theCUBE Research Whitepaper

Overcoming AIOps Skepticism:

A Blueprint for AI Adoption

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ABSTRACT: Modern IT and application environments are highly distributed and complex. Operations teams must monitor and manage infrastructure deployed across private data centers, public clouds, and edge locations. Just the sheer volume of data collected is enough to overwhelm any team. AI technologies can assist operations teams significantly, but AI-washing and hype have clouded the landscape. It will take time to sort through what is real and what is not. Fortunately, mature AI solutions like the AI-Native Network Platform used in conjunction with a Blueprint for AI-Native Acceleration from Juniper networks can dramatically reduce the time needed to build trust and comfort working with AIOps solutions in the network environment. While this time may vary based on the size and extent of your network, one thing is clear: organizations need to get started now.

Introduction

Organizations must contend with rapidly changing and complex IT and application environments while simultaneously delivering higher levels of availability and enhanced user experiences. In an always-on economy, customers expect instant access and a positive experience, regardless of where or when they interact with a business.

Modern IT environments have distributed applications across several enterprise data centers, multiple public clouds, and numerous edge locations to accommodate the need for agility and availability. While this has created greater availability and improved experiences, IT operations teams must manage this highly distributed and dynamic environment.

As a result of these changes, the network has become a critical business enabler, and it must be highly available, performant, and reliable. This also means that network operations teams are pressured to deliver optimized experiences for these highly distributed environments. Indeed, in a recent survey[1] more than nine out of ten organizations (93%) state that the role of the network in meeting business goals is more important than two years ago.

[1] Research: The Impact of AI on the Network, July 2024, theCUBE Research and ZK Research Collaboration

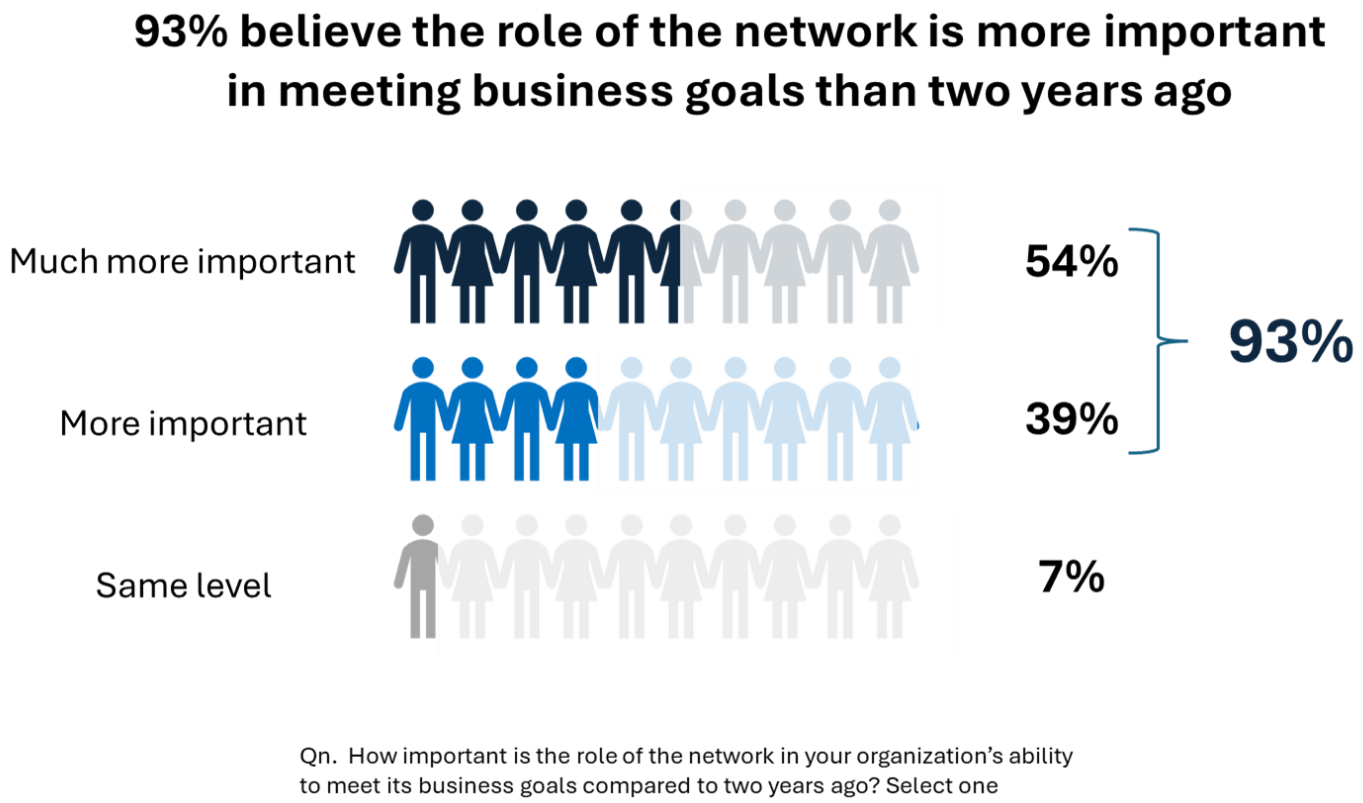

Figure 1 – Network Importance in meeting business goals

To meet these objectives, organizations are increasingly turning to AIOps technologies to equip their network operations teams with the necessary tools. In fact, according to Enterprise Technology Research[2], more than half of respondents (58%) have increased their net sentiment (adopting or expanding vs. declining or removing) for this technology and are increasing their spending on AIOps technologies, up from 55% in January 2024 and 42% in April 2023.

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[2] Research: Technology Spending Intentions Survey, July 2024, Enterprise Technology Research

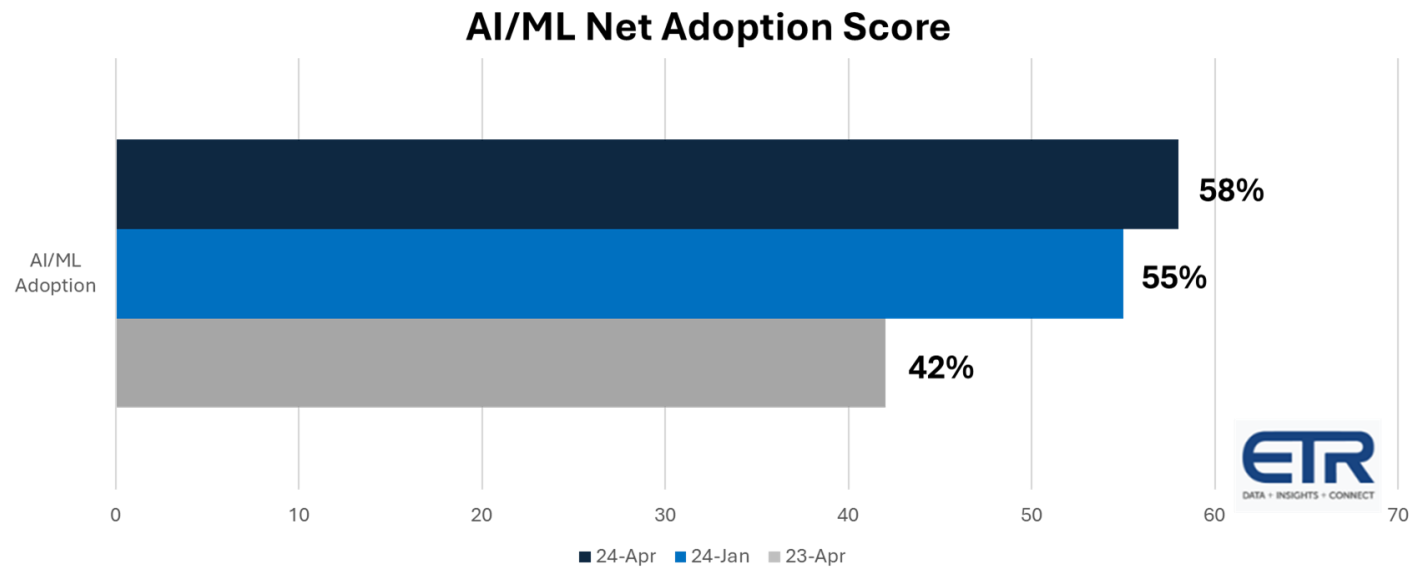

Figure 2 – Sector Spending Sentiment AI/ML – Source: ETR.ai – Technology Spending Intentions Survey April 2024

Procuring and adopting innovative AIOps solutions can help accomplish these goals, but adopting new technology can be difficult.

Challenges to adopting new AIOps technology

Even though AI/ML technologies have been around for over a decade (remember Watson on Jeopardy? That was 2011), AI hype has ratcheted up significantly in the last 12- 15 months. Much of the new AI hype results from the introduction of Generative AI solutions that leverage large language models and conversational AI/ natural language interfaces. Unfortunately, this has led to a massive uptick in AI washing, where almost every vendor wants to ride the AI Wave and capture as much AI spending as possible. It has gotten so bad that even the FCC warned about AI-washing. (Don't let AI hype lead you into illegal 'AI-washing,' SEC chair warns companies and investment advisers | CNN Business)

As a result, organizations need to overcome this AI hype and determine which AI solutions are real and deliver meaningful value. Unfortunately, making that determination can take time. Plus, network operations teams (and IT operations in general) tend to be more conservative, and rightfully so, when deploying any new technology. Taking a careful and thoughtful approach is required when there is an expectation of high availability and consistently positive experiences. I refer to this as the "time to comfort". This is the time required for an organization's operations team to validate the accuracy and effectiveness of the AI tools.

In the past, this included creating a test bed that was a much smaller version of the production environment. Operations teams would deploy the solution in this air-gapped environment to conduct tests and evaluate performance. This process could be lengthy, taking as long as six months to assess a solution thoroughly. Unfortunately, organizations need to shrink that window as the innovation cycle accelerates and organizations must move faster. Executive teams need to understand that it will take time for operations teams to get comfortable with AI; however, with a mature solution, that time could be dramatically reduced.

In addition, there are several high-level questions you should ask about any AI solution, including:

1. How mature is the AI solution? (i.e., many years or less than 15 months)
2. What data was used to create the algorithms? (i.e. scraped from Internet or vendor device specific)
3. What areas will it cover? (i.e. for networking, how many domains or vendors)
4. Does the vendor have any formal programs to accelerate adoption and speed time to comfort
5. Is it secure? (i.e. Does it leverage public AI models, and will any company data be shared there?)
6. Can the vendor provide references for using it in production environments? (i.e. to verify or quantify value)

While any new AIOps technology will take some time to adopt, there are ways to accelerate that time to comfort.

How to accelerate time to comfort with AIOps

Based on recent customer discussions, it is clear that AIOps tools can deliver real value to organizations, but many are hesitant to get started. Organizations need to evaluate solutions based on several critical criteria highlighted below to accelerate the time to comfort with AI for networking. Those criteria for the network space include:

1. Extensible AI platform: Vendors have been unifying network management domains for several years, providing organizations with a unified view and management of wired, wireless, WAN, etc. To provide context between network domains, it makes sense that an AI engine that can cover multiple network domains – i.e., Wired, Wireless, SD-WAN, DC, Routers, etc.- would deliver more value, especially its ability to understand interactions between domains and accelerate the time to ID a problem.
2. Secure: While implementing AIOps solutions can add value, ensuring that any company-specific or personal data traversing the network isn't being shared with the Internet will be imperative. Take the time to understand how the AI models were created, what data was used, and what data is being used to update or optimize them continuously. Vendors need to ensure there are safeguards in place to eliminate any data leakage while also ensuring a highly secure environment.
3. Explainable: The last thing an IT operations team wants to hear is that a solution is "magic" or "magically" derives an answer. Vendors need to be able to reference the data used, even if collected from their cloud management solution. This is especially true for any Generative AI (GenAI) technology used. Typically, mature vendors will highlight the sources used when providing results and, if possible, provide links to that data if publicly available. This step is essential for gaining the trust of the operations team.
4. Simple to use: While the shift from command line interfaces (CLIs) to graphical user interfaces (GUIs) has been transitioning for years, AI technology is accelerating the use of natural language processing and conversational AI. Why is this important? It eliminated the arduous and expensive training required to learn a network vendor's commands, enabling organizations to adopt new technology faster, using common queries to obtain information. This new interface typically takes the form of an AI assistant, and having a consistent AI assistant across all network domains will be essential. This should dramatically shorten the time to adopt new technology.
5. Closed-loop system: This is a vital part of an AI solution and ensures user involvement. Network operations teams can interact with the AI solution by providing feedback on each alert, recommendation, and automated activity. Operations teams can use this verification to flag the accuracy or inaccuracy of an action to improve algorithms and overall efficacy. Employing a closed-loop system makes sense for both the vendor and user, as each can see improvements based on the feedback of highly experienced network users.

6. Trusted, high-quality, and relevant data: Organizations need data to create algorithms for an AI engine, and lots of data is required. However, it's not any data scraped from the Internet; it is data specific to the environments it will analyze. For the networking space, the shift to cloud-based management systems has enabled vendors to collect highly trusted and relevant anonymized data. Additionally, more mature organizations ensure their data scientists are working with the customer support teams to ensure they are prioritizing the most pressing customer issues. As a result, organizations should be asking how long the vendor has been collecting and analyzing data in the cloud.
7. Efficacy: This measures how well AI technology can produce accurate results. In many cases, this reflects how mature the solution is and how it's continuously improved. Vendors should be prepared to demonstrate how their AI technology has improved over time. This is relevant for multiple reasons, but most importantly, it will highlight that the AI engine can adapt to a highly dynamic network environment and shows that the vendor has processes to accommodate continuous change and improvement. As noted above, the closed-loop system is integral to this process of constant improvement.
8. Digital twins: This technology, which creates a real-time digital counterpart of a device or user, is becoming more relevant to organizations that want to become more proactive and predictive. Vendors are deploying this technology to emulate the environment's network infrastructure, users, and devices. Then, using the digital twin technology, organizations can conduct ready-for-business testing ahead of actual demand or simulate adding to changing a new device to understand the impact on the network.
9. Blueprints for AI adoption: Having a standardized approach to designing, deploying, and educating teams on understanding and optimizing AI can have a dramatic impact on the time to comfort. Organizations should ask their network vendor about specific programs to help accelerate the adoption and validation of AI technology.

Organizations leverage AI for networking to provide intelligent alerts, recommendations, and even fully automated remediation.[3] While the end goal may be to become fully automated, most organizations are still in the validating alerts and AI recommendations stages and will begin to automate responses on a case-by-case basis.

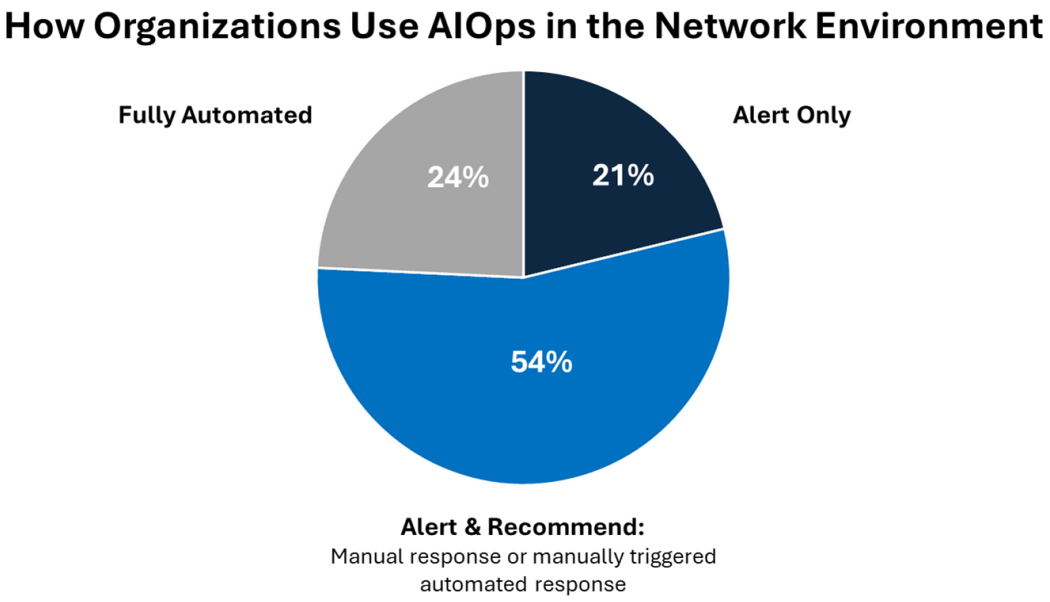

Figure 3 – AI Adoption and Usage –

[3] Research: The Impact of AI on the Network, July 2024, theCUBE Research and ZK Research Collaboration

This is based on their "comfort" of seeing the alert and recommendation being correct several times and then approving an automated response for that incident. It is important to note that even a fully automated response should be part of a closed-loop system. AI solutions must notify users of any automated actions to provide feedback. It is essential to remember that specific issues will always require human intervention – replacing a cable or power supply, etc.- and something new will always come up with a rapidly changing environment.

Juniper can help accelerate the time to comfort

Over the last 25-plus years, Juniper Networks has played an integral role in enabling organizations to transform from legacy environments into modern, dynamic ones. Having a front-row seat to prior significant shifts like the rise of the Internet and the public cloud has enabled them to recognize that AIOps could provide substantial benefits for network operations teams trying to manage these complex, distributed environments.

The foundation for Juniper's AI efforts is the highly extensible Mist AI Engine and Marvis, its conversational AI assistant. This technology has benefited from almost a decade (9 years) of development and refinement to build it into what it is today, an AI-Native Networking Platform. The ability to leverage anonymized data from Juniper's cloud-based management solution has accelerated the coverage area of this AI technology across all Juniper network domains. It ensures that the data used to create the AI algorithms is trusted, high-quality, and relevant. Juniper can provide efficacy charts to demonstrate the progress they have made.

In addition to AI Ops technology, Juniper has also created digital experience twinning technology that enables organizations to simulate wireless or wired end users or devices, allowing proactive ready-for-business testing and access. Given that this digital twin technology is following the same extensibility path as the AI engine, it is safe to assume it will cover additional domains in the future.

In addition, Juniper is also providing customers with a Blueprint for AI-Native Acceleration to progress through the AI adoption curve faster and achieve a more automated environment that leverages the network's self-healing and self-optimizing capabilities.

Those following Juniper's AI journey have witnessed the platform's extensibility, which started in wireless, then adopted the wired domain, SD-WAN, data centers, and most recently routers. Certainly, leveraging a modern microservices-based architecture helps accelerate new domains and capabilities. With this end-to-end coverage of the network domain, Juniper can deliver greater context and efficacy. Plus, the platform leverages the same interface and AI assistant for all domains to provide ease of use.

This unified approach quickly gets new team members up to speed. It also ensures that existing operations team members can cover other domains without significant retraining, ultimately improving operational efficiency and reducing the time to comfort.

The Juniper solution has been field-tested and proven to deliver real value to the customer. Typically, these users tell a similar story about the value of the Juniper AI-Native Networking Platform, highlighting a previous environment that used to generate hundreds of tickets over a specific time to one that now only generates a few over the same period. Having fewer tickets to resolve frees up network resources to focus on strategic or transformational activities and spend much less time just keeping the network available. Organizations report that the AI-Native Platform enabled them to be more proactive, finding and fixing issues before a problem is noticed. Indeed, the development of digital twin technologies will help further proactive testing. Finally, and perhaps most importantly, users have reported that network operations teams

become comfortable with the technology in just a month or two. Juniper's Blueprint for AI-Native Acceleration aims to reduce that time even further.

Our Perspective

Modern IT and application environments are highly distributed and dynamic. The network must be available and highly performant to ensure optimized experiences regardless of the user or application. Because changes can occur in just a few seconds, network data must be collected and analyzed in real time. Given the complexity of these modern network environments, it is virtually impossible to process all the data just using a human mind. That is where AIOps technologies can provide the requisite speed and power to deliver real-time insights, enabling operations teams to manage networks more efficiently.

The overwhelming reality is that the speed of innovation is only increasing, and organizations must adopt technologies that will enable them to harness the power of these modern environments while also delivering enhanced experiences. AI technologies are maturing and can deliver real value, especially in distributed, complex environments.

While adopting new technology like AI may be daunting, organizations can leverage the criteria outlined in this paper to sort through what is real and what is not. The key to getting comfortable with AI technologies is, well, getting started with AI technologies. The ability to leverage AI blueprints or accelerator services will also help.

In the networking space, Juniper has been pioneering AI technology and now has a fully integrated, mature AI-Native Networking Platform that provides end-to-end network coverage, has a single conversational AI assistant, is rolling out digital experience twin technology, Blueprint for AI-Native Acceleration, and has customers using the platform in production environments. Juniper has ticked all the boxes for criteria to ensure customers can accelerate that time to comfort with AI. Now is the time to get started. See what Juniper's AI-Native Networking Platform can do for your business.