



Building the Business Case for AI in Wireless Networks: Juniper Mist AI TCO Report

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INTRODUCTION

In the digital landscape, today, enterprise networks are at the core of every organization's digital transformation journey. Wireless networks, particularly Wi-Fi, play a pivotal role in providing network access and significantly contributing to an ideal user experience. The evolution of enterprise Wi-Fi networks has been ongoing for nearly two decades, with significant advancements seen in recent years thanks to the integration of AI-driven technologies with Juniper Mist AI, which is leading the industry.

This whitepaper explores the economic benefits of faster network rollout, reduced support tickets, experiences made better by location services in driving business outcomes, and fundamentally changing the way networks are managed through AI driven operations of Juniper Mist AI.

Enabling the AI-Driven Enterprise

A Brief Evolution

The enterprise Wi-Fi landscape has come a long way, maturing significantly since its inception in 2003. However, innovation remained relatively stagnant from controller-based architectures first introduced in 2007 until 2014 when Mist revolutionized Wi-Fi networks by introducing AI-driven operations. Today, three out of the four largest companies globally rely on Juniper for both wired and wireless network solutions.

Key Benefits of Juniper Mist AI

Some of the key benefits of Mist AI are depicted in Figure 1. The following is a summary of these benefits:

Fastest Rollout: Juniper Mist AI enables organizations to deploy networks faster and at a lower cost while minimizing errors. Remarkably, large enterprises can deploy up to 4000 Access Points (APs) in a single day, streamlining network expansion.

Fewer Tickets: AI-driven operations post-deployment improve both users' experiences and the efficiency of IT teams responsible for network operations. By eliminating 80% to 90% of trouble tickets, Juniper Mist AI significantly reduces operational overhead, reduces remediation costs, and frees time for more important tasks.

Location Services: Juniper Mist AI provides location services, assisting users in navigating stores, campuses, and delivering valuable location data to enterprises. This feature enhances the overall user's experience, clears a path to new businesses opportunities, and eliminates the necessity of physical beacon technology through virtualization.

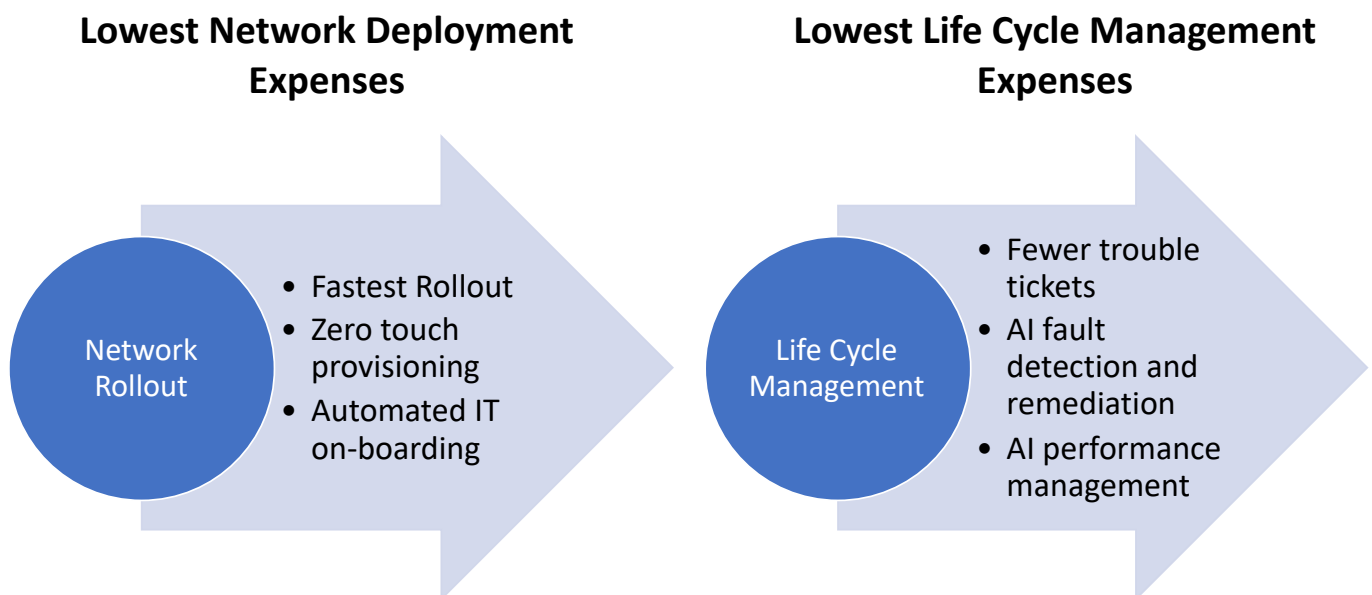


Figure 1. Digital Transformation Starts with the Network

Fundamental Mist AI Differentiators

The following summarizes the fundamental Mist AI characteristics that differentiate the Mist AI solution from all other solutions in the marketplace.

Client-Level Visibility: Juniper Mist AI offers client-level visibility by collecting telemetry data in real time from every device at a high frequency, capturing up to 150 states for each device. This level of monitoring ensures that Mist AI has comprehensive knowledge of what device users experience as they access applications and services.

AI-Driven Operations and Support: Cloud-based Mist AI performs accelerated operations that mimic human intervention. It dynamically captures packets, conducts automated root-cause analysis, and can autonomously correct problems, reducing trouble tickets by as much as 90%.

Microservices Cloud for Agility: When compared to traditional controller-based architectures, the microservices cloud architecture of Juniper Mist AI improves reliability, resilience, and availability. This design also scales seamlessly to meet the needs of the largest, global enterprises and provides anywhere, anytime secure access to operations staff.

Digital Engagement: Juniper Mist AI integrates location services into the network infrastructure, simplifying deployment. Businesses can leverage its more precise location data through open APIs to create new or enhance experiences.

AI Delivers Insights: Juniper Mist AI provides real-time insights to network operations teams. In addition to problem and root cause identification to facilitate or automate remediation, it spots and addresses performance issues proactively, preventing potential disruptions. Mist also provides IT staff with a natural language interface, called Marvis, to ask questions and gather information.

TCO Modeling by ACG Research

To quantify the economic benefits of Juniper Mist AI, ACG Research developed a five-year total cost of ownership (TCO) model representative of an enterprise network. This model compares two scenarios:

1. With Mist AI Wi-Fi
2. Without Mist AI Wi-Fi

Network Overview

We model an enterprise Wi-Fi network that is typical of medium to large enterprises. The number of sites and AP's in the network is presented in Table 1.

Site Type	Number of Sites	APs per Site
Small Branch	200	3
Micro Branch	20	1
Medium Site	40	12
Large Corporate Site	3	50

Table 1. FTE Tasks with Fixed and Variable Labor Hours

OpEx Reduction

Juniper Mist AI has demonstrated a documented ability to reduce network operations time by 90%. ACG models various labor categories, including system deployment and configuration, help desk trouble tickets, change management, hardware replacement, network operations center fault management, on-site fault management, performance management, and software upgrades. We model the time required per Wi-Fi AP for each type of labor for both scenarios: with and without Mist AI.

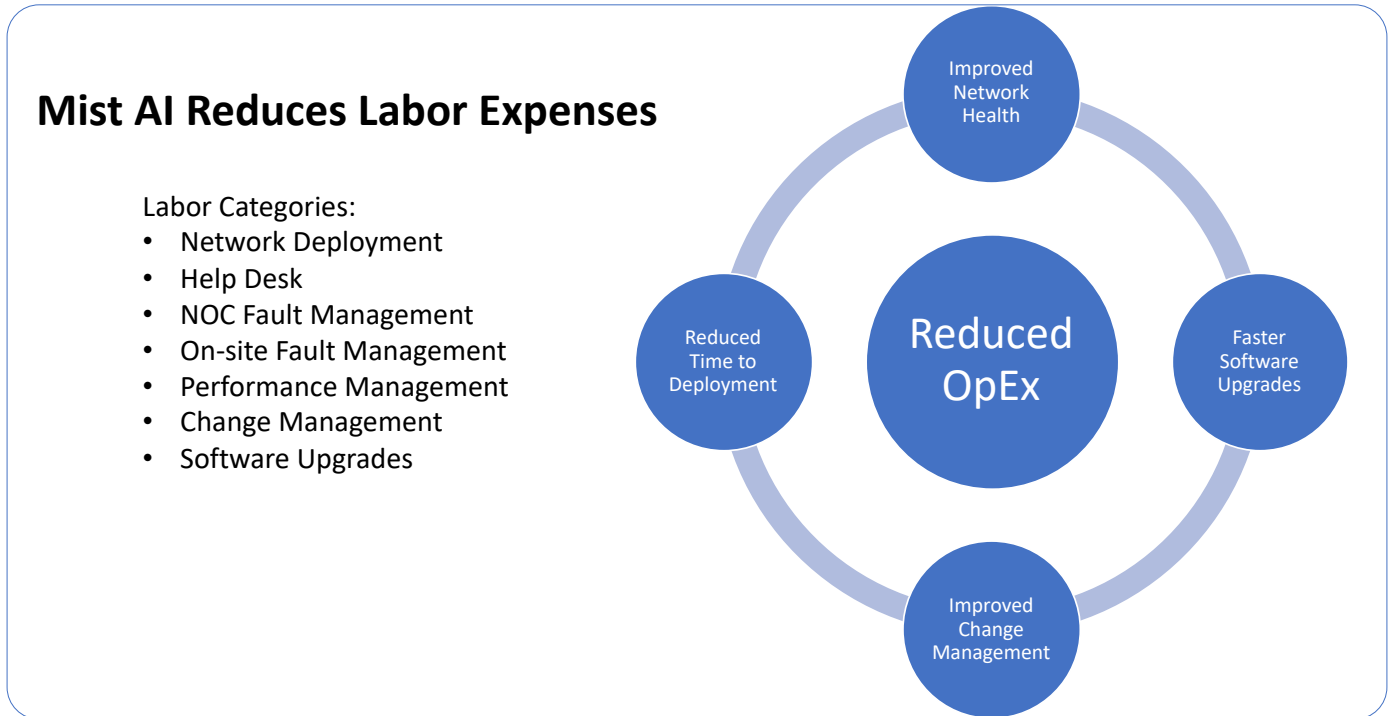


Figure 2. Mist AI Reduces Network OpEx

CapEx and OpEx Considerations

The TCO model considers all capital and operating expenses of the Wi-Fi network, encompassing hardware expenses, software licenses, vendor support, and enterprise IT labor expenses. Capital expenditures are assumed to be similar for both scenarios (with and without Mist). In some cases, CapEx could be higher for the scenario without Mist if additional location services are implemented. However, for this analysis we assume the costs are similar.

OpEx Savings

ACG's TCO model demonstrates OpEx savings of 87% over five years and an overall TCO savings of 60% with Juniper Mist AI compared to the scenario without it. The breakdown of OpEx savings is detailed in Figure 3.

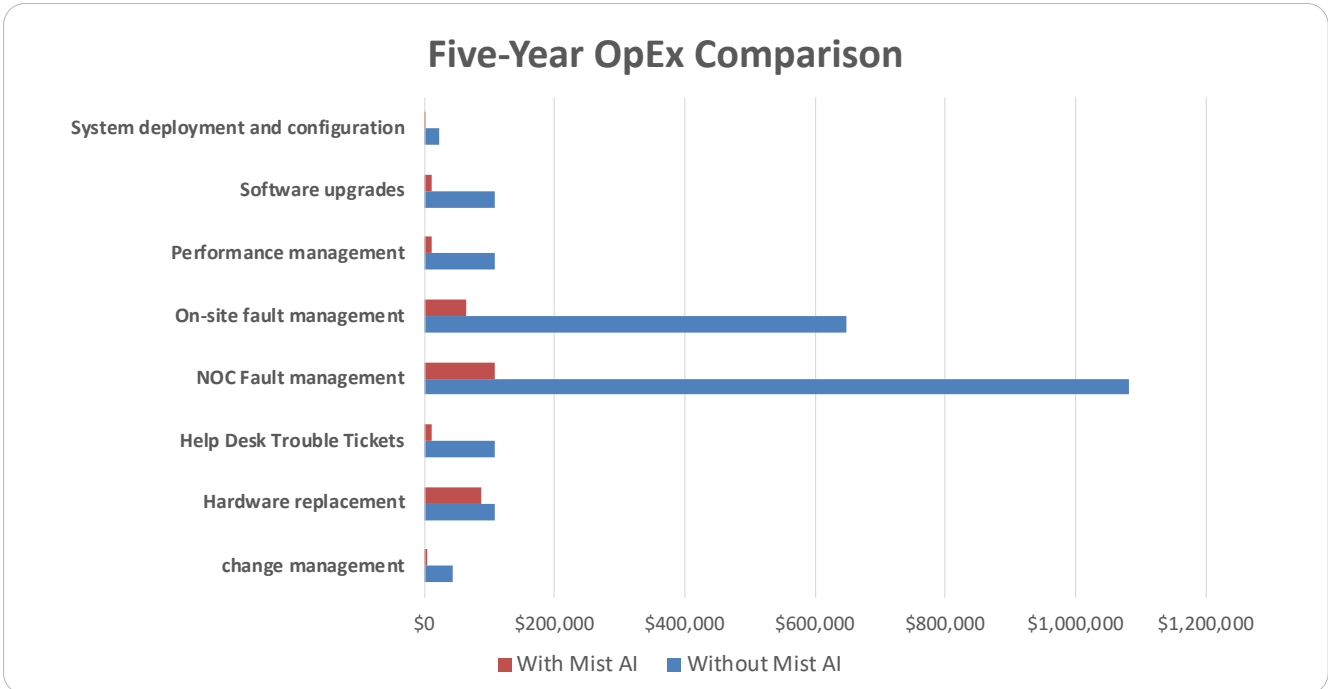


Figure 3. Five-Year OpEx Savings of 87% Overall with Mist AI

Conclusion

Juniper Mist AI has brought about a paradigm shift in the way enterprises manage their WiFi networks through AI-driven operations. By enabling faster rollout, reducing support tickets, and providing simpler, more precise location services, Juniper Mist AI offers substantial economic benefits.

ACG's TCO model demonstrates significant OpEx savings, resulting in an overall TCO reduction of 60%. As businesses increasingly rely on wireless networks for productivity and customer engagement, Juniper Mist AI emerges as a strategic choice for driving positive business outcomes through technology innovation and efficiency gains.



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Peter Fetterolf, Ph. D. is an expert in network technology, architecture and economic analysis. He is responsible for financial modeling and whitepapers as well as software development of the ACG Research Business Analytics Engine. Dr. Fetterolf has a multidisciplinary background in the networking industry with over thirty years of experience as a management consultant, entrepreneur, executive manager, and academic. He is experienced in economic modeling, business case analysis, engineering management, product definition, market validation, network design, and enterprise, and service provider network strategy.

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