5 THINGS TO KNOW ABOUT AIOPS

A Quick Guide to Improve Your IT Life

TABLE OF CONTENTS

THE AIOPS IMPERATIVE

The complexity of IT environments continues to explode as organizations double down on their cloud and transformation initiatives to ready their business to compete in today's digital economy. The complexity of IT environments continues to explode as organizations double down on their cloud and transformation initiatives to ready their business to compete in today's digital economy. Enterprises continue to rely on cloud, applications, devices and IoT to run their businesses as they adopt hybrid work models. The challenge is all this complexity needs to be managed somehow.

It's not practical, or sustainable, to throw more and more people at the problem. In fact, it's simply not possible for humans to manually analyze all the data being generated across all your different environments (for some organizations it can exceed gigabytes of information every minute). Instead, you need different approaches and new capabilities that can match the dynamic nature, speed, and scale of your business, now and in the future. This is where artificial intelligence for IT operations (AIOps) can help.

AIOps can make it easier and faster to manage and troubleshoot your network environments, delivering efficiency and performance gains that can make a real difference for your business. According to **Enterprise Management Associates**, 90 percent of IT professionals believe that using AIOps for network management can lead to better business outcomes.

Given the potential impact of AIOps, it's important to choose a solution or platform that can really deliver the results you need long-term. This paper outlines how AIOps can help and identifies the top five capabilities to look for in an AIOps solution or platform that will prepare you to succeed. It also offers questions you can use to evaluate vendors, so you can pick a solution that will best meet your needs.

> *"I was watching a one-hour AIOps presentation for one vendor and a 45-minute presentation from another, and they all use the same buzzwords. Everyone is talking about it, but no one really knows what it does."*
>
> – Network Architect at a $40 billion pharmaceutical company

What Is AIOps?

AIOps is the practice of using AI to augment the capabilities of your IT operations team to make it easier to stay on top of and manage all the complexity of your distributed networks. Basically, it applies big data, analytics, and machine learning capabilities to help you monitor your IT operations and effectively act on all the information generated by all your different IT infrastructure components, systems, and applications.

AIOps will intelligently sift through your information to pinpoint significant events and patterns that indicate potential performance, reliability, and availability issues. It can then diagnose the root cause of the issue and either (based on how it's set up) generate an alert or automatically resolve the problem, without human intervention.

It also empowers you to continually and automatically improve your IT capabilities, with the ability to learn and adapt to changing conditions. When incorporated into your automated infrastructure and operations workflows, AIOps can enable you to be more responsive, even proactive, to drive more and better results.

Many organizations using AIOps have seen improvements in everything from their security and outage incident response times to their infrastructure capital planning and purchasing. This probably explains why 68 percent of enterprises have put aside the budget to apply AIOps to their network management this year. It's also probably why more than 70 percent 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.

Top 5 Capabilities to Look for When Evaluating and Deploying AIOps

Confusion around AIOps is rampant. As one of the technology industry's latest trends and buzzwords, it's not a shock that vendors are jumping on the bandwagon and saying they provide an AIOps solution. Just because a vendor says it, however, doesn't mean they can actually do it. Unfortunately, it's often left to customers, who don't feel prepared, to try to figure out the difference between a vendor's claims and reality. In fact, 64% of IT professionals don't feel confident in their ability to evaluate AIOps technology.

The following is a framework you can use to determine whether a vendor's AIOps solution or platform will be able to optimize your IT operations. It provides a checklist of the top five capabilities an AIOps solution should have, along with some questions designed to help you uncover a solution's ability to deliver on those capabilities.

#1   Comprehensive Data Collection

The quality of any AIOps solution or platform is only as good as the quality and completeness of the data it collects and analyzes. The more diverse the data, the smarter the solution will be, so make sure it is going beyond network telemetry data to pull information from all the systems, devices, applications, and users across your network ecosystem.

It's particularly important to include client information because that's how you will be able to understand what the end-user experience is (and what may or may not be impacting it). Remember that 'up' is not the same as 'good', so you want to make sure the solution is looking deeper into network performance, with metrics around pre- and post-connection states, that can identify whether the network is really delivering a good experience.
In addition, it's important the solution or platform is end-to-end. A lot of solutions focus on addressing problems within one part of the network (e.g., wireless or WAN), but issues happen everywhere, so you need a solution that can monitor and tie your wired, wireless, WAN and LAN networks together. This is the only way to be able to pinpoint and then address problems holistically, regardless of where they arise.

Key Questions to Ask a Vendor:

- Where is the data sourced from?
  - Is it customized per account or user?
  - Can it incorporate IoT sensors?
- How is data ingested and cleaned?
- Does it cover wired, wireless, WAN, and LAN network data?
- Can it integrate with third-party solutions to extend the data timeline or enrich the information?
- Can it intelligently capture packets to increase visibility and, ultimately, speed troubleshooting?

#2 Rich, Adaptive AI Foundation

AI algorithms are the foundation of any AIOps solution, so make sure you know what the AI algorithms are, what they do, and how they do what they do. Abstract descriptions aren't enough, you need specifics to understand exactly the use cases the AI engine can address. For example, how does it help with root cause analysis, anomaly detection, risk management, etc.?

You also want to make sure the AI engine is constantly learning and retraining/re-orienting its models, based on the latest data and telemetry, to maintain current and relevant. This will keep false positives to a minimum and ensure you can trust the solution or platform. Ideally, it will also be able to incorporate data on issues experienced by similar peer organizations worldwide to further help you identify and address problems before they ever arise. This is how AI can help you do more, faster.

Key Questions to Ask a Vendor:

- What algorithms comprise and contribute to the solution?

- How are models trained to be kept fresh and relevant?

- Can the system explain its reasoning, recommendations, or actions?

- How is bias eliminated or reduced?

- Does the system use machine learning to continuously learn and adapt?

- What is the efficacy of the solution?

- Is the solution fully programmable? (e.g., via APIs?)

- What are the base analytics capabilities of the solution/platform?

#3 Modern Microservices Architecture

How the system is architected can affect its scalability, agility, and security. Look for a solution or platform built on a microservices architecture versus a monolithic architecture. A microservices architecture delivers greater feature agility – each capability is its own service, isolated by itself, making it extremely quick and easy to add, patch, or modify as needs change. A subsequent benefit of a microservice architecture is reduced risk. Vulnerabilities can be isolated and addressed much faster – within a day versus weeks, even months - to keep your security stance in force.

In contrast, when you want to add capabilities, make a change, or apply a patch within a monolithic architecture, it requires an update of the full-stack. This is inherently more complex and time-consuming, requiring you to make sure a change to one element doesn't inadvertently introduce errors or impact another element.

Key Questions to Ask a Vendor:

- What is the architecture of the solution/platform?

- How fast is the typical deployment?

- How are parameters and features engineered from the network space? •

How easy is it to improve, evolve, and scale the solution/platform?

- How quickly can vulnerabilities be patched?

#4 Proactive Remediation

An AIOps solution that not only flags a problem, but also fixes it, without needing human intervention, is the holy grail. Of course, it is only possible if you trust the solution, which goes back to the first two capabilities – comprehensive data collection and rich, adaptive AI algorithms that can pinpoint issues and resolutions. Assuming you do trust the platform (if you don't, you definitely shouldn't buy it), it should be easy to automate manual IT operations workflows to monitor and troubleshoot your network 24/7, without burning out your team.

An effective AIOps solution can proactively diagnose and remediate issues. This offloads your overworked teams, freeing them to focus on more fulfilling work and strategic projects. By relying on your AIOps solution to address issues the moment they arise, as a digital extension of your team, you will be able to improve the experiences and value of the network for everyone.

Key Questions to Ask a Vendor:

- What kind of workflows can you automate with the solution?
- What kinds of recommended actions and auto-remediation does it provide?
- How do you interact with the system?
- Is it able to determine failures outside of a single vendor?
- Is there proof of resolution or an efficacy chart we can analyze?

#5 Simple to Use – Conversational Assistant

If your IT operations teams can't quickly get up and running and see the value of the AIOps solution or platform, it doesn't matter how fantastic it is, your organization simply won't be able to use it to its full advantage. Make sure the solution can be easily integrated across all your different environments to deliver value fast. It is also good to confirm that the value can be easily understood and communicated, with an easy to navigate interface and robust reporting capabilities that allow you to address the interests of stakeholders across your organization.

CLIs are extremely error-prone, particularly due to the complexity of today's networks, so it's important to look for a solution or platform that is easy to interact with, without needing a lot of training, to get work done. A Conversational AI interface – think Google Home or Amazon Alexa for your network management – can empower your IT operational teams with immediate answers to questions and simple prompts to improve configuration, maintenance, and ongoing management tasks. Using natural language, teams should be able to ask questions about how the network is doing and receive insights into not only the "what" but also the "why" and any potential next steps to significantly speed troubleshooting and streamline IT operations.

> ## Key Questions to Ask a Vendor:
>
> • Is the AI solution or platform easy to use, integrate and adopt?
>
> - E.g., can it help simplify device onboarding with a QR code?
>
> • How does it make it easier to deploy wired, wireless, WAN networks?
>
> • What domain-specific impact will it have on teams, training, and organizational behaviors?
>
> • How easy is it to demonstrate value to key stakeholders?
>
> • How do you troubleshoot and determine issues within the AI platform?
>
> • Is there a conversational AI interface that can help teams interact with the solution and quickly answer or get the results they are looking for?
>
> • What specific items does the interface cover (e.g. how do you look for documentation, next steps in troubleshooting)
>
> • Can you directly interact with the systems AI or is it hidden behind several dashboards?

Proof of Concept

Once you have evaluated the AIOps vendor and are satisfied the solution or platform can meet your needs, it's time to be sure. Take the discussion from the theoretical to the actual with a proof of concept (PoC), which allows you
to pilot the solution in your network to see just what it can do (and how it does it). Try to deploy the solution in a production environment because this will give you the best gauge of what it can really do. Pick a lab or area, even one of your most challenging areas, and put the solution to the test. Typically, a PoC will run for one or two weeks, which should give you plenty of time to see the promise and benefits that AIOps can deliver. You should be able to immediately understand how easy the solution is to use and how quickly it can provide efficiency and performance gains that will improve the network experiences for both your users and IT operations teams.

About Juniper

Juniper Networks, driven by Mist AI, delivers the secure, AI-Driven Enterprise you can use to optimize user experiences from client to cloud, with simplified operations across the WLAN, LAN, WAN, and security. Mist AI transforms your network operations with AI-driven insights and automation for unprecedented simplicity, reliability, and predictability.

Our team of data scientists and cloud architects have decades of networking experience building out the network of the next decade. At the heart of the AI-Driven Enterprise is Marvis, the networking industry's first virtual network assistant (VNA) and Mist AI engine. Marvis is fundamentally transforming the way IT teams interact and troubleshoot the network, by leveraging AI to translate the growing volume and velocity of data into actionable insights and outcomes. Marvis frees up human talent to focus on strategic initiatives. Marvis exists to make IT simple.

This is done by observing, ingesting, optimizing and continually learning from network and user experiences, so the IT administrator doesn't have to. This learning creates a virtuous cycle and a positive network effect that can be leveraged by small and large organizations alike. It's uniquely focused on identifying anything that impacts user experience, with the ability to rapidly surface answers to issues, identify root causes, and proactively troubleshoot with remedial actions. For more information on Juniper's AIOps solution, please check out Juniper's weekly demo series at: https://ai.mist.com/live-demo/.

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