Simplifying network automation

Automating Cisco environments with Red Hat Ansible Automation Platform

> "Choosing to invest in high-value automation with the least complexity will be the focus for most infrastructure and ops teams."[1]

—

Emily Brand
Chief Architect, Red Hat

> "**77%** of organizations plan to increase automation to simplify and speed up response times in their security ecosystems."[2]

Accelerating business outcomes while adopting cloud-native technologies

Businesses are going through unprecedented change and require flexible, scalable, and security-focused products to help them through their digital transformation. As operational complexity increases, overall costs need to be managed and reduced. Many increases in operational complexity can be quickly recovered through automation. For example, network automation allows network operations teams to configure, scale, protect, and integrate network infrastructure and application services much more quickly and efficiently.

IT organizations are looking for solutions that are aligned with their operational requirements while simplifying management and providing orchestration. Network automation is key to managing these new, complex, and potentially unfamiliar cloud-native environments. IDC's Worldwide Semiannual Software Tracker, published earlier this year, forecasts that the worldwide IT automation and configuration software market will grow to $11.5 billion in 2025, increasing from $7.9 billion in 2020.[3]

Managing more, keeping costs under control

To accelerate application development and deployment and reduce time to value, businesses are adopting NetDevOps methodologies. As enterprise digital footprints expand and their networks become more complex, managing these environments becomes increasingly challenging.

Many organizations still manage their networks by logging into each network device manually, making required changes with little to no tracking or validation. Within Cisco alone, there are dozens of environments and platforms available to manage everything from network switching, routing, and firewall configurations. This complexity makes managing and orchestrating automation across these environments extremely challenging.

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

▸ Automation tools are proprietary, and specific to an individual function or platform.

▸ Adopting new methodologies that affect day-to-day processes and procedures can be challenging, requiring that users be trained on new technology.

▸ Successfully doing more with less requires that the entire IT organization adopt, create, and execute an action plan that incorporates automation as part of the corporate and IT culture.

1 Casey, Kevin. "*8 automation trends to watch in 2021.*" The Enterprisers Project, 15 Dec. 2020.

2 Red Hat e-book, "*Simplify your security operations center,*" accessed 20 Aug. 2020.

3 IDC Research. Worldwide IT Automation and Configuration Management Software Forecast, 2021–2025, Nov. 2020.

Comprehensive support for Cisco network and systems platforms

Flexibility is important for network operators and systems administrators. Red Hat® Ansible® Automation Platform allows you to select which processes and procedures to automate. This allows you to start small and then expand according to your strategy, goals, and skills, to deliver the biggest benefit to your organization. You get the flexibility to quickly automate what you need, when you need it.

Red Hat Ansible Automation Platform allows you to add governance and create a bridge between network operations and other parts of the IT organization. It helps teams manage complex network deployments by adding control, knowledge, and delegation to Ansible-powered environments. The Ansible integration with Cisco IOS® provides you with the benefits of automation. As you deploy a Network DevOps model to accelerate application deployment to quickly respond to business needs, Red Hat Ansible Automation Platform helps you achieve a truly agile operational model by improving on automation, innovation, and consistency in your IT environment, while maintaining a security-focused consistent operating environment.

Red Hat Ansible Automation Platform provides automation support for a wide range of Cisco software-defined networking (SDN) products and platforms with:

**Table 1. Supported Cisco products and platforms by category**

Network device OS	Networking security	Cisco SDN, controllers and NAE
IOS	ASA	ACI
IOS XR	Tetration*	MSO
IOS XE	*Certification pending*	NAE
NX-OS		NSO
		DNA

The latest Red Hat certified Cisco collections are available on Ansible automation hub.

Red Hat Ansible Automation Platform with Cisco Application Centric Infrastructure (ACI)

A foundation for building and operating automation at scale

There is no shortage of automation options for today's Cisco users, but many of the solutions are purpose-built for a specific product or require extensive knowledge of complex programming languages. Red Hat Ansible Automation Platform minimizes the need for understanding platform-specific constructs, as well as vendor-specific command lines, implementations, and application programming interfaces (APIs).

Figure 1. Ansible automation and orchestration of Cisco management platforms
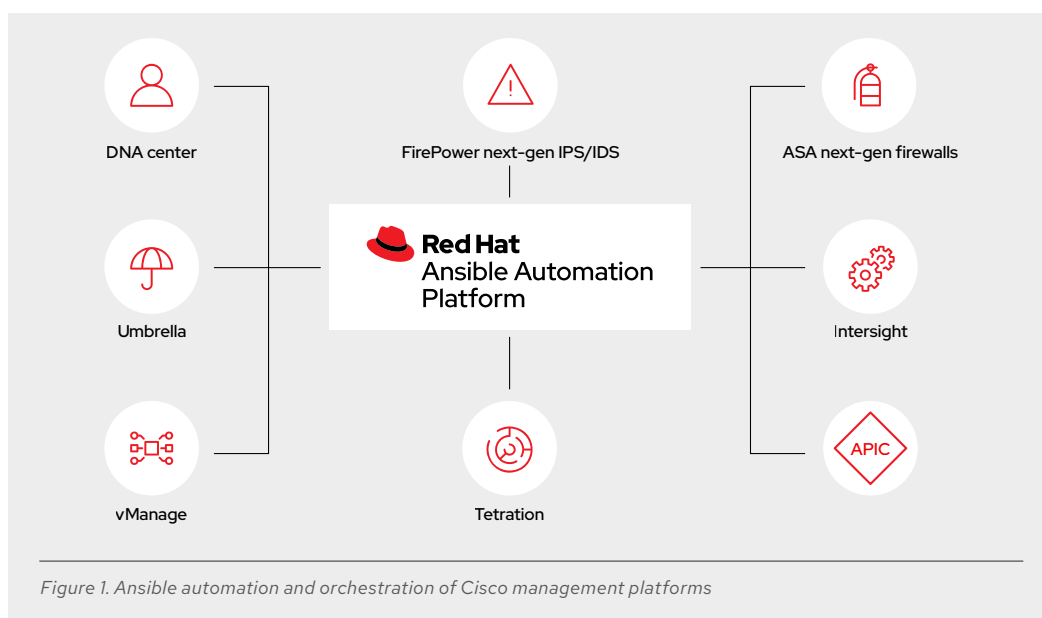
Red Hat Ansible Automation Platform is the foundation for building and operating automation services at scale, providing businesses with the tools and operational framework, in a collaborative and trusted execution environment. It offers a new approach to automating Cisco-based networks and infrastructure management, using Red Hat's long-standing relationship with Cisco, the pioneer in networking, supporting a broad range of popular products and solutions.
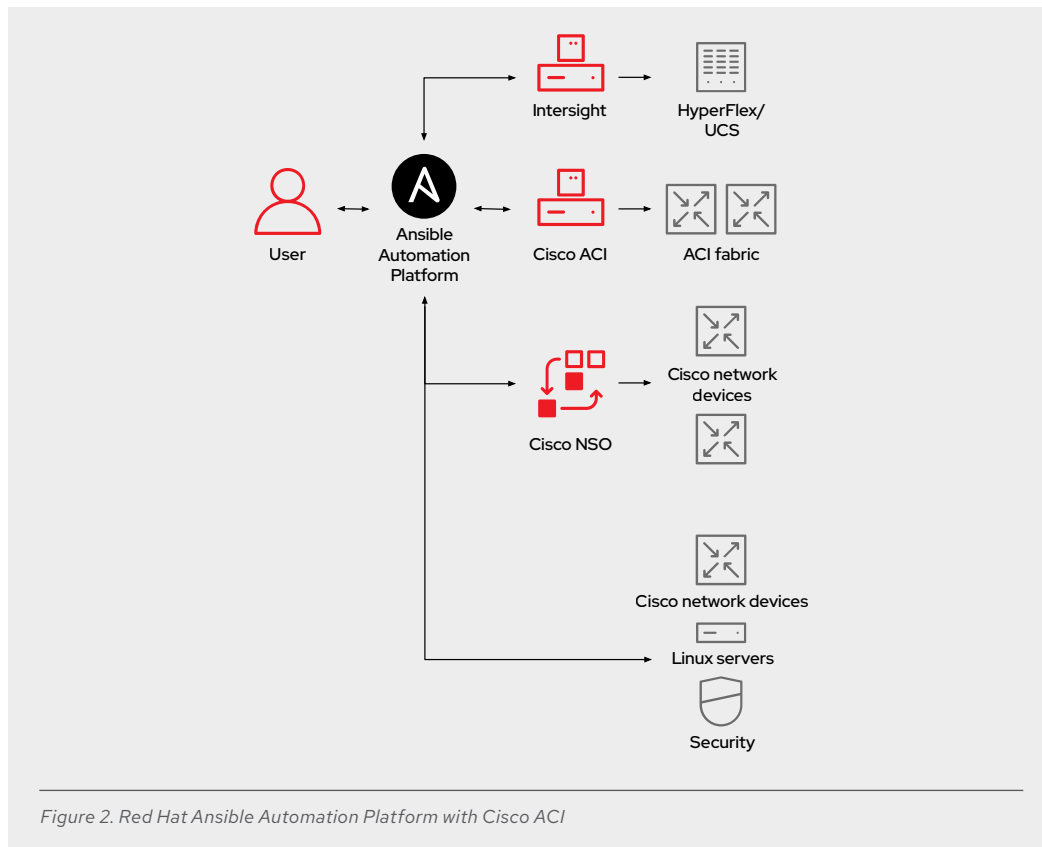
Figure 2. Red Hat Ansible Automation Platform with Cisco ACI

Red Hat Ansible Automation Platform allows you to take three simple actions to accelerate your enterprise automation journey:

▸ **Create:** Get started faster by combining the power of Ansible's massive open-source community and prebuilt certified Content Collections of the most-used Ansible roles and modules. Codify your infrastructure and share across teams, on-premise, or in the cloud.

▸ **Scale:** Transfer your automation into multiple domains and across different use cases. Stakeholders across development, operations, and business teams can use Ansible in ways that work best for them individually without slowing development time.

▸ **Engage:** Take your automation even further with analytics, policy and governance, and content management. These tools in Red Hat Ansible Automation Platform make operations management more efficient, allowing you to solve problems once and share the results with everyone.

In addition to saving time and energy, this unique approach provides greater returns on existing investments. Many organizations have invested significant resources into point automation tools for managing specific devices or workflows, but this automation does not scale. Red Hat Ansible Automation Platform fosters cross-team, cross-device automation by giving different groups, including NetOps, ITOps, and SecOPs a common layer and language in a single pane of glass, for automating virtually every Cisco-related device, controller, or program connected to a network.

Increase security and compliance capabilities with Red Hat Ansible Automation Platform

Along with saving time and resources, automating configuration and management of Cisco infrastructure has an additional benefit for a business: enhancing security of critical systems and data. Red Hat Ansible Automation Platform delivers all the tools and features you need to implement security automation. It combines a simple, easy-to-read automation language and trusted, composable execution environment with security-focused sharing and collaboration capabilities.

Automation can help you identify and respond to security threats faster and at scale. You protect your business by connecting your teams, tools, and processes with a consistent, collaborative automation platform.

Simple, reliable, and scalable Cisco automation with Red Hat Ansible Automation Platform

To gain the agility, flexibility, and consistency network administrators require to keep infrastructure running at peak performance, it is essential to automate each datacenter component—routers, switches, firewalls, IPAM, controllers, servers, and containers. But doing so with individual point products or platform-specific tools is not an efficient approach to scaling infrastructure management.

Red Hat Ansible Automation Platform integrates with Cisco platforms, allowing automation at greater scale and speed so that you can:

▸ Use Cisco Validated Designs (CVDs) to ease implementation, reduce deployment time, and improve total cost of ownership (TCO).

▸ Reduce the number of manual tasks to provide error-free, repeatable configurations.

▸ Validate changes on a continuous basis to ensure compliance.

Red Hat Ansible Automation Platform is one of the most popular tools for simplifying routine network configuration tasks. It provides post-installation configuration automation that speeds IT transformation for greater agility and the ability to quickly adopt a highly efficient operating model that is more responsive to your business needs.
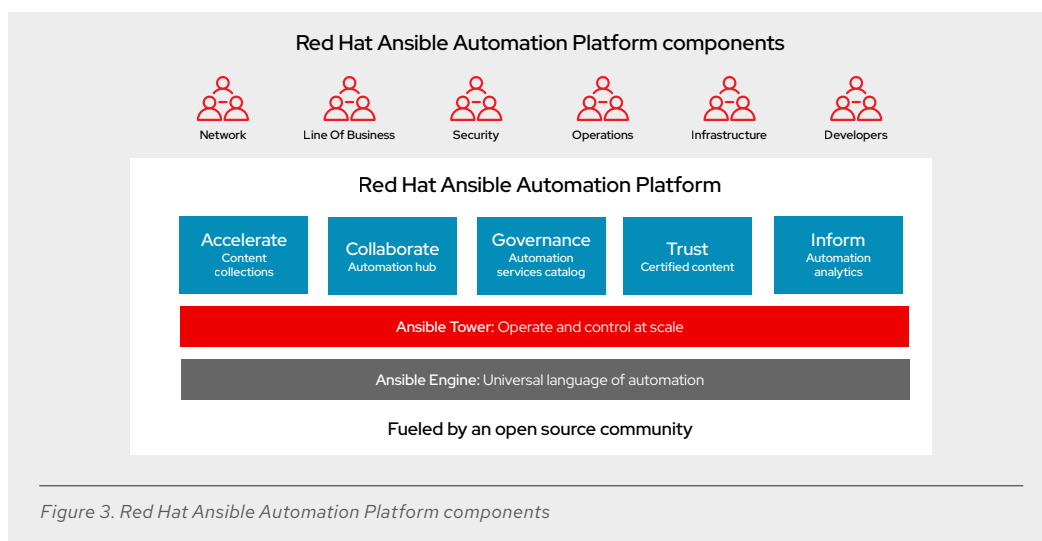

Figure 3. Red Hat Ansible Automation Platform components

Conclusion

Cisco is a global leader in compute, network, and cloud solutions for enterprise customers, service providers, and telecommunications service providers. As business expands and business 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.

Ansible Automation Platform helps IT be more responsive to business needs, foster cohesion, and decrease costs. Ansible Automation Platform works across multiple Cisco network platforms, use cases for campus networks, datacenters, and service providers. By combining Cisco solutions such as ACI and UCS/HyperFlex, with Red Hat Ansible Automation Platform, you can immediately start automating with certified collections supported by Cisco and Red Hat. You quickly achieve the benefits of automation—increasing agility, reducing risk, and controlling cost.

As the global, trusted leader in open source solutions for today's enterprises, Red Hat has been helping organizations adapt to continually changing IT requirements. With Red Hat Ansible Automation Platform as part of the Red Hat management portfolio, organizations gain greater efficiency, deliver value faster, and solve IT challenges.

Together, Red Hat and Cisco offer complementary products and integrated solutions to simplify, optimize, and automate IT operations, providing scalability, flexibility, and more security to your digital transformation and datacenter modernization projects.

Learn more:

▸ Ansible Network Automation use cases

▸ Ansible Automation Platform free trial

▸ Cisco with Ansible—DevNet

▸ Ansible automation hub—Cisco Collections

▸ Red Hat Partner—Cisco

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 the network. cisco.com and follow them on Twitter at @Cisco.

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. A trusted adviser to the Fortune 500, Red Hat provides award-winning support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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