

SOLUTION OVERVIEW

ARUBA AIOps

AI-powered Automation Simplifies Network Operations

Within the next 2 years it is estimated that more than 50% of data will be generated outside the data center or cloud¹, likely coming from the estimated 55 billion IoT² devices connected worldwide. Businesses are combining this data with new applications at the Edge, enabling new insights and actions in real-time to improve operational efficiencies and create new revenue streams.

But as businesses shift to capitalize on all this data, the role of their infrastructure, and that of network operations, shifts, too. When you combine the massive amounts of data with ubiquitous mobility and IoT, it's clear that a new network operations approach is needed. One that makes life easier for network operations by reducing trouble tickets and ensuring SLAs that deliver world-class user experiences. A way to quickly resolve connectivity problems using AI-powered root cause analysis, precise recommendations, and automated remediation, so that IT can focus on driving business value as opposed to dealing with mundane tasks. And an approach where AI predicts and preempts issues before they happen.

Yet today's networks are bound by human scale. They are only as agile and effective as the people that manage them. Typically, a person must manually troubleshoot and repair a network issue, and diagnosing the root cause of a problem can be like finding a needle in a haystack. According to ZK Research, the average network engineer spends 10 hours a week dedicated to finding and fixing Wi-Fi problems, and 60% still use packet capture as their primary troubleshooting tool. Further, Gartner research shows that approximately 70% of network operations are still performed manually, creating delays in resolving issues. Networks could and should do more to ease the burden on network teams, to deliver great user experiences, and to improve business outcomes.

KEY BENEFITS

- **Eliminates manual troubleshooting** and reduces mean time to resolution by up to 90%.
- **Reduces trouble tickets** by identifying issues before they impact the business.
- **Increases network utilization** as much as 25% with peer benchmarking.
- **Provides precise data-driven insights and recommendations** with greater than 95% accuracy.

What is AIOps?

AIOps (Artificial Intelligence for IT operations) combines big data and machine learning to automate IT operations processes, including event correlation, anomaly detection and causality determination

Gartner Inc., 2019

Aruba AIOps, driven by Aruba Central – a cloud-native microservices based platform – eliminates manual troubleshooting tasks, reduces average resolution time as much as 90% for common network issues, and increases network capacity as much as 25% through peer-based configuration optimization. Aruba's next generation AI uniquely combines network and user-centric analytics to not only identify and inform staff of anomalies, but also applies decades of networking expertise to analyze and provide prescriptive actions with greater than 95% accuracy.

¹ Gartner Market Guide for Edge Computing Solutions for Industrial IoT, September, 2019

² IDC



AIOPS THAT REDEFINES IT OUTCOMES

Aruba AIOPS impacts IT outcomes by helping to:

1. Get to root cause and resolve known issues quickly:

Aruba AIOPS is able to identify issues, such as connectivity and authentication, and use AI to determine root cause and provide prescriptive recommendations with greater than 95% certainty. For example, with AI Insights, a typical 802.1x authentication failure can be resolved in less than 5 minutes, while it would take 20 or more man-hours using traditional methods.

And with AI Assist, Aruba AIOPS can eliminate the time-consuming data collection process by automatically detecting failure events such as switch port or SD-WAN tunnel flaps, collecting all necessary troubleshooting information and posting an alert to both the network administrator and Aruba support.

2. Identify and resolve issues before they impact the business:

Aruba AIOPS allows IT to meet SLAs by predicting issues before they become a problem. Read the example from a major national retailer in the sidebar on the right.

3. Continuously optimize performance with little effort:

Aruba AIOPS provides painless worry-free network optimizations. Aruba AI Insights analyze data from tens of thousands of deployments and over 1 million Aruba network devices. Through our patented process, we're able to identify anomalies, develop optimizations, and determine which customer networks, regardless of size, would benefit. If an improvement made by one customer works, Aruba AI Insights will provide the recommendation, at no cost, to any other customer with similar needs.

MAJOR NATIONAL RETAILER ADDS 25% CAPACITY WITHOUT ADDING HARDWARE

Nearly all retail locations using Wi-Fi in areas with high foot traffic experience unnecessary network performance degradation as the mobile devices of people passing by inadvertently attempt to connect to the business' network. With the Wi-Fi network responding to connection requests, there's less network capacity to support the store's employees and guests, resulting in a poor user experience. Aruba AIOPS was able to detect this anomaly with a major national retailer, and determined the difference between someone passing by and a legitimate user, offering prescriptive recommendations that prevented this from happening again. After incorporating the recommendations, the retailer found the insight eliminated 98% of the network traffic caused by people walking by the store. The recommendation not only improved capacity for all stores within the major retailer's network, it also improved performance for other Aruba customers with high "passerby" traffic.

Without AIOPS, it would have been impossible for network teams to recognize the issue, identify the root cause, and determine the fix. In most cases, network teams lack the time and experience needed to reach this same conclusion.





A MODEL FOR SMARTER IT OPERATIONS

Aruba AIOps is delivered via Aruba Central, our centralized command center, which also includes unified management and security visibility for wired, wireless, remote worker, and SD-WAN operations. Designed using a modern web scale architecture that includes a microservices, containerization, and a common data lake, Aruba Central makes it easy to view and act upon AI-powered user and networking analytics, from a single pane of glass.

AI Insights

Over 30 individual AI Insights are available to monitor connectivity performance, RF management, client roaming, airtime utilization, and wired and SD-WAN performance. Each insight is designed to reduce trouble tickets and ensure SLAs by addressing network connectivity, performance, and availability challenges.

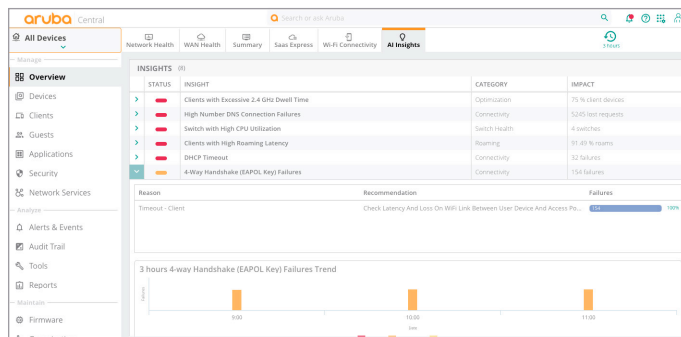


Figure 1: Aruba AI Insights: Automated root cause analysis

Additional AI-powered features designed to simplify time-to-resolution and improve administrator confidence include a Natural Language Processing (NLP)-based search, event-driven AI Assist, and AIOps Impact Analysis Reports:

- **AI Search:** Allows administrators to use natural language to search for and quickly find relevant information.
- **AI Assist:** Uses event-driven automation to trigger the collection of troubleshooting information, identifying issues before they impact the business, and virtually eliminating the time-consuming process of log file collection and analysis by staff. Once log information is automatically collected, IT staff are alerted with relevant logs that can be viewed and even shared with Aruba TAC, who can more quickly assist with root cause determination and remediation.
- **Impact Analysis Reports:** Once AI Insight network settings or configuration recommendations are made, this feature displays before and after performance data to help verify the change achieved the desired result.

User-centric Analytics

Mobile devices and IoT have become mission critical for the digital business and must be always-on with real-time access to applications and network services. To achieve this, IT needs a simple way to continuously monitor, measure, and track the complete end-to-end experience for all users or IoT devices. Aruba User Experience Insight (UXI) provides user and IoT device application assurance and rapid troubleshooting through easy-to-deploy sensors. By simulating end-user activities with admin-defined frequency, UXI sensors continuously perform user-centric application testing and store captured analytics for up to 30 days.



Figure 2: Aruba User Experience Insight: Administrator Dashboard



A cloud-based console helps administrators quickly see the health of the overall experience, network services, and internal and cloud-based applications. Clicking on any element displays more details while the troubleshooting triage tool and the ability to look back in time make troubleshooting fast.

Examples of available insights and outcomes:

- **Device connectivity performance:** All stages of connections including authentication, DHCP and DNS help identify where in the process users may experience problems.
- **End-to-end app responsiveness:** Continuous visibility into the responsiveness of internal and cloud-hosted applications by location enables operations to get in front of issues before users report a problem.

Automated Device Profiling and Insight

On average, it takes just 5 minutes for an IoT device to be attacked once it's connected to the internet³. With the dramatic increase in IoT devices being connected to wireless and wired networks, visibility has become a critical component to maintaining security and compliance standards. Manual approaches to identifying new devices and assigning appropriate access permissions has become untenable.

Aruba ClearPass Device Insight builds on Aruba's leadership in network visibility and access control through a new approach – using machine learning and a unique set of both active and passive discovery methods to identify and profile the full range of devices connected to networks today.

Examples of available insights and outcomes include:

- **Full-spectrum visibility:** Each connected device is displayed to help security and network IT teams eliminate blind spots.
- **Crowdsourcing:** Allows Aruba's large installed-base to share profiles of newly introduced IoT devices with the community to provide a comprehensive device database.
- **Role-based access control:** Once devices are identified and profiled, Aruba ClearPass Policy Manager can apply the appropriate role-based access policies to ensure that users and devices have only the IT permissions they need.

VOLUME AND VARIETY OF DATA + DOMAIN EXPERTISE = AI YOU CAN TRUST

To achieve reliable AIOps, you need great AI. Actionable AI that produces trustworthy outcomes depends on three key ingredients: an extensive volume and variety of data, domain expertise, and experienced data scientists. Aruba AIOps applies over 18 years of proven wired and wireless network expertise when modeling telemetry data from over 1 million wired, wireless and SD-WAN devices to identify anomalies and provide prescriptive recommendations that network admins can trust.

THE AI-POWERED EDGE

Today's businesses seeking to convert data into new business outcomes depend on an always-available and secure network. With Aruba AIOps, IT can reduce trouble tickets, ensure SLAs, and deliver the best possible experience for users. The volume and variety of data combined with Aruba's decades of networking domain expertise and data modeling experience means Aruba AI Insights can be deployed with confidence. Aruba User Experience Insight and ClearPass Device Insight also ensure user SLAs are met and the entire environment remains secure.

³ <https://www.thesslstore.com/blog/80-eye-opening-cyber-security-statistics-for-2019/>