



**THE NETWORK IS DEAD!  
LONG LIVE  
THE NETWORK!**

**THE RISE OF NETWORK  
AUTOMATION**



# Part of navigating the world of New IT is understanding and capitalizing on New Network.

Today, intent-based networking capabilities are helping companies keep pace with the demands of digital and cloud. But effectively using those capabilities requires a new mindset and approach to the network focused on automation.

Seeing the network as a companywide software platform means that the network is no longer a set of physical boxes (that's dead), but instead a set of virtual software that can be quickly and easily deployed and distributed (long live the network!). The network can also be readily updated, making a company more agile—better able to respond quickly to business needs and opportunities.

## Why is network automation important?

From one perspective, automation in a network context is not new. Yet traditional approaches to automation only meant things like pushing out some basic configurations to routers and switches.

In a more complex environment of larger and growing networks, automation is one of the technology-based solutions that is vital to turning distributed networks into business value. Today's IT has a heavy focus on rapid development and a DevOps mindset. New network automation capabilities are critical to keep pace with rapid-release cycle times and constant iterations of capabilities.

Application developers expect dynamic server and storage capacity to meet always-evolving needs. To support these trends, companies need to be able to look at the underlying network end-to-end, from device to cloud. Automation is the key to making sure that network changes or updates are seamlessly configured and translated across different IT environments.

# Enabling the move to cloud

Compared to other areas within IT, the network has lagged in adopting effective automation. It has often been the rate-limiting step, taking weeks or months to get changes approved to connect and secure a workload. This has slowed companies in many ways, such as impeding their move to the cloud or launching new digital services.

Just because you've got a strategy to move to the cloud or exploit a digital opportunity doesn't mean you have sufficient business agility to successfully make the move. Your network has to keep up. Automation and service chaining with tools like [Ansible](#) (open source software for network automation) and the policy orchestration capabilities of Cisco [Network Services Orchestrator](#) mean that workloads and the network and security can all be seamlessly stood up for a new application or for migrating apps between cloud environments.

# Embedding security

Today, networks must be designed from the beginning with security in mind, rather than having security added after the fact. Trying to meet dynamic security requirements with multiple touchpoints could result in taking days and weeks to implement a single change. The network supporting New IT requires automation to handle one-touch security policy updates.

Policy must be enforced at all ingress and egress points irrespective of the platform, and that can only be effectively done through automation. Monitoring and reporting are as critical as detecting and resolving problems. In a massively dynamic system, those can only be done on a foundation of automation.

# Improving quality

**With the shift to intuitive-based networking, automation capabilities are reducing human error and providing more and easier ways to automate the deployment, management and change of network services.**

More of the tasks that were previously done manually get changed out by massive waves of scripting, coding and systems automation.

This has an immediate positive impact on quality. Whenever you introduce people into a network management environment there's a risk of errors in rekeying information such as configurations. This applies to your development and management ecosystem, as well. If a provider uses people to manually key service tickets or make changes to the network, they can make errors much more readily than an automated deployment.

Automation means network deployment processes can happen seamlessly with minimal human intervention. For network managers, this capability helps them do more with less—automating lower-priority tasks which tend to never get done due to firefighting. It also helps them shift to proactively support new business needs in areas such as cloud and DevOps.

As companies expand their automation capability to its full potential, Accenture estimates that up to 80 percent of labor effort can be removed from many routine operational tasks. In the future, companies will be able to focus their network engineers less on low-level activities and more on critical strategic work. (For more, see sidebar, "How Accenture is automating network changes.")

# How Accenture is automating network changes

One example of how Accenture is working to automate networks is illustrated by our joint efforts with Cisco. Accenture has created an application that uses APIs made available by Cisco's Digital Network Architecture (Cisco DNA) Center open platform to make ITSM ticket-based image management requests and resolution an automated process.

Here's how it works:

- 1** The process starts when Cisco DNA Center detects that a device is non-compliant with its required level of software. Using its event notification mechanism, Cisco DNA Center reports this fact to Accenture's application which in turn opens a ticket in ServiceNow, a cloud computing company.
- 2** ServiceNow creates a new change request with all the contextual information on the device. Once the operator reviews and approves the change, and when the designated maintenance window arrives, ServiceNow uses Accenture's application to instruct Cisco DNA Center to reconfirm the status of the device and to start an upgrade readiness check.
- 3** If the check comes up positive, ServiceNow instructs Cisco DNA Center, through Accenture's middleware, to begin upgrading the device with the designated image.
- 4** After upgrading the device, Cisco DNA Center reports the status to ServiceNow, which marks the change request complete.

Network operators can now decrease their workloads by assigning ITSM ticket response and resolution management tasks to an automated process.<sup>1</sup> Cisco DNA Center becomes the single point for all network management activities and the "source of truth" for the network.

A demo of the solution is available [online](#).

<sup>1</sup> <https://community.cisco.com/t5/networking-blogs/automatically-create-a-network-ticket-and-fix-the-problem-yes/ba-p/3727042>

# Supporting continuous improvement and “dot releases”

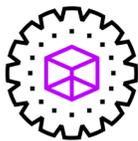
**When network managers can automatically upgrade everything remotely, they can do it incrementally, without needing a large and lengthy transformation program.**

Network evolves to enable more frequent dot releases of new features for security and performance that are just being tested in a lab, but which can then be iteratively rolled out to the entire enterprise.

Many companies today have 25 to 50 percent of their equipment at end of life, and even the equipment that isn't necessarily ready for retirement often runs configurations and OS code that are years old and full of security holes. Why? Because it's challenging to physically go to each site and have someone manually update each piece of network equipment with the latest patches and then test that equipment. Automation enables companies to perform updates faster and more seamlessly.

# Making network automation happen

**What should companies be doing to increase the presence of automation in their network capabilities? Here are a few imperatives:**



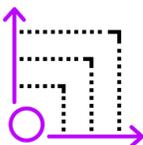
## **PILOT AND EVOLVE**

Find critical areas that are ripe for automation. Many times, companies are so busy working to restore outages that they do not have the time to perform routine upgrades. That, in turn, causes security and performance vulnerabilities throughout the network.



## **FOCUS ON INTEGRATION SYNERGIES**

When supporting cloud development, integrate cloud deployment and management tools into a platform. [The Accenture Cloud Platform](#) is a great example of this type of capability.



## **FIND SCALE**

A key value proposition of automation is how quickly it scales. That means companies need to find their most important present and future capabilities that need rapid scaling and support those.



## **RETHINK PROCESSES AND GOVERNANCE**

Having the technology won't help if you have the same cumbersome committee and review processes. Most companies will need to rethink governance and signoff processes to fully take advantage of automation and enable agile operations.

# Conclusion

**Networks have fundamentally shifted with intent-based networking to become more flexible, intuitive and interoperable—supported through automation and machine learning to become predictive and self-healing.**

Companies can focus on repeatable changes that have a high success rate historically and apply end-to-end automation to implementation and governance processes.

Companies should be moving quickly to automate critical network activities because the value proposition is strong. Costs can be reduced significantly, and people can be deployed to work on higher-value activities. Quality improves because less human intervention is required. Speed to value increases dramatically because, with automation, the management and provisioning of millions of devices can happen instantly. Enterprise solutions can be delivered seamlessly as capabilities in a platform.

Today's highly virtualized, cloud-enabled networks also require a new security approach to address the high rate of business change and ever-evolving security threats. Automation can provide constantly updated, secure access from device to cloud.

Finally, automation is essential to meet the scope and scale of IoT and other new technologies. Companies today may have 10,000 or more network devices. That sounds like a lot, but tomorrow's sensors and devices will dwarf that number by orders of magnitude. The old way of manually updating network equipment doesn't work for upgrading tomorrow's virtual networks of sensors. Future technologies like artificial intelligence and blockchain will require flexible new network capabilities. In other words, the future really does depend on network automation.

## **ABOUT ACCENTURE**

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