Financial Benefits of Juniper Networks' Wired and Wireless Access Driven by Mist AI in Managed Network Services

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EXECUTIVE SUMMARY

The changing dynamics in the enterprise as a result of the COVID pandemic has elevated the network to the status of essential infrastructure. High availability, performance, and security are essential features of a network that needs to adapt to constantly changing requirements. These trends have amplified enterprises' demands for managed network services from trusted partners.

Delivering services that meet or exceed users' expectations means that networks need to be highly flexible, automated, and efficient. This drives two key requirements for enterprise managed Wi-Fi and wired LAN services:

- Cloud management to simplify and streamline all network management functions
- Artificial intelligence for IT operations (AIOPs) to perform event correlation, root cause analysis, and automatic or semiautomatic problem resolution before problems arise

ACG Research developed a business case model designing managed network services for enterprises' Wi-Fi and wired LAN services. The model calculates revenue, capital expense (CapEx), and operation expense (OpEx) for two scenarios:

1. Wired and Wireless Access with Juniper Mist AI
2. Wired and Wireless Access without Juniper Mist AI

Table 1 presents the cumulative results over five years. Our modeling shows that Mist AI resulted in an OpEx savings of 74% and a TCO savings of 33% over five years. These savings and improvement in business financial metrics are due to using AIOps in the Juniper Wired and Wireless Access Mist platforms to reduce labor in network management activities.

	With Mist AI	Without Mist AI
ROI	147%	87%
Margin	55%	32%
Revenue	$3.36B	$3.36B
CapEx	$1.26	$1.26
OpEx	$267M	$1.02B
TCO	$1.52B	$2.27B

Table 1. Cumulative Five-Year Comparison of Networks with Mist AI and without Mist AI

Enterprise Network Opportunities for MSPs

Managed enterprise network services represent a significant growth opportunity for service providers. The cloud managed Wi-Fi global market is estimated to be 4 billion in 2021, growing to 8.4 billion in 2025 with 19.8% annual growth[1]. The overall market for managed network services, which includes managed LAN, managed Wi-Fi, managed WAN, managed security, managed VPN, and managed network monitoring, is projected to grow 57.4 billion in 2021 to 82.3 billion in 2026 with an annual growth rate of 7.5%[2] .

The following are key trends that are driving growth and complexity in enterprise networks:

- Hybrid and work at home models during COVID changed enterprise network connectivity requirements overnight

- Hybrid work has also accelerated the globalization of the workforce because of the virtual work environment

- Dramatic growth in video and cloud meetings (Zoom, MS Teams, WebEx, etc.)

- Internet of things and edge computing continue to grow in importance and complexity

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[1] MarketsandMarkets

[2] MarketsandMarkets

Networks are critical to enabling most business processes in the modern enterprise. Given this importance, it is clear that:

- Network reliability and performance are critical

- Security is required everywhere, and security requirements are complex

- Users expect the network to be always on, work well for all applications and devices, and ensure security

- Complexity of enterprise networks is growing; a typical enterprise has Wi-Fi everywhere, wired LAN, BYOD, guests, and workers with different requirements and various levels of privileges

Enterprises' networks are critical infrastructures, and most enterprises are not in the business of networking. Therefore, it makes sense for enterprises to outsource network operations in order to focus on their core competencies whether it be financial services, retail, manufacturing or biotechnology. Managed service providers (MSPs) are in the business of building, operating, and delivering network services to enterprises, and many of these enterprises are looking for trusted partners. For MSPs there is a large opportunity for growth in:

- Managed Wi-Fi services

- Managed wired LAN services

- Managed security services

- Managed SD-WAN

- Indoor location services

- Others

What MSPs Need to Do to Be Successful

MSPs must deliver enterprise network services that have high availability and performance. They must support new and existing enterprise applications; users' expectations are high and therefore quality of experience is critical. Networks and services must be flexible and agile, allowing for fast rollouts for new offices, changes in business requirements, complexities of integrating corporate acquisitions, and changes to network policy, security, and application management. MSPs' cost models should be competitive with an enterprise's DIY approach. MSPs should benefit from better technology, experience, and economies of scale to allow them to deliver high-quality, dependable, and secure services at attractive price points.

How MSPs Can Be Successful

For MSPs to create successful service offerings there are some key capabilities that are needed in the network to allow for scalability, high availability, performance, and security.

Cloud Management

All network elements (Wi-Fi access points, switches, routers, etc.) need to be managed via the cloud. A solution using older on-site controllers is more expensive to operate, less scalable, and less flexible. Cloud management gives the MSP a single point of control for many different enterprises and sites. Alternatively, a solution that is not managed by the cloud requires custom installation, truck rolls, and results in increased network management expenses.

AIOps

Wireless and wired networks are complex, and manual human configuration, troubleshooting, and engineering does not scale to support large MSPs' networks, which often include many large enterprises with diverse locations and requirements. The key reason for using artificial intelligence is to automate fault management and problem remediation. AIOps performs event correlation, root cause analysis, and automatic or semiautomatic problem resolution before problems arise. Problems are resolved before the customer sees and reports them. In real networks we have seen trouble tickets reduced by 90%, which leads to significant reduction in OpEx, which increases service profitability while also improving users' experiences and customers' satisfaction.

Security

All network elements, software, and services need high levels of security. This means that both software and hardware must go through rigorous hardening, security testing and be patched to preclude vulnerabilities. Partnerships with vendors with strong security capabilities are key to achieving these goals.

Business Model Framework and Assumptions

ACG Research has developed a business model that calculates the key financial metrics of a managed Wi-Fi and managed Wired LAN service. The key objectives of the business model are to:

- Model a managed Wi-Fi and Wired LAN service offering using Wired and Wireless Access driven by Mist AI

- Show the total cost of ownership (TCO), revenue, profitability, return on investment (RoI), and payback on Wired and Wireless Access driven by Mist AI investment

- Compare a managed service offering using cloud managed Wired and Wireless Access driven by Mist AI to a managed service using a noncloud, non AI approach

- Show the OpEx benefits and profitability benefits of Wired and Wireless Access driven by Mist AI solution

ACG used its Business Analytics Engine (BAE)[3] to model the managed services network. Figure 1 presents the high-level structure of the model. There are three main categories of input to the business model:

1. Network architecture assumptions

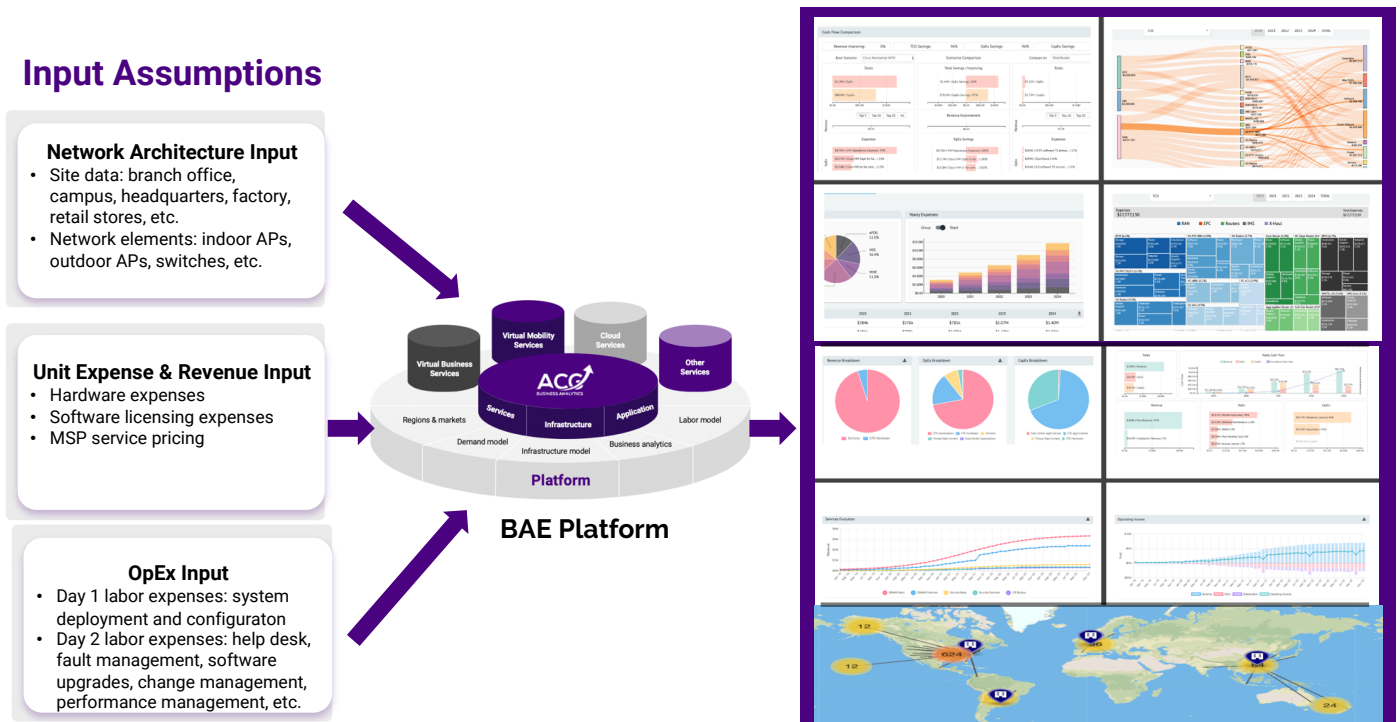2. Unit expense and revenue assumptions

3. OpEx labor assumptions

Figure 1. Structure of the Managed Services Business Model

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[3] https://www.acgbae.com/

Network Architecture Assumptions

In our model we assume a large managed service provider is providing services to multiple enterprises at many sites. Table 2 presents the assumptions for the number and types of sites used in our business model. Table 3 shows the average quantity of Wi-Fi APs and wired network switches. These are key numbers that drive revenue, CapEx, and OpEx in the business model. We use these assumptions for both of our network scenarios: with Juniper Wired and Wireless Access driven by Mist AI and without Mist AI.

Facility Type	Quantity
Small Branch Office	10000
Medium Branch Office	5000
Large Branch Office	1000
Factory	100
Campus	100
Small Retail Store	15000
Large Retail Store	3000
Corporate HQ	500

Table 2. Number and Types of Sites Used in the Business Model

Facility Type	Indoor APs	Outdoor APs	Access Switch 1	Access Switch 2	Distribution/ Core Switches
Small Branch Office	5	0	1	0	0
Medium Branch Office	10	0	3	1	0
Large Branch Office	31	5	10	3	1
Factory	63	20	25	5	1
Campus	188	50	50	10	1
Small Retail Store	9	0	1	0	0
Large Retail Store	25	5	10	3	1
Corporate HQ	94	20	25	5	1

Table 3. Assumptions for Types and Quantities of Wi-Fi APs and Switches at Each Site

Unit Expense and Revenue Assumptions

The MSPs' network expenses use the Juniper Wired and Wireless Access driven by Mist AI pricing models for Wi-Fi aceess points (APs) and switches. We select appropriate APs and switches based on the type of sites and the quantity of devices. The MSPs' revenues are based on a pricing model that marks up the base expense of the APs and switches by 70%. This is a margin on top of the hardware and software expenses. The BAE model calculates the gross margin and also accounts for the cost of labor in delivering the service.

OpEx Assumptions

In real customers' networks we have seen operations labor savings of 90% using Mist AI. These labor savings are because of:

- Day 1: Simplified system deployment and installation
- Day 2: AI automates fault management, performance management, change management and remediation to reduce labor expenses

The specific OpEx labor categories modeled are:

- System deployment and configuration
- Help-desk trouble tickets
- NOC fault management
- On-site fault management
- Software upgrades
- Change management
- Hardware replacement
- Performance management

CapEx Assumptions

We consider the cost of APs and wired switches as CapEx in this model. In some cases the annual subscription costs are considered OpEx, but if subscriptions are for three years or five years, they can also be considered CapEx. Because many operators prefer the CapEx model, for the purposes of this analysis all hardware and software is considered CapEx. Although CapEx can vary between different vendors and architectures, we assume CapEx is the same for both scenarios. The key benefits conveyed in this analysis are labor savings OpEx benefits, not CapEx benefits.

Business Model Results

The model shows that the Juniper Mist AI results in significant OpEx and TCO savings over a noncloud, non AI managed network. The results also show that Mist AI allows MSPs to operate a profitable managed services business. Table 4 presents the five-year cumulative OpEx and TCO savings of the Mist AI network over an alternative network. Table 5 presents the five-year cumulative financial metrics for both scenarios. The results show that the business is more profitable with higher ROI with the Juniper Mist AI network solution. Figure 2 and Figure 3 show the year-by-year comparisons of cumulative cash flow and TCO for the scenarios with Mist AI and without Mist AI.

Expense Type	Mist AI Savings
OpEx	74%
TCO	33%

Table 4. OpEx and TCO Savings of a Mist AI Network

	With Mist AI	Without Mist AI
ROI	147%	87%
Margin	74%	51%
NPV	$1.53B	$902M
Payback	16 Months	27 Months
Revenue	$3.36B	$3.36B
Cumulative Cash Flow	$1.86B	$1.09B
CapEx	$1.26	$1.26
OpEx	$267M	$1.02B
TCO	$1.52B	$2.27B

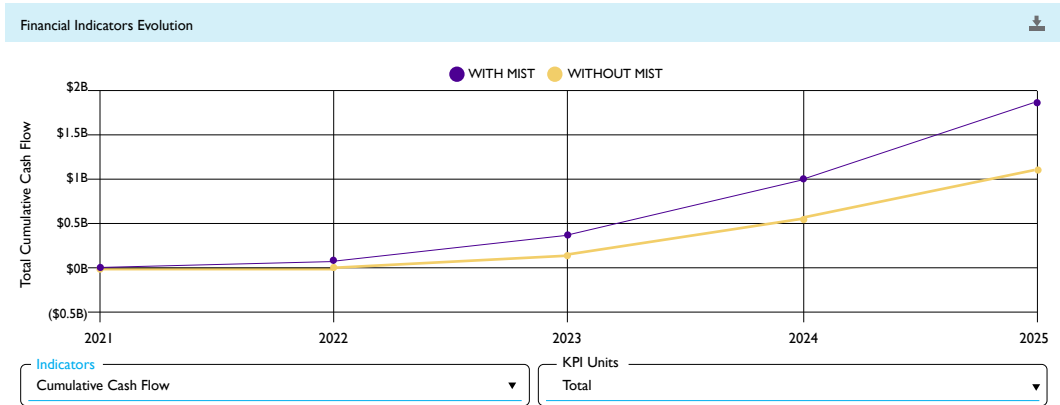**Table 5. Cumulative Five-Year Financial Results of the Business Model**

Financial Indicators Evolution

Figure 2. Year-by-year Comparison of Cumulative Cash Flow with Mist AI and without Mist AI Scenarios
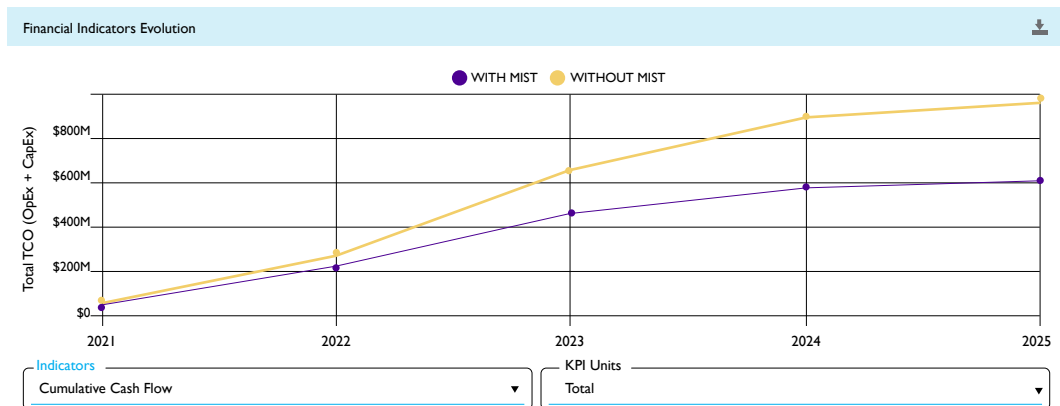
Financial Indicators Evolution

Figure 3. Year-by-Year Comparison TCO with Mist AI and without Mist AI Scenarios

Conclusion

The enterprise network is an essential network resource that must provide high levels of availability, performance, and security. To meet the stringent demands of enterprises and operate a profitable managed service, operators must use cloud-enabled AI in all parts of the network to reduce labor expenses and improve network quality. ACG's business case modeling has shown that the Juniper Wired and Wireless Access driven by the Mist AI solution reduces OpEx by 74% and decreases TCO by 33%, which dramatically increases service profitability margins and provides a vehicle for top-line revenue growth for network operators.

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