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The Business Value of AIOps-Driven Network Management

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EMA

Executive Summary

The vast majority of network managers who have experience with AIOps solutions believe this emerging technology can improve network operations. They also believe that applying AIOps to network management will lead to better overall business outcomes for their companies. This white paper, based on new research by Enterprise Management Associates, reveals how AIOps can improve network management. More importantly, it offers proven advice on how to evaluate this technology and how you can build trust in the technology within your networking team.

The AIOps Opportunity

Today's digital enterprises are struggling to modernize network operations for a variety of reasons. Their network teams are plagued by skills gaps, with their most elite network engineering talent stretched too thin to enable transformation. Management tools are fragmented, with workflows and data siloed between tools. Meanwhile, network complexity is increasing as enterprises embrace multi-cloud and work-from-anywhere strategies. Finally, security threats continue to multiply, making it essential for network managers to streamline operations and improve visibility.

AI for IT operations (AIOps) can help. AIOps involves the application of artificial intelligence, machine learning, and big data to IT data to enhance operations. Enterprise Management Associates (EMA) recently conducted research into how IT organizations are using AIOps to transform network management.[1] The research found that the majority of IT organizations are targeting four use cases for AIOps-driven network management:

1. Anomaly detection
2. Automatic remediation of security issues
3. Intelligent alerting/escalation
4. Automatic remediation of IT service problems

Anomaly detection and intelligent alerting are useful, but they are also low-risk use cases for AIOps. Automatic remediation of security issues and IT service problems are potentially more valuable use cases, but they are also riskier. Network teams need to establish trust in this technology before they can reap the benefits of it.

Many network managers are new to the concept of AIOps. Given the potential of the technology, every IT organization should be investigating it today. This white paper offers network professionals guidance on how they can succeed with AIOps by exploring three key questions: How do you evaluate AIOps? How do you build trust in AIOps? What kind of value does AIOps truly offer?

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[1] All data cited in this paper was originally published in April 2020 in the EMA research report "Revolutionizing Network Management with AIOps."

Evaluating AIOps

Although many IT organizations recognize the potential value of applying AIOps to network management, only 36% are fully confident in their ability to evaluate the AIOps technology. As a network operations manager with a $10 billion high-technology manufacturer recently told EMA, "I would say we are average at best, ill-equipped at worst [for evaluating AIOps]. We have to be able to understand whether it's reliable and its conclusions are correct. I need a reliable measurement of accuracy." How can you evaluate the technology? Here are a few steps you should take.

Ask About Algorithms

IT organizations need to develop some knowledge around the algorithms and heuristics that vendors are using in the AIOps solutions they apply to network management. Fifty-three percent of IT organizations claim to conduct some kind of audit of these algorithms. This approach is more common among IT organizations that are the most successful with using AIOps.

While most vendors won't allow you to perform a line-by-line audit of the code behind their AIOps technology, they should be prepared to talk to you about their overall approach to developing these algorithms. These conversations could explore the differences between AI and machine learning and explore ideas, such as chaos theory and fuzzy logic. IT organizations can also ask vendors to talk about the lessons they've learned as they have cycled through different iterations of these algorithms. This process should help IT organizations cut through some of the hype and buzzwords that vendors use.

Request a Proof of Concept Deployment

As with any IT solution, a proof of concept (PoC) implementation will also be essential. Nearly half (46%) of IT organizations rely on a PoC deployment to support their evaluation of AIOps. Vendors should be prepared to enable this in both lab settings and in production networks, with support from customer success and sales engineering teams to help the network team every step of the way.

Not all AIOps solutions are created equal, and a PoC implementation can expose the gaps between marketing hype and true innovation. "I was watching a one-hour AIOps presentation from one vendor and a 45-minute presentation from another, and they all use the same buzzwords," said a network architect at a $40 billion pharmaceutical company. "Everyone is talking about it, but no one really knows what it does. Show me how your solution works. How does it touch a device? How do you make a determination?"

Look for vendors that welcome a PoC request and that are ready to show you exactly how their solution delivers value in your network. AIOps is a new frontier for network management. IT organizations should demand that vendors demonstrate their value in a PoC deployment.

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– Network, Architect

Ask About Training and Efficacy Data

AIOps solutions require training so they can identify patterns in data and draw conclusions on those patterns. More than half (55%) of IT organizations want to audit the training data that AIOps vendors use. They want to verify that vendors used the appropriate volume and variety of data to train their technology. Vendors are unlikely to make this data available, especially because some of it may be sensitive customer data. That being said, IT organizations should certainly ask detailed questions about this data. For instance, how much of the training data is relevant to the IT organization's specific vertical industry, versus training data that is generally applicable to multiple industries?

Some vendors will also publish data about the overall efficacy of their AIOps solutions. They may also publish examples of how they use their AIOps solutions internally to enhance customer support and internal network operations. All of this can help with the evaluation process. When vendors use and succeed with their own solutions, it fosters trust in those solutions.

Learning to Trust AIOps

Trust is important for any technology implementation. When a company doesn't trust a certain technology, it typically goes unused, gathering dust on a proverbial shelf. Given how new AIOps is, trust will be essential to success. The networking team must have trust in the AIOps solutions they implement.

EMA's research found that most IT organizations that have experience with AIOps trust it to support network management. For instance, more than 70% of IT organizations trust AIOps to automatically remediate security issues, service problems, and capacity issues, even if those changes might have a significant impact on how the network works.

Trust starts with an effective approach to evaluating AIOps technology. EMA research found that trust in AIOps-driven automation is higher and stronger among IT organizations that are very effective at evaluating the technology. Once the technology is in place, certain aspects of a solution can foster more trust among users.

70% of IT organizations trust AIOps to automatically remediate security issues, service problems, and capacity issues.

Verification Workflows

Building trust doesn't end at the product evaluation stage. Individual admins and engineers need to develop trust as they use the technology. Sixty-four percent of network teams require their AIOps solutions to provide workflows for verifying AI insights. This requirement is even more common in IT organizations that are the most successful with AIOps-driven network management (77%). Such a workflow would require an engineer to drill down into the data that AIOps technology analyzed and look at the patterns detected.

Converse with the Technology

Familiarity through "conversation" can also breed trust. Many AIOps solutions distinguish themselves by using natural language communications to share the insights they have derived from the network. When asked to rank this natural language capability on a scale of 1 to 5, with 5 being most important, IT organizations submitted a mean response of 3.84. Successful AIOps users, however, ranked it higher (4.24), as did the most effective evaluators of AIOps (4.07). When a tool is smart enough to tell admins in human language exactly what they need to do to address a problem, admins develop familiarity. They're more willing to use the solution—and a willingness to use a solution is going to lead to success.

The AIOps Payoff

Ninety percent of IT professionals believe that using AIOps for network management can lead to better business outcomes for their overall companies, not just the IT organization. Effective evaluators of AIOps are more likely to strongly agree with this notion.

Resolve Weaknesses of Existing Network Management Tools

How does AIOps help the business? First, it addresses shortcomings in the existing network management toolset. IT organizations are most likely to say it solves issues with conflicting or inaccurate data and insights (43%) and the lack of real-time insights (42%) in tools. It can also mitigate issues with tool fragmentation (39%), which is important given that the typical network management team uses between four and 10 tools for monitoring and troubleshooting. Also, 35% of enterprises said AIOps can extract a big picture view from tools that provide a limited view of the network.

Deliver a Client-to-Cloud View

With users working from anywhere today and IT organizations leaning on the cloud more than ever, the network team needs a view of the network from the client edge to the cloud. AIOps can help. IT organizations revealed that they are using AIOps to improve management of multiple aspects of their network, beginning with network security (65%). They are also optimizing management of Wi-Fi (40%), the WAN edge (37%), and overall end-user experience (35%).

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Network Operations Benefits

EMA found that IT organizations are likely to experience five primary benefits from applying AIOps to network management. First, they are better able to optimize the network for their business (44%). Second, their network operations team becomes more efficient (41%). Next, the network becomes more secure and compliant (40%). Fourth, the network is more resilient (37%), less likely to fail the needs of the business by performing poorly or experiencing downtime. Finally, 32% of IT organizations claim that AIOps reduces the costs of maintaining and managing a network.

Your AIOps Mission

This paper offers a primer on how to get started with AIOps for network management, but it's up to you to make the technology pay off. You should study the networking industry closely as vendors pivot toward AIOps. Your incumbent vendors should be ready to talk to you about their plans for AIOps. If you don't like what you hear, you should investigate what new vendors are doing with the technology. Look for vendors that are ready to talk to you in depth about how they develop and train their AIOps solutions and that facilitate proof of concept implementations.

Next, you must prepare your team to evaluate AIOps. Do research on the fundamentals of AI and machine learning algorithms so that you can ask vendors hard questions. Hire outside help if you need to. Think about what kind of data you would want an AIOps solution to use when learning about networking in general and your network in particular. Ask vendors how they select their training data.

Once you have AIOps in place, build trust in the technology. Give your team a solution that has workflows that allow them to verify AIOps insights. Also, look for solutions that can communicate with users. Natural language communications are an emerging AIOps capability in which tools can explain what is happening on your network and how it came to the conclusion that it is presenting.

About Juniper Networks

Juniper Networks challenges the inherent complexity that comes with networking and security in the multi-cloud era. We do this with products, solutions, and services that transform the way people connect, work, and live. We simplify the process of transitioning to a secure and automated multi-cloud environment to enable secure, AI-driven networks that connect the world. Additional information can be found at Juniper Networks (www.juniper.net) or connect with Juniper on Twitter, LinkedIn, and Facebook.