Driving Network Automation in a Complex Environment

In May 2020, we caught up with Jack, an Automation Developer at one of the world's largest multinational credit reporting companies, to learn how NetBrain is helping them achieve their network uptime goals. We learned that their network is increasingly complex and becoming more difficult to manage over time, so they looked to NetBrain Automation to help manage around that complexity. Here are a few ways NetBrain is helping.

The Growth of Network Visibility and Mapping

NetBrain was first used by members of the GOC (Global Operational Centre), who provided Tier-1 and Tier-2 analysis and troubleshooting, as well as supporting the Tier-3 staff. The team started using NetBrain to visualise the network and its underlying design.

The enterprise's infrastructure integrates a number of different vendors, all requiring different interfaces, so centralising all this information was helpful to the team. Furthermore, almost every piece of equipment had its own expert who was needed for simple activities such as logging into a device and pulling the device information.

> **Newer engineers were walking into [company's] environment needing to learn the network... It's a complex environment and to be able to look at it through NetBrain was a really fast way to learn it (the environment)."**
>
> **– Network Engineer**

With NetBrain these barriers evaporated making troubleshooting and visibility much simpler. Tier-1 analysts with limited experience could access data that they would normally have to engage a Tier-3 engineer to acquire, cutting a huge number of escalations.

As well as pulling diagnostics, the team was able to view Dynamic Maps of the network – both in real time and historically – to draw comparisons, create A/B paths to better understand how applications flow across the infrastructure, and to automatically diagnose their performance.

Troubleshooting the Network

As NetBrain was rolled out across the global network it also became a collaborative troubleshooting platform for a wider spectrum of teams, such as the Network Architects, Cloud Automation Engineering (CAE), and Storage, Servers and Cloud (SSC) to name a few.

One example was with the SSC who were experiencing long holding patterns when waiting for the network engineering team to troubleshoot layer two and layer three issues. "We gave them NetBrain so they could perform traceroute, ping, and path analysis to help pinpoint problems much faster and by themselves. By the time the GOC and the network engineers engaged them, they were able to tell us where the problem was located. This really helped shorten the cycle time for them and for us – something that was taking two days plus now takes a few hours.". The GOC and network engineers were no longer the bottleneck. Teams were sorting things out quickly and efficiently themselves.

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The GOC staff and some of the analysts were taking troubleshooting one step further by creating executable runbooks, troubleshooting playbooks that help document and automate each stage of a troubleshooting process. These were created to help streamline troubleshooting processes, gather information, and perform checks much more quickly and with significantly more ease.

One such example is the adoption of executable runbooks for a Cisco ASA development project that checked the site-to-site VPN tunnels. They had close to 1000 Cisco ASA VPN tunnels going out to third party vendors and customers.

As Jack recalls "The process of analysing a tunnel when a customer calls would take anywhere from 30 minutes to an hour as the team would have to run various checks and pull information one-by-one, device-by-device. We then built an executable runbook with NetBrain that would go and pull information automatically at each step. We could run it with the customer on the phone and fix the issue in under 5 minutes. Now we're much more responsive to the customer and the quality of service has improved."

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[NetBrain] makes life easier for the support staff, the operational staff, and the business units that have to engage with the IT departments...This is a way for teams to do basic troubleshooting and tell us what they're seeing."

- Jack, Automation Developer

Operationalizing a Complex Hybrid Environment

As the company moved towards the Cloud environment, they introduced Amazon AWS and Microsoft Azure to the network. Not only was the CAE team using NetBrain to help troubleshoot faster, but they also used NetBrain to visualise the network to help plan for cloud adoption. As a fairly new team, they were using NetBrain to understand the current hybrid network better, and to build out network interfaces into AWS and Azure. The view into both the cloud environment and the traditional network helped provide visibility end-to-end and provided a better understanding of the flows from one environment to the other. This increased visibility led to greater control and a better understanding of the project, especially for members of the team that had knowledge of one part of the network but less knowledge of the other.

Making Safer Network Changes

Later in their journey, they started integrating NetBrain's Change Management Module into ServiceNow's change request platform. In doing so the Network Engineering team no longer needed to be present to run a change, especially helpful when changes were being made in the early hours of the morning. Instead of having to stay up to push a configuration change, an engineer would simply open a change request in ServiceNow, build the change as an automation in NetBrain, and then link it back into ServiceNow's change platform.

Once the change was approved it could be triggered whenever. Typically, the network Engineers would let the GOC team know about the change and they would push it live without the need of an on-call engineer. This was a big benefit to the engineer run teams

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and meant changes could be made more conveniently and rolled back quickly if they didn't go as planned.

That's not the only integration NetBrain has with the other network tools. NetBrain also integrates with the CMDB, again provided by ServiceNow. Data from NetBrain goes into the CMDB every night to keep network documentation up-to-date.

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Looking forward we hope NetBrain's continued relationship will find new and more expansive ways to innovate their network while continuing to support with day-to-day operations.

About NetBrain

Founded in 2004, NetBrain is the market leader for network automation. The NetBrain platform automates the resolution of every network incident, helping NetOps teams resolve 100s or 1,000s of tickets daily. Today, more than 2,400 of the world's largest enterprises and managed services providers use NetBrain to automate network troubleshooting, accelerate change management and documentation, and strengthen network security — all while integrating with a rich ecosystem of network management tools. NetBrain is headquartered in Burlington, Massachusetts, with offices in Sacramento, California; Munich, Germany; London, the United Kingdom; Toronto, Canada and Beijing, China.