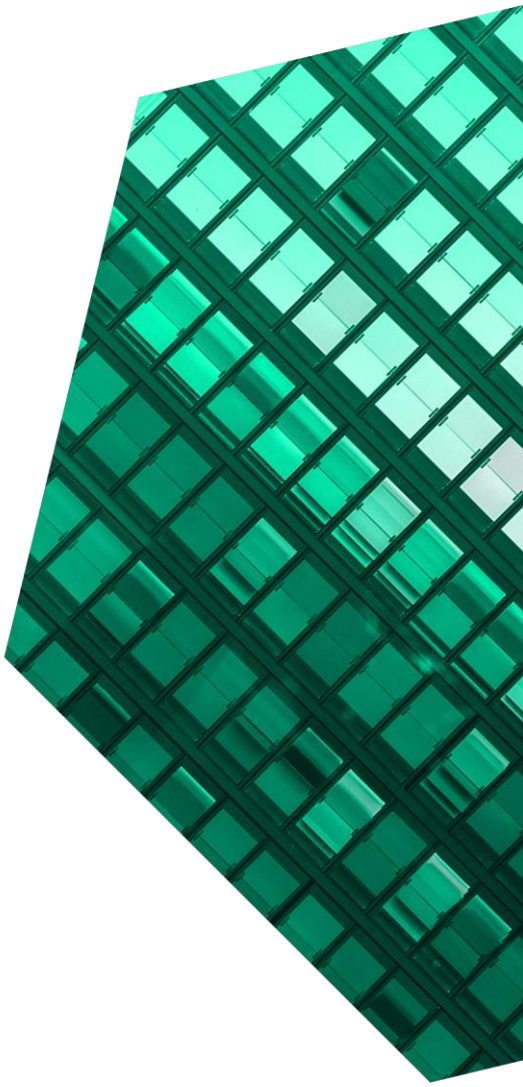
Onboarding And Ongoing Training 17

Financial Summary 19

Appendix A: Total Economic Impact 20

Appendix B: Endnotes 21

Consultant: Leigh Greene



Executive Summary

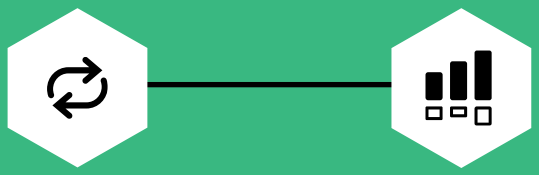
Managing a complex and ever-growing network requires a high degree of visibility into what changes and communications are occurring. Network engineers and administrators cannot strengthen, secure, and scale a network that they cannot see. VMware Aria Operations for Networks monitors and maps overall network topology to help organizations become less reactive and more forward-looking in their network management capabilities.

VMware Aria Operations for Networks (formerly VMware vRealize Network Insight) helps organizations gain end-to-end visibility across their public cloud, virtual, and physical networks. This increased visibility allows their customers to become more efficient in monitoring, optimizing, and securing network infrastructure across multi-cloud environments. Facilitating activities such as application discovery, cloud migration, troubleshooting, and network segmentation planning, VMware Aria Operations for Networks decreases the manual processes typically involved when managing and scaling an organization's network. VMware Aria Operations for Networks is available as an on-premises deployment or a software-as-a-service (SaaS) offering. The features and capabilities of each deployment type are the same.

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 VMware Aria Operations for Networks.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of VMware Aria Operations for Networks on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four decision-makers with experience using VMware Aria Operations for Networks. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization.

KEY STATISTICS



Return on investment (ROI)
379%

Net present value (NPV)
$3.05M

Prior to using VMware Aria Operations for Networks, interviewees said that they struggled to understand how various parts of their network were "talking" to one another, which made segmentation planning and firewall rule creation difficult. Gaining this type of network visibility demanded many hours of work, and even after much time and effort often yielded questionably accurate results. Troubleshooting network issues was also a challenge, since it was hard to pinpoint where a given issue was occurring within the network.

After the investment in VMware Aria Operations for Networks, the interviewees cited how the overall improvement in network visibility — including visibility on NSX, VMware Cloud, and virtual and physical networks — helped them to become proactive in consolidating and streamlining their network infrastructure. Notable improvements in time-to-

"The app discovery and using that for segmentation was the primary reason that we got into [VMware Aria Operations for Networks] to start with."
IT infrastructure and security manager, chemical

resolution and troubleshooting were identified as key benefits of VMware Aria Operations for Networks.

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits include:

- **Increased network mapping efficiency by as much as 90%.** Before implementing VMware Aria Operations for Networks, interviewees spent a lot of time creating virtual machine (VM) topology to understand what was happening within their network. When interviewees used VMware Aria Operations for Networks to visualize network connections with flow mapping, they were able to significantly reduce the time needed to create affinity diagrams, which in turn helped them to proactively address issues or security vulnerabilities.
- **Reduced time spent monitoring their network by over 80%.** Interviewees discussed the need to monitor their network for a variety of reasons — to optimize performance, understand application dependencies, improve security, and maintain compliance standards. By cutting down on the amount of effort needed for these activities, VMware Aria Operations for Networks helped these organizations to save valuable time for their network engineers and administrators.
- **Decreased network outages by as much as 50%.** Interviewees discussed how VMware Aria Operations for Networks helped them to reduce outages. Those interviewees with segments of their network dedicated to production commented on how even a small outage for a few minutes' time could have large dollar ramifications if a manufacturing connection was being impacted. With VMware Aria Operations for Networks, organizations were able to improve the performance of their network and decrease outages.
- **Improved troubleshooting, which leads to faster resolution.** Identifying where a given network issue is occurring is often half the battle when it comes to troubleshooting. Interviewees said that VMware Aria Operations for Networks helped them root out issues quickly, cutting down on the time network engineers spent diagnosing problems by pinpointing the source of the network issue for a faster resolution.

Unquantified benefits. Benefits that are not quantified for this study include:

- **Improved efficiency with cloud migration.** Through mapping, application discovery, and an overall improved understanding of their network,

"Enablement of digital transformation is huge for us right now. We are working to digitally transform our infrastructure as a whole, whether it's virtual infrastructure, cloud infrastructure, or VMware services on the cloud. We are moving toward a 100% digital enterprise, and this product facilitates that."
Network administrator and engineer, aviation

interviewees' organizations were able to migrate portions of their networks to the cloud in a smart and efficient way.

- **Decreased the siloed nature of network management.** Interviewees said that by providing visibility across different types of cloud environments, VMware Aria Operations for Networks unified their disparate IT groups under a common network view. The platform gives users the ability to understand network overlaps and commonalities, and allows for equity in network visibility — executives, managers, and engineers can all have access to the data within VMware Aria Operations for Networks.
- **Forged a strong partnership with VMware.** Interviewees' organizations have taken advantage of VMware's openness to receiving feedback and engaging in a dialogue about customer challenges, product capabilities, and roadmaps for future product updates.

Costs. Risk-adjusted PV costs include:

- **License and support costs totaling $790,000.** The licensing costs for the SaaS offering of VMware Aria Operations for Networks is based on the number of CPUs. Support and service costs are bundled into their overall license fees, and many interviewees spoke about how they bundled VMware Aria Operations for Networks along with other VMware products. Operating costs are much lower for the SaaS deployment when compared to the on-premises version, since the cloud offering decreases (and in some cases eliminates) those costs associated with maintaining servers, providing power, and upgrading to new versions of the platform.
- **Onboarding and ongoing training costs totaling $15,000.** Onboarding and training costs represent a small piece of the total VMware Aria Operations for Networks cost structure. For interviewees' organizations, the ramp-up time needed to get accustomed to the platform was not a huge hurdle; however, there are still some costs associated with these initial training efforts. Interviewees sought ongoing training or support from the VMware team, which only costs those organizations for employee time (since support costs are bundled together with license fees).

"It's all about visibility. A lot of the time, when you're dealing with a complex network, you don't necessarily have a ton of visibility. But now we do. We're able to run a query and say, 'Hey, why can't this device talk to this device?'"
IT infrastructure and security manager, chemical

The decision-maker interviews and financial analysis found that a composite organization experiences benefits of $3.86 million over three years versus costs of $806,000, adding up to a net present value (NPV) of $3.05 million and an ROI of 379%.

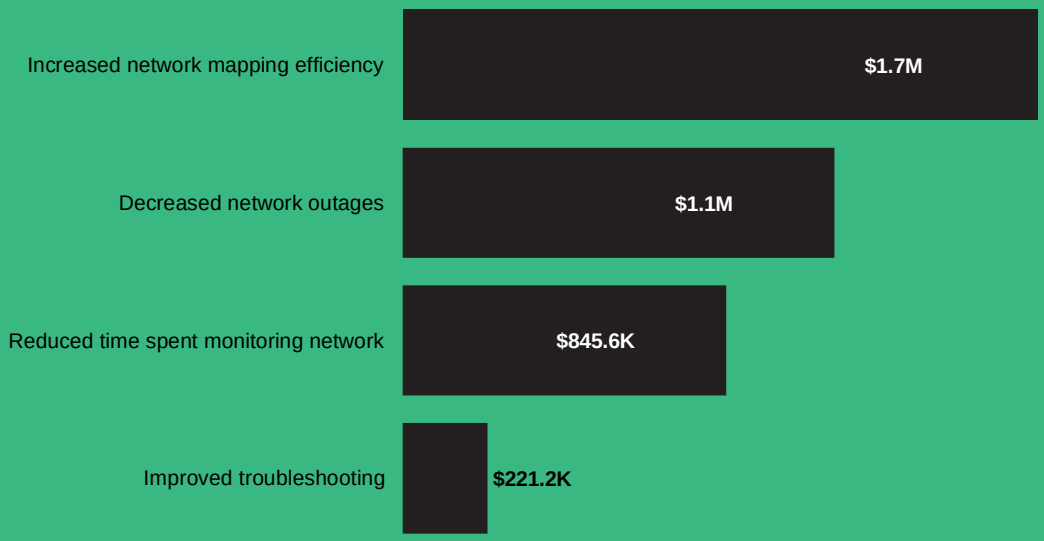
ROI
379%

BENEFITS PV
$3.86M

NPV
$3.05M

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 VMware Aria Operations for Networks.

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 VMware Aria Operations for Networks can have on an organization.

DUE DILIGENCE

Interviewed VMware stakeholders and Forrester analysts to gather data relative to VMware Aria Operations for Networks.

DECISION-MAKER INTERVIEWS

Interviewed four decision-makers at organizations using VMware Aria Operations for Networks to obtain data with respect to 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 decision-makers.

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 Aria Operations for Networks Customer Journey

Drivers leading to the VMware Aria Operations for Networks investment

Interviewed Decision-Makers

Interviewee	Industry	Region	Markets Served
Network engineer	Insurance	North America	North America
IT infrastructure and security manager	Chemical	North America	Global
Network administrator and engineer	Aviation	North America	Global
Lead IT architecture analyst	Healthcare	North America	North America

KEY CHALLENGES

One of the primary reasons that interviewed decision-makers invested in VMware Aria Operations for Networks was to gain end-to-end visibility into their network. Interviewees also cited security as another big driver for their VMware Aria Operations for Networks investment. These companies wanted to take a proactive posture with their security protocols, using network segmentation to help define firewall rules, and avoid being the next ransomware headline.

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

- **Gaining a holistic view of their complex network.** A network administrator and engineer from an aviation company described this challenge, saying: “The biggest pain point for us is physical-to-virtual interfacing. Our physical infrastructure is pretty huge worldwide, especially when you layer on our virtual component; we needed a tool that could bridge that gap and provide visibility there.” With the increasingly dynamic application landscape, interviewed decision-makers needed a platform that would help administrators get a better view of application boundaries and dependences, which would help them plan and prepare for cloud migrations and other projects.
- **Improving security planning with network segmentation.** Interviewees discussed security planning as another key challenge they had before implementing VMware Aria Operations for Networks. Without a network monitoring tool in place, especially one with segmentation capabilities, the interviewees said they struggled to outline what VMs make up an application and how certain devices communicate with other devices and parts of the network. They wanted a tool that would allow them to proactively address security concerns by automatically recommending firewall rules and staying ahead of any issues.

“We were looking for a tool that could give everybody the same visibility — not just a network tool. [VMware Aria Operations for Networks] is about providing visibility into the entire infrastructure and then letting people add in whatever way that they need — whether it’s through a device, a network-switch, a load balancer, or a firewall perspective.”
Lead IT architecture analyst, healthcare

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and a ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four decision-makers that Forrester interviewed and 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 large, global manufacturing company headquartered in the United States, with factories and production facilities across the globe, and an annual revenue of $1 billion. The composite organization has an expansive network, with 3,000 virtual machines, 150 hosts, and three data centers.

Since a large portion of its network is dedicated to manufacturing, even a small network outage or disruption can have a big impact on the composite organization's production line and, therefore, its bottom line. There is a team of six network engineers employed by the composite organization that actively utilizes the VMware Aria Operations for Networks platform on a weekly basis to keep tabs on the dynamic changes occurring within the network.

Deployment characteristics. The composite organization has global operations and a complex network to monitor and manage. It has the SaaS deployment of VMware Aria Operations for Networks. On average, the number of VMs in the network grows by 20% year over year, while number of hosts increases by 5% on an annual basis.

Key assumptions

- **$1 billion revenue**
- **3,000 VMs**
- **6 active users**
- **SaaS deployment**

"One of the most valuable assets of [VMware Aria Operations for Networks] is the ability to understand the virtualized environment that isn't within your control. Our environment is so large, expanding and changing constantly, and I didn't have a 100% view of what was happening everywhere. But [the platform] gives me the ability to see when things happen and then start to manage it and react to it."

— Network administrator and engineer, aviation

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	Increased network mapping efficiency	$1,323,000	$264,600	$317,520	$1,905,120	$1,659,962
Btr	Decreased network outages	$357,000	$510,000	$510,000	$1,377,000	$1,129,204
Ctr	Reduced time spent monitoring network	$283,500	$340,200	$408,240	$1,031,940	$845,601
Dtr	Improved troubleshooting	$68,040	$89,775	$113,400	$271,215	$221,248
	Total benefits (risk-adjusted)	$2,031,540	$1,204,575	$1,349,160	$4,585,275	$3,856,015

INCREASED NETWORK MAPPING EFFICIENCY

Evidence and data. The increased network mapping efficiency benefit had a large impact on ROI, and also helped interviewees' organizations to expediently lay the foundation for their network monitoring activities.

- Interviewees emphasized that without any software tool in place, it was a very time-consuming, manual process to map network flows, understand VM relationships, and visualize VM activity across the network.
- Manual network mapping is not only tedious, but it also runs a high risk of being inaccurate. A network engineer from an insurance company said that, even after going through all of that manual work, "our information still wouldn't have been accurate. It would still require us to do a lot of firewall log review and network log review and then probably a lot of time spent working on resolving incidents because the information would've been wrong."
- As the interviewees discussed, the ability to do the upfront flow mapping work in an efficient, effective, and reliable way was what enabled them to take advantage of the other capabilities within VMware Aria Operations for Networks.

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The network mapping process takes the composite organization roughly three to four months to complete in Year 1. Since this is one of the first steps the composite organization must take in order to reap the other benefits of VMware Aria Operations for Networks, it is reflected in other Year 1 benefits discussed in the study, which are modified.

"To have had to manually go through and work with all of these developers to map out the flows or understand how to use firewall logs … I can't even begin to imagine how many hundreds of hours per month that we would've been putting into that if not for [VMware Aria Operations for Networks]."
Network engineer, insurance

- Because network topology is dynamic, the number of VMs within the composite organization starts at 3,000 in Year 1 and increases by 20% year over year.

Risks. The following risks can potentially impact the increased network mapping efficiency benefit:

- The estimated amount of time spent doing network mapping manually could vary based on the amount of previous mapping work done and other variables that impact the complexity of this task, such as the types of network environments included, the number of applications within the network, or the number of cloud vendors used by the composite organization, to name a few.
- A 20% year over year growth rate was assumed for the composite organization's network, but this growth rate could vary based on the company or other factors related to the organization's network.

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 $1.7 million.

Increased Network Mapping Efficiency

Ref.	Metric	Source	Year 1	Year 2	Year 3
A1	Number of virtual machines (VMs) in network	Composite	3,000	3,600	4,320
A2	Number of VMs actively mapping	Composite	3,000	600	720
A3	Network engineer FTE fully burdened (hourly compensation)	Research	$70	$70	$70
A4	Hours per VM needed for flow mapping without vRNI	Interviews	9	9	9
A5	Hours per VM for flow mapping using vRNI	Interviews	2	2	2
At	Increased network mapping efficiency	A2*A3*(A4-A5)	$1,470,000	$294,000	$352,800
	Risk adjustment	↓10%			
Atr	Increased network mapping efficiency (risk-adjusted)		$1,323,000	$264,600	$317,520
	Three-year total: $1,905,120			**Three-year present value: $1,659,962**	

DECREASED NETWORK OUTAGES

Evidence and data. Interviewees talked about how VMware Aria Operations for Networks helped them to improve their network performance, in some cases helping to reduce network issues by 50% within data center network fabrics and between VMs in the virtual network, such as communication between two VMs on the same server.

- A network administrator and engineer from an aviation company described the following use case: "Prior to [VMware Aria Operations for Networks], there were outages that were mistagged. Sometimes things were tagged as physical outages when really, they were virtual outages, and vice versa. So, not only does the platform help us to get to the right domain more quickly, but it also helps to accurately reflect where the outages are happening so that we can direct our spend to mitigate future outages."
- On top of the time savings that VMware Aria Operations for Networks helped to achieve with automating a lot of the flow mapping, app discovery, and segmentation activities described in earlier benefits, interviewees' organizations also achieved notable performance improvements in doing these tasks with VMware Aria Operations for Networks, which helped to decrease outage frequency and improve network functioning and reliability.

"A small outage to me is something that's down for a few minutes. But even a small outage has a huge ramification as far as dollars and value are associated with it."
Network engineer and administrator, aviation

Modeling and assumptions. For the analysis, Forrester assumes the following:

- Given its size and position as a manufacturing company, the composite organization experiences approximately 80 hours of outages in various pieces of the network throughout each year, costing $300,000 for each hour of the outage.
- The 5% figure was used to represent the portion of outages that occur in the data center segment of the network, relative to the entire network that connects all pieces of the business together — such as the local area network in the campus and branch locations, along with wide area network (WAN). This 5% is what would likely be impacted by VMware Aria Operations for Networks.
- This benefit models out the financial impact of the outage itself and does not include time savings that engineering teams receive through faster troubleshooting.
- The 35% reduction in outages in Year 1 is incorporating the first four months of the year when network mapping project is underway, and the composite is not yet able to see the outage reduction benefit from the platform.

Risks. The following risks can potentially impact VMware Aria Operations for Networks' ability to decrease network outages:

- If the composite organization was in another industry that did not include any manufacturing components within its network (for example, a services company), the cost per hour of each network outage instance could potentially be lower than $300,000.
- The percent of outages affected by VMware Aria Operations for Networks could vary from the 5%, depending on how the network is structured and

how the composite organization makes improvements to the network, based on the visibility that VMware Aria Operations for Networks provides and potential flow and traffic issues that the platform may uncover.

- The composite organization could experience fewer than 80 hours of network outages each year, which would also impact the financials.

Results. To account for these risks, Forrester adjusted this benefit downward by 15%, yielding a three-year, risk-adjusted total PV of $1.1 million.

Decreased Network Outages

Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Total hours of unplanned network outages per year	Interviews	80	80	80
B2	Cost per hour of network downtime	Interviews	$300,000	$300,000	$300,000
B3	Percent of relevant network outages	Interviews	5%	5%	5%
B4	Outage reduction after implementation	Interviews	35%	50%	50%
Bt	Decreased network outages	B1*B2*B3*B4	$420,000	$600,000	$600,000
	Risk adjustment	↓15%			
Btr	Decreased network outages (risk-adjusted)		$357,000	$510,000	$510,000
	Three-year total: $1,377,000			**Three-year present value: $1,129,204**	

REDUCED TIME SPENT MONITORING NETWORK

Evidence and data. Interviewees saw a reduction in time spent monitoring network infrastructure after implementing and doing flow mapping with VMware Aria Operations for Networks. These time savings also had a significant ROI impact.

- Interviewed decision-makers commonly used VMware Aria Operations for Networks' application discovery and segmentation capabilities to define network policies and firewall rules. The newly added policies helped to improve network security and boost performance. An IT infrastructure and security manager from a chemical company explained their use case: "[VMware Aria Operations for Networks] has a very smart app discovery method where it can parse out from the name of the machine what application and what tier it is. So, in the places we ran that, we're now able to tier our applications and if a new server gets spun up in the web tier for example, it automatically gets brought into that tier in the application discovery consult and we're able to classify the traffic and then put that into the firewall rules and NSX."
- Automating this classification and segmentation process saved time and allowed network engineering teams at the interviewees' organizations to become more proactive. One common way this was utilized was being able to quickly isolate development servers from production servers without having to go through tedious manual processes. This segmentation would help reduce the potential for human error.

- Interviewees discussed the headcount that was saved through network segmentation with VMware Aria Operations for Networks. In some cases, they estimated that they would have had to hire one or two engineers if they hadn't had VMware Aria Operations for Networks to solve critical segmentation and segregation tasks.

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The composite organization begins Year 1 with 3,000 VMs, and that grows by an assumed 20% year over year.
- The fully burdened hourly compensation for network engineers is $70 per employee.

Risks. The following risks can potentially impact the reduced time spent monitoring network benefit:

- There could be a range of time saved by using VMware Aria Operations for Networks for network monitoring activities, depending on how complex the composite organization's network is.
- As also mentioned in the Increased Network Mapping Efficiency benefit, the network's 20% year over year growth rate was assumed for the composite organization's network. However, this growth rate could vary based on the type of company and the characteristics of the network itself.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $846,000.

Reduced Time Spent Monitoring Network

Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Number of VMs in network	Composite	3,000	3,600	4,320
C2	Network engineer FTE fully burdened (hourly compensation)	TEI standard	$70	$70	$70
C3	Average hours per VM needed for ongoing monitoring before implementation	Interviews	2	2	2
C4	Average hours per VM needed for ongoing monitoring after implementation	Interviews	0.5	0.5	0.5
Ct	Reduced time spent monitoring network	C1*C2*(C3-C4)	$315,000	$378,000	$453,600
	Risk adjustment	↓10%			
Ctr	Reduced time spent monitoring network (risk-adjusted)		$283,500	$340,200	$408,240
	Three-year total: $1,031,940		**Three-year present value: $845,601**		

IMPROVED TROUBLESHOOTING

Evidence and data. While this benefit represents the smallest benefit financially, improved troubleshooting was one of the interviewees' most commonly discussed topics.

- The network engineer from the insurance company summarized a typical troubleshooting experience with VMware Aria Operations for Networks, which was echoed by other interviewees: "I was once pulled in late in the game on an incident where one of our most critical applications was just not working. A team of about 20 of our developers and operations engineers had been trying to figure it out for 6 to 7 hours. So, I popped my head into the room and

said, 'Hey give me this information.' Within 15 minutes, I could identify exactly where the problem was, and then had it fixed within the hour."

- The troubleshooting benefits of VMware Aria Operations for Networks don't apply only to the biggest network issues. The IT infrastructure and security manager at a chemical company describes one of these smaller, but more frequent issues: "I have an alert set up on work station networks where if it sees a printer traffic across the work station subnets, I know that one of the help desk guys or printer technicians has put a printer on the wrong subnet. Within 3 minutes, I'm able to call him and say, 'Hey you need to fix this.'"
- Interviewees also saw notable reductions in the time it takes to uncover issues and route them to the problem-solver. When interviewees tracked these figures pre- and post-implementation, resolution time was reduced by as much as 90%.

Modeling and assumptions. For the analysis, Forrester assumes the following:

- Using VMware Aria Operations for Networks to troubleshoot, the composite organization is able to cut down its hours by 90% in Years 2 and 3. The 70% reduction in Year 1 accounts for the fact that network mapping isn't complete until three to four months into the year.
- The number of hours spent troubleshooting increases year over year to account for the fact that the composite organization's network itself is expanding and growing in complexity.

Risks. The following risks can potentially impact VMware Aria Operations for Networks' ability to improve troubleshooting:

- The previous number of hours spent troubleshooting could vary depending on the nature of the network environment and the overall level of complexity.
- Similarly, the number of hours spent troubleshooting (after implementation) could vary depending on the amount of work done to segment and strengthen the network.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $221,000.

Improved Troubleshooting

Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Hours spent troubleshooting, before implementation	Interviews	1,800	1,900	2,000
D2	Hours spent troubleshooting, after implementation	Interviews	720	475	200
D3	Annual hours saved using vRNI to identify network issues	D1-D2	1,080	1,425	1,800
D4	Network engineer FTE fully burdened (hourly compensation)	TEI standard	$70	$70	$70
Dt	Improved troubleshooting	D3*D4	$75,600	$99,750	$126,000
	Risk adjustment	↓10%			
Dtr	Improved troubleshooting (risk-adjusted)		$68,040	$89,775	$113,400
	Three-year total: $271,215		**Three-year present value: $221,248**		

UNQUANTIFIED BENEFITS

Additional benefits that customers experienced but were not able to quantify include:

- **Enabled digitization and cloud migration.** Interviewees spoke about how their work in VMware Aria Operations for Networks helped to streamline their network in many places, including cloud migrations. By gaining visibility into their network infrastructure, defining application boundaries, and improving understanding of network connections, interviewed decision-makers were able to make progress in their digitization efforts and cloud migration projects.
- **Broke down siloes and promoted collaboration.** Interviewees discussed how VMware Aria Operations for Networks helped break down the siloed nature of their previous technical team structure. The lead IT architecture analyst from a healthcare company described this before state: "Back in the day, we were a very traditional big data center, managed service kind of infrastructure. We were very siloed — network, storage, security, and compliance all in these nice, neat little silos that weren't good at talking to each other." After implementation, interviewed decision-makers found that VMware Aria Operations for Networks helped to break down these barriers by facilitating overall network visibility and communication between distinct groups.
- **Collaborated between vendor and customer.** Interviewees commented on the partnership that they had with VMware, and how they find great value in working so closely with the VMware Aria Operations for Networks team. A network engineer from an insurance company had this to say about their company's VMware partnership: "The [VMware Aria Operations for Networks] team is extremely responsive. From the beginning, they partner you up with their developers to ask questions. They're consistently reaching out to you as a customer to get your feedback as to where they should grow and change the application, which has been pretty powerful."

While these unquantified benefits aren't incorporated into the overall financial model and ROI projections for the composite organization, VMware Aria Operations for Networks customers spoke about these benefits during the interviews, and Forrester includes these descriptions to add context.

"Through flow analysis, [VMware Aria Operations for Network] helps to identify the applications that we can move quickly — like the low hanging fruit — and it helps to do dependency mapping to understand where the flows of traffic are going over our network and out of that data center. This is all crucial in helping to transition those workloads to the cloud or even to an on-prem virtualized VMware Cloud."
Network engineer and administrator, aviation

FLEXIBILITY

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

- **Expanding platform adoption to include more users.** Interviewees talked about how VMware Aria Operations for Networks helped them break down silos and barriers within their organizations, and many wanted to build upon those efforts by giving even more people access to the platform — such as developers, help desk technicians, and other technical teams who could benefit from this network visibility.
- **Continuing to virtualize the network.** Interviewees spoke about continuing and expanding upon current projects to migrate parts of their network to the cloud and build up their digital network infrastructure. They hope to take advantage of VMware Aria Operations for Networks' capabilities — including new features in VMware's product roadmap, such as VMware Aria Operations for Networks Universal, that would facilitate cloud visibility even further — in order to streamline processes and optimize capacity as much as possible going forward.

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

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**
Etr	License and support	$0	$773,619	$38,084	$74,089	$885,793	$790,429
Ftr	Onboarding and ongoing training	$7,832	$2,937	$2,937	$2,937	$16,643	$15,136
	Total costs (risk-adjusted)	$7,832	$776,556	$41,021	$77,026	$902,436	$805,565

LICENSE AND SUPPORT

Evidence and data. Data around license and support costs was gathered from the interviews and adapted to the size and nature of the composite organization.

- The three-year license fee is the same for both deployments of VMware Aria Operations for Networks, the on-premises deployment and the SaaS deployment (formerly known as vRealize Network Insight Cloud).
- The license fees are based on the number of CPUs and can be paid upfront or through monthly installments. These costs are reevaluated each year to account for network growth.
- License and support costs are often bundled together with other VMware products.

Modeling and assumptions. For the analysis, Forrester assumes the following:

- The license fee for the composite organization to utilize VMware Aria Operations for Networks is designed for an organization with 3,000 VMs, 150 hosts, and two CPUs per host.
- The 150 hosts supporting the network increase by a factor of 5% year over year. This is to account for the overall network growth and expansion. Forrester did not select a 20% growth rate for hosts (which was the growth rate determined for VMs), since there is an assumption that hosts increase their efficiency over time.
- The operating costs for the on-premises version of the platform would be higher than those represented here for the SaaS deployment of VMware Aria Operations for Networks, which is what the composite utilizes.

Risks. The following risks can potentially impact license and support costs:

- Support costs could vary based on the type of deployment.
- License fees could further increase if the network experiences more growth.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $790,000.

License And Support						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
E1	Number of hosts	Composite		150	7	14
E2	Number of CPU licenses needed per host	Composite		2	2	2
E3	Price per CPU (36-month commitment)	Composite		$2,338	$2,338	$2,338
E4	Total VMware Aria Operations for Networks cost (including support)	E1*E2*E3		$701,400	$32,732	$65,464
E5	Operating costs for VMware Aria Operations for Networks	Interviews		$1,890	$1,890	$1,890
Et	License and support	E4+E5	$0	$703,290	$34,622	$67,354
	Risk adjustment	↑10%				
Etr	License and support (risk-adjusted)		$0	$773,619	$38,084	$74,089
	Three-year total: $885,793			**Three-year present value: $790,429**		

ONBOARDING AND ONGOING TRAINING

Evidence and data. Interviewees gave feedback around what onboarding and ongoing training costs were. This data informed the cost structure for the composite organization.

- Based on the interviewees' experiences, initial onboarding and ramp-up on VMware Aria Operations for Networks didn't take much time. The network engineer from the insurance company characterized this experience in the following way: "We spent a couple of days working on some API-based scripts to pull all of our application definitions in. At that point that technology didn't exist, but it does now. Overall, it was very minimal time, and we did not require any outside assistance. It was pretty much aligned, and we were able to run the security reports within the same day."
- As discussed in the Unquantified Benefits section, interviewees often spoke about the strength of their partnership with VMware as another benefit of implementing VMware Aria Operations for Networks. Most of the companies interviewed received prompt support from the VMware team when needed. The amount of ongoing support was varied among the interviewees' organizations.

Modeling and assumptions. For the analysis, Forrester assumes the following:

- Two work days (16 hours) are allocated for the initial onboarding phase for the six active VMware Aria Operations for Networks users that the composite organization has.
- For each of the six active VMware Aria Operations for Networks users at the composite organization, 6 hours of support and ongoing training time are allocated for Years 1, 2, and 3.

Risks. The following risks can potentially impact onboarding and training costs:

- Initial training and onboarding could take more or less time depending on the number of users and the complexity of the network.

- The individuals at the composite organization could potentially need fewer than 6 hours of support each year.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $15,000.

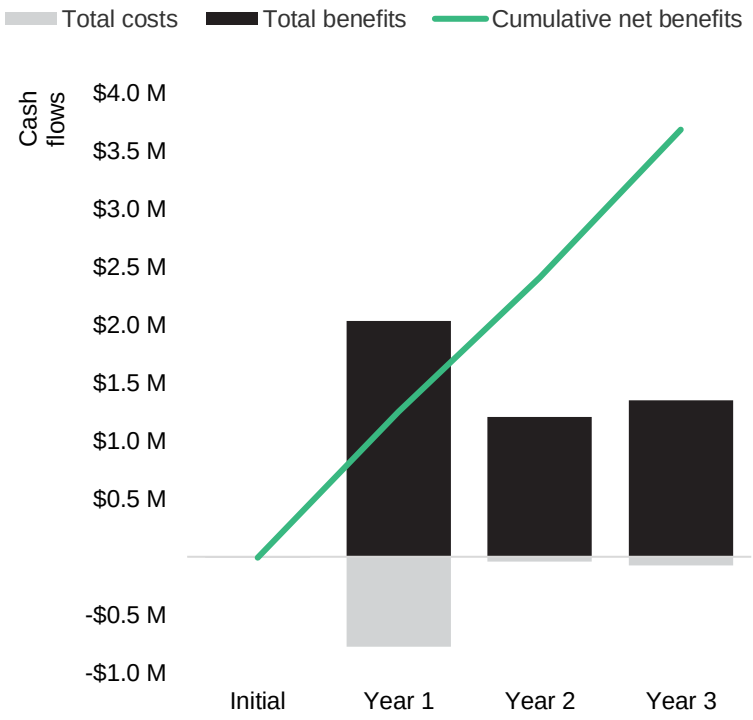
Onboarding And Ongoing Training

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
F1	Average hours per person for onboarding, ongoing training, and support	Interviews	16	6	6	6
F2	Cost per hour of overall onboarding and training (for six active users)	Interviews	$445	$445	$445	$445
Ft	Onboarding and ongoing training	F1*F2	$7,120	$2,670	$2,670	$2,670
	Risk adjustment	↑10%				
Ftr	Onboarding and ongoing training (risk-adjusted)		$7,832	$2,937	$2,937	$2,937
	Three-year total: $16,643			**Three-year present value: $15,136**		

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 Analysis (Risk-Adjusted Estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($7,832)	($776,556)	($41,021)	($77,026)	($902,436)	($805,565)
Total benefits	$0	$2,031,540	$1,204,575	$1,349,160	$4,585,275	$3,856,015
Net benefits	(($7,832)	$1,254,984	$1,163,554	$1,272,134	$3,682,839	$3,050,450
ROI						379%
Payback (months)						<6

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.

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.


FORRESTER®