HANDS OFF MY NETWORK!

Automating Network Tasks: Not the Rise of the Robots but Offloading the Routine

This series of papers has focused on the technology lifecycle and specifically, how networks and security are best approached in the context of that lifecycle.

We talked about the maintenance and proactive elements of the Operate phase of the networking lifecycle in our previous paper. This paper focuses on *automation*. At Juniper Networks, it's our opinion that over time, greater

and greater levels of automation will give rise to self-healing networks in which failures are bypassed and repaired with little or no human intervention. We are not there yet, but automation is already allowing network staffs to spend less time on break/fix support or routine inventory maintenance and more time planning how to protect, optimize, and evolve the network to meet business requirements.

PLAN
Assess, design and plan your network.

BUILD
Deploy your new or upgraded network and security system.

OPERATE
Keep your network up and running.

When it comes to the network, automation is likely to occur at three different logical points—in the device, at a concentration and control point, and in the vendor back office.

Let's start with the device. Technological advances have enabled extensive self-diagnostics within products of every type, and network equipment is no exception. A well-designed operating system should be able to constantly monitor all processes within the machine, noting, for instance, hardware failures, software exceptions, and thresholds that have been exceeded. In addition, some software, such as Juniper Networks® Junos® operating system, is able to use those alerts and alarms to trigger command scripts designed to launch a thorough analysis based on the type of issue detected. By designing those scripts to launch the commands that an experienced support engineer would request, the device can take a "snapshot" of exactly what was happening at the moment the incident occurred. This kind of detailed information speeds up troubleshooting

tremendously. In cases of highly intermittent failures that sometimes take months to reoccur, Juniper Networks has used these instantaneous trouble reports to diagnose root causes in as little as one day.

With tens, hundreds, or even thousands of devices performing self-diagnostics, it is necessary to have a point of concentration and control of all of this information. This point should be able to filter, combine, and prioritize alarms and alerts, and it should give you the option of automatically opening a trouble ticket with the vendor and forwarding the incident "snapshot." This is exactly what Juniper Networks Junos Space Service Now software does, even giving you the power to choose how much information gets sent to Juniper—for example, you can strip out IP addresses. In addition, Junos Space Service Now collects detailed inventory information on every Junos OS device in the network, saving your staff from the tedious task of inventory maintenance.

At the level of the vendor 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. The Juniper support systems take inventory information and match it in a variety of our internal databases. The result, delivered through Juniper Networks Junos Space Service Insight software to the same console as Junos Space Service Now, includes reports on known bugs and issues with your specific equipment; lists of equipment that are at or nearing End of Life, End of Engineering, or End of Support; and information on the status of support contracts for each device.

In conclusion, 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 like inventory become a nightmare in today's large and rapidly changing networks. Tracking, addressing, and reacting to issues and failures in the equipment are too complex to be done manually. You need devices 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. And it's because Juniper knows this is essential to you that we include service automation in every support contract at no extra charge.

This is the final paper in a series of five short papers on how to effectively manage your network project lifecycle. You can view the other papers in the series at: http://www.juniper.net/uk/en/serviceprovider/customer-services/

Juniper Networks Customer Services and Support

The Juniper Customer Services and Support team consists of more than 1,800 Juniper support personnel and over 1,000 consultants within our partner community. Our global Professional Services team alone consists of more than 200 senior-level consultants, each with an average of over 10 years' networking experience within multiple industries. For more information, visit: www.juniper.net/us/en/products-services/services/technical-services

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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