

Viasat Transforms IT Operations Through Splunk Machine Learning, Predictive Analytics



Executive summary

Viasat is a global communications company that enables consumers, businesses, governments and militaries worldwide to communicate through high quality, secure, affordable and fast connections on the ground, in the air or at sea. A Splunk customer for years, Viasat has extended the solution to multiple use cases enterprise-wide. Leveraging Splunk machine learning and predictive analytics, Viasat has seen benefits including:

- Protecting the customer experience through proactive and predictive monitoring
- Strong cross-team collaboration to ensure peak operational performance
- Network-event remediation accelerated from 20-60-plus minutes to five minutes
- Robust security threat detection and remediation

Why Splunk

Viasat first implemented Splunk Enterprise to solve a particular business challenge: understanding the impact of legacy network conditions on residential customers. Viasat also wanted a solution that could ingest varying data sets and address the need for custom data interrogation. Splunk Enterprise became an essential monitoring and analytics tool for the technical operations team.

Viasat has continued to grow its business through competitive innovation. ViaSat-2, for example, is the most advanced, highest-capacity communications satellite in orbit today. Through its growth, the company's technical operations team has evolved into a managed services organization providing first-level triage, hardware operations and technical assistance to virtual-network operators. Use of Splunk Enterprise, Splunk IT Service Intelligence (ITSI), Splunk Enterprise Security (ES) and the Splunk Machine Learning Toolkit (MLTK) has spread throughout Viasat IT operations and beyond — to security, marketing and executive teams as well.

"My career has grown along with our Splunk use cases at Viasat," says Chris Crocco, Viasat's lead solutions engineer. "We regularly do SWOT (strengths, weaknesses, opportunities, threats) analysis against

Industry

- Communications

Splunk Use Cases

- IT Operations
- Infrastructure Monitoring
- Machine Learning
- Predictive Analytics
- Industrial Data and IoT
- Business Analytics
- Security

Challenges

- Desired effective ways to operationalize data throughout the enterprise
- Needed to protect the customer experience, ensure operational excellence, provide information security and drive business decisions

Business Impact

- Ensure high-performance customer experience
- Proactively and predictively monitor IT performance
- Coordinate IT teams to anticipate and prevent performance issues
- Leverage business analytics for executive, sales and marketing decision-making
- Detect and avert security threats

Data Sources

- Enterprise applications
- Amazon Web Services
- System logs
- Hardware sensors
- Simple Network Management Protocol (SNMP) trap probes
- Firewall logs

Splunk Products

- Splunk Enterprise
- Splunk IT Service Intelligence (ITSI)
- Splunk Enterprise Security (ES)
- Splunk Machine Learning Toolkit (MLTK)

competing products. Splunk remains the best tool in our box to make sure we're operationalizing our data and making it easy to use."

Proactive, predictive monitoring

Crocco's priority is protecting the customer experience — preventing technology problems from ever impacting service performance — whether the customer is using the internet at home or streaming videos in a jet aircraft. Splunk ITSI gives Viasat visibility into the health and key performance indicators of critical IT infrastructure and business services. Splunk ITSI with the Splunk MLTK operationalizes machine learning models through a guided user interface. Viasat then uses the solutions to predict the potential impact of IT maintenance activities and to strengthen cross-team collaboration. On one occasion, Crocco's group alerted the service assurance team of a probable circuit failure. By the time the event took place, remediation had already failed over with no impact on customer traffic. When network events do occur, remediation takes five minutes, compared with 20 minutes to an hour or longer in the past.

"We predict the likelihood of maintenance actions having an adverse effect on the environment," Crocco says. "Splunk ITSI finds outliers and lets us know when a threshold is in breach. Its predictive algorithms are very effective. Combining that insight with our orchestration and auto-remediation capabilities, we take scripted actions. So, not only are we advising people that their maintenance is likely to have an adverse effect, we're ahead of the game in preventing impact."

An Internet of Things (IoT) use case involves detecting hardware issues such as fan failures, engine overheating, and control-mechanism malfunctions. Data manifests from a variety of sensors, system logs, SNMP trap probes or the devices themselves. Splunk ITSI Notable Events displays let Viasat staff review the health of the environment and focus attention where needed.

"We'd been using a homegrown tool that was significantly underperforming, and missing significant

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Viasat

events in the network that were impacting customers, like a device failing in a particular location," Crocco says. "Now we pull all that logging into ITSI, convert it into services and correlation searches, and present it back to the service assurance team."

Expanding use cases

Viasat IT operations, DevOps, networking and systems teams all rely on Splunk solutions. Beyond that, the security operations center uses Splunk ES to monitor against threats such as brute force attacks on passwords and intruders scanning ports. Marketing and sales staff leverage data on satellite beam capacity. The commercial mobility team monitors in-aircraft performance to ensure sufficient bandwidth. Viasat's executive leadership keeps its eye on overall network performance.

"Demonstrating tangible value in business results, and resource time saved, wins executive buy-in," Crocco says, adding that Splunk's Machine Learning Advisory Program communicates effectively with all Viasat stakeholders at their level of technical sophistication.

Looking ahead, Crocco is interested in artificial intelligence for IT operations (AIOps) and sees Splunk as a significant player in leveraging machine learning to analyze large volumes of data for proactive and predictive insights. Viasat's data volume through Splunk has increased from 6GB/day five years ago to just under 1TB/day, with further growth expected.

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