

# AUTOMATE CISCO ENVIRONMENTS WITH RED HAT ANSIBLE AUTOMATION

Optimize workflows, aggregate IT platforms, and unify infrastructure teams

PARTNER SOLUTION OVERVIEW

## NEW NETWORK SOLUTIONS FOR A NEW ERA

Enterprise networking and server connectivity have come a long way in the last few decades. From traditional on-premise, appliance-based networks to new applications programming interface (API)-focused, virtualized environments, the need for flexibility in management has never been greater.

Cisco is a global leader in compute, network, and cloud solutions for enterprises, data centers, and any infrastructure in between. But as businesses expand and needs evolve, companies are searching for new approaches to meet increased end-user demand while continuing to deliver value to the business—all with limited resources. Automation will become an ever-increasing strategy for enterprises, because as they are finding out, automation is no longer about getting ahead—it is more about keeping up.<sup>1</sup>

Red Hat can help. As the global, trusted leader in open source solutions for today's enterprises, Red Hat has been helping organizations of all shapes and sizes adapt to continually changing IT requirements. With Red Hat® Ansible® Automation as part of the Red Hat management portfolio, organizations are now able to gain greater efficiency, deliver value faster, and solve IT and business workflow challenges across the entire IT organization.

## MANAGING MORE WITH LESS

Enterprises are under extreme pressure to manage the ever-increasing demand of applications, workloads, and larger, more complex networks. Despite increasingly tight budgets, global enterprises will collectively spend more than US\$1.3 trillion in 2018 on digital infrastructure.<sup>2</sup> They face an array of increasingly complex and evolving challenges, as their business's digital footprint expands.

There is more infrastructure to deploy and more endpoints to manage but with fewer resources available and with less time to react and respond. Many organizations still manage their networks by logging into each network device manually, making any required changes—often during an emergency—with little to no tracking or validation. Within the Cisco universe alone, there are dozens of environments and platforms available to manage everything from network switching, routing, and firewall configurations, that make efficiently managing and orchestrating automation in an entire environment nearly impossible.

Research suggests that the vast majority of organizations are still managing through a command line on individual devices.<sup>3</sup> Given the heavy workload and sprawling environment, many IT teams lack visibility into their infrastructure and lose track of network devices and their configurations—and the impact they may have on security and compliance.

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<sup>1</sup> MacVitte, Lori. "Infrastructure 2.0: Whatever we're calling it now, it's here." *SDxCentral*. March 5, 2018.

<sup>2</sup> Smith, Eileen. "Worldwide semiannual digital transformation spending guide." *International Data Corporation (IDC)*. December 15, 2017.

<sup>3</sup> Andrew Lerner, "Look beyond network vendors for network innovation," *Gartner*, January 23, 2018, ID: G00349636.

Automating these processes—planning, testing, deployment, and maintenance of various infrastructure elements—is a transformational approach to simplifying IT operations. Yet adoption of automation solutions has been much slower among network teams than expected because:

- Automation tools are often specific to a specific function or platform.
- Adopting new methodologies that affect day-to-day processes and procedures can be daunting to traditional operators utilizing manual methods.
- Management’s strategy and operator’s activities require 100% alignment.
- Successfully doing more with less requires all aspects of the IT organization to first buy-in and then to create and execute an action plan that incorporates automation as part of the culture.

### **RED HAT ANSIBLE AUTOMATION FOR CISCO INFRASTRUCTURE** **AGENTLESS, HUMAN-READABLE, PLATFORM-AGNOSTIC CONNECTIVITY**

There is no shortage of automation options for today’s Cisco users, but many of the solutions are either purpose-built for a specific product or require extensive knowledge of complex programming languages. Red Hat Ansible Automation minimizes the need for understanding platform-specific constructs, as well as vendor-specific command lines and implementations. It instead focuses on abstracting complexity away from the end-user via human-readable Ansible Playbooks via Ansible modules.

The result is less time needed to learn multiple platforms or discrete automation tools to get heterogeneous systems up and running quickly and efficiently. In addition, many of these discrete tools may still require significant manual intervention, for example, via an interactive graphical user interface (GUI) to automate. Red Hat offers a new approach to automating Cisco-based network and infrastructure management, using a long-standing relationship with the hardware pioneer to support a range of popular Cisco solutions, accessible to everyone on your team with little additional training. Ansible Automation is flexible enough to automate Cisco devices directly or interface with existing tools, automating the automators at the top level.

Ansible helps network operators and system administrators:

- Limit productivity-killing repetitive, manual tasks.
- Focus efforts that help deliver more value to the business.
- Speed up application delivery.
- Build on a DevOps culture of success, breaking down logical and physical divisions.

Unlike other common automation platforms, Ansible Automation unburdens IT teams from manually configuring and managing an array of infrastructure platforms and globally distributed network devices all from within in an intuitive, agentless environment. With Ansible Automation’s human-readable automation capabilities, users can simply describe how they want the infrastructure to look or behave instead of needing specialized coding skills, like Python. This ability can reduce configuration and update timelines from several weeks or months to a matter of hours.<sup>4</sup>

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<sup>4</sup> Red Hat customer case study, “Surescripts speeds DevOps processes with Red Hat Ansible Automation.” 2018.  
<https://www.redhat.com/en/resources/surescripts-customer-case-study>

In addition to saving time and energy, this unique approach generates greater returns on existing investments as many organizations have already invested significant resources into point automation tools for managing specific devices or workflows. Ansible Automation gives IT teams a common layer and language for automating virtually every Cisco-related device or program connected to a network. Supported connection methods include secure shell (SSH), network configuration protocol (NETCONF), Windows remote management (WinRM), as well as specific networking platform APIs such as NXAPI. Utilizing platform-agnostic Ansible roles and playbooks—common frameworks for standardizing how enterprises govern their entire infrastructure—avoids having to rip-and-replace existing tools.



### WIDESPREAD SUPPORT FOR CISCO NETWORK AND SYSTEM PLATFORMS

Flexibility is paramount for network operators and system administrators. Ansible Automation allows you to pick and choose which processes and procedures to automate to deliver the biggest benefit to your teams. Ansible Automation does not have to be all or nothing—use what you need, when you need it.

For organizations with rapidly growing or changing infrastructures that require accelerated application deployment and higher datacenter efficiency requirements, automating popular Cisco platforms, such as Cisco UCS servers and Cisco IOS and NX-OS networks, is essential.

Ansible Automation integrates with Cisco Integrated Management Controller (IMC) to extend capabilities already available for Cisco Nexus switches to Cisco UCS C-Series Rack servers, enabling administrators to manage, automate, and orchestrate their standalone environments from one tool. Specifically, Ansible Automation’s role-based data organization makes it simpler for users to build out large-scale deployments quicker, without having to constantly reorganize the information to configure endpoints.

Meanwhile, Ansible Automation's open and extensible framework for networks enables network engineers and operators to easily connect IOS routers, Catalyst and Nexus switches, and Cisco ASA firewalls without any special scripting, and gather real-time status data to automatically configure changes on the fly.

Ansible Automation provides automation support for a wide range of Cisco products and platforms, including:

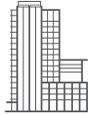
- Networking—routing and switching
  - IOS
  - IOS XR
  - IOS XE
  - NX-OS
- Networking—Security
  - ASA
  - FirePOWER (coming soon)
- Cisco software-defined networking (SDN) and controllers
  - Application-centric infrastructure (ACI)
  - Networking services orchestrator (NSO)
  - Digital network architecture (DNA) (coming soon)
- Wireless
  - AireOS
  - Meraki
- Servers
  - Unified Computing System Manager (UCS Manager)
  - UCS Integrated Management Controller (UCS IMC)

### **STRONGER SECURITY AND COMPLIANCE CAPABILITIES WITH RED HAT ANSIBLE TOWER**

Along with saving time and resources, automating configuration and management of Cisco infrastructure has another massive benefit to a business: enhancing security of critical systems and data. Nearly two-thirds of enterprise networking and cybersecurity professionals believe network security operations are more difficult than in the past because of the greater volume of connected devices, increased network traffic, and more applications to manage.<sup>5</sup>

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<sup>5</sup> "ESG research report: Cyber supply chain security revisited." Enterprise Strategy Group. September 14, 2015.



## ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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Many IT teams also struggle with keeping an updated inventory of connected devices, leaving open the possibility of unauthorized rogue network devices causing problems, or standardizing configurations to align with corporate compliance standards. In many cases, manual configurations may be accurate—properly programmed and technically sound—but still be misconfigured within the context of the organization's network, creating visibility gaps or other challenges in the future.

Red Hat Ansible Tower further extends automation capabilities across the entire organization for greater consistency, collaboration, and streamlined operations. By centralizing configuration and management practices, teams can use Ansible Playbooks as the definitive source for specific device configurations, updates, or standard processes for other automation tools to eliminate errors common to manual configuration that can expose the network to breaches or other risks. Ansible Tower is ideal for operationalizing automation across your enterprise, ensuring large distributed teams have the means to automate at scale.

## SIMPLE, RELIABLE, AND SCALABLE CISCO AUTOMATION WITH RED HAT ANSIBLE AUTOMATION

Companies of all sizes, competing in every industry and sector have come to rely on Cisco solutions to power their businesses. But as technologies evolve and businesses grow, the network, server, and application environments continue to expand with configurations and updates become increasingly more difficult and time-consuming.

Automating each datacenter component—whether a network device, controller, or server—is essential to gaining the agility, flexibility, and consistency network administrators need to keep infrastructure running at peak performance. But doing so with individual point products or platform-specific tools is not an efficient approach to scaling infrastructure management.

Red Hat Ansible Engine and Red Hat Ansible Tower integrate with Cisco platforms to enable infrastructure and automation at greater scale and speed. With Ansible Automation, network operations and IT teams can effortlessly spin up new devices and automatically push network configurations directly to devices or through other automation tools to maintain consistency across the infrastructure.

And best of all, Ansible Automation does not require an all-or-nothing approach. You can start small by automating specific processes and procedures and then scale as the business demands increase—and as your confidence builds. Keep all the processes and procedures you have, use Ansible Automation to augment and streamline them, and operationalize automation across teams with Ansible Tower for maximum efficiency, consistency, and control.

## LEARN MORE

Visit [www.ansible.com/networking](http://www.ansible.com/networking).

## ABOUT CISCO

Cisco (NASDAQ:CSCO) is the worldwide technology leader that has been making the Internet work since 1984. Its people, products, and partners help society securely connect and seize tomorrow's digital opportunity today. Discover more at [thenetwork.cisco.com](http://thenetwork.cisco.com) and follow them on Twitter at [@Cisco](https://twitter.com/Cisco).