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Why the Automated Network is the Platform for Digital Transformation

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In our 24/7 always-on world, networks have become the lifeblood of business, driving how we work, operate, and communicate. Much like the revolutionary impact of cars and mass transit on our physical landscape, networks shape our digital realm, underpinning every aspect of our increasingly connected lives. As the backbone of our digital infrastructure, networks are now as crucial as any physical utility, powering innovation, commerce and communication across industries and continents.



However, this digital revolution brings unprecedented challenges. The operational and technological complexities of modern networks have reached a critical juncture, intersecting with ever-growing cybersecurity risks. The sheer scale and intricacy of these systems have outpaced human capability to manage them effectively, creating a new world order where traditional approaches fall short. We're now at a point where conventional networks are hitting a wall, and issues are starting to compound.

Enter the automated network, the transformative solution and critical platform for digital transformation in modern enterprises. By harnessing software and advanced technologies, automated networks streamline routine tasks in network management, eliminate exposures, prevent outages, and ensure that organizations maintain compliance, offering a lifeline to organizations grappling with complex, dynamic network infrastructure.

What Exactly is an Automated Network?

An automated network is more than just a collection of scripts or point solutions; it's a cohesive, multi-vendor, multi-platform, multi-domain system built on several core principles. It utilizes a central management plane to orchestrate and automate tasks across the entire network infrastructure, regardless of vendor or technology. This removes the need for device-by-device configuration and enables consistent policy enforcement. Automated networks continuously monitor the state of the network, detect deviations from the desired state, and automatically take corrective actions, ensuring that the network remains compliant and performs optimally.

The Five Stages of Network Transformation Maturity

To achieve this level of automation, organizations typically follow a structured approach to network transformation. Here is a five-stage maturity model that outlines this journey:

Stage 1: Discover

- *Source of Truth*: Establish a centralized repository of network data and configuration policies.
- *Dashboarding*: Implement real-time visibility into network status and performance.
- *Explore Data*: Analyze network data to identify patterns, inefficiencies, and potential improvements.
- *People and Process*: Train staff on discovery tools and establish processes for data collection and analysis.
- *ITSM Connect Considerations*: Integrate discovery data with ITSM systems for improved incident management.

Stage 2: Standardize

- *Configuration Compliance*: Ensure configurations are consistent and compliant with organizational policies.
- *Operating System Management*: Automate OS upgrades, patches, and downgrades at scale to enforce standard OS versions.
- *People and Process*: Establish change management processes and train teams on standardization practices.
- *ITSM Connect Considerations*: Align standardization efforts with ITSM change management workflows.

Stage 3: Remediate

- *Configuration Modeling*: Create declarative configuration policy models defining the desired network configuration state.
- *Vulnerability Management*: Automate security patches and updates to minimize exposure to known vulnerabilities.
- *Automated Fixes*: Anything that drifts from the standards in stage 2 gets detected and remediated along with notification before issues and exposures can occur.
- *People and Process*: Define escalation procedures and train staff on remediation tools.
- *ITSM Connect Considerations*: Integrate remediation actions with ITSM problem management workflows.

Stage 4: Validate

- *Configuration Auditing*: Verify compliance by comparing actual configurations against desired policies for internal standards, 3rd party standards and benchmarks.
- *Configuration Modeling*: Use declarative models to validate changes before deployment, ensuring they align with the desired configuration state of the network.
- *Network State Assessment*: Evaluate the operational state of devices and connections as pre/post verification or on-demand assessment.
- *Topology Visualization*: Ensure network design aligns with business goals and requirements with the ability to generate site documentation for compliance.
- *People and Process*: Establish validation protocols and train teams on interpreting results.
- *ITSM Connect Considerations*: Link validation results to ITSM service level agreements (SLAs).

Stage 5: Self-Operate

- *API Integration*: Enable seamless interactions with third-party systems for advanced orchestration.
- *Service Orchestration*: Facilitate interactions between network automation and external platforms.
- *Workflow Automation*: Design custom processes for implementing configuration changes, troubleshooting, and compliance checks.
- *People and Process*: Shift focus from manual operations to strategic initiatives and optimization.
- *ITSM Connect Considerations*: Fully integrate self-operating capabilities with ITSM systems for proactive service delivery.

By following this structured approach, organizations can evolve their networks from manual to fully automated systems, enhancing operational efficiency, security, and agility. This journey transforms the network and also positions the organization for future technological advancements and competitive advantage.

The Benefits of Automated Networks

Implementing an automated network brings a host of advantages to enterprises. Automated networks can significantly enhance operational efficiency by automating repetitive tasks and freeing IT teams to focus on higher-value initiatives. This streamlining of operations leads to substantial improvements in overall efficiency. Security and compliance also see marked improvements, with IDC reporting an 84 percent enhancement through network automation. Standardized security configurations across the entire network infrastructure reduce the likelihood of misconfigurations and vulnerabilities.

Automated networks also enable organizations to seamlessly scale to meet growing demands without a proportional increase in management complexity, resulting in substantial cost savings. The acceleration of new service, application, and device deployment is particularly beneficial in dynamic environments requiring quick provisioning. Furthermore, automated networks provide better visibility into operations and enable proactive remediation for vulnerabilities and exposures, leading to more stable and reliable network environments with fewer configuration-related issues.

The impact of network automation on operational stability and security is profound. Some organizations have reported up to a 95 percent reduction in network outages and have achieved 100 percent network security policy compliance through automation. In terms of efficiency gains, there are organizations who have demonstrated a 300-fold speed increase for OS upgrades compared to manual methods. Perhaps most compellingly, some enterprises have been able to implement self-operating network capabilities in as little as three months, with a return on investment realized within the first year of implementation.

Automated Networks and Digital Transformation

As businesses increasingly adopt critical applications and services, the demand for agile, automated networks has skyrocketed. This surge in demand is driven by the need for networks that can keep pace with the rapidly evolving technological landscape and support digital transformation initiatives across organizations. Automated networks are playing a pivotal role in accelerating digital transformation journeys. They enhance an organization's ability to adapt to rapidly evolving technological demands across diverse, multi-vendor environments. This adaptability is crucial in today's fast-paced business world, where companies must quickly respond to market changes and customer needs. Those that don't keep pace run the risk of becoming obsolete.

The impact of network automation extends far beyond mere operational improvements. It's creating a robust foundation for innovation and resilience in our highly interconnected world. By freeing IT teams from routine tasks, automated networks allow organizations to focus on strategic initiatives that drive

business growth. This shift enables enterprises to completely reimagine their capabilities and explore new business models.

In multi-vendor environments, automated networks are particularly valuable. They provide a unified approach to managing diverse network infrastructure, ensuring consistency, and reducing complexity. Platforms have emerged as powerful solutions for automating multi-vendor networks, offering benefits such as increased efficiency, enhanced accuracy, and improved compliance and security.

Furthermore, automated networks are enabling more sophisticated network analysis. By leveraging data from various sources such as routers, logs, configuration files, and user devices, organizations can gain deeper insights into their network performance and make data-driven decisions.

The Future of Automated Networks

As we look to the future, the potential of automated networks in driving digital transformation is immense. They are not just optimizing current operations but are also paving the way for emerging technologies like AI-driven networks and intent-based networking. These advancements promise to further enhance network intelligence, security, and adaptability, positioning businesses to thrive in an increasingly digital world.

The impact of automated networks on various industries is expected to be transformative, revolutionizing operations across multiple sectors.

In the energy sector, automation is enhancing operational efficiency, reducing accident risks, and optimizing energy production and distribution. Smart grids powered by AI are improving demand response management and enabling more efficient use of renewable energy sources. Automated systems are also facilitating predictive maintenance, reducing downtime and costs. Furthermore, AI is being leveraged for energy trading, allowing companies to make more informed decisions based on market data analysis.

The automotive industry, already a front runner in automation, is seeing advancements in vehicle production and the development of self-driving cars. AI-powered systems are improving manufacturing processes, enhancing quality control, and enabling more efficient supply chain management. In the realm of autonomous vehicles, automated networks are crucial for real-time data processing, navigation, and vehicle-to-vehicle communication, paving the way for safer and more efficient transportation systems.

In healthcare, automated networks are showing great promise in delivering significant benefits, enhancing both operational efficiency and patient care. These systems are streamlining critical administrative tasks such as scheduling, billing, and inventory management, allowing healthcare workers to focus more on complex patient care. This shift ultimately improves the overall quality and efficiency of healthcare delivery. Automated networks also play a crucial role in managing and securing patient data, ensuring compliance with stringent healthcare regulations while providing faster access to critical information when needed. Looking to the future, the integration of AI with automated networks holds immense potential. In medical imaging, for instance, AI-assisted systems could potentially improve diagnostic accuracy in areas such as radiology, pathology, and dermatology. AI might also contribute to creating more personalized treatment plans, potentially reducing hospital readmissions for patients with chronic illnesses.

Preparing for the automated network era requires a strategic approach. Organizations need to invest in upskilling their workforce to handle these new technologies. This includes developing skills in areas such as AI, machine learning, and data analytics. Creating a network source-of-truth repository is crucial for validating network configurations and managing changes effectively. Additionally,

companies should focus on building processes for common tasks that can be easily automated and look at their overall network to identify areas where automation can take over manual, repetitive processes.

Looking Ahead

The accelerating trend in automated networks marks a pivotal shift in the digital landscape, offering a multitude of benefits that are reshaping how businesses operate and innovate. From enhanced operational efficiency and improved security to increased scalability and faster deployment of services, automated networks are proving to be indispensable for modern enterprises. They provide greater visibility into network operations, enable proactive problem-solving, and significantly reduce the burden of routine tasks on IT teams.

The imperative for businesses to adopt automated networks cannot be overstated. In an era where digital agility can make or break a company's success, automated networks offer the flexibility and responsiveness needed to stay competitive. Organizations that fail to embrace this technology risk falling behind in operational efficiency, security, and their ability to adapt to rapidly changing market demands. The adoption of automated networks is not just a technological upgrade; it's a strategic decision that can drive business growth and innovation.

Looking ahead, automated networks will play a crucial role in shaping our digital future. They are the foundation upon which next-generation technologies like AI-driven systems, Internet of Things (IoT) networks, and advanced data analytics will be built. As industries continue to evolve, automated networks will be at the forefront, enabling smarter cities, more efficient healthcare systems, and revolutionary advancements in fields ranging from manufacturing to finance.

Automated networks are a fundamental shift in how we approach network management and digital transformation. They offer a path to enhanced efficiency, innovation, and competitiveness in an increasingly digital world. As we move forward, the organizations that harness the power of automated networks will be best positioned to thrive, driving progress and shaping the future of their industries.