AI-Driven Enterprise Solutions for Managed Service Providers

An examination of the key components and benefits of AI-driven enterprise solutions for managed services

Table of Contents

Executive Summary

This paper identifies the multiple challenges facing service providers in B2B markets and how cloud-based, AI-driven network technologies from Juniper can help deliver cost-efficient and profitable managed network services. Service providers will better understand how AI-based managed services help customers transition from legacy architectures to connectivity that delivers and supports cloud-based applications. Having AI-driven managed services is a key differentiator for service providers with customers facing digital transformation.

Introduction

Service providers are under pressure from all sides. Consumer services are being commodified, and strategies to diversify have not been successful. Mobile services are also rapidly becoming a commodity offer, and the balance between investing in delivering 5G services and potential revenue is not in the provider's favor. Add in the pressure from over-the-top technologies in the consumer and B2B markets, and the outlook can seem grim.

Juniper has developed a progressive set of AI-based networking technologies that service providers can leverage to deliver highly efficient managed services. When service providers have these in their portfolios, they can provide enterprise customers with a modern approach to delivering customer and employee experiences.

Enterprises are increasingly looking to change the way they consume technology; managed services allow the enterprise to consume networking technology through an out-tasked model. When these tasks are outsourced, resources are free to focus on core elements of the business, capital expenditures are reduced, and innovation is possible. Managed services greatly leverage the economy of scale, enabling numerous advantages.

Challenges Faced by Service Providers

The challenges faced by managed service providers are well documented. They include:

- Technology debt
- Operational complexity
- Dilution of the value proposition
- Capital investment that does not drive top-line growth

These issues are contributing to service providers' decreasing revenues and margins—making it imperative that managed service providers find new opportunities for top line growth. At the same time, they must maximize the margins of their managed services.

Compounding this are new entrants into the connectivity and managed service market that are increasing competition and reducing margins. At the same time, over-the-top technologies such as SD-WAN and a shift in application architecture also put margins at risk. Traditional offers like MPLS are experiencing eroding value propositions. With the change in enterprise consumption models due to cloud-delivered services, deterministic technologies like MPLS and L2 VPNs are less popular or required. All these signs point to the need for new solutions.

Many service providers are looking at changing their delivery model for underlay connectivity. They want to re-architect their networks to provide optimal paths to the cloud applications that are critical to a modern enterprise's business. In addition, partnerships are on the increase between service providers to provide global coverage and to team with newer entrants that have modernized network capabilities. Managed service providers need a new approach to remain relevant in the face of this disruption.
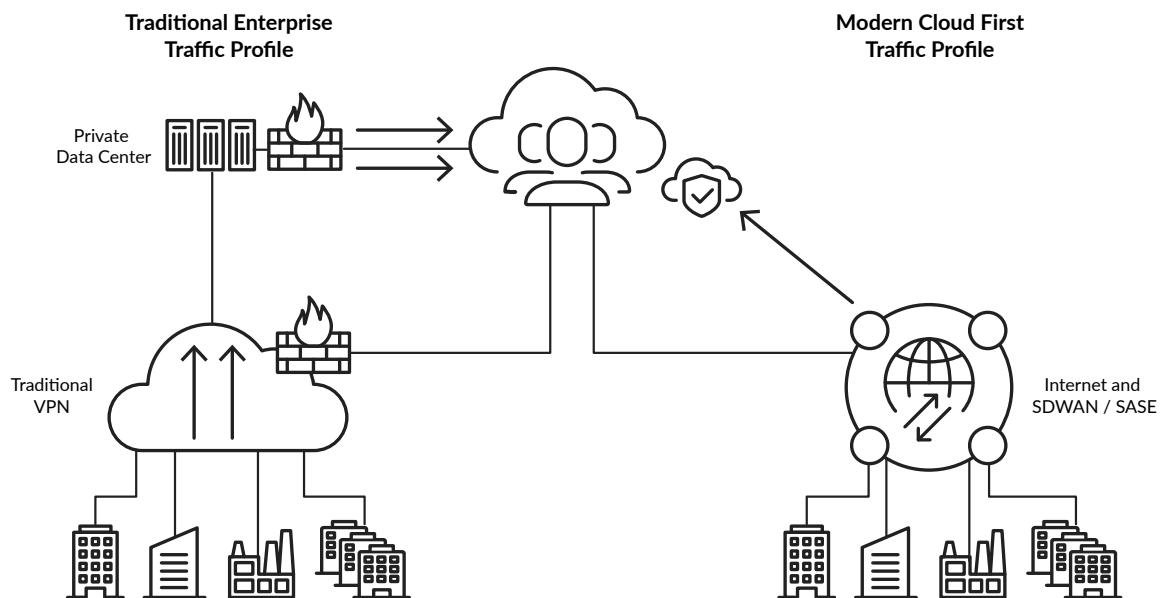
Traditional Enterprise Traffic Profile

Private Data Center

Traditional VPN

Modern Cloud First Traffic Profile

Internet and SDWAN / SASE

Figure 1: Cloud-based applications are creating a shift in traffic profiles.

The Opportunity for Managed Service Providers

Juniper can partner with service providers to build a contemporary underlay architecture that supports the needs of a modern enterprise. Juniper AI-Driven Enterprise Solutions create a programmable high-performance and power-efficient infrastructure that deliver traffic expediently to the cloud applications that are critical to today's fast-moving businesses.

Juniper AI-Driven Enterprise Solutions provide a comprehensive, full-stack LAN and SD-WAN solution powered by Mist AI™. The portfolio delivers cost-efficient, high-quality infrastructure that underpins the high level of customer experience that managed service providers require.

Juniper's approach challenges the traditional operational model used by managed service providers. Often new technologies are forced to conform to existing provisioning processes, losing much of the value-add provided by the new technology. For example, AI-based fault remediation may be viewed by a service provider as a challenge to their value proposition.

Technology has a history of companies being reluctant to adopt and disrupt the status quo. Voice over IP and MPLS, for example, were hugely challenging to existing models. They were initially embraced as adjacent solutions and quickly grew to become the industry standard for connectivity and voice services.

Managed service providers that are willing to challenge and disrupt themselves have realized benefits in the short—and long—term. AI-based cloud networking offers similar opportunities. By adopting this new approach, a service provider can move up the enterprise value stack.

Service providers have delivered managed services for many years, but the old architectures aren't serving modern needs. For example, enterprises were forced to compromise and choose a traditional on-prem offer for large complex environments or cloud-based networking for distributed branch environments. Often a managed service provider offered a combined solution to its enterprise customers. This option was great for the enterprise but complicated the network for the service provider. It required a complex technology stack that demanded multiple skill sets to design and operate its infrastructure. This impacted many aspects of the service negatively.

The cost of operating two solutions plus the interworking required to deliver a seamless service impacts profitability for the service provider. Service Level Agreements (SLAs) become harder to meet due to extended restoration times associated with fault finding in the different domains. None of the traditional solutions feature proven AI capabilities that can correlate data across multiple networking domains and recommend steps for fault remediation. In an environment featuring a dual estate, AI is almost impossible to employ given the on-premises and siloed nature of some solutions and the capabilities of first-generation cloud-based networks.

Juniper helps mitigate the need to support two architectures. AI-Driven Enterprise Solutions are designed and proven to work in both centralized and distributed environments. The portfolio scales to deliver the feature set of a large campus alongside the requirements of distributed branch networks. Many of the world's leading enterprises have achieved a modern scalable infrastructure with Juniper.

Juniper AI-Driven Enterprise Solutions provide a common interface through which service providers can manage the entire estate of an enterprise customer including wireless, wired, and WAN networking that scales to thousands of branches in a single instance. Juniper's **AI-Driven SD-WAN**, an efficient bandwidth and processing solution, delivers an SD-WAN service that utilizes up to 50% less underlay connectivity by not using inefficient encryption and tunnel techniques.

Customers have realized multiple benefits from the AI-Driven Enterprise portfolio. They have

- Reduced trouble tickets by 96%
- **Decreased network errors by 90%**
- **Reduced truck rolls** by 85%
- **Reduced OpEx** by 85%
- Experienced a **50% reduction** in Wi-Fi installation times
- **Realized savings of up to 50%** in underlay connectivity utilization

Juniper Enables Innovative Managed Services

The managed network services market is **estimated to be worth $10B** and is growing at around **50% per year**. Juniper AI-Driven Enterprise Solutions for managed services provide a full stack solution that delivers cost-effective, high-quality support for managed services based on:

- AIOps
- Wi-Fi
- Location services
- Switching
- WAN
- Security

Juniper AI-Driven Enterprise Solutions support campus and branch infrastructure. The portfolio is built using a modern microservices cloud for rapid zero touch deployment, client-level visibility, AIOps, and is fully underpinned by a 100% open API architecture. Here are more details on some of the individual components of the portfolio.

AIOps with Marvis Virtual Network Assistant

Marvis™ Virtual Network Assistant is a digital network expert that supports network operations staff by simplifying fault analysis and delivering corelated information on events and issues in the network. Marvis is the first network assistant in the industry to bring conversational AI to networking. Marvis can transform the way managed service operations teams interact and engage with enterprise customers' networks. In the era of AIOps, Marvis delivers streamlined operations, simplified troubleshooting, and remarkable user experiences. Since 2016, the Mist AI engine has applied various data science tools to continue to learn and improve, expanding its knowledge base as it becomes a fundamental component of the managed service providers management suite.

Using Marvis allows the service provider to provide different types of SLAs, with less overhead on operations staff. The AI engine detects and correlates faults across all domains of the network and into popular enterprise applications so that operations staff gain a triaged view of issues in the network.
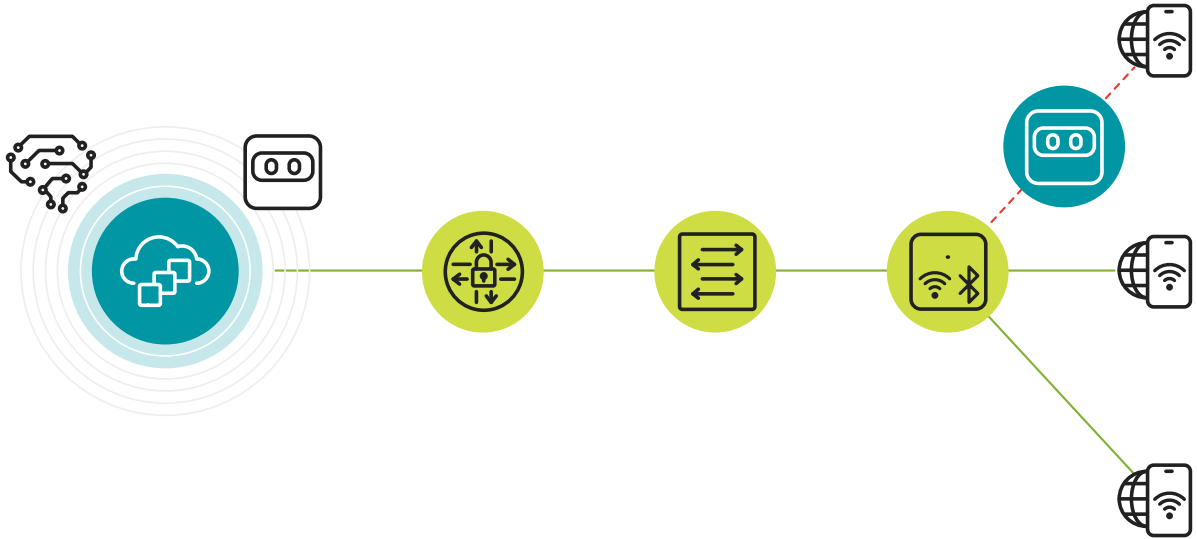

Figure 2: Marvis correlates telemetry data across the wired, wireless, and WAN to deliver immediate root-cause discovery.

APIs for Robust Integrations

Juniper AI-Driven Enterprise Solutions are built with <u>APIs</u> that allow service providers to integrate all elements of the Juniper portfolio seamlessly into their provisioning, management, and ordering tools. Juniper has extended these APIs to interface to applications such as <u>Zoom</u> and <u>Microsoft Teams</u>. For instance, Zoom integration with the Juniper Mist cloud enables Mist AI to gather information about Zoom calls from the Zoom cloud. This information contains Zoom's observed packet loss, latency, and jitter data for a client. Using this information, Juniper Mist cloud identifies Zoom calls during which problems—such as dropped calls and bad audio or video—occur, resulting in a bad user experience.

Juniper Mist Cloud correlates the information that it obtains from the Zoom cloud with the wired, wireless, and wide area network insights to determine the root cause for the Zoom call issues. Leveraging this correlated information, a managed service provider can provide proactive remediation for faults in the management domain or demonstrate to a customer that an SLA has not been breached.

Another significant benefit of Juniper's API-first approach is through a partnership with <u>ServiceNow</u>. As a customer, ServiceNow has adopted the full stack of Juniper AI-Driven Enterprise technology. To maximize the impact of the investment, Juniper and ServiceNow have jointly developed a suite of pre-integrated apps that are presented within the ServiceNow store. These apps provide out-of-the-box integration between the Juniper Mist Cloud and the ServiceNow platform.

Figure 3 shows the provisioning and management model proposed by Juniper using ServiceNow.
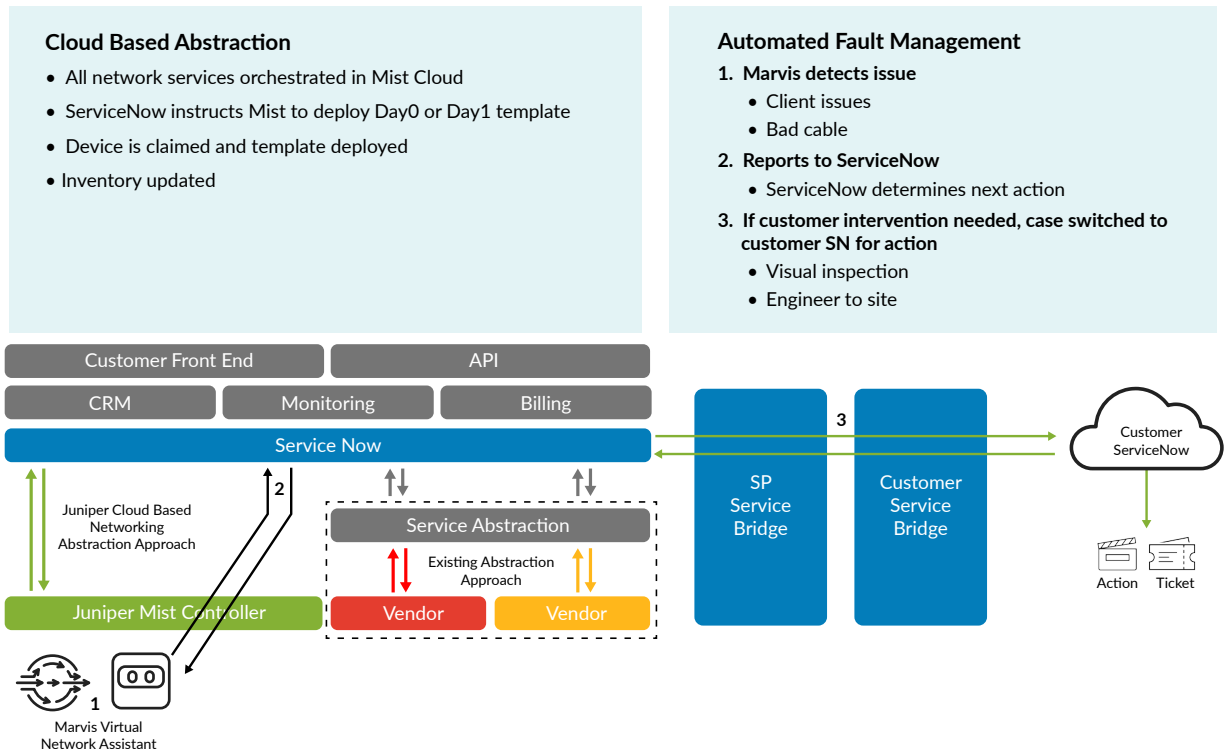
Cloud Based Abstraction
- All network services orchestrated in Mist Cloud
- ServiceNow instructs Mist to deploy Day0 or Day1 template
- Device is claimed and template deployed
- Inventory updated

Automated Fault Management
1. **Marvis detects issue**
   - Client issues
   - Bad cable
2. **Reports to ServiceNow**
   - ServiceNow determines next action
3. **If customer intervention needed, case switched to customer SN for action**
   - Visual inspection
   - Engineer to site

Figure 3: Integration with ServiceNow facilities Day 0 and Day 1 operations.

These apps make the provisioning, ongoing life cycle, and inventory management of a managed services based on Juniper AI-Driven Enterprise Solutions simpler, faster, and more cost effective.

This integration facilitates day 0, day 1, and day 2 operations. Juniper Mist Cloud acts as the service orchestrator and configuration is automated based on customer-provided data. Day 2 operations are also made easier by this integration covering moves, adds, and changes of in-life services. Inventory accuracy is massively improved by linking the inventory database within Juniper Mist to the service provider's consolidated inventory. This helps to ensure that assets are tracked and linked to field service activities supporting simpler and more cost-effective contract management.

Unlike the current model of service orchestration designed for mature and well-defined static VPN environments, this approach is predicated and optimized around cloud-based network offerings.

When combined with a managed service provider's capabilities to deliver connectivity, management, and global logistics, Juniper and ServiceNow's integration provides a cost-effective means to offer high-value services to enterprise customers. These integrations simplify onboarding of customers, sites, and devices; shorten the lead-to-cash cycle; and improve the economics of provisioning while ensuring the accuracy of managed service inventory.

Location Services for Asset Visibility, Intelligent Services, and Operational Efficiency

Indoor location services are critical to revolutionizing the user experience. Increasingly, enterprises require real-time cloud location services that combine personalization, data analytics, and operational simplicity to deliver turn-by-turn navigation and comprehensive visibility while reducing operational costs through intelligent automation.

With Juniper indoor location services, service providers can expand their revenue opportunity with enterprise customers. Data gathered by Juniper Mist cloud can be shared with the customer's analytics tools or third-party providers. Additionally, the service provider can develop its own suite of managed location services that provide customers with insights to optimize their business while adding stickiness and revenue from the managed service contract.

Driven by Mist AI, the Juniper Mist cloud architecture converges Wi-Fi and Juniper-patented virtual Bluetooth® LE (vBLE) technology to enable indoor location services that deliver optimum location accuracy and unparalleled user experiences.

Junipers smart Wi-Fi and patented vBLE solutions deliver location services accurate to between one and three meters. Managed Service Providers can develop services that can be used to quickly find equipment and other assets. With a managed location service offer based on Juniper, service providers can offer services where enterprises can engage in new ways with customers, patients, and guests through their mobile phones with promotions, greetings, and step-by-step directions.

Security with Juniper Access Assurance and SASE

Juniper has developed a new approach to delivering network access control (NAC) that is part of the Juniper AI-Driven Enterprise portfolio. Juniper Access Assurance is a cloud-based NAC service that enables enterprises to easily enforce secure network authentication and authorization without the challenges associated with on-premises NAC.

Aligned with Juniper's cloud-based networking philosophy, Juniper's NAC solution provides a streamlined client-to-cloud user experience, inherent high-availability services, and greater resilience, as well as automatic feature updates and bug fixes. It's simple, secure, and scalable with no downtime for upgrades and tackles the complexity and poor scalability of legacy solutions.

Access Assurance offers a full suite of access control functionality with a flexible, simple authorization policy framework for onboarding guests, IoT, BYOD, and corporate devices.

Access Assurance was designed to enable a secure and reliable user connection experience on the network. By integrating NAC with network connection visibility, it continuously validates the end-user experience, pinpointing issues whether they're caused by client configuration, network services, or NAC policies. All client events are captured by Juniper Mist cloud, simplifying day-to-day operations and quickly identifying end-user issues.

In addition to the Juniper **Connected Security** portfolio, Juniper also supports native integration with third-party Security Services Edge (SSE) providers like Zscaler to architect a complete Secure Access Services Edge (SASE) solution with AI-Driven SD-WAN. The solution automates the configuration and set up of tunnels within the Zscaler domain, simplifying deployment.

A single pane of glass offers end-to-end visibility for all parts of the network. Access control is not a bolt-on feature; it's purposefully built into the Juniper Mist cloud to provide scalability and simplicity that complements the full-stack management and day-to-day operations of an enterprise's Wi-Fi access points, wired switches, and SD-WAN. The Marvis AI engine adds additional security by leveraging access data for anomaly detection to provide actionable metrics that help prevent unapproved access to the network.

Conclusion

Juniper AI-Driven Enterprise portfolio provides service providers with an automated, full-stack, AI-based, cloud networking offer. With this portfolio, service providers can build a managed service offering that can fundamentally change the economics associated with managed services. Juniper will work with service providers to analyze the potential benefits and develop a business case for Juniper-based managed services.

The scalable full-stack solution allows service providers to address the entirety of connectivity requirements from client to cloud. Unlike other vendors, Juniper's single solution covers multiple use cases and removes the need for costly and inflexible on-site controllers. It supports the rapid delivery of new customers, sites, and devices across the WAN, Wi-Fi, LAN, and security environments.

Coupling this with our integrations with Zoom, Zscaler, and ServiceNow highlight the flexibility of the Juniper Mist APIs. Specifically, ServiceNow provides a 360° capability that supports the automation of the entire workflow from order to delivery without human intervention, closed loop remediation of issues, and simple integration to the higher order systems within the service providers OSS stack.

Juniper has a deep portfolio that helps service providers adapt to changes in enterprise application and network demands. Juniper technology provides a full stack technology offer that is abstracted via modern APIs and powered by AI to deliver the next generation of connectivity and security in the managed services market. Services providers have a full set of offerings to create a next-generation portfolio of customer-centric, revenue-generating, experience-first services.

About Juniper Networks

At Juniper Networks, we are dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability and equality.

Driven by Experience™

APAC and EMEA Headquarters
Juniper Networks International B.V.
Boeing Avenue 240
1119 PZ Schiphol-Rijk
Amsterdam, The Netherlands
Phone: +31.207.125.700
Fax: +31.207.125.701

Corporate and Sales Headquarters
Juniper Networks, Inc.
1133 Innovation Way
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or +1.408.745.2000 | Fax: +1.408.745.2100
www.juniper.net

2000815-001-EN Jan 2024