Red Hat | ARISTA

Boost accuracy and consistency with network automation

Automate your networks

Red Hat Ansible Automation Platform and Arista's network operating stack increase configuration accuracy and consistency across network fabrics.

▸ Generate and deploy network configurations based on recommended practices.

▸ Speed common administration tasks with precomposed automation content.

▸ Automate complete provisioning lifecycles across multidomain networks.

Deliver innovative applications with optimized network solutions

Modern business operations depend on network infrastructure. Reliable, high-performance connectivity between on-site datacenters, public cloud environments, and edge deployments is critical for delivering innovative cloud-native services and workspace experiences.

Even so, traditional network operations often rely on single-function management tools and manual processes for key administration tasks. These approaches are often inefficient and error-prone, making it difficult to ensure service reliability while managing security risks and compliance requirements across complex, multidomain networks. By using automation to provision and manage your network infrastructure, you can increase agility, reduce operational costs, and respond to evolving requirements in less time.

Red Hat and Arista Networks offer automated networking solutions that streamline operations, enhance security, and ensure compliance to deliver optimal network performance for your critical applications and workloads.

Maximize network performance and reliability through automation

Advanced automation capabilities are essential for addressing the complexities of modern network operations. Red Hat® Ansible® Automation Platform and Arista's network operating stack can help you increase configuration accuracy and consistency across complex network fabrics. Through automated deployment and management processes, joint solutions from Red Hat and Arista deliver reliable, high-performance network connectivity for modern hybrid and multicloud environments.

Arista's comprehensive network operating stack—with automation and analytics features—forms the foundation of multidomain network fabrics. Physical network infrastructure from Arista provides performance and reliability for datacenter, campus, and wide area networks through advanced switching and routing capabilities. Arista Extensible Operating System (EOS) is a programmable, modular network operating system that runs a single binary software image across Arista switches, delivering scalable network provisioning and administration capabilities to hybrid and multicloud environments. Arista CloudVision is a modern, multidomain management platform—based on cloud networking principles—that delivers streamlined, consistent operations across network domains. Arista Validated Designs (AVD) define Arista's Unified Cloud Network architecture as an extensible data model to simplify configuration, increase consistency, and reduce errors in your network deployments.
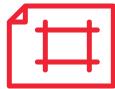
Arista Validated Designs

Arista Validated Designs transform network operating models to improve service reliability.

▸ Extensible fabric-wide models simplify configuration and reduce errors.

▸ Multidomain management platforms ensure consistency across infrastructure.

▸ Automated workflows speed provisioning lifecycles from configuration generation to documentation.

A foundation for building and operating automation services at scale, Ansible Automation Platform delivers the tools and features you need to deploy complete network automation workflows. Using a simple automation language, you can create advanced workflows and share automation assets throughout your organization, while eliminating manual, repetitive, and error-prone network management processes. And by using Ansible Automation Platform to automatically provision Arista devices—via Arista CloudVision or native Arista EOS application programming interfaces (APIs)—you can reduce risk, increase agility, and improve performance across your network.

Arista offers Red Hat Ansible Certified Content that integrates Ansible Automation Platform and Arista's network operating stack, so you can start automating in less time. Available via Ansible automation hub, this precomposed content includes modules, roles, plug-ins, and documentation to simplify automation of enterprise network use cases. Use the AVD Ansible Collection (arista.avd) to generate and deploy network configurations based on recommended practices from Arista. Manage configlets, build topologies with containers and devices, and run common administration tasks on Arista CloudVision servers using the Ansible Modules for Arista CloudVision Platform (arista.cvp) collection. And automate management of network appliances running Arista EOS with the Ansible Network Collection for Arista EOS (arista.eos).

Efficiently provision and configure multidomain networks

Automated configuration processes ensure accuracy and consistency across network devices during both initial deployment and ongoing maintenance. AVD lets you declaratively manage infrastructure with network-wide models that promote accurate, reliable provisioning of complex networks. AVD is based on rules, guidelines, and best practices from Arista Design and Deployment Guides, so you can benefit from Arista's extensive engineering and field experience to achieve optimal performance and reliability— without needing in-depth network expertise.

The AVD Ansible Content Collection speeds and simplifies automation of network provisioning processes. Maintained and supported by the Arista Technical Assistance Center (TAC), this collection automates network operations, ensuring identical device configurations across fabrics, including datacenter, campus, and wide area networks. Provide basic information like device hostnames, interface connections, and system passwords, and the collection automatically generates and deploys Arista EOS configurations to network devices. As a result, you can efficiently provision entire network fabrics without detailed knowledge of every connected device.

Unlike many traditional network operations workflows, AVD uses YAML to define systems of record— including network topologies and services—in a standard file format. These systems of record give you a complete overview of your designed network configuration without accessing individual network devices, helping you manage resources and investigate issues more efficiently and effectively. By applying version control tools to your systems of record, you can analyze changes and rapidly revert to previous configurations if a disruption occurs. AVD also uses systems of record to automatically generate complete documentation of intended network state, simplifying network management tasks and ensuring that critical information is always current.

Simplify administration across network domains

For many IT organizations, network administration across multiple domains can be challenging, from managing diverse configurations to ensuring consistent security policies and coordinating different network segments. Arista CloudVision provides advanced management features—including change control workflows, continuous compliance checks, topology overviews, and real-time streaming telemetry—that simplify management of multidomain network fabrics.

Overview   Boost accuracy and consistency with network automation

The Ansible Modules for Arista CloudVision Platform content collection automates Arista CloudVision administration tasks like fact collection, configlet management, topology generation, and task execution to streamline repetitive, error-prone network operations. With the advanced automation capabilities of this collection, you can manage network appliances running Arista EOS in hybrid and multicloud environments through a single automation platform. Use the collection to manage Arista CloudVision servers with your own automated workflows, or combine it with the AVD content collection to deliver advanced management features across your AVD-defined network fabric.

Automate complete network provisioning lifecycles

Using repeatable design patterns, automated operations, and open architectures, modern network operating models simplify and speed infrastructure lifecycles, helping increase operational efficiency and reduce costs. Together, Ansible Automation Platform and the Arista Continuous Integration (CI) Pipeline provide a comprehensive network operating model with enterprise architectures, operations-as-code, and advanced automation capabilities to streamline network fabric provisioning, deployment, and validation.

The Arista CI Pipeline helps you adopt a modern network operating model based on continuous design, integration, and testing principles and practices. Create a continuous design framework using extensible fabric-wide network models and the AVD content collection to simplify configuration, increase consistency, and reduce errors throughout your network fabric. Manage network operations and change control workflows with a packaged solution that streamlines network automation pipelines. And test network designs and configurations with a cloud-based virtual environment to increase confidence in proposed deployment changes.
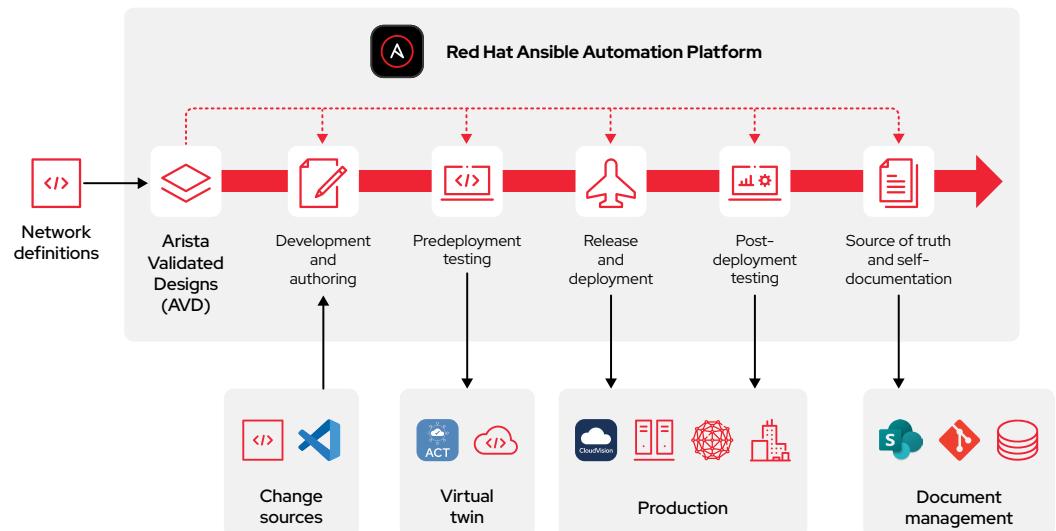

Figure 1. Automate complete network provisioning lifecycles with the Arista CI Pipeline and Ansible Automation Platform.

Overview   Boost accuracy and consistency with network automation

"Red Hat is delighted to continue our collaboration with Arista to bring the benefits of automation to network developers and operators to further transform enterprises and industries. The Arista CI Pipeline with Red Hat Ansible Automation Platform provides enterprise architecture and ops-as-code, streamlining tasks for provisioning, deployment and validation."[1]

Tom Anderson
Vice President,
Red Hat Ansible Automation
Platform, Red Hat

Increase control of your network infrastructure with automation

Reliable, high-performance network infrastructure lets you deliver innovative cloud-native applications and workspace experiences to meet evolving user and market demands. Red Hat and Arista can help you use automation to increase accuracy and consistency across modern network fabrics.

▸ Read about network automation with Ansible Automation Platform.

▸ Learn how to address NetOps issues with Event-Driven Ansible.

▸ Watch this technical video to discover how you can use Red Hat Ansible Certified Content from Arista.

▸ Access Arista automation content in the Red Hat Ecosystem Catalog.

▸ Experiment with automation in the Event-Driven Ansible and NetOps interactive lab.

▸ Gain experience with AVD through the Arista CI Workshops.

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1 Arista press release. "Arista Delivers Continuous Integration Pipeline for Network as a Service Automation," 3 November 2022.

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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