

Juniper Networks Automated Support and Prevention Solution (ASAP)

An ecosystem of tools, applications, and systems to streamline operations, bring operational efficiency, reduce downtime, and increase ROI

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Executive Summary

Every sophisticated organization requires a secure, high performing network that its workforce can readily access. Remedial and repetitive day-to-day responsibilities only serve to increase operational costs, tax limited staff, and add complexity. Because of the complexity and sheer numbers of networks products deployed, two issues weigh most heavily on the minds of today's network operators:

1. How can I reduce downtime?
2. How can I decrease operational expenses?

The automation of tasks required to support networking products not only reduces operational constraints, it increases innovation to drive new projects that provide differentiation in a competitive marketplace. Additionally, risk is reduced and confidence in network operations increased as manual tasks are minimized and products are returned to service faster.

Juniper Networks® Automated Support and Prevention (ASAP) solution speeds detection, data collection, and analysis of issues requiring Juniper Networks Technical Assistance Center (JTAC) assistance. It is an ecosystem of tools that increases operational efficiencies, reduces downtime, and increases the ROI of your network investment. ASAP accomplishes this by systematizing network incident and inventory management, while also enhancing network intelligence, allowing users to streamline operations and make time for strategy and planning.

Introduction

Over time, greater levels of automation will give rise to true self-healing networks in which failures are repaired with little or no human intervention. As technology stands today, support automation must be implemented at three logical points: in the device; at a concentration and control point; and in the vendor back office.

- **Device:** Technological advances have enabled extensive self-diagnostics within products of every type, and network equipment is no exception. A well-designed operating system must be able to constantly monitor all processes within the machine, noting, for instance, hardware failures, software exceptions, and thresholds that have been exceeded.
- **Concentration and Control Point:** With tens, hundreds, or even thousands of devices performing self-diagnostics, it is necessary to have a point of concentration and control for all of this information. This point must be able to filter, combine, and prioritize alarms and alerts, and it needs to give the customer the option of automatically opening a trouble ticket with the vendor and forwarding the incident "snapshot."
- **Back Office:** It is important that the vendor's systems accept and present the incident information to the support engineers, and that this can be integrated into the vendor's support and inventory information systems.

As networks and systems become more and more complex, trying to maintain a level of understanding is almost impossible without effective automation. Seemingly simple tasks can become massive burdens in today's large and rapidly changing networks. Tracking, addressing, and reacting to issues and failures in the equipment is too complex to be done manually. Customers need networks that not only self-diagnose, but also collate, prioritize, and present the information from devices across the network in a coherent and actionable fashion.

These are not nice-to-haves anymore—they are mission-critical.

Juniper's Solution: Automated Support and Prevention (ASAP)

Juniper has created a solution that automates many of the essential support tasks required by network operators to maintain their products. Automated Support and Prevention delivers the complete end-to-end support automation solution required to link Juniper Networks Junos® operating system-based equipment on customer sites to Juniper's case management systems and technical support organization.

Operators can configure ASAP to act in a "zero touch" auto-submit mode that will automatically detect events on a Junos OS device, collect necessary data, and create a new case for the event. Automated Support and Prevention frees operators from manually having to perform these tasks. Additionally, ASAP provides customers with critical information about their Junos OS products so they can plan for product updates.

Automated Support and Prevention is a set of enabling technologies designed specifically to address both of these issues (detection/capture and analysis). The goal is to liberate customers' IT staff from mundane-yet-time-consuming tasks like inventory maintenance and basic troubleshooting, enabling them to focus on higher value activities such as how to meet the changing needs of their businesses.

Automated Support and Prevention provides a comprehensive set of tools that automate the delivery of customized, timely network intelligence for Juniper Networks' high-performance platforms. These tools utilize deep expertise from Juniper support engineers to automate support steps and provide proactive insight into Junos OS-based devices.

Figure 1 gives an overview of the powerful support automation features that ASAP delivers.



Figure 1: Automated troubleshooting and support capabilities

Junos Space Service Now automates the following functions:

- Event detection—Common product event detection processes within the Junos operating system are used by Service Now to initiate its automation actions.
- Data capture—Data needed for troubleshooting the incident is gathered from affected products.
- Case creation—Once an incident is detected, Service Now signals Juniper’s trouble ticketing system to create a case for incident tracking.
- Case attachment—Relevant product data specific to the incident is gathered and attached to the case file.

Juniper Case Attachment Tool Suite (JCATS) automates these functions:

- Data analysis—Extensive analysis is performed of data captured to determine root cause.
- Case update—Service Now will update the case with new information as obtained.

ASAP Architecture and Key Components

Juniper Networks Automated Support and Prevention includes components that seamlessly work within a customer’s environment. They are securely integrated with Juniper’s case management, contract management, and other systems to deliver a connected experience. These components include:

- Junos Space Service Now
- Junos Space Service Insight
- Advanced Insight Scripts (AI-Scripts)
- Juniper Support System (JSS)
- Juniper Case Attachment Tool Suite (JCATS)

Figure 2 shows how Automated Support and Prevention’s components work together.

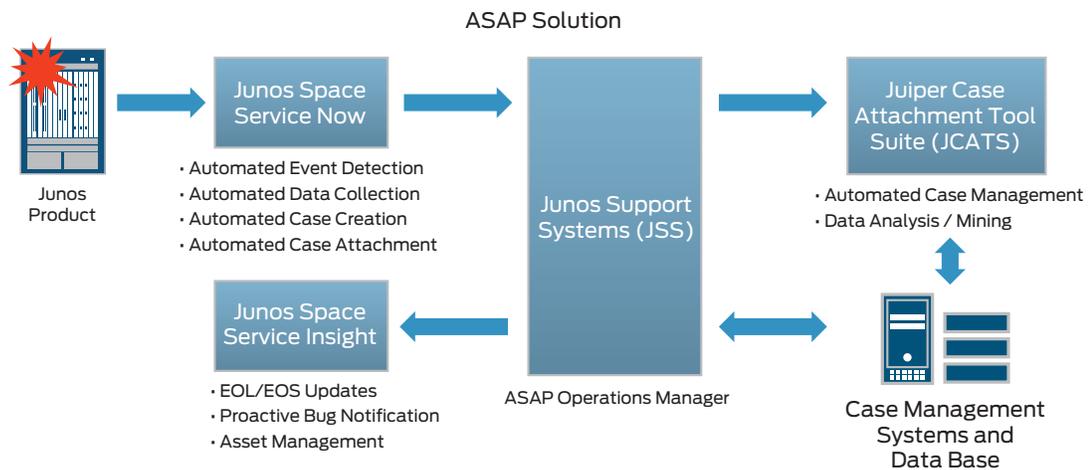


Figure 2: Automated Support and Prevention components

Junos Space Service Now

Junos Space Service Now enables customers to automatically detect incidents, collect diagnostic data, and simplify incident escalation. It also automates inventory management, thus reducing asset tracking time. If an issue is detected by a customer, the problem can be escalated through the Space Service Now application. By consulting the log files, an engineer can more easily see evidence of where and what the problem might be. This dramatically reduces time to resolution.

Junos Space Service Now uses onboard automation and event policies defined by engineers in the JTAC, the Juniper group that provides customer support. These automation tools perform the first steps that a JTAC engineer would use to help resolve issues in the network.

Junos Space Service Insight

Junos Space Service Insight provides access to actionable intelligence that is essential to proactive maintenance of the network. This saves countless hours of data analysis, allowing the customer to proactively manage and maintain the network, with a newfound ability to determine which devices within it may be susceptible to issues before they ever happen.

Service Insight uses periodic health data collected via Service Now to provide analysis that lets customers take action specific to their implementation—for example, proactive bug and End of Life/End of Engineering/End of Support notifications. This service is particularly useful where the customer maintains numerous devices distributed across locations.

Advanced Insight Scripts (AI-Scripts)

Advanced Insight Scripts (AI-Scripts) are specialized Junos OS operational and event scripts that detect events and provide information for analysis.

AI-Scripts do the following important tasks:

- React to specific incident events that occur on devices and provide relevant information about the problems for analysis
- Periodically collect data on events that can be used to predict and prevent risks in the future

The events that are detected by AI-Scripts include common software events, such as daemon and packet forwarding engine crashes; common hardware events, such as PIC alarms; hardware platform-specific events, including ASIC issues; and errors resulting from resource congestion.

Juniper Support Systems (JSS)

Junos Space Service Now and Service Insight communicate with Juniper Support Systems to transfer Juniper Message Bundles (JMBs) and receive updates on cases and proactive notifications. This intelligence is stored and used by Juniper to generate a wide variety of analyses and reports.

Event-driven information transferred to JSS is used to automatically open trouble tickets with JTAC via a secure integration with Juniper's case management systems. Once updates are completed by JTAC engineers and documented in the case management systems, the information is automatically transferred to Service Now and made accessible via the incident management reporting interface.

Juniper Case Analysis Tool Suite (JCATS)

The final component of the Automated Support and Prevention solution is a set of tools that automatically analyze data collected and attached to the trouble tickets opened by the customer in Juniper's case management systems. These tools deliver analysis results to the JTAC engineer, who uses this data to speed up diagnosis and problem resolution.

Solution Guidelines for Deployment and Operation

Juniper Networks includes Automated Support and Prevention in every support contract at no extra charge:

- Automated Support and Prevention provides customers with the flexibility of deployment and operation based on how they receive support on their Juniper products.
- Customers receiving support directly from Juniper can configure Junos Space Service Now with their support contract to connect directly with JSS for getting support from JTAC.
- Customers receiving support from a Juniper Support Services Specialist Partner need to contact their support provider for more details on how to take advantage of this automation functionality.

Conclusion

Networks and systems have become so complex that automation is a necessity. Tracking, troubleshooting, and fixing problems are extremely burdensome and time-consuming tasks for network operators. IT organizations—not to mention their users—do not have any time to waste. They need a network that can self-diagnose, present alerts, and show not just what happened, but why.

Juniper Networks offers the most advanced automated support technology available for networking products. The Automated Support and Prevention solution delivers complete automation that integrates support technologies and expertise into Junos OS devices and connects these devices from the customer network to Juniper support infrastructure.

Juniper Networks Automated Support and Prevention provides a timely solution that is perfectly calibrated to the modern network. By delivering an end-to-end solution, Automated Support and Prevention automates support at the three logical points—in the device, at a concentration and control point, and in the back office. Using the Automated Support and Prevention solution, the customer's total cost of network ownership goes down, while the level of insight into the network goes up. The overall effectiveness of the customer's Information Technology group, which now has more time to think about the big picture, increases as well.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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