



NOC MANAGED SERVICES RESOLVE OPERATIONS FOR BROADBAND PIONEER

CHALLENGE

A broadband pioneer focused on providing wireless services to unserved and underserved communities across America plans to deliver Internet and telecommunications to millions of people and hundreds of communities from its 4G wireless footprint by 2014. To enable this aggressive rollout schedule, it needs to have robust management of its Network Operations and had to consider its options on how to best meet this challenge. Among those options are outsourcing and developing internal expertise.

SOLUTION

The operator turned to Aviat Networks. As an experienced manager of outsourced Managed Network Services for more than two decades, Aviat Networks provided a turnkey Network Operations Center (NOC). The ability to turn up the NOC quickly and cost effectively was a prime consideration in deciding to outsource. The Aviat Networks' NOC team had the expertise to integrate equipment from multiple suppliers—including vendors for access, routing, backhaul, alarming and call centers—and has been dedicated to managing the network from the start as an extension of provider operations.

The text '4G Wireless' in a large, bold, red font. The '4' and 'G' are significantly larger than the word 'Wireless' which is positioned below them.

“Aviat Networks is an extension of my team, and I depend on its Network Operations Center to back up my internal resources and provide the information critical to running my network.”

Director of Network Operations,
4G Service Provider

OUTSOURCING THE NOC TO LEVERAGE OPERATIONS

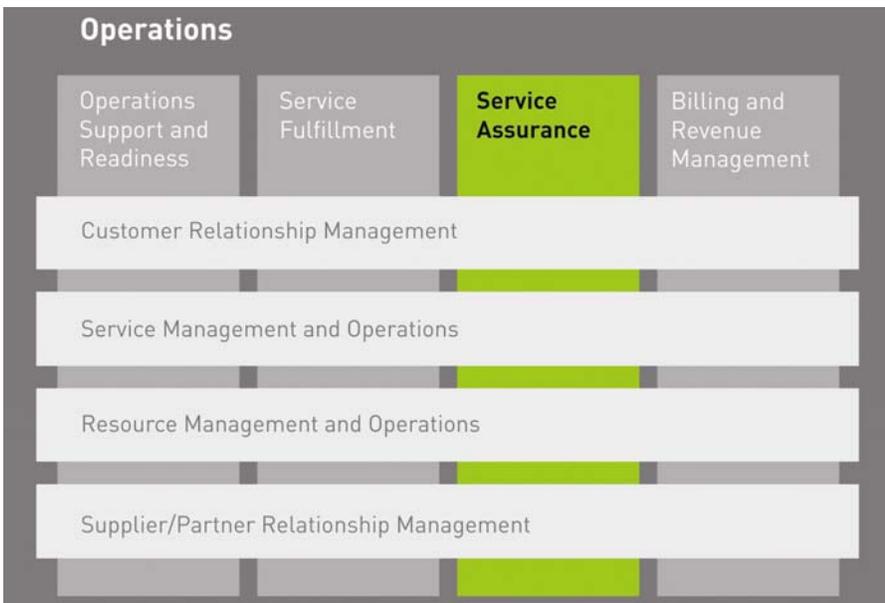
As a pioneering 4G service provider to traditionally underserved communities, this operator is used to accomplishing objectives its own way. Since its start up, the operator has operated unconventionally. In one resourceful move, it got partial funding for its network expansion from the U.S. federal government. With hundreds of millions of dollars in federal loans, it has a tight deployment schedule to maintain access to the funds. In order to concentrate its resources for network rollout, the operator outsourced network operations to Aviat Networks.

“By signing a long-term agreement for managed NOC services with Aviat Networks, the provider can focus on product innovation and development as opposed to day-to-day management of its high-speed 4G network,” says Damon Clark, manager of Aviat Networks' Network Operations Center. “We provide the customer peace of mind as we manage their network around the clock with proactive experts troubleshooting and optimizing operations on an ongoing basis.”

USING INTEGRATED SERVICE ASSURANCE TECHNOLOGY

At the core of the managed NOC solution is the NetBoss integrated network management system (INMS). Based on integrated Service Assurance technology for management of next-gen, multi-vendor, multiprotocol infrastructure, NetBoss enables the NOC to run up to 10,000 network elements for the 4G service provider. Service Assurance works across all four layers of Operations in eTOM (enhanced Telecom Operations Map) to support Resource Management, Customer Relationship Management, Service Management and Supplier/Partner Management applications. It supports functions such as fault management, trouble ticketing, root cause correlation, SLA management, change management and workforce management.

“With a mix of tools like NetBoss and eTOM-compliant Service Assurance processes, our NOC can monitor/identify network problems before they affect operations,” Clark says. “Leveraging industry-standard interfaces like MTOSI or OSS/J¹, they enable us to interoperate with most third-party network/telco solutions in a customer system.”



Spanning all network operations, Aviat Networks’ NOCs utilize NetBoss INMS to support integration with all horizontal applications across the Service Assurance group in the telco industry-standard enhanced Telecom Operations Map—also known as eTOM.

OUR NOC IS YOUR NOC

Working with the 4G service provider’s operations staff entails a very close relationship. Seven days a week, 24 hours a day, the NOC is in constant contact with the service provider, advising on matters big and small. “Aviat Networks is an extension of my team,” says the director of network operations. “I depend on its NOC to back up my internal resources and provide information critical to running my network.”

¹Multi-Technology Operations System Interface (MTOSI) and Operations Support System through Java (OSS/J) are telecom-standard interfaces critical for connecting a multitude of support systems, reducing development cost and risk and accelerating integration/deployment.

PRE-INTEGRATION TESTING AND NOC ACCEPTANCE

A race to go live with 10,000 network elements across the United States by 2014 is an ambitious plan for any operator. To help expedite and ensure quality before site acceptance, Aviat Networks conducts third-party pre-integration testing.

Constructed by an ICT engineering services company, these sites are fully integrated with all the necessary equipment ready to be turned up into the network. To ensure readiness, Aviat Networks partners with the engineering services company to test its sites and confirm proper configuration of systems so that they will not cause alarms as they are integrated and accepted into the NOC.

This way, network rollout will remain on schedule, and the operator can fulfill its commitments to provide coverage for its subscribers. As an extra-value-added service, pre-integration can reduce delays for the operator—saving both time and money.

As an extension of the operator's NOC function, Aviat Networks has reached out to many of the vendors supplying equipment for the 4G service provider's network rollout. For example, Aviat Networks partnered with the access equipment provider on scaling the project as its scope expanded and technical training. Some have even come into the Aviat Networks' NOC location for hands-on work.

The NOC team has also been able to troubleshoot product issues with parts of the deployment when the customer did not have familiarity with those systems. Aviat Networks' NOC team can do this partially owing to its wide exposure to broadband technologies from multiple vendors. In this way, the operator is aided as a result of the NOC team leveraging the know-how gained managing other customers' networks. The NOC team also benefits from the knowledge base of different internal groups within Aviat Networks.

GROWING CONFIDENCE ENHANCES COLLABORATION

"Over time, we've shown the customer the expanding capabilities of our NOC team," Clark says. "When we started, they keyed on being the largest customer in the NOC. They needed to know they would get top-tier service and would not be just another account for a larger managed services provider. Optimally, it's a best practice to match the size of the NOC operation to the customer's network size."

As more service opportunities have arisen in the network of the 4G service provider, Aviat Networks has been able to step up and fulfill other needs for it, such as recommending replacement equipment. "We're more than a network monitoring service," Clark says. "We have to advocate for the customer—in full collaboration—giving unbiased views of what's best for the network. So we keep an-arm's-length from Aviat Networks solutions. They're recommended only if they're the right fit."



From its state-of-the-art NOC, Aviat Networks provides 24/7 monitoring and management of the 4G service provider's nationwide network. Scheduled to number 10,000 elements and millions of customers by 2014, the 4G service provider uses outsourced Managed Network Services to concentrate resources on network expansion.

TROUBLE MANAGEMENT, ANALYSIS & SURVEILLANCE

As the frontline management resource for this 4G service provider's network, the Aviat Networks NOC provides end-to-end monitoring and coverage. Under the general matrix of Trouble Management, Analysis and Surveillance (TMAS), the NOC delivers diagnostic and protection capabilities for its high-speed network.

"Not only does Aviat Networks take care of operational challenges of running our network, they also help develop our IT infrastructure to deliver services to users," the director of network operations says.

Aviat Networks' TMAS service is organized into four areas:

- Tier 1 Network Surveillance for 24/7 monitoring and event notification
- Fault Management for fault isolation, remote troubleshooting and alarm verification
- Analysis (Tier 2 Support) to stretch in-house resources and infrastructure and provide preventative maintenance for network health and well-being
- Trouble Management to track and ensure closure of trouble tickets initiated by TMAS functions or the operator's Customer Care Center

"The Aviat Networks NOC team helps fill holes in my extremely lean operations staff," the director of network operations says. "Our network elements are virtually doubling every month. To maintain this pace, Aviat Networks has been able to take lessons learned earlier in equipment deployment and apply them to where our network is right now."

NOC PROTECTION: PHYSICAL AND NETWORK SECURITY

Operators such as this 4G provider want their networks and data to be secured. Aviat Networks' NOC protects them with physical and network security. Physical security is ensured by cameras posted in key spots throughout the site. They record activity 24/7, including all entries and exits. The building is alarmed, and admittance is allowed only with badge/passcode or prescreening. Entrance login history is tracked electronically. Badges are restricted to Aviat Networks staff or vendors authorized by management. Access must be approved electronically by NOC senior managers. For network security, an intrusion prevention solution provides the network with complete threat coverage for network elements, clients, servers and more.

Aviat Networks is in full compliance with Sarbanes Oxley (SOX) provisions for IT security, with all areas of the NOC passing physical security. In addition to complying with SOX, the NOC conforms to eTOM, the most widely used and accepted standard for telecom business processes. Also, geographically diverse NOC locations are maintained in the U.S. for proactive monitoring in case of catastrophe. If a NOC goes down, another NOC seamlessly assumes all management activities.

Aviat Networks' Geographically Diverse NOCs



Aviat Networks offers geographically diverse NOC coverage for the 4G provider. If the NOC online has a catastrophic failure, another NOC seamlessly takes over network management.

GOOD SERVICE GETTING BETTER

As the 4G service provider fulfills its primary mission of delivering reliable high-speed Internet access to the unserved, focus turns to improving that access. "We want to know more about how effective and efficient users find our 4G services," says the director of network operations. "I'd like to explore how the Aviat Networks NOC team can help determine how well we deliver services and enhance them."



PROACTIVE NOC SOLUTION FOR SMALLER OPERATORS

Many operators outside the largest incumbents do not have resources to take a proactive stance on network operations. "These operators can only reactively manage networks," Clark says. "The Aviat Networks NOC lets them get ahead of the curve and trend their network performance. For example, our reporting capability can show which sites cause the most alarms and of what type."

Trending can provide powerful intelligence on network status and insight on what steps are needed to improve the network.

"This is a great opportunity for smaller operators to move beyond simple network maintenance procedures," Clark says.