



White Paper

Automation Services Accelerate Customer Transformation While Derisking the Journey

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IDC OPINION

Cloud, social, big data, and the Internet of Things (IoT) are increasingly central to business decisions as the pace of digitization accelerates. The impact of software-defined networking (SDN), virtualization, and converged and hyperconverged infrastructure within the datacenter is substantial. These technologies add complexity but offer enticing opportunities for new business models, revenue streams, operating efficiencies, and agility that organizations must pursue if they want to remain competitive and viable. This pursuit requires businesses to keep up with current and emerging technologies and applications and transform the ways in which they conduct business. At the core of "keeping up" is an organization's datacenter strategy – with an associated technology and services strategy that will either create industry laggards or accelerate innovators.

The rapid appearance and adoption of new technologies and applications create transformational urgency that many organizations will find overwhelming or unable to successfully execute. Third-party expertise and services are becoming essential components of a datacenter transformation by facilitating relevant strategy discussions, planning, and execution expertise to help organizations optimize their datacenter investments while minimizing the risk associated with migrating to new networking architectures. As a result, many services firms are readjusting their go-to-market plans to lead with services backed by consulting expertise and services capabilities and offers that help customers accelerate their time to value while minimizing any risk to the business.

Juniper Networks' services capability and offer developments are focused on responding to the challenges of contemporary datacenter networking deployments by developing solutions that help accelerate transformation in the most seamless and secure way possible.

IN THIS WHITE PAPER

This IDC white paper discusses Juniper's Network Lifecycle Automation Services, a suite of capabilities and services that provide customers the ability to accelerate their digital transformation in a smart, simple, cost-efficient, and more secure way.

SITUATION OVERVIEW

As the market moves toward what IDC terms the 3rd Platform, defined by mobile, social, big data, and cloud technologies (which supplanted the client/server era of the 2nd Platform), the impact on the network and its processes will be profound. The 3rd Platform will be a cornerstone in the journey to digital transformation. As such, the network requires significant consideration and strategic insight in light of workloads, investments, and business objectives.

IT applications, workloads, and services play a central role in enabling business objectives and the journey toward digitization. The infrastructure that supports these services must be responsive to the business and dynamic enough to meet the rapidly changing needs of the technology and IT landscape. No longer can the network be optimized by the traditional process of routinely upgrading equipment and adjusting architectures for new initiatives. And all this must be compressed from months to minutes.

Digital transformation will require a rethink of the network's strategic importance and will need to encompass not just technology trends but, just as important, people, process, technology, and a defined strategy. The CIO's consideration of how the network will be planned, designed, run, and managed to support transformation to meet future business objectives will be paramount for success.

Current expectations for networks are high. In the era of the 3rd Platform and digital transformation, the traditional enterprise network – both architecturally and operationally – has become too complex to manage and too time consuming and expensive to monitor and will become too hard to secure and too difficult and cumbersome to scale. The network – which has become architecturally inflexible and nearly impossible to run efficiently – has to adapt and change to meet the agility demands of the business while helping reduce both capex and opex.

Couple these market and technology dynamics with the desire for the enterprise to achieve new business outcomes by leveraging its infrastructure investments – increase innovation, gain greater business agility, increase productivity and efficiency, create new revenue streams, and surpass its competitors. These dynamics have become too unwieldy for most organizations.

According to 2016 IDC studies of network and IT managers, IT managers stated that they spent over 50% of their time on manual, time-consuming management tasks versus only 21% of their time on innovative, strategic initiatives to help accelerate the business. In addition, these activities can financially tax an organization and its network managers at an estimated \$415,000 per annum just in managing and monitoring network health and daily functions.

These dynamics are driving the need for increased network efficiency as well as the mandate to adopt automation and services. IDC believes that by leveraging automation tools, coupled with professional services, IT organizations will gain the following advantages:

- Redeploy expensive resources on strategic, revenue-generating initiatives
- Increase speed and operational agility
- Decrease operating costs
- Mitigate risk caused by human error and the impacts of the change
- Accelerate change from months to weeks to minutes

The benefits of automation are clear – cost savings, improved productivity, decreased risk, and acceleration of services – but understanding how to move forward with automation is a bit more complex. IDC believes that leveraging professional services can help organizations transition to the adoption of automation tools and services in a strategic way that is appropriate for their business objectives.

FUTURE OUTLOOK

Today's IT environment is anything but static. There will be constant disruption – digitalization, the 3rd Platform, and cloud – and organizations must adapt their network to keep pace or be disrupted. Agility, flexibility, and speed must come to the network but with minimal disruption and low risk. There is no alternative.

In parallel, there is a skills gap that many organizations can no longer manage alone. Simplicity must be paramount for effective operations and to enable speed to market of new services and competitive differentiation. Network transformation is a key to this dynamic.

This is a positive development for organizations but requires that the IT team embrace substantial organizational and process change and invest in new technologies, such as automation and operational approaches, which can be daunting.

IDC believes that it is essential to identify a trusted partner with deep expertise and proven, repeatable methodologies and processes that can clearly demonstrate capabilities to assess, prioritize, derisk, develop, and implement as well as create a cost-benefit analysis for capitalizing on the benefits gained from automation.

Juniper Network Lifecycle Automation Services

Juniper Networks Professional Services has developed a life-cycle automation approach encompassing a suite of open source tools, technologies, and services to help networking professionals reduce time, risk, and costs associated with the design, deployment, and day-to-day operations of the network. This suite of services allows network managers to focus on and execute the transformation of their networks more intelligently and simply.

Juniper's *Network Lifecycle Automation Services* is a standardized, scalable framework to ensure consistency for client engagement that has been developed and tested across major network deployments worldwide and offers the following:

- An open source-based framework, featuring complete automation of network deployment, including configuration generation, and environment testing
- Libraries capturing test scenarios, use cases, and best practices
- Juniper engineering experts to operate the open source automation framework as well as provide the ability to configure for client requirements
- A continuum of professional services spanning the plan, build, and operate phases of the network life cycle

The Network Lifecycle Automation Services provide capabilities surrounding four key attributes for successful adoption of automation:

- **Test-driven design:** Utilizing an automated, iterative approach to design allows network managers to quickly and easily make changes to the network based on new business and application requirements. Instead of taking months, this approach helps reduce cycle times to hours by automating the iterations of network design validations. Network managers no longer need to wait for months-long test cycles to validate changes. Using an agile approach allows network managers to have continued insight, express validation, and dynamic deployment of new network functionality to help keep pace with the business.
- **Automated deployment:** This service helps accelerate lengthy deployments, configurations, and subsequent testing cycles. By automating tasks and leveraging best practices from the Juniper Network Lifecycle Automation Services framework library, this service speeds configuration, deployment, and testing times of organizations' running environments with less risk.
- **Automated lab testing:** Leveraging Juniper's expertise through defined, repeatable methodologies, this service combines expertise in hardware, software, and professional services, utilizing validated lab testing libraries to mitigate risks associated with changes in configuration, design, feature sets, product sets, or versioning, with intense validation in lab, thereby reducing costly downtime and disruption.
- **Automated auditing:** This service provides automated compliance testing on configurations and status in the production network to help network managers be proactive in reducing the likelihood of unplanned events and augment their ability to confirm the success of planned events, thereby maintaining higher service levels through a better conformity of the environment.

Juniper has developed a combination of life-cycle services and capabilities within an automation framework to provide a unique approach to helping customers leverage the benefits of automating the key phases of the network life cycle, enabling customers to reduce costs, improve quality, and increase agility. The Juniper Professional Services charter is to make platform migration seamless, thereby ensuring that deployments are faster, with reduced risk, and delivering upon an accelerated pace of transformation for Juniper's customers.

Case Study – Leveraging Juniper Network Lifecycle Automation Services

A European multinational financial services company with operating income of more than \$35 billion, assets exceeding \$200 billion, and offices across the globe that provide a breadth of financial services in 50+ countries across 5 continents sought to modernize and consolidate its enterprise network and datacenter assets and allow the company to accelerate more competitively for future business transformation. The company employs more than 60,000 full-time employees, plus an additional 35,000 contractors and outsourcers. The company was challenged to consolidate 100+ global datacenters down to approximately 25 regional datacenters over the course of one year. The added challenge was that many of the datacenters had end-of-life or near-end-of-life infrastructure and massive device sprawl, which was compounded by locally unique designs and processes that needed to be standardized with consistent design, architecture, and operational efficiency across the globe. As a result of the next-generation network (NGN) and datacenter consolidation effort, the company aimed to realize significant improvements across key processes and outcomes, including:

- Increased speed of deployment of applications and services in a globally consistent manner

- Increased business continuity to leverage self-learning tools and design standards for global consistency and improved user productivity to allow expensive resources to be redeployed onto more strategic initiatives
- Lower operational costs to reduce IT management overhead, allow head count reduction, and bring services online faster
- Modernizing aging networks to improve operational efficiency, flexibility, and stability; leverage innovative security techniques; and support new and emerging technologies
- Globally consistent datacenter network architecture

Before moving forward, the company outlined its core technology and process requirements or pillars for its transformation during the RFP process that both the company and its selected partner needed to meet. These pillars included:

- **High-performance networking fabric:** The future datacenter network needs to be massively scalable and support heavy traffic volumes in north/south and east/west directions. High levels of automation and low human intervention for provisioning and operations were required.
- **Elastic and virtualized transport layer:** The next-generation network must offer a virtualized and ubiquitous transport layer for supporting multiple edge services as well as a hypervisor overlay technology to support segmentation and isolation.
- **Management and orchestration:** The next-generation datacenter (NGDC) needs to provide a consistent management for all components of the network stack and provide industry-standardized APIs for SDN programmability and centralized orchestration.
- **Innovation at no risk:** While eager to innovate within the NGDC, the client cannot tolerate risk. The next-generation datacenter will have to be highly reliable.

The incumbent vendor had offered its standardized operational methodology along with its technology road map, which did not align with the company's core requirements. The company felt that standardizing on the Juniper Networks MetaFabric Architecture allowed for speed, agility, and scale with a reduced risk profile. While it was challenging initially for the networking leadership team to convince the C-suite and line-of-business stakeholders of a significant vendor change, presenting the long-term benefits coupled with the company's desire to be innovative and a thought leader helped make the choice easier. The company also felt it essential to leverage the engineering expertise from Juniper Services. Juniper Professional Services acted as the company's consulting, integration, and innovation partner for the consolidation of the datacenters located across Europe, APAC, and the Americas.

Juniper Networks Professional Services assumed the management of the project and delivered the services, with initial focused efforts on the U.S. and European operational hubs.

During the RFI/RFP process, it became clear that Juniper was able to offer services beyond other competitor's standardized offers. Through this exploration, a plan was developed to leverage Juniper's Network Lifecycle Automation Services throughout the datacenter consolidation effort, which included the following capabilities:

- Design workshops – aligning stakeholders and creating strategy, plan, and implementation timelines of the project
- Assessment services – defining the "as is" and the new "to be" state
- Risk mitigation services – ensuring that network operations were consistent and had no impact on the business

- Standardized reference architectures
- Direct access to the Juniper TAC and engineers

In addition, these services, test-driven design, automated deployments, and automated lab testing provided a high level of consistency and risk mitigation that were delivered through continuous regression testing. This capability allowed the company to test and validate changes to the network at speeds that it was previously unable to achieve – bringing cycle times down from three to four months to six hours or overnight. Previously, the company utilized manual processes for building and configuring datacenter infrastructure, which would take days. Once Juniper automation was deployed, the company was able to turn up a switch, router, or firewall in as little as 13 seconds. Automation enabled the delivery of infrastructure that met compliance requirements and was ready for handover without manual, lengthy testing schedules. By deploying automation, these processes were compressed from months to touch free overnight. As a result, the company was able to aggressively roll these processes out across its datacenters. Other services that the company leveraged from Juniper Professional Services also accelerated the success of the project and included:

- Production configuration and instantiation services – including software configuration, testing, and acceptance testing
- The capability to utilize agile sprints to meet aggressive timelines for low-level design, tooling, and management
- Managing the physical build that was completed by local teams of the company's partners
- Leveraging the skills of 140 engineers worldwide and completing the consolidation in 9-12 months
- Facilitating IT operational process change as well as reorientation of highly skilled resources and staff

Most importantly, the company was able to leverage Network Lifecycle Automation Services across the life cycle of the project. Utilizing this service enabled the company to accelerate through each phase of the life cycle more quickly, with less human error and risk, while shortening the overall consolidation effort. According to the company, traditionally bringing one datacenter online required a one-year effort; using Juniper's Network Lifecycle Automation Services enabled it to bring 10+ datacenters online without business interruption.

What the company discovered through its engagement with Juniper Services, which was initially a datacenter consolidation effort, was that the project was accomplished more quickly and with less risk than that had been expected. The company additionally benefited from leveraging design DevOps, automated deployments, and automated lab testing services, which positively impacted its IT organization with improved IT processes, reduced costs, and improved risk posture because of globally consistent best practices and accelerated transformation.

The cost and risk benefits aside, the company is now positioned more competitively than if it had remained with its old architecture. The network and NGDC architecture will allow for expansion more quickly into other digital initiatives such as how to improve services delivery for the company's constituents and how to leverage new network designs more quickly to drive business transformation. Juniper Services helped the company create a new networking model that was carrier grade and positioned to help accelerate growth. The company was so pleased with its engagement with Juniper Services that it has already awarded Juniper with a new initiative for next-generation campus.

CHALLENGES/OPPORTUNITIES

Juniper faces a number of opportunities and challenges in its professional services business:

- The market is tough, with innovation happening in parallel with the commoditization of networking hardware, and organizations want to extract maximum value from their technology investments in shorter time frames. Couple this dynamic with increased complexity, rising costs, and IT sprawl. Juniper has created a suite of professional service capabilities to help customers navigate these dynamics while managing risk to innovate and transform successfully.
- Juniper provides innovative professional service capabilities across its networking and security portfolio to help customers seamlessly migrate to new datacenter paradigms (consolidation, new network architectures, standardization, and virtualization). Although these technologies are widely recognized as bringing crucial benefits to networking customers, the transition of mainstream organizations will likely be challenging. Juniper provides the innovation and requisite skill sets to help customers successfully deploy these technologies but will need to create a larger presence to let the market know of its expertise.
- Compared with its larger networking competitors, Juniper still lacks visibility and channel presence for scale of its service capabilities in some smaller markets. However, Juniper still has a lot of space to grow in the major markets of North America and Western Europe, where its presence is well established and recognized.
- Well-established larger players will test Juniper's ability to keep pace of innovation. Juniper must showcase its innovation and ability to deliver differentiated solutions, which will demonstrate Juniper as a player in the consideration set for datacenter transformation.

CONCLUSION

In today's dynamic IT environment, it is a given that there will be continual disruption from internal and external market and technology forces. Couple these realities with a shortage of skills that leaves enterprises' IT teams scrambling just to keep the lights on, let alone try to be innovative or competitive. Organizations must adapt their network and process to keep pace or risk being disrupted. Agility, flexibility, and speed are key requirements, but risk mitigation is paramount. It will require that the IT team embrace substantial organizational and process change and invest in new technologies, such as automation to help accelerate new operational paradigms, which can be daunting.

IDC believes that it is essential to identify a trusted partner with deep expertise and proven, repeatable methodologies and processes that can clearly demonstrate capabilities to assess, prioritize, derisk, develop, and implement to help capitalize on the benefits gained from automation.

The benefits that automation coupled with professional services expertise brings to bear are clear – increased speed and continuity, faster modernization of aging networks, lowered operational cost, improved process efficiency, and reduced risk – for customers that understand the strategic importance of their network. Taking the step toward automation opens opportunities to accelerate past competitors and capitalize on the journey toward the 3rd Platform and digitization.

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