

## ESG Economic Validation

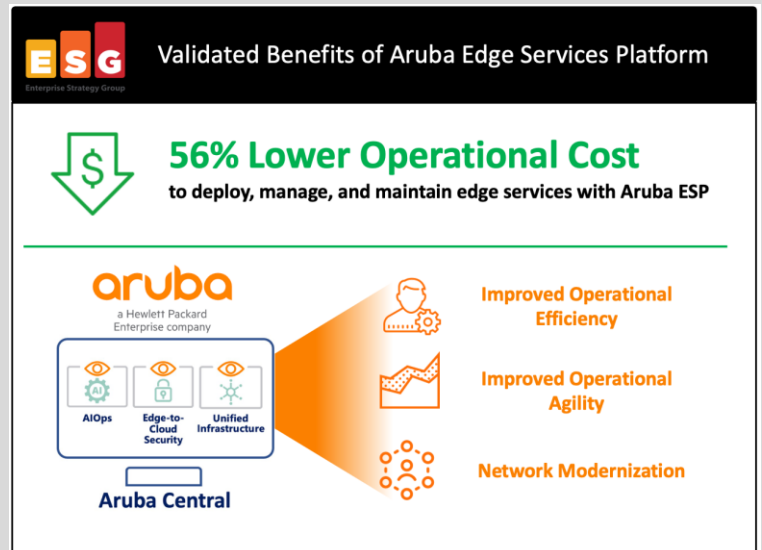
# The Economic Benefits of Aruba ESP (Edge Services Platform)

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## Executive Summary

Network operation and management are challenging in normal times. The swift, massive shift to work-from-home programs triggered by the pandemic stretched limited budgets and resources even further. IT teams typically work with multiple, disparate systems that are managed separately. Lack of comprehensive visibility, manual processes, and reactionary troubleshooting are obstacles to delivering expected service levels. And now IT and the network are expected to support the hybrid workplace—the combination of working from home and working in the office—while keeping workers safe and productivity high. Additionally, as business leaders look to the future, they see even more need for rapid digital transformation to accommodate emerging technology, data growth, connected devices, and edge computing.

ESG found that Aruba ESP (Edge Services Platform), an AI-powered, cloud-native platform to automate, unify, and protect the edge and introduced by Aruba, a Hewlett Packard Enterprise company, eliminates network complexity and overcomes traditional network limitations in areas of operation, management, and security—all with no rip and replace. Aruba ESP helps organizations deliver the hybrid workplace with built-in intelligence, automation, integration, and security, along with a single point of control. Qualitative and quantitative findings confirmed that organizations using Aruba ESP improved their operational agility and efficiency while reducing risk. At the same time, businesses were better positioned to innovate and grow because they could modernize and extend their networks from the edge to the cloud and link digital transformation strategy with demonstrable business outcomes.



## Introduction: Enabling the Hybrid Workplace

This ESG Economic Validation examines the benefits in operational agility and efficiency and network modernization that organizations can expect by enabling digital transformation projects such as a hybrid work environment, cloud migration, and new IoT-driven user experiences and business models with Aruba’s Edge Services Platform.

### Challenges

IT budgets and resources have been leaner than usual given the events of 2020. The pandemic has severely stretched IT teams that are contending with myriad network challenges related to a workforce, including IT functions, that have shifted due to work-from-home (WFH) mandates. In addition to effects of the pandemic, networks and network administrators may be further stressed by impending 5G deployments, the rollout of WiFi 6, an emphasis on end-to-end networking and network automation involving SD-WAN, artificial intelligence (AI), and machine learning (ML). Additionally, organizations are dealing with massive data growth, particularly at the edge, and high numbers of devices connecting to corporate networks and the Internet.

This year of extreme change and technology innovation has caused some businesses to focus on sustainability while others look ahead to new opportunities. Whether companies fall into one camp or another or somewhere in between, they very likely will be renovating parts of their businesses. ESG research revealed that, in response to change, enterprises expect to take actions such as using more public cloud services; implementing software-defined data centers; increasing remote monitoring/management; and automating infrastructure elements across compute, storage, and networking.<sup>1</sup>

For modern enterprises, effectively leveraging SD-WAN technologies as the point of integration between the intelligent edge and hybrid cloud to connect, secure, manage, and derive value from user and IoT devices is an essential strategy for delivering positive business outcomes. As shown in Figure 1, ESG research identifies that the top five primary drivers for SD-WAN adoption are improved security, improved application performance, centralized management, reduced complexity, and flexibility of deployment options.<sup>2</sup>

**Figure 1. Primary Drivers of SD-WAN Solutions**



Source: Enterprise Strategy Group

<sup>1</sup> ESG Master Survey Results, [Technology Impact of COVID-19: IT Decision Maker \(ITDM\) View](#), May 2020.

<sup>2</sup> ESG Master Survey Results, [Transitioning Network Security Controls to the Cloud](#), July 2020.

Business leaders are considering how to ensure the productivity and safety of employees as they navigate the new normal of both WFH and working in the office. This “hybrid workplace” requires IT and enterprise networks to deliver seamless application experiences from the home and office. Yet edge locations may have limited or no IT personnel onsite, and network/device visibility decreases outside of office environments. Currently, network administrators spend too much time dealing reactively with issues. Their jobs are complicated by silos of technology management, manual processes that lead to errors and downtime, information overload, lack of insight into network performance, and tool overload. Third-party monitoring and reporting tools may not provide actionable information, or IT staff may have to correlate events happening in multiple domains and tools to determine root causes of issues. As a result, network administrators have difficulty identifying trends and acting on them before they affect end-users.

Security and bandwidth issues are top WFH challenges, according to recent ESG research, and they are followed by strained network infrastructure and overwhelmed help desks.<sup>3</sup> This makes sense given that WFH expands the attack surface, often over unsecure public WiFi. An ESG research survey asked respondents about network infrastructure capabilities that would have the greatest impact on business growth. Forty-three percent of respondents said that one of the most important capabilities was ensuring network security, followed by 29% that said it was maximizing application performance levels, 29% that said maximizing application availability, and 29% that said facilitating collection of data from network-based devices and systems to improve insights.<sup>4</sup>

IT leaders are looking for alternatives to traditional networks that help them support hybrid work styles, connect to the cloud, and capture, analyze, and act on insight produced at the intelligent edge - all while delivering network efficiencies. Aruba ESP enables the hybrid workplace by solving network complexity, management, and modernization challenges, but decision makers should understand the costs and benefits of choosing a modern, hybrid workplace solution that securely and intelligently provides seamless connectivity at the intelligent edge for users and IoT devices.

## The Solution: Aruba ESP

The Aruba Edge Services Platform works across wired, wireless, remote, WLAN, LAN, and SD-WAN environments to support digital transformation efforts. An alternative to traditional network solutions with capital intensive, inflexible acquisition models, Aruba ESP solutions can be purchased traditionally or delivered as a service for flexible consumption and offers an open standards-based edge-to-cloud network architecture that provides these core capabilities:

- **Aruba AIOps**—Combines big data and machine learning for purposes of automating IT operational processes such as troubleshooting, root cause determination, and network optimization efforts.
- **Edge-to-Cloud Security**—Delivers the network foundation needed for zero-trust and SASE (Secure Access Services Edge) security frameworks by providing comprehensive visibility, least-access micro-segmentation, authentication, role-based access, and continuous monitoring and enforcement, while applying the same controls in all locations.
- **Aruba Unified Infrastructure**—Unifies best-of-breed remote, branch, campus, and data center connectivity by converging the management of wired, wireless, and WAN networks onto a single cloud-native platform.

Aruba Central, with built-in AIOps, is the single pane of glass for Aruba ESP operations. It is designed with modern web-scale architecture that includes microservices, containerization, and a common data lake. Aruba Central connects IT to

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<sup>3</sup> Ibid.

<sup>4</sup> ESG Master Survey Results: [2020 Technology Spending Intentions Survey](#), January 2020.

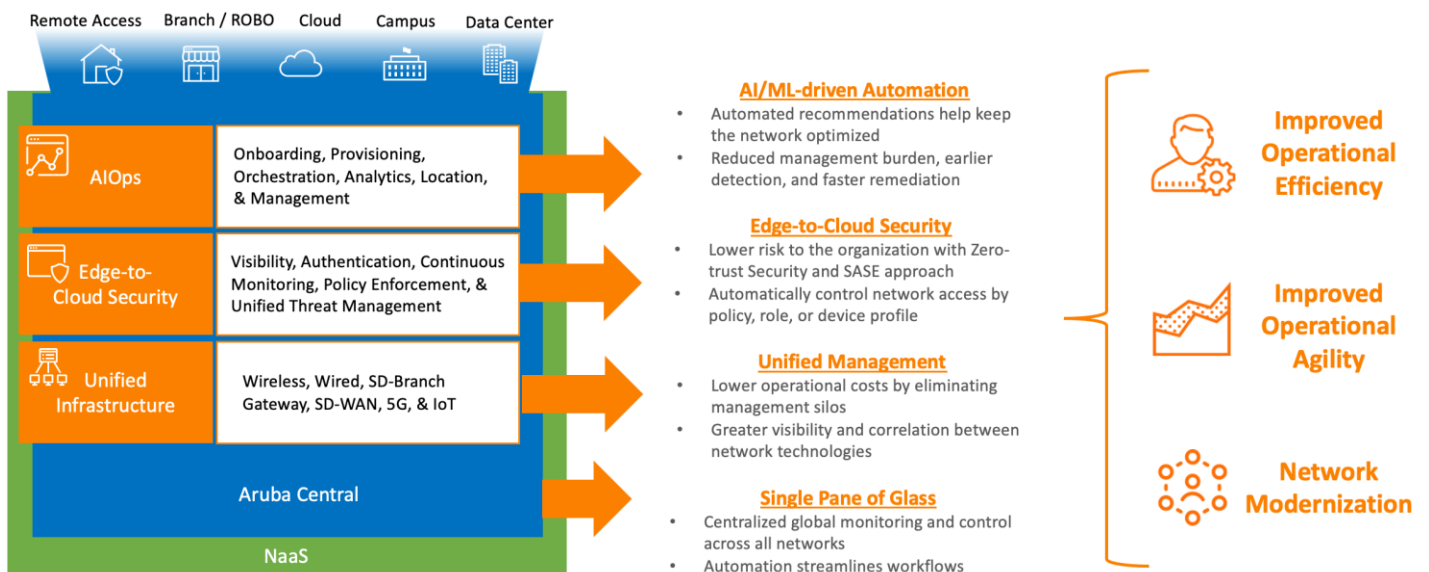
needed data and management services no matter where they are located, and it reduces operations complexity by streamlining workflows and centralizing monitoring and control.

The benefits of an intelligent edge solution like ESP is the ability to analyze and act on data at the edge in real time to make faster, more informed decisions leveraging AI and API-driven third-party software integrations. In addition to detailed alerts, reports, and troubleshooting information, other key features include:

- Role-based access control and dynamic segmentation.
- Contact and location tracing.
- Advanced intrusion prevention system (IPS)/intrusion detection system (IDS) threat defense management.
- Mobile application-based network installation.
- Unified management for access and SD-WAN edge infrastructure, managing everything from edge to cloud.
- Platform for converging IT, OT, and IoT, giving organizations freedom to implement return-to-work solutions at any time without ripping and replacing IT infrastructure.

The Aruba ESP infrastructure can be implemented physically or virtually. Organizations can connect and secure physical locations, private clouds, and public clouds in a consistent manner, allowing them to deploy and support secure remote work solutions without the need for onsite staff.

**Figure 2. How Aruba ESP Enables the Hybrid Workplace**



Source: Enterprise Strategy Group

## ESG Economic Validation

ESG's Economic Validation process is a proven method for understanding, validating, quantifying, and modeling the economic value propositions of a product or solution. The process leverages ESG's core competencies in market and industry analysis, forward-looking research, and technical/economic validation. ESG conducted in-depth interviews with end-users to better understand and quantify how Aruba ESP has positively impacted their organizations.

### Aruba ESP Economic Overview

ESG's economic validation with Aruba's customers revealed that Aruba ESP has helped them streamline and simplify network operations, increase efficiency in several ways, and extend their networks securely to accommodate changing edge-to-cloud requirements. Based on observations to date, ESG identified benefits in the following categories:

- **Improved operational agility**—Intelligent, integrated automation removed the constraints of human resources and manual processes, facilitating increases in agility and network scalability and accelerating time to value. The consistent operational view and user workflow also eliminated network silos that result from independent management of WAN, wired, and wireless networks and the associated silos of provisioning, monitoring, reporting, and troubleshooting tools.
- **Improved operational efficiency**—IT teams were able to be more proactive and do more with existing resources thanks to automation and AI-powered insights. By pre-empting issues associated with network performance, operations ran more smoothly and employees were productive regardless of location.
- **Network modernization**—Flexible financing and consumption models enabled organizations to optimize TCO and CapEx/OpEx budgets and define their optimal pathway to a modern network. Using existing networks, IT teams safely and securely supported hybrid workplaces with modern tools and edge-to-cloud visibility while helping the business deliver new user experiences and business models.



### Improved Operational Agility

Traditional networks made up of multiple product lines, tools, and interfaces are rigid and complex to manage. Updates and changes to the network can be risky, requiring significant product expertise and time. Network issues of any kind—configuration, provisioning, troubleshooting, problem resolution, security, optimization—restrict business agility and worker productivity. Aruba ESP helped customers transform their networks and improve agility in the following ways:

- **Quicker network operations**—Aruba Central enables single-pane, centralized network management aided by a setup wizard. Administrators found it easier to manage network and security infrastructure, add or remove devices and licenses, and integrate with existing IT systems such as ServiceNow. ESG observed that automated network provisioning and policy-based configuration changes saved time, improved accuracy, and simplified device onboarding. One customer praised the zero-touch provisioning and their ability to do upgrades remotely without sending an engineer.

***“Awesome professional services...zero tickets, zero problems on the first day...totally seamless experience everywhere, even in the elevator.”***

- **Streamlined troubleshooting**—Aruba ESP puts needed data at the fingertips of network operators, who were able to drill down to view sites, devices, clients, and applications. Aruba AIOps identified issues related to connectivity and authentication, and provided recommendations that improved IT's efficiency. Authentication failures were resolved in minutes instead of the hours associated with traditional methods, helping to minimize the impact to operations.

*“Any modifications we make get pushed out automatically to the related APs. This is helping us move toward a zero-touch model systematically, regardless [of] how many thousands of miles a location is from our U.S. data center.”*

- **Earlier detection and improved insight**—Customers found that AI Assist eliminated time-consuming data collection processes, and the automatic detection of failure events such as switch port or SD-WAN tunnel flaps enabled them to act sooner. Aruba AIOps collected the relevant information, including packets if required, and alerted network administrators and the Aruba support team. ESG confirmed that Aruba AI Insights provided early insights by analyzing data from network devices and sites, and it developed optimization recommendations based on internal and external peer comparisons. Intelligent dashboard features allowed

customers to view analytics and take actions to prevent further issues or repercussions, allowing the business to operate more effectively.

- **Faster deployment and updates**—ESG validated the results of a study that found Aruba was able to automate more than 99% of traditional network deployment steps, resulting in savings of up to 61% on labor cost. IT teams rapidly spun up and orchestrated SD-WAN deployments for branch locations, cloud points of presence, and cloud virtual private gateways. Zero-touch provisioning sped the deployment of new infrastructure devices. Device boot-up triggered automatic downloads of centrally defined configuration details for Aruba access points, switches, VPN users and gateways, regardless of location. Operators used the installer app to delegate device installation and deployment to a trusted person or third-party provider, all while defining access privileges and tracking the onboarding process. These capabilities lowered the burden on IT by eliminating truck rolls and enabling non-technical staff to deploy network components and onboard IoT devices safely and securely. Additionally, ESG validated that Aruba ESP automated the setup of IPsec tunnels to build the SD-WAN overlay, learned and distributed routes across gateways, permitted on-demand VPN tunnels, and accelerated virtual gateway deployment in public cloud, helping to quickly scale the business.
- **Faster Resolution to security and performance issues**—Network operators found that AI and ML capabilities, combined with network- and user-centric telemetry data, quickly revealed performance and security issues and pinpointed root causes—providing a safe and consistent experience for end-users. In many cases, Aruba AIOps also recommended or automatically performed prescriptive actions. The edge-to-cloud zero trust and SASE approach, working through Aruba Dynamic Segmentation, enabled customers to ensure the identity of an endpoint, enforce applicable endpoint policies with built-in application-aware firewall, and dynamically adjust policies based on new threat information. Built-in VPN support for WFH workers, including the same role-based access controls that applied on campus, enabled faster network implementation at the edge. Aruba Unified Infrastructure relieved operators of the need to manage multiple platforms and interfaces while enabling secure edge-to-cloud connectivity.

*“[Aruba] automatically identifies and classifies devices, based on multiple criteria, providing device and user access based on policies we set.”*

- Automated IoT**—With Aruba ESP and the ClearPass policy management platform, operators no longer had to manually discover and classify IoT devices or manually segment traffic. And it eliminated the time-consuming and error-prone task of setting up and maintaining VLANs for this purpose. By finding and profiling everything connected to the network (even IoT devices connected without IT’s knowledge) and assigning pre-defined access and security policies, customers reduced risk associated with potential security breaches and related fallout while allowing the business to operate in an agile manner.

*“If Aruba Central is running, there is not much more I need to do. Updates are just a matter of telling it to go.”*



### Improved Operational Efficiency

Distributed organizations often have limited on-site resources, frequently relying on costly managed services to operate at scale. Savings provided through gains in operational efficiency can quickly add up. Aruba ESP customers noted improvements in efficiency by automating manual, time-consuming tasks, which, in turn, simplified management and support tasks, improved accuracy, and reduced the number of issues requiring IT attention. ESG spoke with organizations that reported the following benefits using Aruba ESP:

- Improved IT efficiency**—Customers reported up to 50% improvement in IT efficiency through the use of centralized management and AIOps. Aruba ESP enabled IT to minimize outages, maintain availability, and better define and meet SLAs with live upgrades. ESG confirmed that Aruba AI Assist saved end-user and support personnel time through log collection, packet capture, and automated trouble ticket submission. With AIOps supporting their IT staff, customers eliminated many of the tasks involved with manual troubleshooting, reduced the number of trouble tickets, and minimized problem resolution time.
- Proactive avoidance of wireless issues**—More than half of IT’s time is typically spent on troubleshooting and preventative tasks. Aruba ESP’s intelligent automation identified anomalies and root causes rapidly and provided performance optimization recommendations. These capabilities helped IT teams resolve problems faster and before they had a negative impact on end-users and the business. For example, in a retail environment, WiFi network capacity was reduced by the mobile devices of passersby attempting to connect.

*AIOps intelligence identified and helped a retail chain to eliminate 95% of interference caused by illegitimate users and increased WiFi performance by 25%.*

Aruba AIOps detected the anomaly, recognized the difference between a passerby and a legitimate user, and provided recommendations to prevent the inadvertent connection attempts. This improved store WiFi capacity and the end-user experience. Another customer commented that users don’t notice the transition from the cellular network to WiFi because it is seamless using Aruba’s Passpoint-based 5G integration. Uniform policies across unified infrastructure critical to

automating IT support of remote workers.

- Proactive avoidance of network performance issues**—Customers experienced stable network connectivity and reported up to 40% fewer incidents and a significant reduction in trouble tickets because of Aruba ESP’s AIOps automated anomaly detection and network optimization. ESG noted how policy-based routing over a hybrid WAN of internet, LTE, and MPLS contributed to non-stop operations. A customer reported that Aruba software identified an issue related to oversaturation of the WiFi signal, and IT was able to resolve the issue during regular work hours, before users complained, with no disruption.

- **Proactive support of network issues**—AI-powered features allowed administrators to be proactive in several traditionally labor-intensive areas, for example, conducting natural language searches. Event-driven automation pre-empted reactionary problem-solving by initiating the gathering of troubleshooting information, identifying issues, and opening trouble tickets. One customer reported that moving to Aruba ESP fixed a very painful issue with their previous vendor’s access points where they were unable to do any remote troubleshooting and had to send personnel on site to remediate.

*“We’ve reduced our downtime per incident from four or five hours to just a few minutes.”*



### Network Modernization

Aruba ESP allowed customers to redefine their workplaces and define new user experiences and business models by using their existing networks to accelerate their modernization journeys. With Aruba ESP, customers described the following outcomes:

- **Secure, simplified extension of corporate network**—IT staff deployed remote access points (RAPs) rapidly. Remote workers could start working immediately after plugging in a RAP and downloading a configuration from the cloud. Integrated VPN and role-based security policies were deployed automatically to ensure appropriate access to IT resources, by automatically validating endpoint identity, assigning corporate security policies, and enforcing those policies with built-in security controls. IT staffs were able to maintain centralized visibility and control regardless of their location. Additionally, organizations were able to integrate existing security and other operational solutions with existing third-party products.
- **In-flight modernization**—Aruba customers found they could modernize without disruptions or rip and replace. They enhanced employee safety by using tools such as contact tracing, which supports social distancing, and location tracing, helping organizations monitor and adjust traffic patterns while maintaining employee privacy.
- **Simplified support and edge-to-cloud visibility**—ESG validated that Aruba ESP, which enabled IT to manage only one network through one point of control, simplified IT significantly compared to disparate, siloed systems. Notably, customers experienced fewer performance and support issues, while seeing more consistent service levels. One customer emphasized that central visibility and management made it far easier to monitor overall network health.

*“We estimate the help desk team can resolve issues up to 40 percent faster, significantly improving productivity for IT staff and business users alike.”*

- **Reduced risk**—Customers confirmed they could add new services without affecting any core functions, and that zero-trust capabilities such as role-based access control, dynamic segmentation, automated device discovery, and consistent policy deployment bolstered security. As mobile and IoT devices were deployed on wired or wireless networks, they were automatically categorized, and IT could check the profiles of connected devices to confirm device authenticity. One customer described the Aruba process of assigning certificates to devices as “secure and frictionless...users just open their laptops and they’re connected.”



- **Flexible financing and consumption models**—HPE Financial Services (HPEFS) helped customers modernize in spite of limited IT resources and tight CapEx/OpEx budgets. The choice of cloud-based or on-premises SaaS or network-as-a-service (NaaS) provided a range of deployment and management options.

## ESG Analysis

ESG leveraged the information collected through vendor-provided material, public and industry knowledge of economics and technologies, and the results of customer interviews to create a modeled scenario that compares the expected operational costs and benefits of deploying, managing, and maintaining a distributed environment with Aruba ESP instead of traditional network solutions. ESG's interviews with subject matter experts and customers with experience using Aruba and other network technologies, combined with our own experience performing technical validations of network solutions and expertise in modeling network management functions, helped to form the basis for our modeled scenario.

ESG's modeled scenario was based on a medium-sized distributed enterprise with annual revenues of \$50M consisting of 3 corporate data centers and 50 edge locations supporting corporate applications and services for thousands of end-users and IoT devices. ESG assumed typical complexity for the traditional network deployment, meaning that management of network devices and services required the use of several interfaces and some degree of certification by network technicians. ESG assumed that over the next 3 years, the number of edge sites would grow by 20% to a total of 60 edge sites.

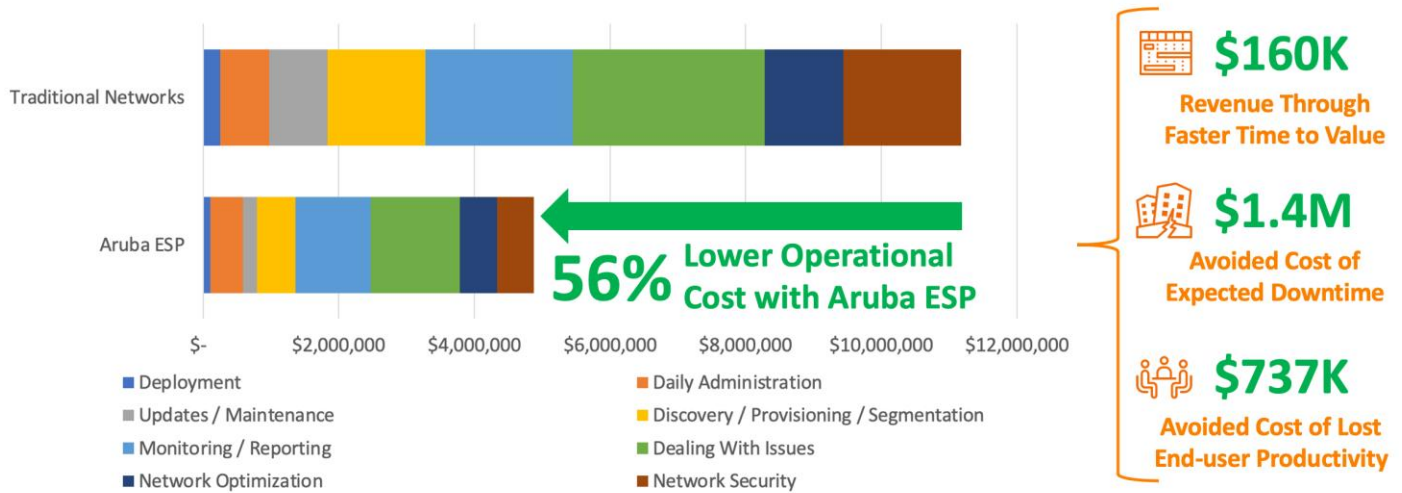
Based on conservative assumptions derived through validation, ESG modeled the expected costs to deploy, manage, maintain, and monitor/report the status of the distributed network configuration. In addition, we modeled the expected costs to deal with issues and optimize the network for performance and security. Finally, we modeled the expected cost to discover new devices on the network, provision services and access for these devices, secure the network, and perform the required network segmentation tasks for the traditional network. ESG's validated model predicted an overall operational savings of 56% over the three-year period, resulting in a total operational savings of \$6.2M by reducing the burden on network, security, and support teams, while also making them more efficient. The results are shown in Figure 3.

## Why This Matters

Managing traditional network services for a distributed organization can be quite costly from an operational standpoint due to the complexity involved.

ESG validated that the automation, intelligence, and centralized management built into Aruba ESP means that fewer resources can deploy, manage, and maintain services at the edge, saving millions of dollars while delivering improved security, reliability, and high performance.

**Figure 3. Expected Savings and Benefits Provided by Aruba ESP**



Source: Enterprise Strategy Group

The operational savings provided by Aruba allows administrators to focus more of their time on proactive activities such as streamlining operations, improving collaboration, and testing new and/or improving current existing services. By automating tasks, managing from a central location, and operating more efficiently, organizations can grow faster and accelerate their organization’s digital transformation.

In addition, ESG calculated that by being able to deploy edge locations faster with zero-touch provisioning and by deploying services and onboarding users and devices faster, the organization could expect to generate revenue earlier, providing an additional \$160K in revenue over three years. Similarly, by providing faster updates, reducing manual mistakes through automation, and identifying and remediating issues up to 50% faster, ESG predicted that the organization could avoid up to \$1.4M in lost revenue due to network downtime. Finally, by reducing the number of issues seen by end-users and speeding time to resolution for issues requiring support, ESG predicted an additional \$737K of avoided cost due to loss of end-user productivity. ESG’s model was created in good faith using conservative assumptions for the specific scenario depicted in Figure 3 and may not be representative of your organization’s requirements. Since no two deployments are identical, ESG recommends that each organization consider the categories and potential benefits and savings outlined in this report to perform its own analysis to better understand the potential savings that may be achieved.

## The Bigger Truth

Aruba followed trends in big data, data analytics, AI, ML, the Internet of Things, edge computing, and work styles and saw the need for a different approach to network management, operations, and security. Their approach reimaged the workplace to be hybrid—working from home or the office—and thought through how to manage, operate, and secure this new model with the same level of performance, security and end-user experience regardless of location. This meant overcoming common challenges such as limited resources, manual processes, information and tool overload, reactionary troubleshooting, and lack of visibility.

They hit the mark with Aruba ESP, which helps businesses seamlessly support digital transformation needs while leveraging their existing network assets—no need to rip and replace. By building in intelligence, automation, integration, and security, Aruba brought together the right components to deliver speed, simplicity, efficiency, and extensibility. As one customer said, “Extending the network, securely, to remote locations has to be a viable, long-term option...Aruba gives us a platform to accommodate a changeable future.”

Organizational juggling and struggling with traditional networks will only intensify as emerging technologies like 5G, WiFi 6, and SD-WAN are adopted. Fortunately, enterprises can smooth out adoption bumps with Aruba ESP, which works across all types of environments to support digital transformation cost-effectively. We believe Aruba ESP is well worth evaluating as a modern network solution, particularly through the lens of reducing risk, improving agility, and increasing efficiency.

To learn more, visit [Aruba's website](#).

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