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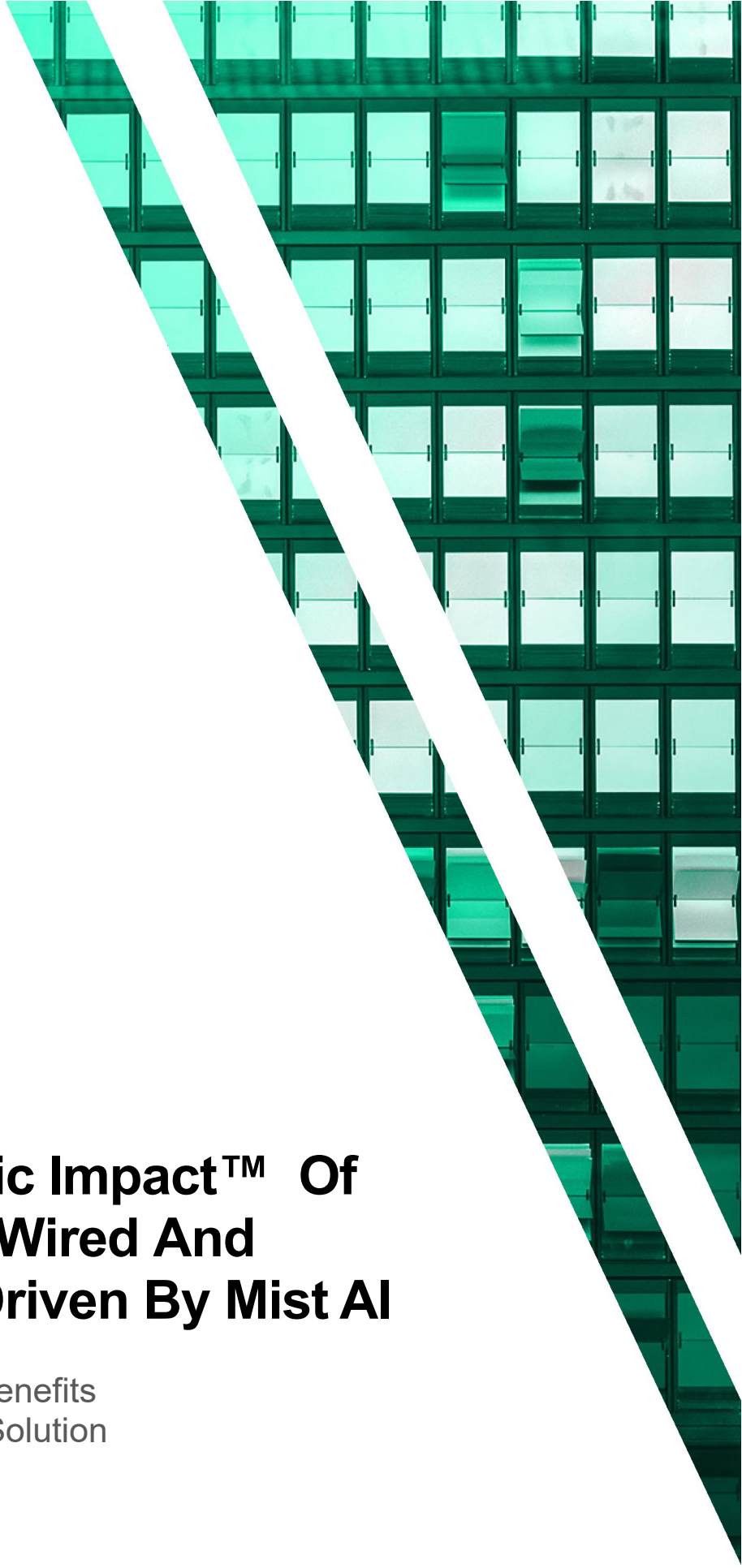

The Total Economic Impact™ Of Juniper Networks Wired And Wireless Access Driven By Mist AI

Cost Savings and Business Benefits Enabled By the Juniper Mist Solution

OCTOBER 2021

A FORRESTER TOTAL ECONOMIC IMPACT™ STUDY COMMISSIONED BY JUNIPER NETWORKS

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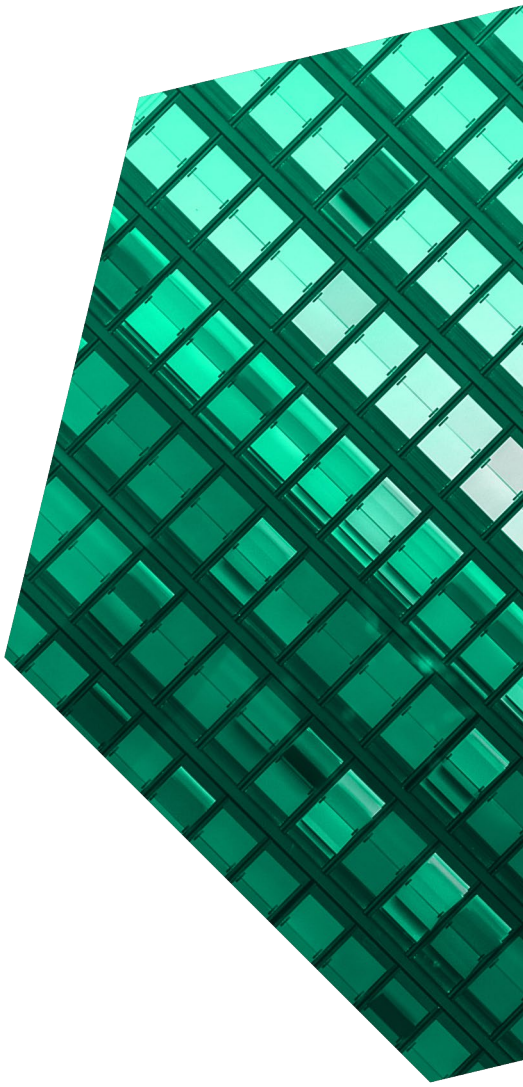

ABOUT FORRESTER CONSULTING

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Executive Summary

IT leaders must harness automation technology and build a network ecosystem that continually improves user experiences while simultaneously increasing operational agility.[1] AI-driven operations and support are key to this endeavor because they optimize UX while lowering costs through operational efficiencies. This study combines the experiences of decision-makers with organizations that leverage the Juniper Mist solution to show how it offers substantive business benefits over traditional solutions.

The Juniper Mist solution uses a combination of artificial intelligence and data-science tools to optimize user experiences (UX) and simplify operations for networks.

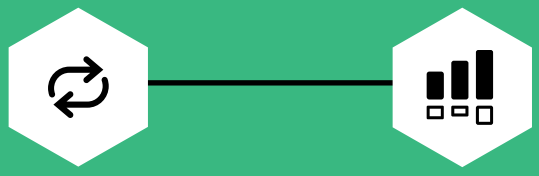
The solution includes wireless access points, switches, and SD-WAN routers along with various cloud-hosted services that leverage Mist AI for key operational tasks, such as service-level assurance, event correlation, root-cause identification, predictive analytics, anomaly detection, and self-driving network operations. One of the key services is the Marvis Virtual Network Assistant (VNA), an AI-driven conversational assistant that provides proactive insights and actions for seamless monitoring, troubleshooting, and proactive next-generation support.

Juniper commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study to examine the potential return on investment (ROI) enterprises may realize by deploying Juniper Networks Wired and Wireless Access Driven by Mist AI.[2] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the Juniper Mist solution on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed six decision-makers with experience using the Juniper Mist solution. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization.

KEY STATISTICS

Three-year financial impact of Juniper Networks Wired and Wireless Access driven by Mist AI for the composite organization.

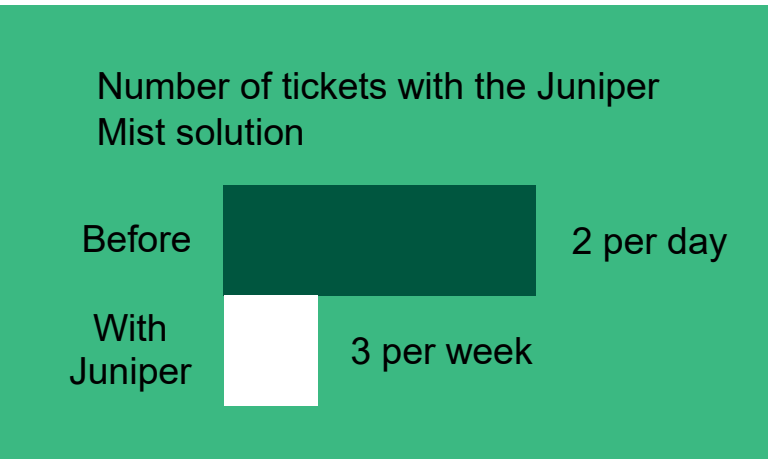


Return on investment (ROI)
34%

Net present value (NPV)
$356K

Prior to using the Juniper Mist solution, the interviewees' organizations relied on traditional controller-based, on-premises network infrastructure tools. Because these solutions lacked overarching visibility and key capabilities required to create a proactive user-centric environment, each of the interviewees' organizations migrated to the Juniper Mist solution.

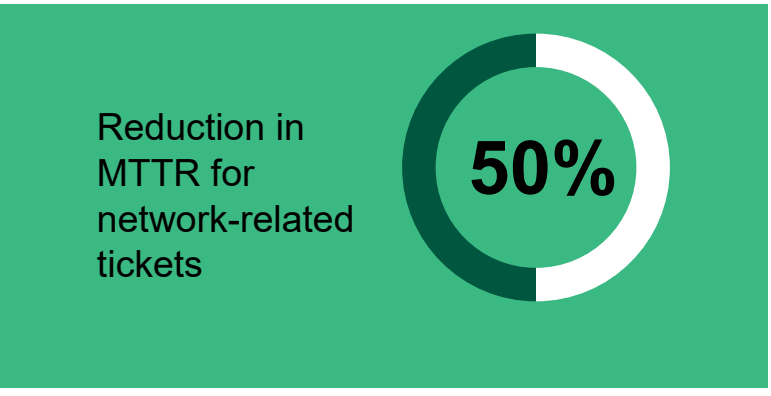
After the investment, the organizations not only increased network performance and reliability that led to enhanced user experiences, but they also saved time and money with faster problem resolution, fewer onsite technician visits, and more efficient network deployment models.



KEY FINDINGS

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

- **An 85% reduction in total time spent resolving network-related help desk tickets.** The Juniper Mist solution offers deep insights into wired and wireless networks with features such as rapid root cause analysis, proactive anomaly detection, and automated event correlation. With a more agile network solution, the composite organization experiences a 70% reduction in network-related tickets and reduces its mean time to resolution (MTTR) for technical issues from one hour to 30 minutes. The composite organization is able to save nearly $148,000 in network support costs over three years.



- **Decreased deployment time by 50%.** Moving to an automated, templated deployment with Juniper's cloud-based platform increased speed-to-deployment for the interviewees' organizations while making it easier to scale than previous on-premises solutions. This saves the composite organization $151,000 over three years.

- **Retiring previous network management solutions saved more than $1 million over three years.** Because the interviewees' organizations replaced their on-premises legacy tools with Juniper, they were able to stop paying license and hosting fees for those solutions.
- **Improved end-user productivity saved more than $75,000 over three years.** Interviewees said network end users saw fewer network issues within their organizations' Juniper environments due to the platform's ability to proactively detect faults before they become a critical issue. For the composite organization, this decreases disruptions to end-user workdays by an average of 30 minutes per ticket for the users affected by the issues.

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

- **Proactive network management.** With the Juniper Mist solution (which includes AI-driven

wired assurance, wireless assurance, and Marvis), IT teams gained quick access to a more in-depth level of network insights. Therefore, they could troubleshoot and solve issues before they became apparent to the wider organization.

- **Increased network team satisfaction.** The Juniper Mist solution provides across-the network visibility, which created a more holistic approach to network management than IT teams were previously accustomed to. This made it easier for them to do their jobs more efficiently.

"From the get-go, I was pretty impressed with Juniper. [The company is] already ahead of everybody else with the way the Mist Platform is from the ground up on the cloud. Where [other companies are] sort of in the past and trying to play catch-up, Juniper is at the forefront."
Network operations manager, professional services

- **Improved trust in network architecture.** From the perspective of both IT teams and end users, the transparency, usability, and visibility provided by the Juniper Mist solution increased the feeling of empowerment and confidence in network architecture at the interviewees' organizations.
- **Better provider support.** Interviewees spoke highly of the level of support and guidance the Juniper team has provided since their organizations decided to implement the Juniper Mist solution.

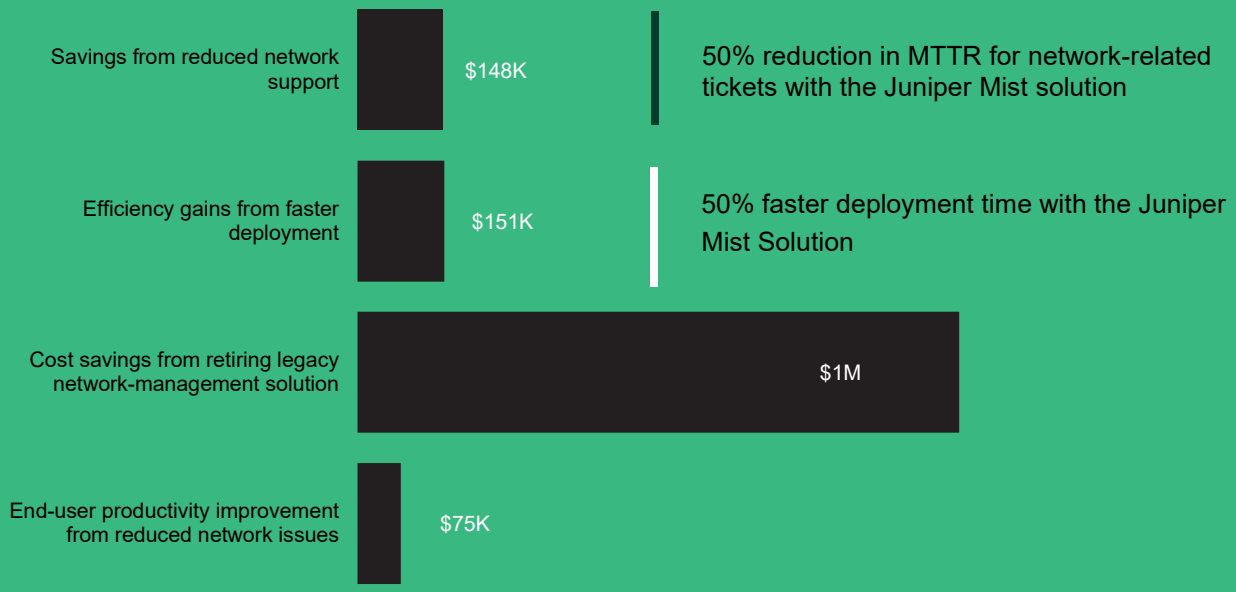
Costs. Risk-adjusted PV costs include:

- **License fees.** Interviewees said their organizations incurred yearly license fees based on the sizes and scopes of their projects. For the composite organization, this annual fee is $862,000 over three years.
- **Implementation and ongoing management costs.** Network engineers and project managers were involved in deploying and providing ongoing management of the Juniper Mist solution. This costs the composite organization a total of nearly $182,000 over three years.
- **Training costs.** Network engineers received initial training for the platform, and they participate in ongoing follow-up training each year to stay current on updates to the solution. This costs the composite organization $15,000 over three years.

The decision-maker interviews and financial analysis found that a composite organization experiences benefits of $1.4 million over three years versus costs of $1 million, adding up to a net present value (NPV) of $356,000 and an ROI of 34%.

ROI	BENEFITS PV	NPV	PAYBACK
34%	**$1.4M**	**$356K**	**7 months**

Benefits (Three-Year)



At first, I thought, 'Why am I replacing something that works?' But when I laid out all the details and added everything up, [the Juniper Mist solution] just made economical and technological sense, [and it also provides] supportability and reliability. It aligns with the business objectives and needs, and the long-term support-system footprint is going to be easier [to manage]. I realized, 'Alright, those are some pretty darn compelling reasons to transition.'

— CIO, healthcare

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 the Juniper Mist solution.

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 the Juniper Mist solution can have on an organization.

DUE DILIGENCE

Interviewed Juniper stakeholders and Forrester analysts to gather data relative to the Juniper Mist solution.

CUSTOMER INTERVIEWS

Interviewed six decision-makers at organizations using the Juniper Mist solution 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 Juniper Mist Solution Customer Journey

Drivers leading to an investment in Juniper Networks Wired and Wireless Access driven by Mist AI

Interviewed Decision-Makers

Interviewee	Industry	Region	Juniper deployment
Cloud, network, and voice architecture leader	Retail	Global	Employees: 120,000 Locations: 3,000 Access: Wireless
Network engineer	Professional services	Global	Employees: 13,000 Locations: 300 Access: Wired and wireless
Network operations manager	Professional services	Global	Employees: 13,000 Locations: 300 Access: Wired and wireless
Senior network engineer	Software	Global	Employees: 10,000 Locations: 100 Access: Wired and wireless
CIO	Healthcare	North America	Employees: 9,000 Locations: 100 Access: Wired and wireless
Manager of network services	Healthcare	North America	Employees: 9,000 Locations: 100 Access: Wired and wireless

KEY CHALLENGES

Prior to investing in the Juniper Mist solution, the interviewees' organizations used archaic on-premises solutions such as wireless LAN controllers, and none had leveraged the cloud for network operations. As a result, their systems lacked the agility and resiliency necessary to successfully operate across a modern network landscape and they were cumbersome to use. This created common challenges for these organizations, including:

- **A lack of visibility into the overall network health and user experience.** The interviewees' organizations had implemented many different solutions for wired, wireless, and monitoring and management in their legacy setups. This created disjointed views of the overall networks and hampered the organizations' abilities to identify issues. Network issues could go unidentified for weeks before they were reported to IT. The inability to rapidly detect network issues disrupted end-user productivity and negatively impacted their network experiences.
- **Manual and reactive approaches to resolving issues.** Without having access to the correct data at the correct time, IT teams were forced to

> **"With our mishmash of solutions, visibility into what was really happening on the network only happened when something was broken or when an issue was brought to our attention. Otherwise, we had no insight."**
> *Senior network engineer, software*

be reactive. They could only troubleshoot an issue once it was brought to their attention and after they pinpointed the source of the issue. Additionally, each network solution had its own rules and commands to follow, which further delayed issue resolution. Often by the time network engineers were able to react, the issue would already have reached a critical stage.

- **Poor end-user experiences.** Prior to implementing the Juniper Mist solution, the interviewees' organizations repeatedly experienced network disruptions. Slow and discontinuous network performance inhibited UX by interrupting productivity flow. And with a hampered ability to troubleshoot, the downtime could last for a prolonged period. This was an especially critical issue for organizations that relied on wireless performance for customer-facing tasks. For example, if a retail organization has an inconsistent wireless experience, it could impact its bottom line.

"Wi-Fi went from [being a] nice-to-have [feature] to [being a] high priority, and we traditionally did not have good Wi-Fi performance. A lot of people would complain about it, and we couldn't really help them. So, we needed a bulletproof solution for wireless that worked really well and was easy to manage."
Network operations manager, professional services

"[With our previous solution,] deployment felt never-ending. We had to continuously buy additional hardware, additional licensing, and additional monitoring tools that did not come with the wireless solution. All of these separate components [had] additional costs, and we were always upgrading [them]."
Senior network engineer, software

- **Deployment inefficiencies.** Interviewees said deploying their organizations' legacy solutions was complex, expensive, and frustrating for network engineers. There were endless lists of hardware, licensing, and tools to purchase and update, and it was difficult for IT teams to keep track. Additionally, the deployment processes needed to be manually repeated at each of the organizations' locations. It was a very time-intensive procedure for network engineers to get the environments up and running.
- **An inability to adapt.** Interviewees said their organizations' previous on-premises solutions were slow when it came to modernizing capabilities to stay current as technology evolved. Network needs are constantly changing, and these legacy solutions did not have the monitoring, automation, and AI-driven functionalities to be agile and to scale efficiently.

SOLUTION REQUIREMENTS

Although every enterprise is unique, the interviewees' organizations each searched for a solution that

provided key requirements for their next-generation wired/wireless deployments. They required a solution that could:

- Provide a modern and holistic system for the organization's network architecture and management.
- Increase visibility into issues to improve troubleshooting.
- Improve network predictability and reliability.
- Reduce the total cost of ownership and increase the ease of operations.
- Improve UX and eliminate disruptions to user productivity.

To make this decision, each of the organizations leveraged trusted partners, analyst research, and proofs of concept (POCs) to explore the market landscape. In the end, they each selected the Juniper Mist solution.

There were situations where we would have wireless issues and we would not know about it so it would be difficult to troubleshoot them. Or there would be situations where it was actually a wireless device problem but network used to get blamed and we didn't have enough data to immediately show the discrepancy. So, [gaining] that visibility and the ability to slice and dice data was the most important requirement to stabilize our wireless deployment.

— Cloud, network, and voice architecture leader, retail

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 six 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 global, multibillion-dollar business-to-consumer (B2C) organization has 10,000 employees spread across multiple locations. It aims to develop a network environment that's conducive for its employees and that optimizes UX while simplifying operations across wireless and wired access.

Deployment characteristics. The composite organization uses the Juniper Mist solution to improve its network visibility and usability while simplifying its operations and deployment with the cloud-based platform. Specifically, the organization leverages the following Juniper cloud services: wireless, wired Assurance, and the Marvis Virtual Network Assistant. It also uses Juniper Access Points (APs), and Juniper EX Series switches, all of which are powered by Mist AI. The composite initially deploys the solution across 100 of its locations with 1,500 APs and 218 switches. After the initial implementation, the composite organization expands its deployment to five more sites annually, with an average of 10 APs per site and two switches per site.

Key assumptions

- **$5 billion in annual revenue**
- **10,000 employees**
- **100 locations onboarded**
- **1,500 APs and 218 switches in initial rollout**

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	Savings from reduced network support	$59,342	$59,342	$59,342	$178,027	$147,576
Btr	Efficiency gains from faster deployment	$156,600	$5,220	$5,220	$167,040	$150,600
Ctr	Cost savings from retiring legacy network-management solution	$418,950	$418,950	$418,950	$1,256,850	$1,041,867
Dtr	End user productivity improvement from reduced network issues	$30,258	$30,258	$30,258	$90,773	$75,246
	Total benefits (risk-adjusted)	$665,150	$513,770	$513,770	$1,692,690	$1,415,289

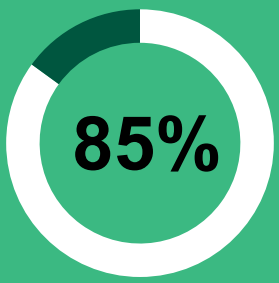
SAVINGS FROM REDUCED NETWORK SUPPORT

Evidence and data. Each of the interviewees reported that the Juniper Mist solution significantly reduced network support costs for their organization. This is primarily because the Mist Cloud uses AI to analyze data collected from APs and switches to provide actionable next steps through features such as machine learning (ML)-driven rapid root-cause identification, proactive anomaly detection, and automated event correlation.

Additionally, users gained access to the Marvis Virtual Network Assistant, which provides extensive insight and guidance through a natural-language conversational interface. The Mist Platform provided network infrastructure that was more predictable, more reliable, and more agile than other solutions, and this led to a reduction in network-related help-desk tickets, shorter ticket-resolution times, and decreased need for visits from onsite technicians.

- In a retail organization's previous environment, it would receive eight to 10 tickets per day that needed to be escalated to the network engineering team. With the Juniper Mist solution, the organization saw a 15% to 20% reduction in such tickets.
- A cloud, network, and voice architecture leader with the organization said: "The number of tickets that get escalated from tier-one operations teams to the network engineering team for troubleshooting definitely got reduced because they were able to use the Mist UI and Marvis AI to triage the issue. [They] determined that it was not a wireless problem and that it should not get escalated to the network engineering team."
- The retail organization also reduced its need to send technicians to each store once or twice a

Reduction in time to resolve network-related tickets



"[Even before] we had completed the deployment of [the Juniper Mist solution], we could actually see the number of tickets for Wi-Fi dropping until we stopped receiving tickets from sites that were converted to it. Meanwhile, we were still seeing tickets come in from locations running our legacy solutions."
Network operations manager, professional services

quarter or several times per year to address network-related issues. With proactive intelligence delivered by Juniper Mist, the organization improved the ability to resolve issues remotely before they reached critical stages and required in-person attention.

- A decision-maker in the professional services industry said their organization received one to two tickets per week for Wi-Fi-related issues in its legacy environment and that 30% to 50% of those required the in-person attention of a technician. Since implementing the Juniper Mist solution, the number of tickets for network issues have dramatically decreased, and the organization only needs to call a technician one to three times per year.

Modeling and assumptions. For the composite organization, Forrester assumes the following:

- In its previous environment, the composite organization received two network-related tickets per day. On average, it took 1 hour to resolve a ticket. For 20% of tickets, a technician had to be dispatched to a location because there were no in-house network engineers to resolve the network issue.
- With the Juniper Mist solution, the composite organization reduces the number of network-related tickets to three per week. Network engineers resolve tickets 50% faster due to improved diagnostics and automation within the platform. The composite also sees a 75% reduction in the need for technicians to travel for network issues.
- The hourly rate of a network engineer is $58.
- The cost of sending a technician to a location is $500.

Risks. Savings from reduced network support may vary depending on the following:

- The number and complexity of network-related tickets and support requests that network engineers received in the organization's legacy environment.
- The speed of adopting the platform.
- The hourly rate of a network engineer and the cost of a technician.

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 $148,000.

"[The Juniper Mist AI Platform] helps you investigate, identify, and diagnose problems faster without doing a lot of manual work."
Manager of network services, healthcare

Savings From Reduced Network Support					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
A1	Number of network-related tickets prior to the Juniper Mist AI Platform	Composite	520	520	520
A2	Average time to resolve a ticket (hours)	Interviews	1.0	1.0	1.0
A3	Average hourly rate of network engineer	Assumption	$58	$58	$58
A4	Percent of tickets for which a technician has to be sent to a location to address a network issue	Interviews	20%	20%	20%
A5	Number of times a technician has to be sent to a location to address a network issue	A1*A4	104	104	104
A6	Cost per technician trip	Interviews	$500	$500	$500
A7	Subtotal: Cost of resolving network-related tickets prior to the Juniper Mist AI Platform	A1*A2*A3+A5*A6	$82,160	$82,160	$82,160
A8	Number of network-related tickets with the Juniper Mist AI Platform	Composite	156	156	156
A9	Reduction in MTTR for network-related tickets with the Juniper Mist AI Platform	Interviews	50%	50%	50%
A10	Reduction in the need to send a technician with the Juniper Mist AI Platform	Interviews	75%	75%	75%
A11	Subtotal: Cost of resolving network issues with the Juniper Mist AI Platform	A8*A2*A9*A3	$4,524	$4,524	$4,524
A12	Subtotal: Cost of network-related technician trips with the Juniper Mist AI Platform	A8*A4*A10*A6	$11,700	$11,700	$11,700
At	Savings from reduced network support	A7-(A11+A12)	$65,936	$65,936	$65,936
	Risk adjustment	↓10%			
Atr	Savings from reduced network support		$59,342	$59,342	$59,342
	Three-year total: $178,027			**Three-year present value: $147,576**	

EFFICIENCY GAINS FROM FASTER DEPLOYMENT

Evidence and data. Moving away from manual and architecture-heavy deployments to an automated and cloud-based process with the Juniper Mist solution increased speed to deployment while delivering maximum scalability and performance for the interviewees' organizations.

If they had chosen to refresh deployments with their previous vendors, they would have had to conduct full hardware replacements.

- A network engineer in the professional services industry said their organization spent 20 minutes configuring each access point (AP) during deployment with its legacy system, and they described the process as "painful." They said: "There was a lot more involvement from the vendor, and we had to actually go into the AP with the console and configure every single one."

- A manager of network services for a healthcare organization said refresh deployments entailed a lot more architecture prework. They said: “First, we would have to create a spreadsheet and throw every serial number or MAC [media access control] address of each AP into the spreadsheet, and then we had to build a script and copy that into the controller. It took a good bit of time to build those scripts to get them in there.”
- The same interviewee also mentioned the need for professional services. They said: “We would have to hire someone to help us install the Bluetooth low energy beacons, and we would need someone to walk us through migrating from the current version of the software to the new version because the architecture was completely different.”
- A senior network engineer for a software organization said it took an average of 16 hours to get a location up and running, as there would be a lot of custom work that could only be done manually at each site. They said: “[With our previous vendor], I would buy a huge number of switches and have them shipped to a staging area. I would then build all my configuration files, ship them to the staging area where they deploy them, stack them, and label them. They would burn them in, I would get remote access, and I would double-check the work. They would box everything back up and then ship it to the site. It would get to the site, everything would get deployed, and then I would show up and finish all the configuration and connections. It was a long process over and over again.”

Although transitioning to the Juniper Mist solution was a completely new deployment for the interviewees’ organizations, the platform’s microservices cloud architecture made the process smooth and efficient. The Mist portal allowed users to create templated setups and avoid the staging and configuration phases of deployment as the

“As soon as the AP has our connection, it just goes out there, grabs the configurations, and it’s up and running. The deployment of [the Juniper Mist solution] has cut our time in half, which is pretty significant.”
Network engineer, professional services

organizations updated all their locations. And by using Juniper's cloud-grade switches that are designed to be fully functional within the Mist portal, the organizations eliminated several steps on their automation journeys:

- With the Juniper Mist solution, a professional services organization was able to reallocate the time previously spent on logging in, setting up, and verifying configurations to other value-adding tasks. The organization’s network operations manager said: “Once we select the template, we just have to verify that the AP shows up. It's almost like a hands-off deployment, and our team can work on other projects in the meantime.” The team now saves 50% of its time on deployment.
- An interviewee in the healthcare industry said their organization saved 2 to 3 hours on configuration per AP and one to two days of work per facility with the Juniper Mist solution. It was also able to avoid using professional services because the new installation was easy and mostly automated.
- The senior network engineer in the software industry said their organization cut down the time needed to stand up a new location, and it saw time savings of more than 50% for the overall

deployment process. They said: “It might take us 10 hours to develop a template, but that template can be plugged into any site. I can now stand up a six-story to 10-story building in 45 minutes, and then I can immediately be in the tuning, tweaking, and polishing mode. Overall, it’s taking me half the time to be fully functional. I can skip the whole staging step because gear is shifted directly from Juniper to my [organization’s] site. My configurations are all done. They’re all template. I just have to build the internet portion of the firewalls, get that up and running, and plug my switch and the management port into the firewall. It will get to the internet, it gets configured, and I’m done.”

Modeling and assumptions. For the composite organization, Forrester assumes the following:

- The composite organization initially rolls out 1,500 APs across multiple locations.
- In years 2 and 3, the composite continues to roll out five sites annually, with an average of 10 APs per site.
- It previously took 4 hours for the composite to deploy an AP. With the Juniper Mist solution, it takes 2 hours.
- The hourly rate of a network engineer is $58.

Risks. Efficiency gains from faster deployment may vary depending on the following:

- The number of APs and locations being rolled out.
- The complexity of the deployment with the organization’s legacy network.
- The hourly rate of network engineers.

Results. To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $151,000.

Efficiency Gains From Faster Deployment

Ref.	Metric	Source	Year 1	Year 2	Year 3
B1	Number of APs in the initial rollout	Composite	1,500	0	0
B2	Average number of sites rolled out	Composite	0	5	5
B3	Average number of APs per site	Composite	0	10	10
B4	Average time needed to deploy an AP prior to the Juniper Mist AI Platform (hours)	Interviews	4	4	4
B5	Deployment time savings with the Juniper Mist AI Platform	Interviews	50%	50%	50%
B6	Average hourly rate of network engineer	Assumption	$58	$58	$58
Bt	Efficiency gains from faster deployment	(B1+B2*B3)*B4*B5*B6	$174,000	$5,800	$5,800
	Risk adjustment	↓10%			
Btr	Efficiency gains from faster deployment		$156,600	$5,220	$5,220
	Three-year total: $167,040			**Three-year present value: $150,600**	

COST SAVINGS FROM RETIRING LEGACY NETWORK-MANAGEMENT SOLUTION

Evidence and data. Interviewees said one of the key benefits of the Juniper Mist solution is the cost savings from replacing their organizations' on-premises network tools with the platform's cloud-native, AI-driven wired and wireless network. In their legacy on-premises environments, the organizations incurred the costs of hosting the solutions in their data centers. But because the Juniper Mist solution is cloud-based, it introduced the organizations to the benefits of microservices cloud architecture.

- Interviewees said that when it came to updating the Juniper Mist solution, their organizations saw fewer bugs in critical areas of the platform as compared to when they would upgrade their previous technologies, and there were no update costs.
- Automation within the Juniper Mist solution made it easy for the organizations to push updates. The network engineer at the professional services organization said, "It takes us a fraction of the time to update a single AP when compared to our previous setup." Users could plan and automate upgrades and deploy updates with fewer issues that required the help of IT. Additionally, the platform delivers new enhancements and fixes without network disruption.
- Interviewees said their organizations appreciate the simple pay structure that comes with having a consolidated solution. The senior network engineer at the software organization said: "With our previous vendor, we had to have their solution. Then we had to have features within that solution, and all of those [had] additional licensing and additional hardware components. So, they nickel-and-dimed us to death in their tooling. Whereas with Juniper, we just pay one subscription fee, and we get access to whatever that subscription requires. I don't have to replace hardware. I don't have to worry about version control. I don't have to worry about updating. That's all done in the background. That's not my responsibility. I just deal with my infrastructure."

Interviewees said that within the first year of using the Juniper Mist solution, their organizations retired their previous tools and stopped paying license and support fees for them.

> **"[The Juniper Mist AI Platform] covers probably 99% of what was in our old monitoring system plus all the management architecture. So, it's allowed us to get rid of our previous setup entirely."**
> *Manager of network services, healthcare*

Modeling and assumptions. For the composite organization, Forrester assumes the following:

- The composite shuts down its previous network management and monitoring systems when it rolls out the Juniper Mist solution.
- The composite avoids the costs to host its previous solutions in its data center.

Risks. Costs savings from retiring legacy network management solutions may vary depending on the following:

- The type of legacy tools and systems used to manage the network.
- The organization's timeline for its adoption of the Juniper Mist solution and its commitment to transition away from previous systems.

Results. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted total PV of more than $1 million.

Cost Savings From Retiring Legacy Network-Management Solution

Ref.	Metric	Source	Year 1	Year 2	Year 3
C1	Legacy network management and monitoring solutions fees	Interviews	$429,000	$429,000	$429,000
C2	Costs to host legacy solution in the data center	Interviews	$12,000	$12,000	$12,000
Ct	Cost savings from retiring legacy network-management solution	C1+C2	$441,000	$441,000	$441,000
	Risk adjustment	↓5%			
Ctr	Cost savings from retiring legacy network-management solution (risk-adjusted)		$418,950	$418,950	$418,950
	Three-year total: $1,256,850			**Three-year present value: $1,041,867**	

END-USER PRODUCTIVITY IMPROVEMENT FROM REDUCED NETWORK ISSUES

Evidence and data. Interviewees said the Juniper Mist solution improved employee productivity by reducing network issues and decreasing downtime when compared with their prior networks. Previously, their organizations' IT teams had no visibility into network issues, and they only became aware of them when an employee would complain and submit a ticket.

With the Juniper Mist solution, data is ingested from numerous sources (including access points, switches, and firewalls), which provides end-to-end insight into network health and UX. Network engineers gained the ability to proactively detect faults that they previously had no visibility of, and they could proactively resolve network issues before they affected end users. Therefore, switching to the Juniper Mist solution meant end users saw fewer and shorter disruptions.

Modeling and assumptions. For the composite organization, Forrester assumes the following:

"We no longer hear from some executives about how terrible [our] Wi-Fi is, which means it's working. Because if it wasn't, I'd be the first to hear about it. We went from people complaining about it to not complaining about it at all."
Network operations manager, professional services

- The downtime associated with submitting a ticket for network-related issues is 30 minutes.
- Five users are affected by Wi-Fi-related issues.
- The average fully burdened hourly rate of a business user is $35.

Risks. End-user productivity improvement from reduced network issues may vary depending on the following:

- The number and severity of network issues experienced.
- The number of users affected by network-related issues.
- The average fully burdened hourly rate of employees at the site.

Results. To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year, risk-adjusted total PV of $75,000.

End-User Productivity Improvement From Reduced Network Issues

Ref.	Metric	Source	Year 1	Year 2	Year 3
D1	Tickets eliminated with the Juniper Mist AI Platform	A1-A8	364	364	364
D2	Time disruption to end-user productivity resulting from submitting a ticket (hours)	Interviews	0.5	0.5	0.5
D3	Number of users affected by an issue	Composite	5	5	5
D4	Average fully burdened hourly salary of business user	Assumption	$35	$35	$35
Dt	End-user productivity improvement from reduced network issues	D1*D2*D3*D4	$31,850	$31,850	$31,850
	Risk adjustment	↓5%			
Dtr	End-user productivity improvement from reduced network issues (risk-adjusted)		$30,258	$30,258	$30,258
	Three-year total: $90,773			**Three-year present value: $75,246**	

UNQUANTIFIED BENEFITS

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

- **Proactive network management.** With the Juniper Mist solution's robust operations infrastructure, network engineers became more proactive when identifying issues. Previously, they could only pin down network issues when they impacted end users. But the Juniper Mist solution's machine-learning capabilities correlate events for rapid root cause identification and enable users to see issues long before they reach network end users.

The senior network engineer at the software organization said: "You can have one network engineer instead of three or four addressing an issue that hasn't reached a high severity yet because [the Juniper Mist solution] caught it in the early stages. You can have a more focused and more controlled troubleshooting, and you can potentially solve the issue before it becomes apparent to customers and clients."

Additionally, with Marvis, the organizations could transition from reactive troubleshooting to proactive remediation. It automatically resolved

"[IT] can get ahead of the problem before [end users] even notice it, or even mitigate it right at the time that it's happening. This not only provides better productivity from the IT perspective, but also from [the end users' perspective]."
Network engineer, professional services

issues and recommended actions for issues that may have otherwise taken days to notice.

The network operations manager with the professional services organization said: "Marvis Actions actually proactively notifies us of potential issues that it's seeing. Recently, there was a cabling issue on one of our APs, and Marvis pointed it out to us. When I looked, sure enough, there was a cabling issue. I sent a technician, they repaired the cable, and users were able to stay productive in the office. In an alternate scenario, we wouldn't have known about that until users complained about terrible Wi-Fi in a particular part of the office. However, I would've had to dig to figure out the root cause. But Marvis brings all of the relevant information to your attention."

"We ran into a VLAN [virtual LAN] issue that Marvis identified and helped us resolve before we even went live with the system."
Manager of network services, healthcare

- **Increased network team satisfaction.** The Juniper Mist solution made networking predictable and reliable while providing unprecedented visibility into the network landscape and increasing IT satisfaction. The dashboard consolidated all network information into a single pane of glass and provided across-the-board visibility into network status, including wired, wireless, and WAN. IT teams could monitor network performance in one place and rely on AI to resolve issues, which created a more holistic approach to network management and network troubleshooting.

"[The Juniper Mist solution] saves us an enormous amount of paperwork and reports that have to go to management every time we do a root cause analysis. It saves time because our operations team isn't spending the time with three or four network engineers running through a network and trying to chase down a problem. And it saves us money because we can solve issues before they become huge issues."
Senior network engineer, software

The senior network engineer at the software organization said: “Being able to see everything in my network as a homogeneous network — not separate bits and pieces that I have to look at individually and then analyze the connection points — is incredible. It’s all one organism, which is very refreshing and very powerful.”

- **Improved trust in network architecture.** Interviewees said that having the Juniper Mist solution in place elevated confidence in their network environments. From an IT perspective, AI-driven proactive automation and self-healing capabilities lowered the AP failure rate, which decreased stress levels for network teams.

  The network operations manager at the software organization said: “The failure rate of [Juniper] Mist APs is almost zero. If there [had been] an issue [in the past], we would have had to go through all these different obstacles to prove that it was actually an issue with the AP. Now, it’s very simple to prove whether an AP is working or not because the data with Mist is much more knowledgeable, capable, and reliable.”

“With [the Juniper Mist solution,] you don’t have to log into each AP, and you don’t have to log into the controllers and run a bunch of scripts and commands that you just learned over time. Having the [Mist dashboard really puts it all at your fingertips in one place. All you’ve got to do is go in, pull up a web page, and there’s all your information.”
Manager of network services, healthcare

“With Juniper, we can be proactive for the first time in probably as long as I’ve been a network engineer.”
Senior network engineer, software

- **Better provider support.** Interviewees said their organizations value the opportunity to work directly with Juniper as a single trusted partner, and they said Juniper is hands on, helpful, and ensures the solution adds benefit to the organization.

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement the Juniper Mist solution and later realize additional uses and business opportunities, including:

- **Expanding deployment.** Interviewees said expanding with modern microservices cloud architecture is simple and agile. The organizations with limited deployments are looking to grow their Juniper Mist solution footprint to more locations in the future.
- **Leveraging more capabilities.** Interviewees from organizations that did not take advantage of all the products and services associated with the Juniper Mist solution expressed interest in leveraging other capabilities in the future. The manager of network services in the healthcare industry said their organization wants to take advantage of the platform’s virtual BLE

technology. They said: "We haven't done anything with it yet, but by deploying [the Juniper Mist solution], we can easily move to that next level of location services without spending money on resources, such as beacon batteries." The Juniper Mist solution makes it easy to add or remove new features through the cloud as business requirements change, and no additional hardware is required.

- **Reorienting around more value-add projects.** With new automation capabilities, more efficient network management, and increased understanding of their network landscapes, IT teams were able to spend less time on day-to-day operations of network upkeep. Instead, they can spend more time tending to long-term strategic technology initiatives that were pushed aside in their previous and more reactive environments.

  A CIO in the healthcare industry said: "[Our industry] is always changing, so there's always something new to do. [The Juniper Mist solution] has given my team more time to focus on projects looking to better support the future of the business and to really start flushing out much better architecture moving forward for a lot of our other areas — not just on the wireless and wired sides."

"Our goal for 2022 is to have all legacy vendor wireless access points removed, retired, and replaced all with [the Juniper Mist solution]. Being that [Juniper] is the architectural standard, any building built out or refreshed from here on out will be [with] Juniper."
Senior network engineer, software

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

We are seeing a huge culture shift within Juniper from being a traditional networking equipment technology company to [being] a networking solution provider. [Juniper is] no longer just a technology provider. [It is] thinking more strategically about how to solve organizations' needs and [how to] help them achieve what they need to achieve with their solutions. I'm excited to see where [Juniper] goes next.

— CIO, healthcare

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	Juniper Mist solution license fees	$0	$346,500	$346,500	$346,500	$1,039,500	$861,694
Ftr	Juniper Mist solution implementation and ongoing management	$166,249	$6,300	$6,300	$6,300	$185,149	$181,916
Gtr	Training costs	$12,180	$1,218	$1,218	$1,218	$15,834	$15,209
	Total costs (risk-adjusted)	$178,429	$354,018	$354,018	$354,018	$1,240,483	$1,058,819

JUNIPER MIST SOLUTION LICENSE FEES

Evidence and data. The interviewees' organizations paid license fees to Juniper that were dependent on the scope of the projects and the platform capabilities deployed.

Modeling and assumptions. For the composite organization, Forrester assumes the annual fees for the Juniper Mist solution are $330,000 per year for 100 locations, 1,500 APs, and 218 switches.

Risks. Juniper Mist solution license fees may vary depending on the following:

- The scope of the project and deployment in terms of volume of hardware, types of capabilities in use, and number of locations.
- Differences between licensing agreements.
- The licenses of other products from the same vendor.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $862,000.

Juniper Mist Solution License Fees						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
E1	Juniper Mist solution license fees	Composite	$0	$330,000	$330,000	$330,000
Et	Juniper Mist solution license fees	Composite	$0	$330,000	$330,000	$330,000
	Risk adjustment	↑5%				
Etr	Juniper Mist solution license fees (risk-adjusted)		$0	$346,500	$346,500	$346,500
	Three-year total: $1,039,500			**Three-year present value: $861,694**		

JUNIPER MIST SOLUTION IMPLEMENTATION AND ONGOING MANAGEMENT

Evidence and data. Interviewees said the implementation and ongoing management of the Juniper Mist solution was simple and required relatively minimal time investments.

- The organizations needed initial involvement from network engineers to plan the deployments, design the hardware layouts, and implement the solution. The network operations manager at the professional services organization said: "We first built on the templates and then we built out the sites. Once that was done, it was extremely easy to actually deploy [the platform]."
- Network engineers provided ongoing upkeep of configurations standards and monitored the solution. The network engineer said: "[Ongoing management is] minimal. We've even set ourselves up [so that] the sites automatically update to a particular level of firmware. If Juniper pushes new firmware up there, we can set how soon we receive that newer firmware. So, it's [very] hands off."
- Project managers initially ensured that their organizations' deployments were on track and running smoothly at all the locations.

Total implementation and deployment time

4 months

"One of my engineers told me that it's so easy to roll out [the Juniper Mist solution that] it's scary."
Manager of network services, healthcare]

Modeling and assumptions. For the composite organization, Forrester assumes the following:

- Three network engineering FTEs participate in the initial implementation for four months. After the implementation, one network engineering FTE dedicates 5% of their time per year to manage the system.
- One PM dedicates four months of their time to implement the solution.
- The average monthly rate of a network engineer is $10,000.
- The average monthly rate of an IT project manager is $9,583.

Risks. Implementation and ongoing management fees may vary depending on:

- The complexity and scope of the transition from the organization's previous network solutions to the Juniper Mist solution.
- The number of FTEs dedicated to the adoption and management of the platform.
- The salaries of FTEs.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $182,000.

Juniper Mist Solution Implementation And Ongoing Management						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
F1	Network engineers involved with planning, implementation, and management of the Juniper Mist solution	Composite	3	1	1	1
F2	PMs leading implementation	Composite	1			
F3	Average monthly rate of network engineer	Assumption	$10,000	$10,000	$10,000	$10,000
F4	Average monthly rate of IT project manager	Assumption	$9,583			
F5	Implementation time (months)	Interviews	4			
F6	Juniper Mist AI Platform planning and implementation	F1*F3*F5+F2*F4*F5	$158,332			
F7	Percent of time that network engineer dedicates to managing the Juniper Mist AI Platform	Interviews		5%	5%	5%
F8	Juniper Mist AI Platform ongoing management	F1*F3*F7*12 months		$6,000	$6,000	$6,000
Ft	Juniper Mist AI Platform implementation and ongoing management	F6*F8	$158,332	$6,000	$6,000	$6,000
	Risk adjustment	↑5%				
Ftr	Juniper Mist AI Platform implementation and ongoing management (risk-adjusted)		$166,249	$6,300	$6,300	$6,300
	Three-year total: $185,149			**Three-year present value: $181,916**		

TRAINING COSTS

Evidence and data. The Interviewees' organizations educated select groups of engineers on how to use the Juniper Mist solution to maximize their abilities to support and optimize use of the solution. Engineers were also informed of solution updates through ongoing training.

The cloud, network, and voice architecture leader at the retail organization said: "Juniper conducted training to make teams familiar with the new portal and dashboard, and to ensure they knew how to troubleshoot in the solution. They would also do training in which actual issues were happening, which was very helpful."

The organizations then proceeded with a train-the-trainer approach when expanding deployment. Using this method, targeted individuals within the role could engage and teach other team members who also interact with the Juniper Mist solution.

Modeling and assumptions. For the composite organization, Forrester assumes the following:

- Ten network FTEs participate in 20 hours of training prior to launch of the Juniper Mist solution.
- One network FTE takes part in 20 hours of ongoing training per year to stay current on updates to the solution.

- The average hourly rate of a network engineer is $58.

Risks. Training costs may vary depending on the following:

- The hourly rates of network FTEs.
- The number of FTEs who require training.
- The length and frequency of training.

Results. To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $15,000.

"If there is a new feature update, our Juniper sales engineer will proactively reach out to let us know. Or if there is something we have a question about, we're always able to ask, and the response is always top-notch. Juniper is very responsive in its support no matter if it's just troubleshooting or if it's just [answering an] in-depth question about particular workings of the system"
Network engineer, professional services

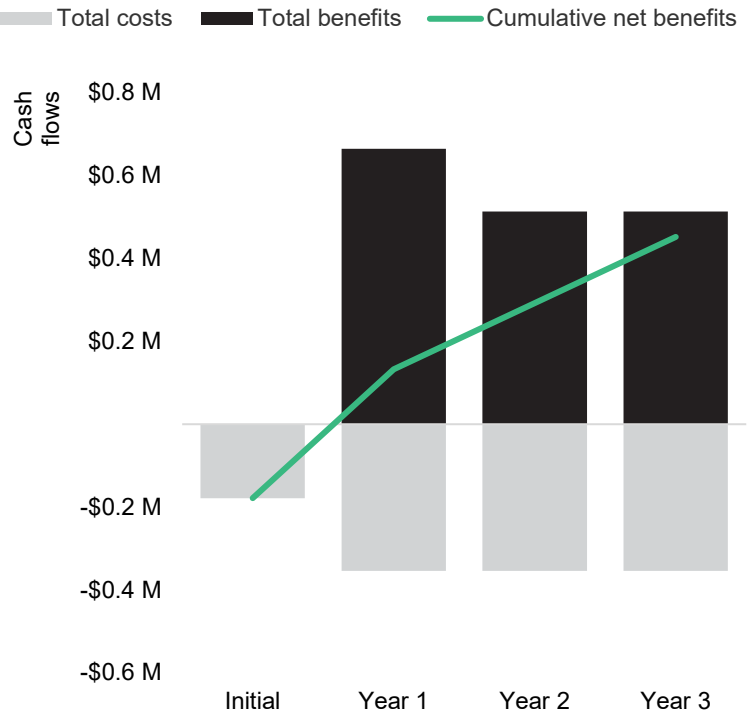
Training Costs

Ref.	Metric	Source	Initial	Year 1	Year 2	Year 3
G1	People-network FTEs trained	Composite	10	1	1	1
G2	Training time (hours)	Composite	20	20	20	20
G3	Average hourly rate of network engineer	Assumption	$58	$58	$58	$58
Gt	Training costs	G1*G2*G3	$11,600	$1,160	$1,160	$1,160
	Risk adjustment	↑5%				
Gtr	Training costs (risk-adjusted)		$12,180	$1,218	$1,218	$1,218
	Three-year total: $15,834			**Three-year present value: $15,209**		

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	($178,429)	($354,018)	($354,018)	($354,018)	($1,240,483)	($1,058,819)
Total benefits	$0	$665,150	$513,770	$513,770	$1,692,690	$1,415,289
Net benefits	($178,429)	$311,132	$159,752	$159,752	$452,207	$356,470
ROI						34%
Payback						7.0 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."

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] Source: “Create A Business-Optimized Network To Accelerate Your Digital Business,” Forrester Research, Inc., May 19, 2021.

[2] 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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