

With exploding technology complexity and a growing number of data sources, AIOps technology offers the speed and scale to stay ahead of service reliability problems that impact the customer experience, and ultimately revenues.

A Playbook for Driving AIOps Decision Making for Network and Telecommunications Differentiation

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Introduction

Artificial intelligence has been used at varying levels in IT operations for over two decades. For tools that embed AI to deliver a specific outcome, the intelligence can be unobtrusive, even invisible. However, there are tools where the AI is the primary interface, requiring the IT organization to adopt something that is different than any tool it is using today. What it delivers is a better way to understand and predict a condition or an outcome, and sometimes automatically change that condition. The adoption of AI tools can deliver higher productivity from engineers. The objective is to manage increasing complexity, keep up with change, and deliver greater levels of service reliability. To get the results expected from AI demands a different perspective on how to get things done. The idealistic view is AI tools can be let loose and forgotten as the AI will allow the IT organization to sit back and benefit from the results. This is not going to happen. The challenge is AI must have a purpose and a measurable outcome. If you don't know what you are looking for from AI, it will not tell you.

For networking and telecommunications organizations, consumers (and businesses) rely on their services every day. From cell phones to internet services, telehealth, educational classes, banking, streaming and virtual healthcare, mission critical applications, remote office support, supply chain management, etc. The primary role of telco and network organizations is connecting people with what they view as valuable and important—at the time they want to have that experience. In addition, data volume is skyrocketing as machine generated data continues to increase with new technologies, such as IoT and edge technologies. Time sensitive connectivity and data and the related services they support are critical to move forward and progress on both personal and professional levels. Consumers and customers expect these foundational services to always work and always be highly reliable. The delivery of high service quality has become a critical success factor and differentiation for telecommunications and networking organizations. AIOps technology directly supports this type of capability.

AT A GLANCE

WHAT'S IMPORTANT

AIOps is a foundational capability to increase service reliability and provide optimal quality; key factors in reducing customer churn and increasing revenues.

KEY TAKEAWAYS

AIOps has become a must-have technology to deliver great customer experiences and differentiation for network and telecommunications organizations.

This research provides IT leadership teams across networking and telecommunications organizations with a primer on identifying a clear path forward for adopting AIOps, highlighting common use cases, value propositions, and pitfalls to avoid.

When a person uses a cell phone, they expect to be able to download a movie or video chat with friends without issue. When a company uses their applications, they expect a fast response from the data center, network hardware, or cloud provider. Near zero downtime has become the expected norm. The ability to deliver high-performing services and applications is now playing a large part in a company's brand, customer experience, and ultimately revenue and growth prospects. Customers have no patience for poorly performing products or services, and easily move on to other options. Cloud and modern application architectures that use containers, microservices, and modern networks have exploded in size and complexity, and the inundation of data has done nothing but increase with streaming services, video conferencing, and all kinds of IoT data flooding in on faster 5G networks and virtual systems.

With rising technology complexity and data sources, and the speed and scale of these changes, development, SRE, Operations, and network teams must move fast to keep up with demand and business requirements. Manually, it's impossible to accomplish these goals. Manual search through log files might have made sense when systems were simpler, but complexity and new data sources now create massive amounts of logs. Engineers, SREs, DevOps, and operations teams, can no longer afford to spend days trying to identify, collect data, and resolve problems across a hybrid and multicloud environment. Customers have no patience for unavailable digital services and products. It's easier than ever for customers to switch to different network and telecom providers if services are not performing properly.

Artificial intelligence (AI) has been harnessed to support the demands of modern IT by predicting performance issues before they occur and pinpointing the likely cause of issues to speed up the time it takes for an engineer or operator to repair the problem. Sometimes, AI can proactively repair simple problems before customers notice there's an issue through a proactive approach. This use of AI (and other types of analytic models) to reduce downtime and optimize the performance and cost efficiency of networks and other IT operations is called AIOps.

Telecommunications and network organizations are very focused on service quality and performance to drive growth, reduce customer churn, and maximize the lifetime value of a customer. To achieve these objectives, AIOps can be used to create a foundation that delivers exceptionally high levels of service quality.

What is AIOps?

AIOps stands for Artificial Intelligence for IT Operations. It is advanced analytics including machine learning (ML) and other forms of AI to monitor and manage the performance and reliability of applications and hardware systems, detect anomalous problems, adapt to changes in requirements, handle failures, and to adjust proactively or rapidly with minimal disruption of services. Other names for AIOps are IT operations analytics (ITOA), AI for IT operations management (AI for ITOM), advanced operational analytics, or simply IT data analytics.

AIOps tools collect data from multiple IT sources, process data with machine learning, and deliver the findings to IT operations. The output includes IT anomalies, patterns, and predictions. The objective is to enable better decision-making issue avoidance, and outage prevention by

- » Removing the traditional red, green, and yellow alert dashboards and showing only the things that matter.

- » Rapidly identifying the cause of degradation or failure, and quickly restoring the service
- » Detecting and predicting failures before they impact users.
- » Driving more actionable insights; adopting a proactive versus reactive approach.
- » Improving the cost optimization of teams by aligning people, process, and technology to deliver a better, more optimized customer experience.
- Ensuring the consistent delivery of high performing network and telecom services.

Why is There a Need for AIOps?

Every network and telecommunications organization must have the ability to manage technology complexity and growing scale – complexity has risen faster than humans can manage it. These organizations are seeking competitive advantage through speed, offering value-added services, and highly reliable service performance. As new technologies emerge, the adoption of these technologies is often the difference between surviving or thriving in an increasingly demanding customer environment. In the recent past, networking and telecommunications on-premises was the dominant architecture, and the applications were monolithic, three tiered environments. Network architectures were flat or hub and spoke, and telecom providers had a more limited focus on less types of services.

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Most organizations use multiple public, hybrid, and on-premises/private clouds. Private clouds will remain for the foreseeable future. Notably, network and telecom organizations also manage their own hardware, cell towers, IoT sensors, and highly complex networks that generate critical AIOps data. Many of these organizations also use container deployments, which now number in the billions, and that number is rising fast. Mainframes and networks drive mission critical workloads, so these traditional data sources haven't vanished. In fact, most organizations use most, (if not all) of these technologies together. But collecting data from these sources is not enough; users must make sense of the data using automation and analytics. AIOps enables a faster process for reducing the causes of failures through Root Cause Analysis (RCA), enabling the move from a reactive to a proactive incident response function. In some cases, the ability to detect, predict, and proactively solve (or prevent) problems that might have caused outages saves companies huge amounts in terms of reputation and customer churn prevention.

The breadth of connectivity and communication technologies creates a variety of operational data (metrics, logs, traces, events) at very high volumes. Much of this can be used to determine system reliability and performance, and identify where a system problem might occur, or could be occurring. And if a problem is identified, the data can help isolate where the problem is from across the complex end-to-end service. IT leaders need to manage the complexity and analyze the data to drive reliability that translates into a great customer experience

The pandemic has driven CEOs to understand that their business relies on digital products and innovation; their technology architecture is now their business architecture. Customers don't have patience for poorly performing

products and digital experiences. AIOps helps ensure that customers have a great experience. These experiences drive revenues, profits, and support brand reputation. The digital economy has no patience for downtime.

At the core of this are the telecom and network architectures that power most digital experiences; experiences that enable revenue growth, cost reduction opportunities, and AIOps enabled differentiated services. For network and telecom providers, AIOps enables an even broader value proposition for a proactive customer support model, the ability to focus on network fault prediction and prevention, advanced anomaly detection of BSS/OSS performance and analysis, and deeper network and IT security capabilities. AIOps enables a general improvement in quality-of-service capabilities due to the optimization of networks, which will improve customer satisfaction and reduce churn. In addition, cost savings through efficiency gains are a common outcome as many operational tasks can become automated, thus reducing manual overhead, increasing the productivity of existing teams.

What Obstacles Make AIOps Difficult?

The goal of AIOps is to make systems self-managing, self-healing, and self-optimizing, or to help the people charged with these tasks to be more efficient and productive. Artificial intelligence for IT operations detects digital service issues earlier, and resolves them faster, with minimal impact on business operations and customers. Several challenges make this goal harder to reach.

- » Data volumes continue to explode with no end in sight. Internet of Things (IoT) data is flooding in, overwhelming systems that were designed for human produced levels of data. Aggregating data for cheaper storage and faster analysis is one solution, but it often buries important clues to network issues.
- » Many existing monitoring and management tools are only designed to work with one narrow function, creating multiple silos of data. Getting a clear picture of the overall system can be challenging, especially with networks becoming more and more complex over time.
- » Many solutions are a black box. They provide a probable cause, or an indication of an incident, without providing the engineers with the information on what fed that conclusion, so they can trust it, and so they have a good idea what to do about it.
- » Difficulty operationalizing machine learning. Getting from proof-of-concept models to production models that help the business is often a lengthy process.
- » Culture and trust: IT organizations and leadership teams rarely have in place a culture of using data-driven decision making. AIOps is about data and getting fast answers from the data to help prevent/solve/predict performance problems. While it's true that organizations must have the right technology to collect data and use automation and analytics to drive outcomes, it's also essential for IT professionals to trust that technology.
- » Some tools require an expert level of skills to use; some customers lack the skills/people and the inability to train or hire the right staff.

Getting Started: Common Use Cases for AIOps

Many telecom and network providers use AIOps to run their networks more efficiently and deliver services in a more reliable fashion. The ability to collect and analyze data across network architectures, data center footprints, and Wide

Area Networks (WAN) to view pending issues and identify current problems accelerates MTI and MTTR, and ensures a great customer experience. In addition, the opportunity for continuous improvement for smart monitoring hardware, IoT and edge devices, and data centers enables an end-to-end view of digital services. Finally, when services fail, service restoration speeds up when using AIOps technology through automation and predictive capabilities.

Other common use cases for telecom, network, and hardware providers include:

- » Datacenter operations optimization
- » Early fault and failure detection
- » Root cause analysis
- » Incident prediction
- » Alert noise reduction
- » Smart hardware/data center intelligence
- » Telecom network analysis
- » Energy usage optimization
- » Predictive maintenance
- » Capacity prediction and planning

Additional Challenges

For any organization, AIOps poses some common challenges for successful adoption. Some of these include:

- » Everyone on the same page: Key stakeholders, staff, and leadership must be aligned for defining the use case, and the expected business outcomes for AIOps projects.
- » Choose the right tools: Users must have the ability to collect the right data to support the outcomes and metrics and map the rights teams to the right information.
- » Required skills and training: Identify the proper level of skills to use AIOps, which extends to organizations that choose to do AIOps projects themselves or use an outsourced service.
- » Expectation management: Some organizations oversell what AIOps can do for their organization; teams must identify the right use case and proper timeline for deployment.
- » Starting too huge: trying to connect everything and get all the benefit in one project. Successful projects often tackle “low hanging fruit” or simpler objectives first, or the objective that will provide the greatest return on time and money investments first. Projects can always be expanded after establishing success on a smaller scale.

Conclusion

AIOps has become a must-have technology to scale and manage end-to-end service reliability and performance. The combination of data collection, analytics, and automation are helping organizations deliver higher performing services, and faster restoration of down services, with reduced downtime overall. Technology complexity is increasing and expanding in scale—the use of multiple cloud networks, advanced networking, telecommunication services, and classic and modern application architectures, are exploding complexity levels faster than humans can manage it. CEOs now understand that a great customer experience is essential for growth and brand reputation, and that customers have no patience for poorly performing digital services/products. Our technology architectures have become our business architectures, and the need to differentiate revolves around the use of data, analytics, and automation to drive cost-effective and efficient digital services and revenue-supporting customer experiences.

Vendor Profile: Vertica

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About the Analyst



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Stephen Elliot manages multiple programs spanning IT Operations, Enterprise Management, ITSM, Agile and DevOps, Application performance, Virtualization, Multi-Cloud Management and Automation, Log Analytics, Container Management, DaaS, and Software Defined Compute. Mr. Elliot advises Senior IT, Business, and Investment Executives globally in the creation of strategy and operational tactics that drive the execution of Digital Transformation and business growth.

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