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Driving Better Enterprise CX Through Network Automation

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On-demand is today's de facto standard. From seamless connected experiences to conveniences enabled by the gig economy, the expectation of immediacy that fuels our modern consumer lives has crept effortlessly into the modern enterprise. Touching every aspect of an organization, IT professionals in particular feel the pressure as the department delivering the network and tech upon which the business operates.

In turn, IT leaders expect the same response from their service providers: to route business-critical traffic in real time, every time and may get vocal if their demands—and service-level agreements (SLAs)—are not met. In an age where delivering a stellar customer experience is paramount, service providers have started to introduce automation to their networks to enhance performance and, ultimately, the enterprises they serve.

Network automation refers to a simplification, or automation, of existing processes in the network. It gives service providers the opportunity to let software execute tasks such as planning, deployment, optimization and maintenance of networks and services. Automation can be deployed virtually anywhere within a service provider's network for tasks such as configuration and activation to simplify customer onboarding, routine transport needs and mitigate outage situations. It can also be used to augment network resiliency and to get traffic from Point A to Point B by the quickest path possible. Using network automation systems and tools, service providers can drive efficiency, agility and reliability throughout the network to deliver a stellar experience for their enterprise customers.

Using network automation today

As network automation tools grow in sophistication to manage increasingly complex functions within the service provider network, the benefits move well beyond simplification to predictive

analysis and, ultimately, to zero-touch networks. The reality, however, is that many service providers aren't yet using more than basic network routing automation, at least in any meaningful way. Instead, they are still using human engineers to manually resolve network issues and reroute traffic each time issues arise. The downside is that humans are by nature error prone. Cisco reports that up to 95 percent of network changes today are done manually, leading to configuration errors and inconsistencies.

However, expect to see more service providers jumping on board with network automation, as advancements in recent technologies such as machine learning, artificial intelligence (AI) and the Internet of Things (IoT) puts increased pressure on networks, according to a report from Global Market Insights. The analyst firm reports that the network automation market size surpassed $3 billion in 2019 and will reach $18 billion by 2026, a CAGR of around 25 percent. Network automation is needed to simply keep pace in an increasingly digital world and can help ease the path for service providers undergoing digital transformation.

The benefits of network automation for service providers are strong. Imagine the following real-world examples.

Outages

Network automation can resolve a major network outage in a matter of seconds, instead of hours or days. In some cases, with automation, an outage is fixed, and traffic is rerouted in milliseconds—so quickly that the service provider may not be aware that an issue even occurred until reading the reports.

Expertise

Having access to an intelligent network that uses AI to "learn" how an experienced network engineer would respond to certain scenarios and conduct the task automatically is game changing. This "playbook automation" method—utilizing "if this, then that" type scenarios—gains the expertise of an experienced engineer without the manual effort.

Simulation

Consider how valuable it would be to gain the ability to conduct simulated failover scenarios to determine the trickle-down effect if a particular node fails—and how this can occur in real-time vs. waiting for a maintenance window.

Latency

Automatically having the network choose the path with the lowest latency can enable the service provider to offer SLAs and cultivate VIP clients.

Visibility

Increasing visibility into the network can solve potential problems before they occur.

Allowing engineers to offload repetitive tasks that are often subject to human error enables them to focus on delivering the best customer experience possible—and to do so consistently. This not only avoids issues with manual intervention such as poor data entry but also improves employee satisfaction.

This is all achievable with network automation when it's backed by technologies such as software-defined networking (SDN). Service providers need a performance level that is understandable and repeatable, and SDN allows the automation tools to provide complete control and confidence—and underlying metrics—to show what happened when an issue occurred and how it was fixed. SDN can control network routing and switching through a single pane of glass to consistently deliver the best path through a network, reducing latency and enhancing the customer experience. As transport paths are not always predictable, SDN route controllers enable service providers to navigate the millions of routes to create the best path, giving customers a local network feel on a worldwide scale.

Enterprise benefits

When a service provider utilizes network automation tools, there are inherent benefits for their enterprise customers. For enterprises, it's all about making sure their most critical applications are available with five 9s reliability. Consider these common applications.

Real-time replication

Business continuity is key for companies that thanks to the COVID-19 pandemic are now well-aware of how their businesses can be disrupted at a moment's notice. Many have implemented a system with two databases that reside at two separate data centers that replicate the data from one to the other in real time. Complete reliability with diverse backup capabilities is incredibly important because if there is a failure in one or both databases, a minute of downtime could cost larger businesses millions of dollars in lost revenue. With automation tools, if an outage or issue occurs, the service provider can immediately pinpoint what happened, where it happened and how it was resolved. Often, the service provider and enterprise may not even know there was an issue because automation identified the issue and "self-healed" to resolve it before traditional notification methods would have alerted a human.

Video

If enterprises weren't using video before COVID-19 sent workforces home, they are today. And it's not just the work-from-home crowd that's utilizing Zoom or other videoconferencing tools. Some video use is coming from marketing departments: with the demise of trade shows, they are utilizing website video and webinars to help spur sales. And with travel restricted, many board meetings and quarterly earnings calls are also being held via video conferencing. Automation in the network can provide the route with the lowest latency, delivering an optimum user experience for video.Cloud

As enterprises increasingly embrace the cloud for its ease of use and potential cost savings, they require the same level of reliability and latency levels as if their workloads were still being

processed on-site. Automation can help determine not only the best routes for traffic but resolve issues quickly when they occur.

5G

While it's by no means as ubiquitous as service provider advertisements would have you believe, 5G is a big factor coming up for both service providers and enterprises. Enterprises have plenty of questions about how 5G will affect them and how it will handle whatever low-latency applications they dream up. The amount of bandwidth that 5G requires is tremendous, but its significant reduction in latency will enable a host of new applications, such as streaming 4K video. In the enterprise, it will enable more real-time Internet of Things (IoT) and machine-to-machine (M2M) applications such as in manufacturing, with real-time remote control of equipment and robotic machines streamlining processes across industries. Autonomous vehicles will be another big application that will happen first in the enterprise space as companies throughout the supply chain look for more effective ways to get their goods from Point A to Point B. 5G will provide a voice and video connection to everything, and this connection can't go down. This is where automation becomes critical, helping service providers systematically resolve issues in near-real time, virtually eliminating downtime.

A great example of how automation can improve enterprise network performance is found in the case of a magazine publisher moving its workloads to the cloud. When one East Coast-based publisher migrated its locally based workloads to a cloud environment, it quickly ran into a roadblock. The publisher's design department, which creates artwork and graphics for the magazines, found the latency with the back and forth traffic to the cloud unbearable, as the graphic designers often had to wait a second or two for their local machines to render graphics. Weighing the major risk to productivity against the undesirable alternative of bringing the department's workload back on-premise, the publisher turned to its service provider for help. Using automation insights and tracking the Internet traffic routes, the service provider uncovered that the publisher's workload was using a data center on the West Coast. Simply by calling its cloud provider and asking to move the workload closer, the company saw a drop in latency from 300 milliseconds to 3 milliseconds—almost as if the workload was back in the office. In the past, this would have taken many human hours of digging into network data and the solution may have been missed entirely; automation unveiled the problem and led to a solution quickly.

As enterprises are becoming increasingly reliant on their networks to conduct day-to-day business, not to mention ensuring their most critical applications are always available, they're counting on their service provider partners more than ever before. Service providers must deliver the ultra-reliable backbone so that enterprises can keep pace with their business' growing demands. Automation tools help solve issues without relying on human intervention, rerouting traffic to a more desirable route when a network issue occurs. Technologies like SDN allow for better control of networks, provide unprecedented visibility and deliver better information out of the network. As enterprises become savvier about network automation and the services they are paying for, service providers must be prepared to meet increasing latency and network uptime demands. Enterprises of the future will not likely tolerate service disruptions or even a 30-millisecond delay as it relates to the impact on their business. Given this rapidly moving landscape, it is no longer a question of whether network automation will take hold in service provider networks, but how quickly.