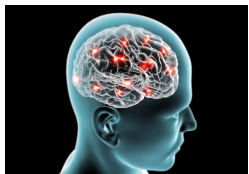


 **Red Hat**

Network Automation on AWS

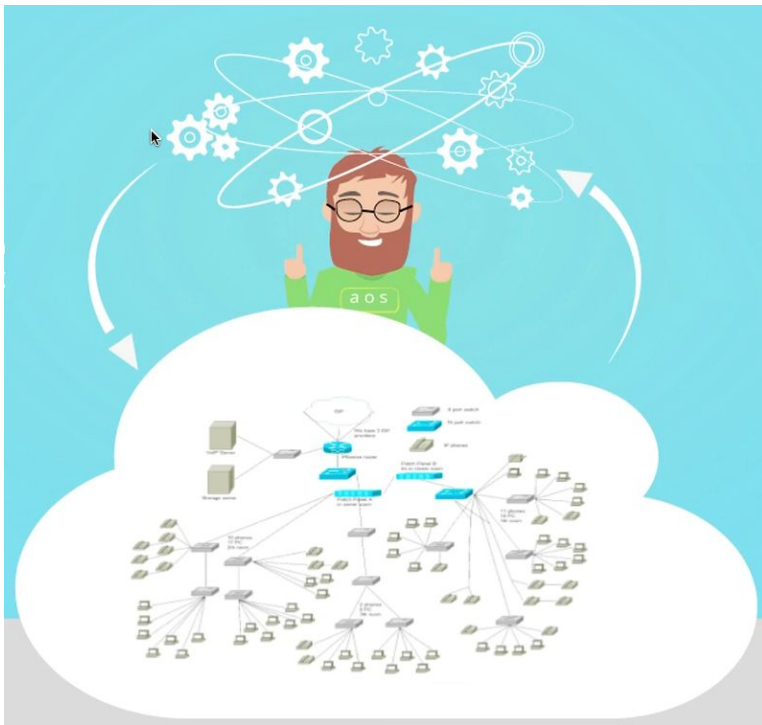
December 2025

Networks are Distributed Systems



Easy ??

build and push
network configs



Hard !!

"reverse engineer" state
from telemetry: **compare
actual values against
expected values**

Next-generation networking

Scope, scale, and complexity



New critical applications

Responding with new applications is only as fast as the slowest process



Data-intensive network demand

Artificial intelligence, digital applications, and growing data driving connectivity



Hybrid cloud

Numerous deployment forms across the globe



Edge / IoT devices

New device types entering networks at scale, with distributed computing

Why Automate your Network

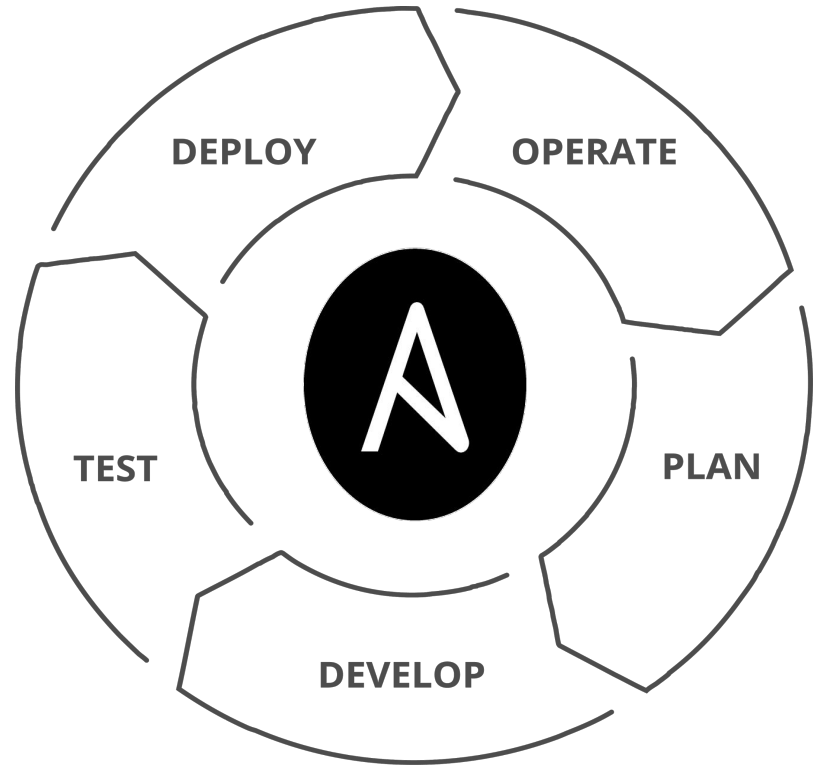
It's your single source of truth

- Backups/restores can be automated
- Changes can be incremental or wholesale
- Manage “golden” versions of configurations

Configuration management and verification

Ensure an on-going steady-state

- Daily, weekly, monthly scheduled tasks



Automated NetOps with Ansible Automation Platform



Automated operational framework for network management

- ▶ Complete the full life cycle of network operational tasks
- ▶ Use certified and validated content for new projects
- ▶ Address network compliance and security needs
- ▶ Implement NetOps-as-code as part of automation journey

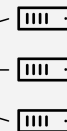
**Streamline multi-vendor network operations,
compliance, and security management**

Network automation compared to servers

How do we interact with network devices?

Module code is executed locally on the control node

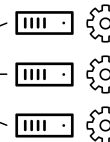
Red Hat Ansible Automation Platform
Local execution



Network devices /
API endpoints

Module code is copied to the managed node, executed, then removed

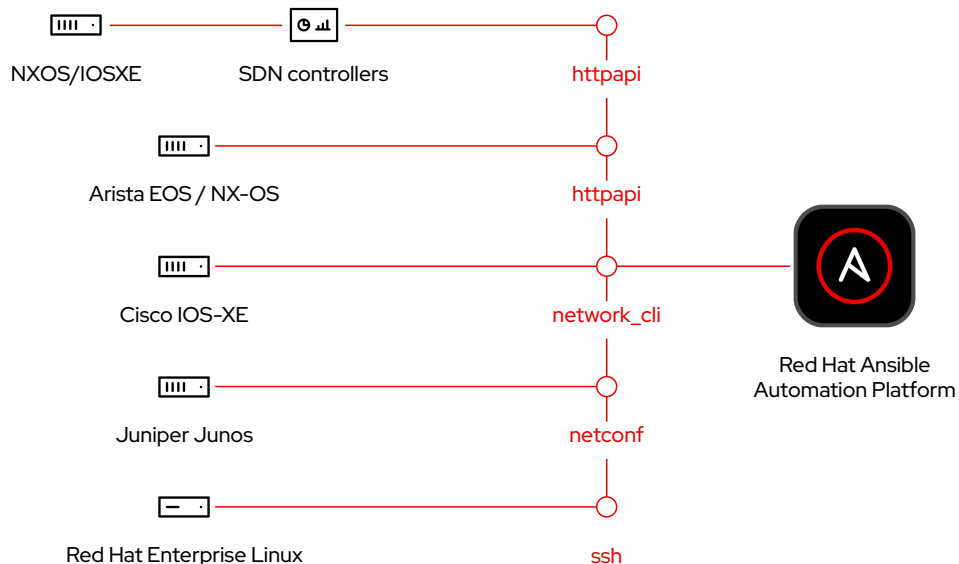
Red Hat Ansible Automation Platform
Remote execution



Linux /
Windows hosts

Network connection plugins

Use your vendor connection of choice



ansible_connection

netconf

XML over netconf

Example: Juniper Junos

network_cli

command line over SSH

Example: Cisco IOS-XE, Arista EOS

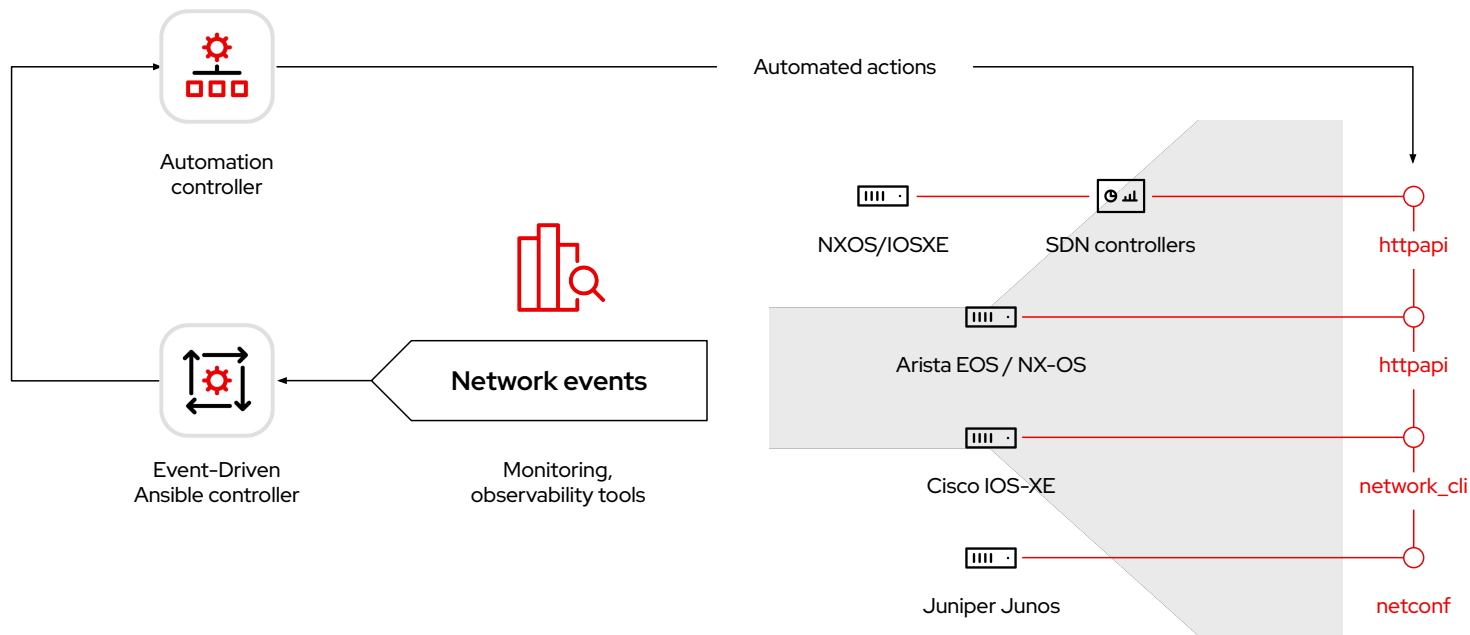
httpapi

vendor API

Example: Arista eAPI, Cisco NX-API

Network connection plugins

Use your vendor connection of choice

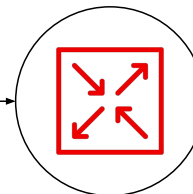


Manage multivendor network settings as resources

```
vlan:  
- name: desktops  
  vlan_id: 20  
- name: servers  
  vlan_id: 30  
- name: printers  
  vlan_id: 40  
- name: DMZ  
  vlan_id: 50
```



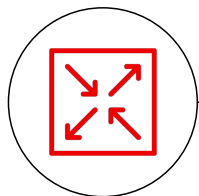
Resource
module



Network native
configuration

Gather facts on any resource

Resource modules are bi-directional



Network native
configuration



Resource
module

```
vlan:  
- name: desktops  
  vlan_id: 20  
- name: servers  
  vlan_id: 30  
- name: printers  
  vlan_id: 40  
- name: DMZ  
  vlan_id: 50
```

Managing device state when sending configuration

Practical examples of using network resource modules

```
vlan:  
- name: desktops  
  vlan_id: 20  
- name: servers  
  vlan_id: 30  
- name: printers  
  vlan_id: 40  
- name: DMZ  
  vlan_id: 50
```



Configuration
changes

```
- name: add VLAN configuration  
  arista.eos.vlan:  
    config: "{{ vlsns }}"  
    state: merged
```

State:

merged

replaced

overridden

deleted

- add/increment

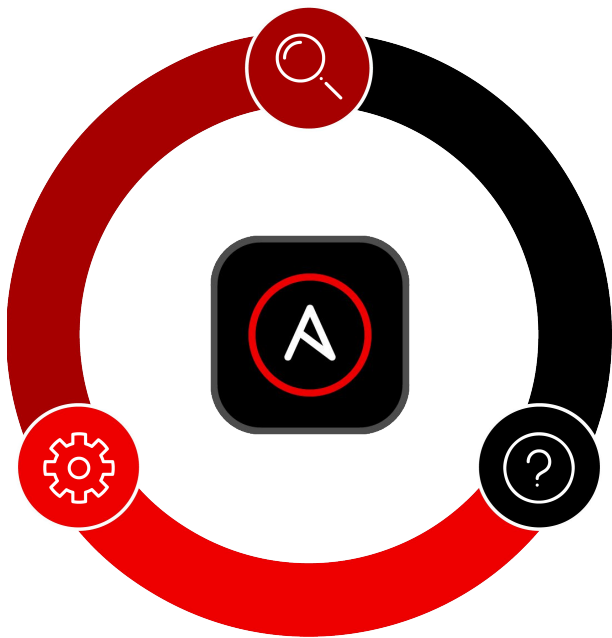
- template/diff

- force/policy

- destroy/remediate

Automate actions and responses for mission-critical workloads

Event-Driven Ansible receives alerts and responds automatically when conditions are met



Event

Observe

- ▶ Watch data / streaming data
- ▶ Identify event
- ▶ With or without notification and ticketing integration

Decision

Evaluate

- ▶ Routed for remediation
- ▶ Identify known problem
- ▶ Trigger required workflow

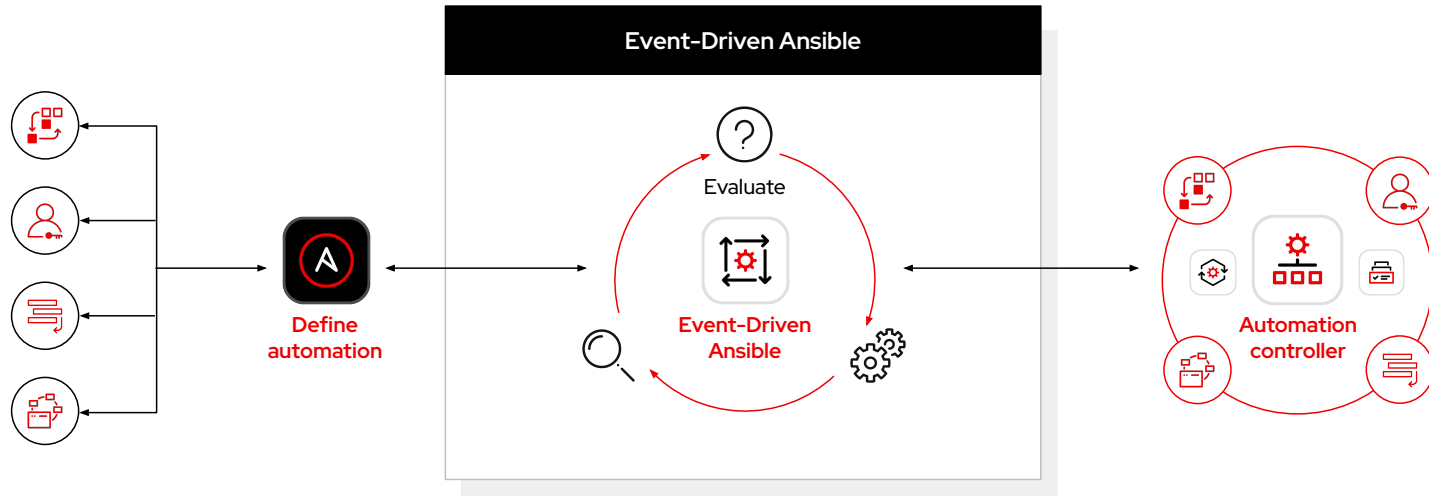
Automation

Respond

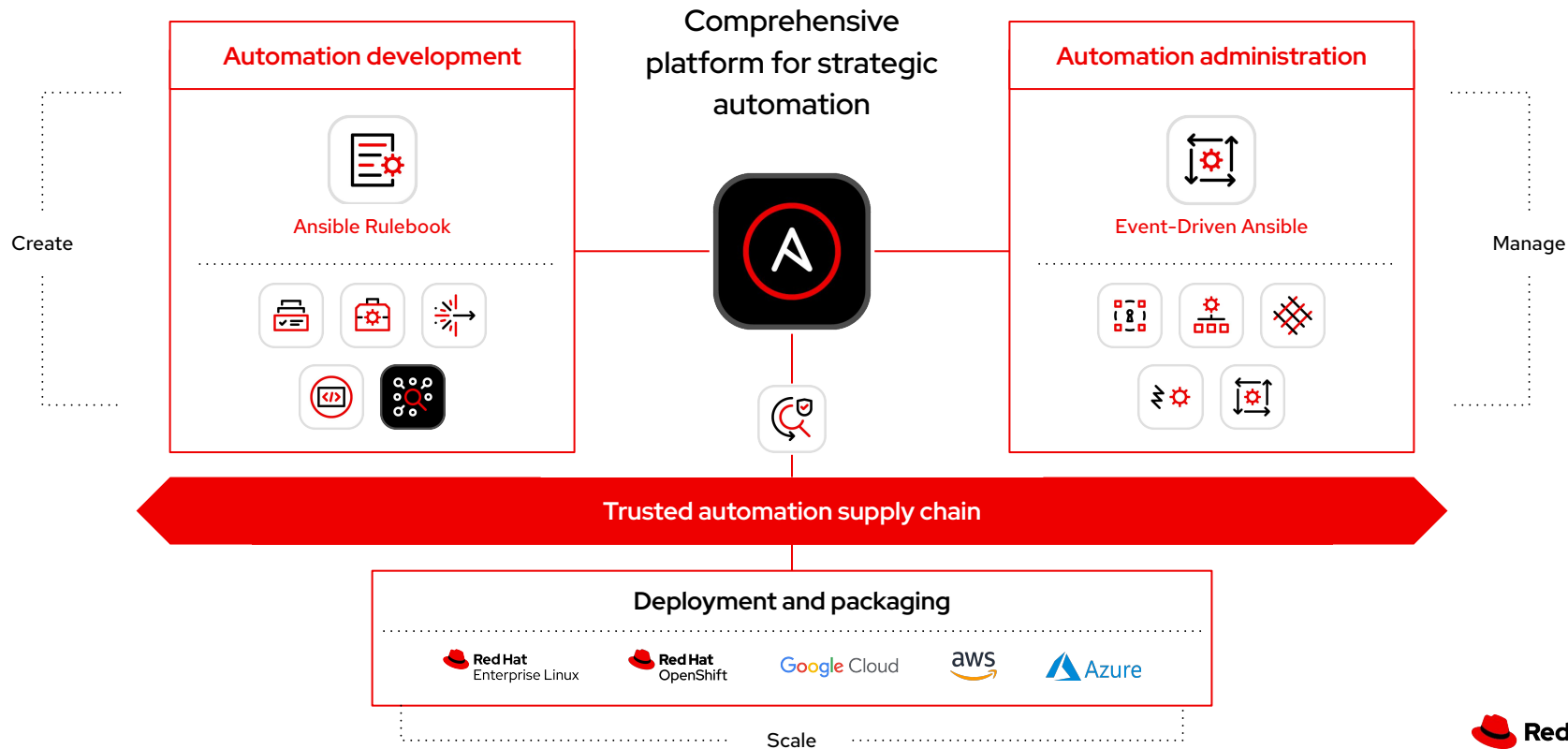
- ▶ No action required
- ▶ Automated resolution triggered
- ▶ Remediation action completed
- ▶ Shorter MTTR

Event-Driven Ansible. Observe, evaluate, respond

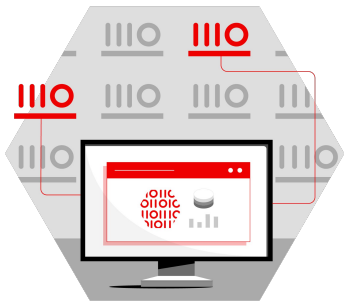
Achieve new milestones in efficiency, service delivery excellence, and cost savings



EDA - Part of Red Hat Ansible Automation Platform

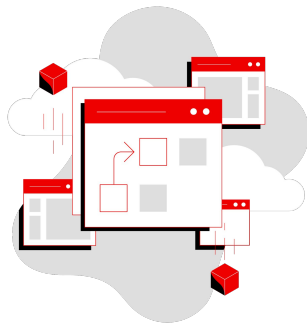


Key building blocks in Event-Driven Ansible



Sources

All the sources of event data you want to use



Rules

What you will create using Event-Driven Ansible®



Actions

When a condition or event is met, the Ansible Rulebook executes

Ansible Rulebooks contain the source of the event, as well as the instructions on what steps to perform when a certain condition is met—and it is all very flexible.

Network automation use cases: Automated NetOps



Network visibility

Generate network inventories and reports. Audit your network to obtain compliance and drift reports.



Configuration management

Standardize and enforce configuration best-practices and hygiene in a platform-agnostic way. Centralize your configuration Source of Truth (SoT).



Network operations

Run network health checks. Deploy OS upgrades at scale. Apply event-driven automation to mitigate outages impact while minimally disrupting other work priorities.



Switch



Load
balancer



IPS



Proxy



Firewall



Router



IoT



Wireless



Probes



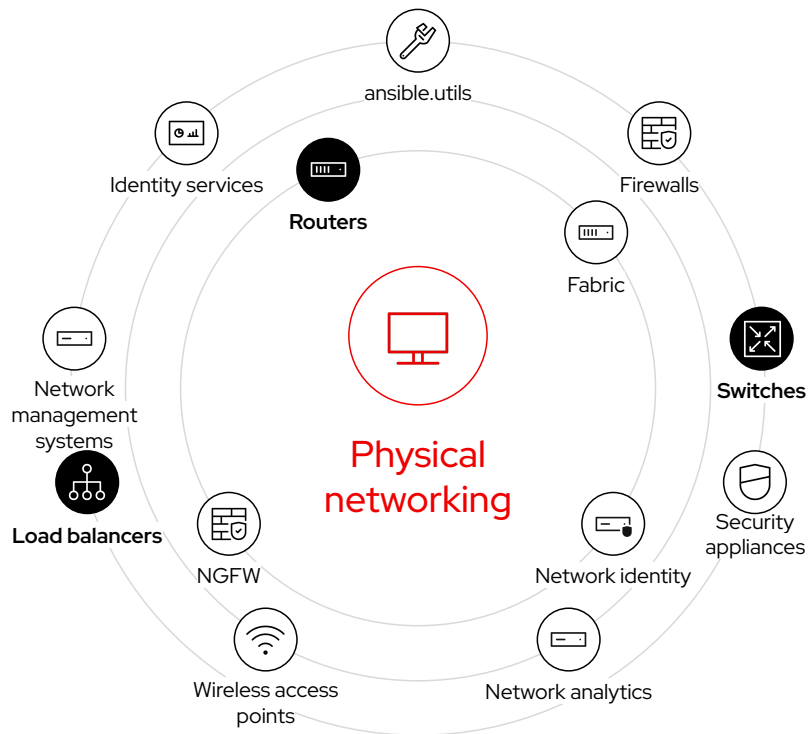
SDx



NMS



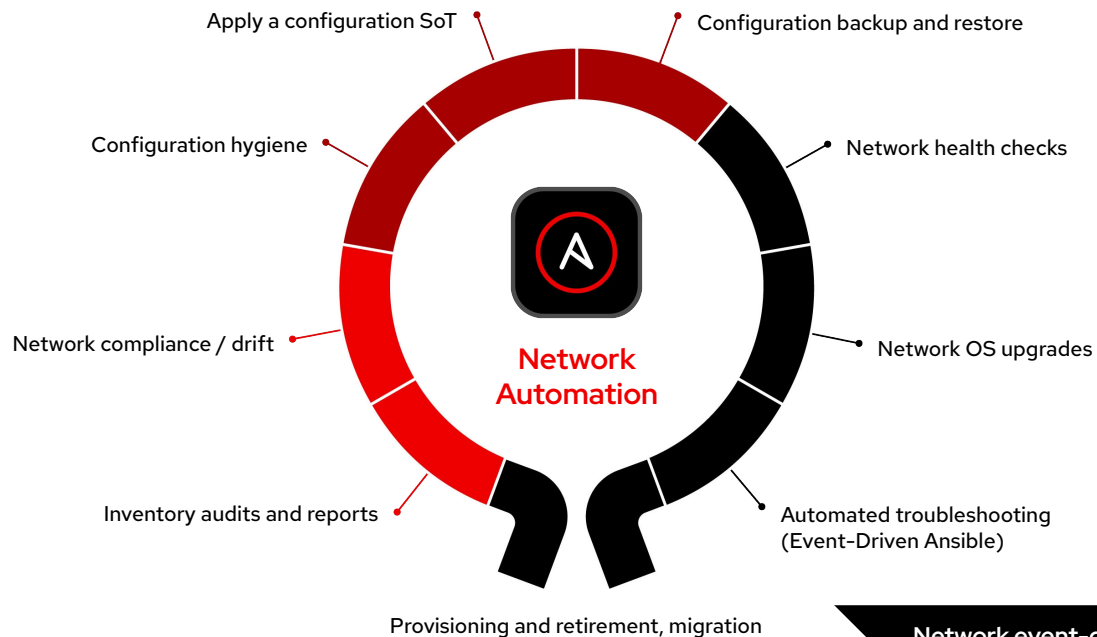
Automate across a complex network all the way to the edge



Network visibility

Configuration management

Network operations



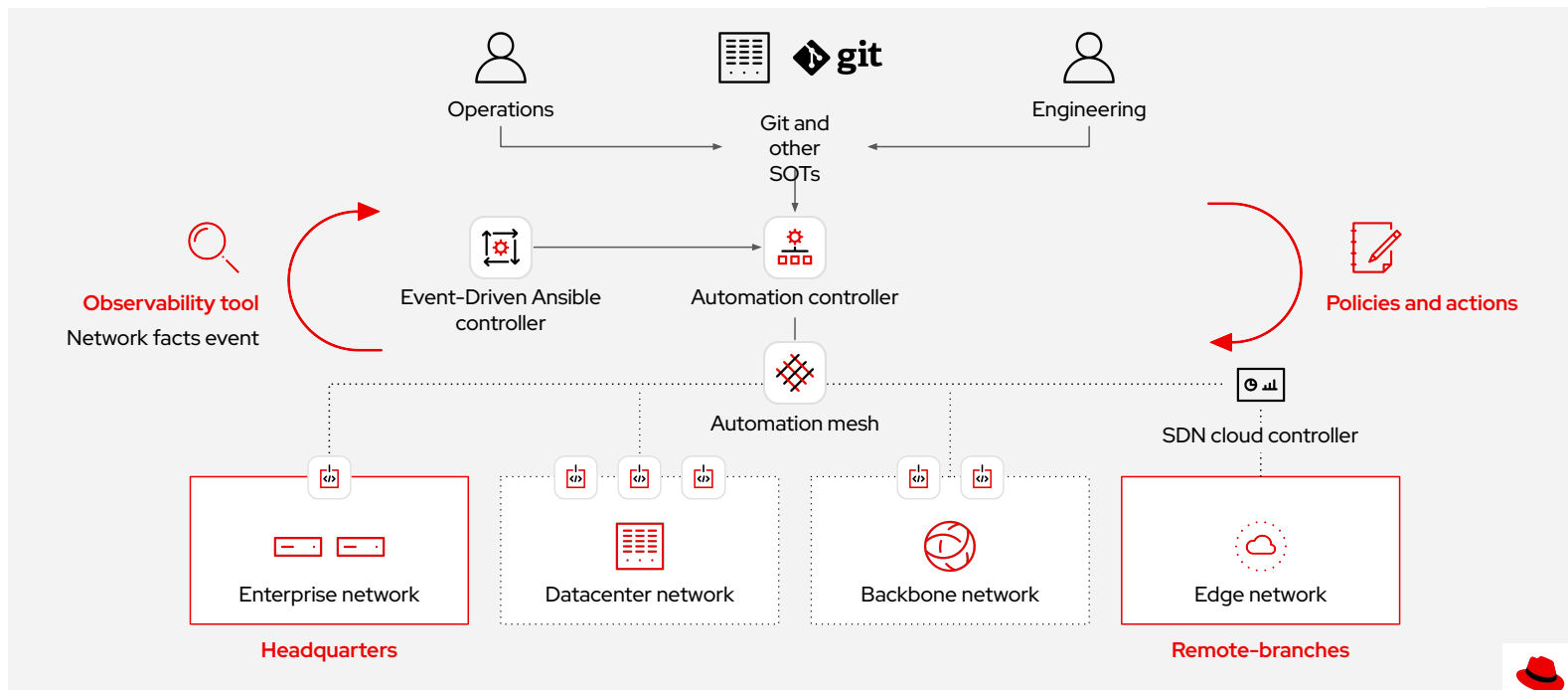
Network event-driven automation

Automation controller with workflows

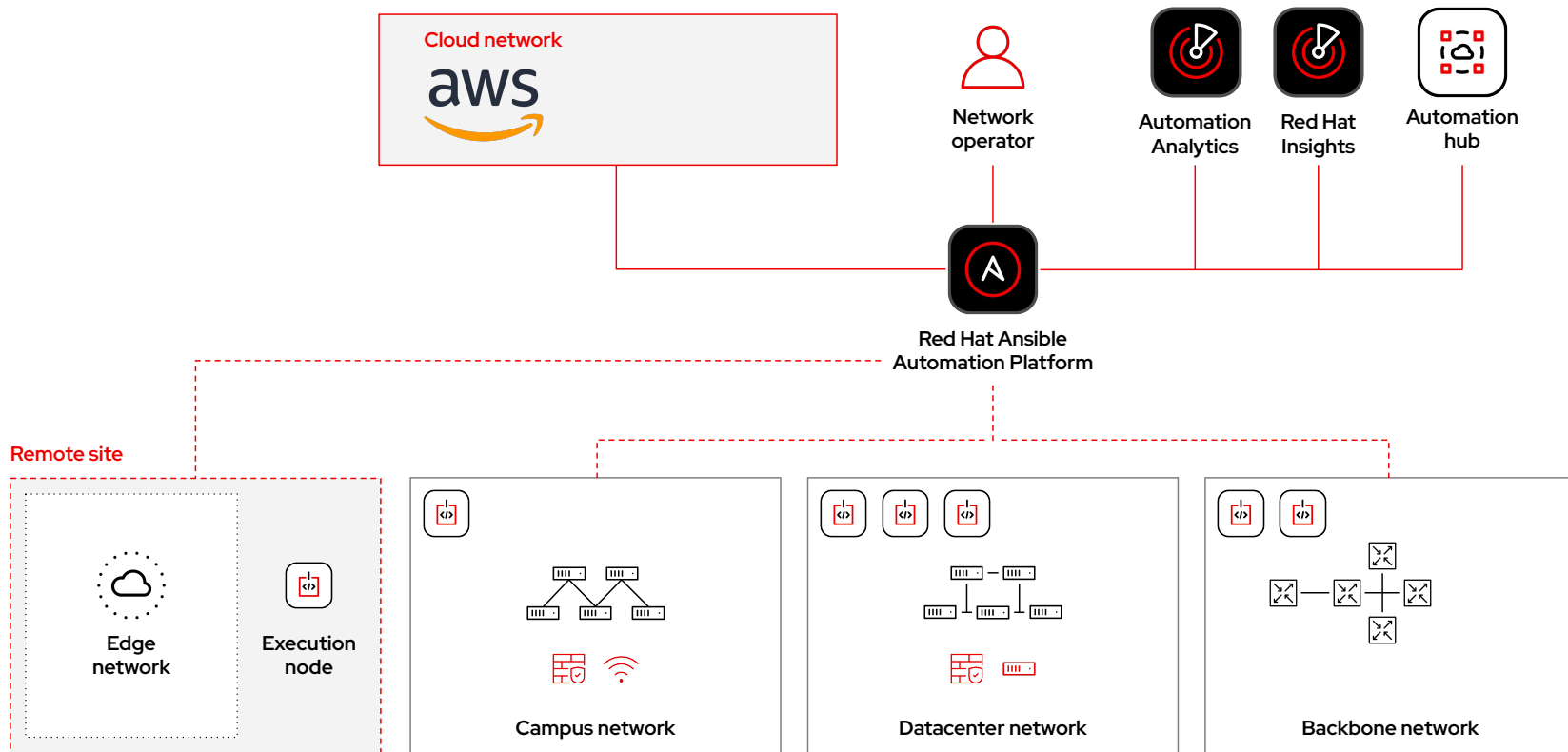
Certified and validated content collections

NetOps-as-Code with Ansible Automation and Juniper Apstra

Single source of truth to operate with consistency and control



NetOps-as-Code with Ansible Automation and Juniper Apstra



Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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