Red Hat
Ansible Automation
Platform

Ansible Automation Platform 2.1

Intro & Roadmap

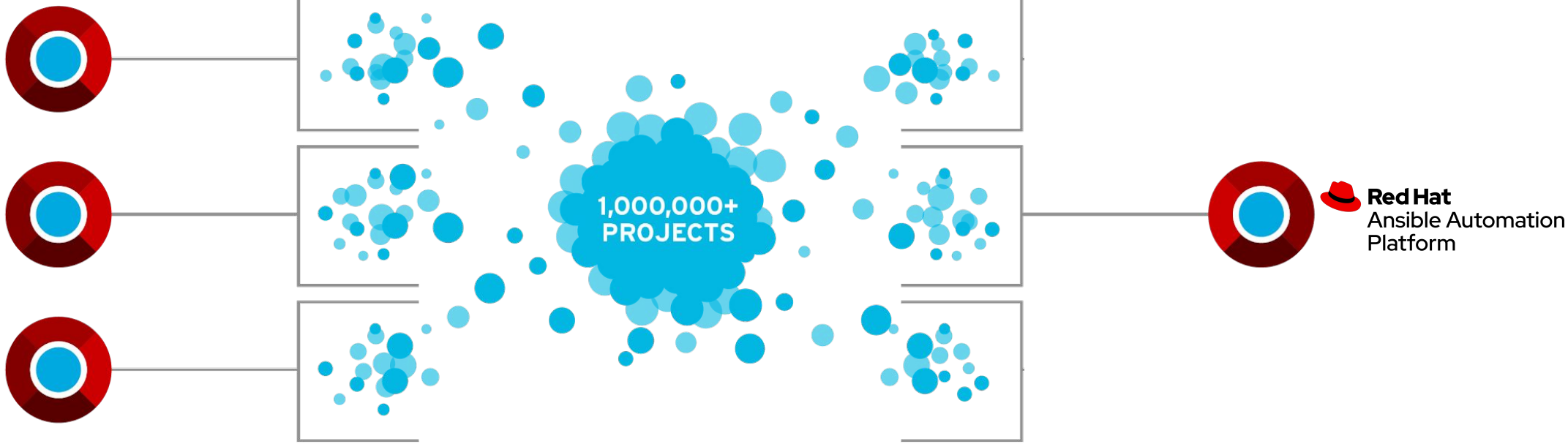
Götz Rieger
Principal Solution Architect, Red Hat

ASSEMBLE

BUY

galaxy-ng

ansible-builder
ansible-runner
ansible/awx-ee
awx-operator
receptor
...



Participate

We participate in and create community-powered upstream projects.

Integrate

We integrate upstream projects, fostering open community platforms.

Stabilise

We commercialise these platforms together with a rich ecosystem of services and certifications.

Red Hat

Ansible Automation Platform 2.1

Red Hat

Ansible Tower and **Ansible Engine** are **no more**.

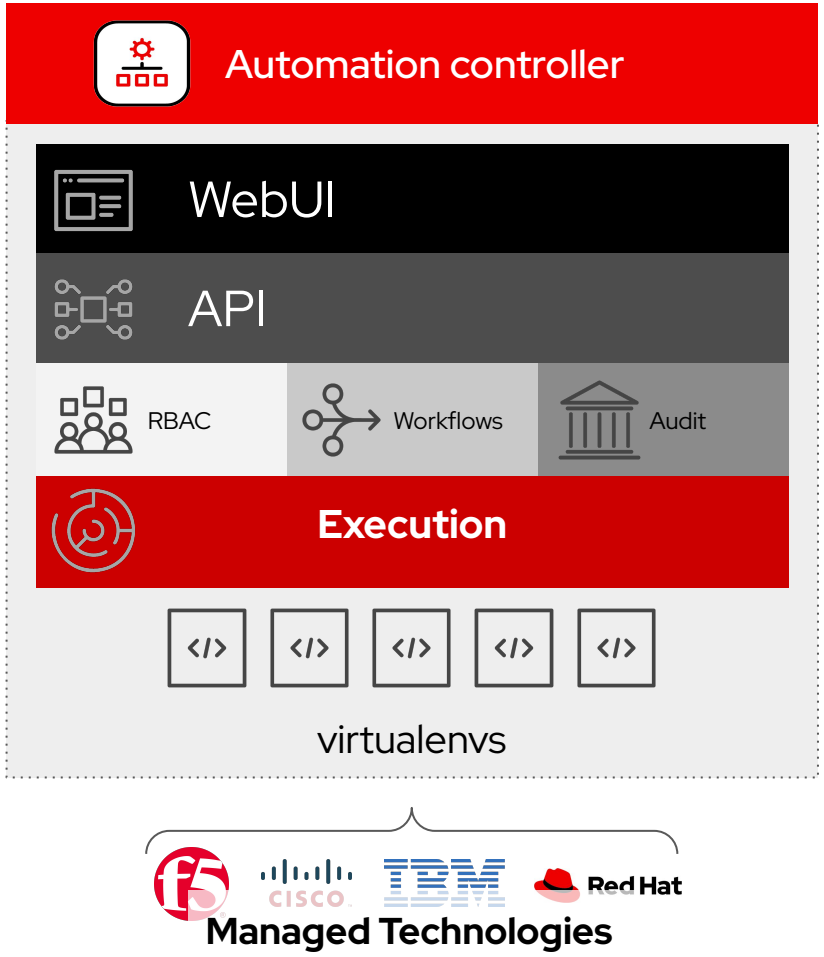
The product is called

Red Hat Ansible Automation Platform.

Automation for an **agile** world

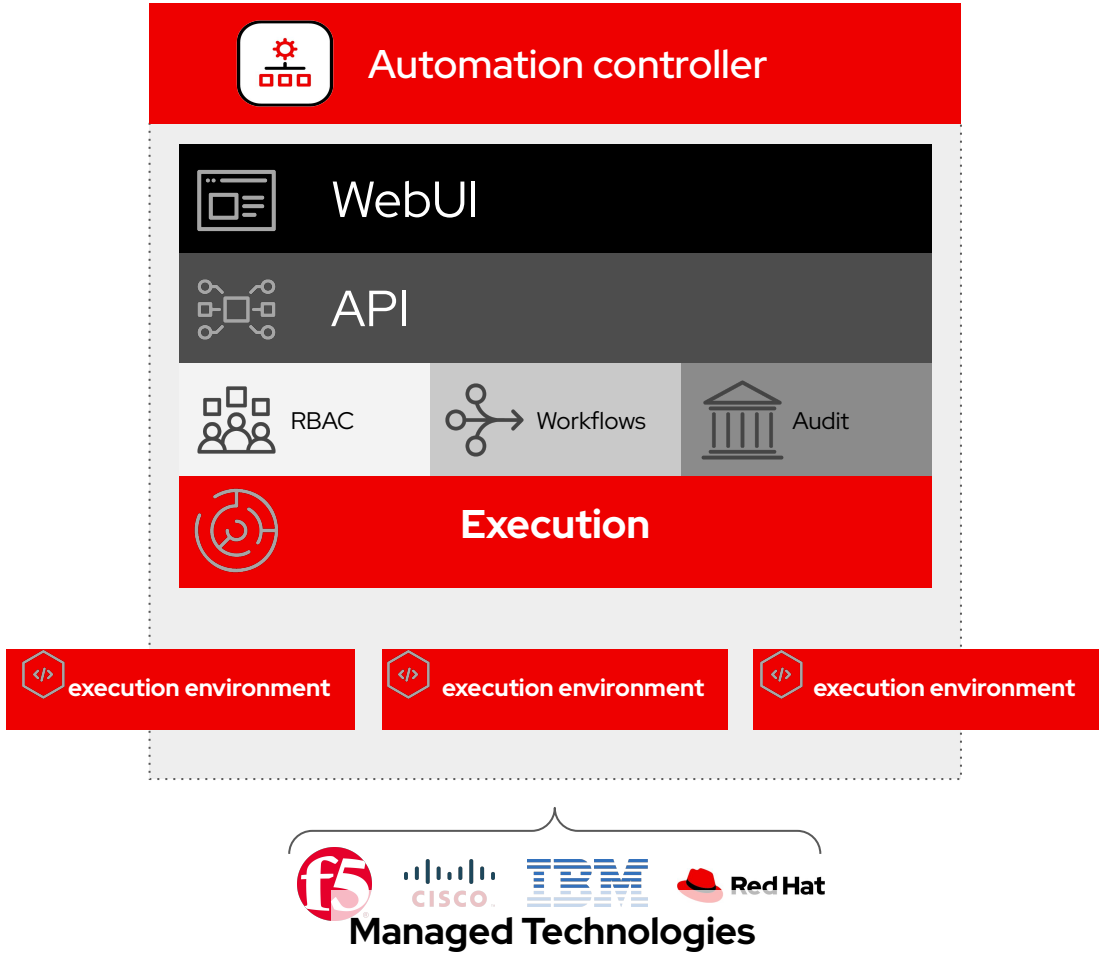
Red Hat

Ansible Automation Platform 1 Architecture



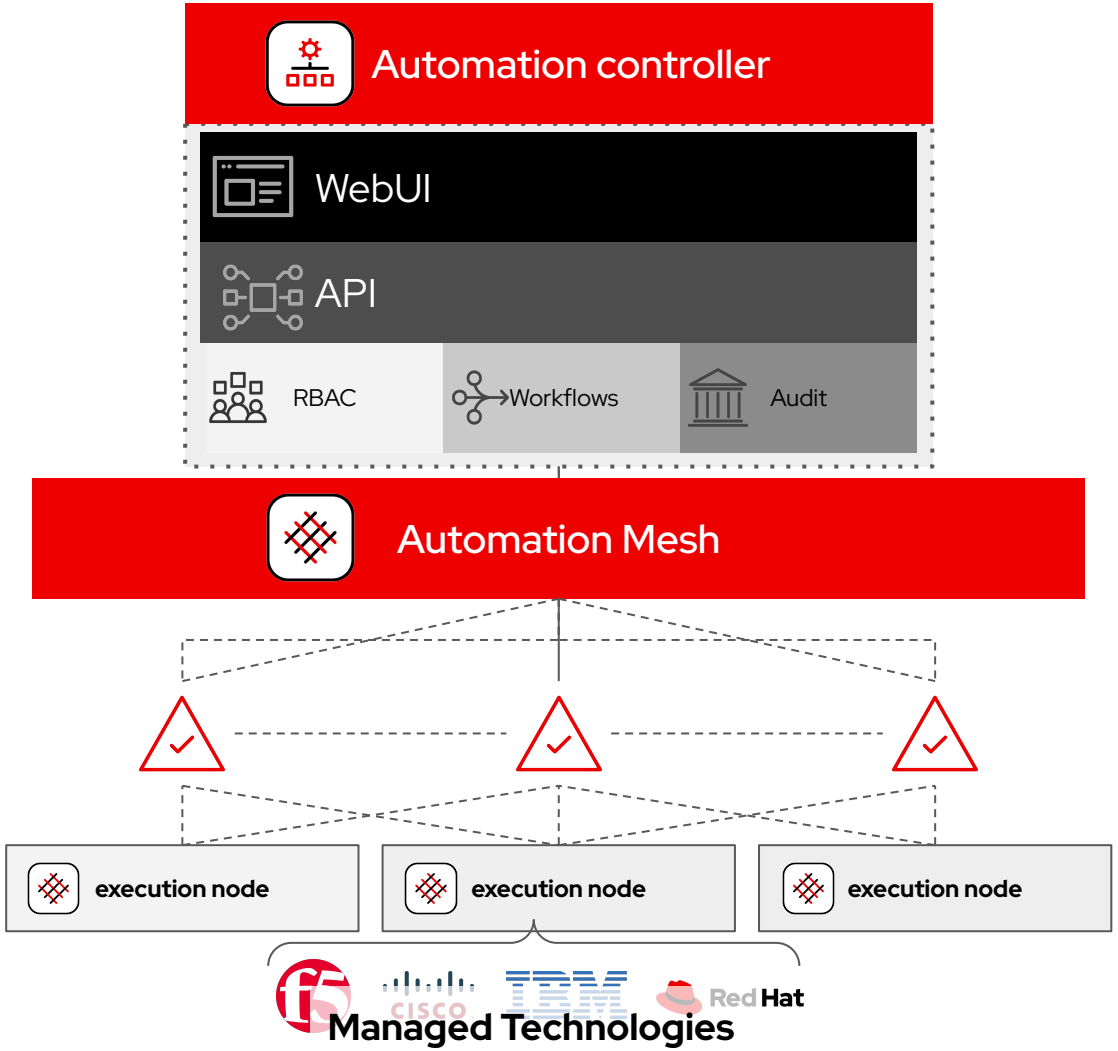
- The **artist formerly known as Ansible Tower**
- **Centralized, monolithic** application
- **Control** and **execution** cluster **capacity shared**
- Closely coupled to database, **requires low latency**

Ansible Automation Platform 2.0 Early Access (July 2021)

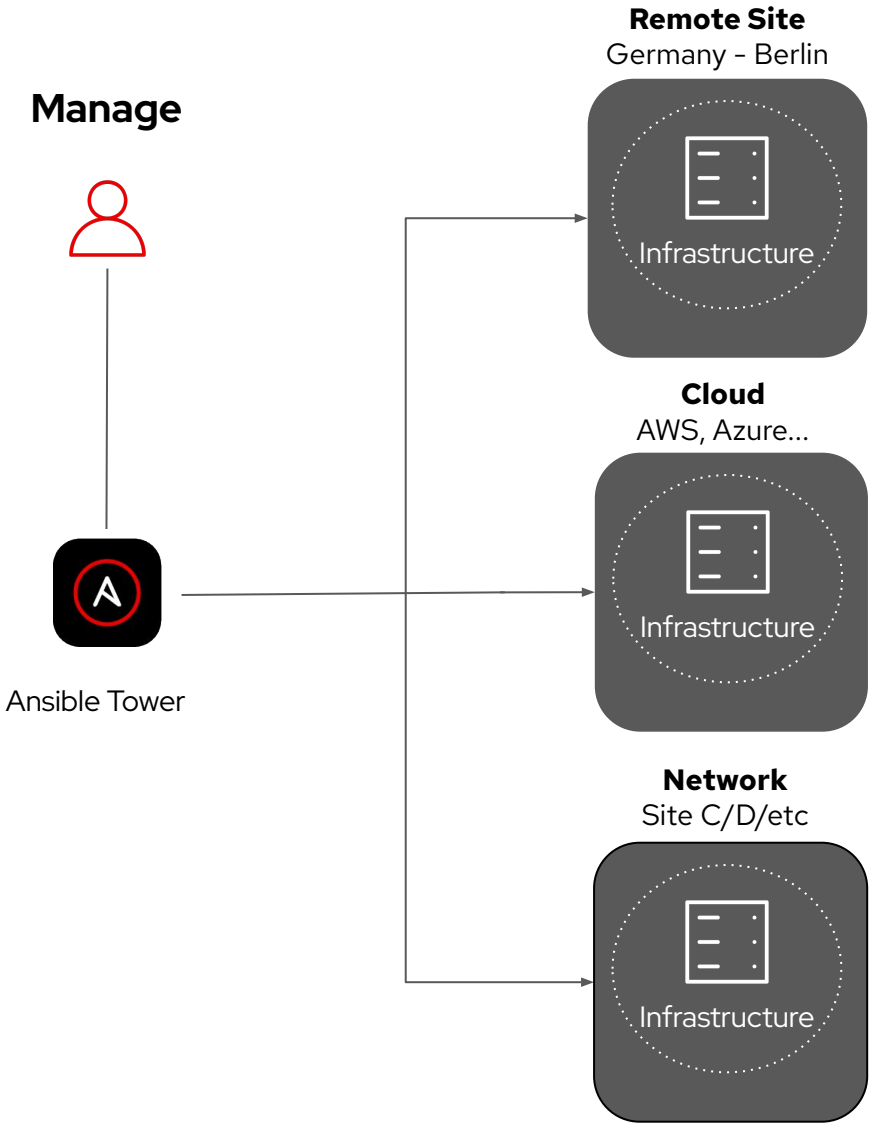


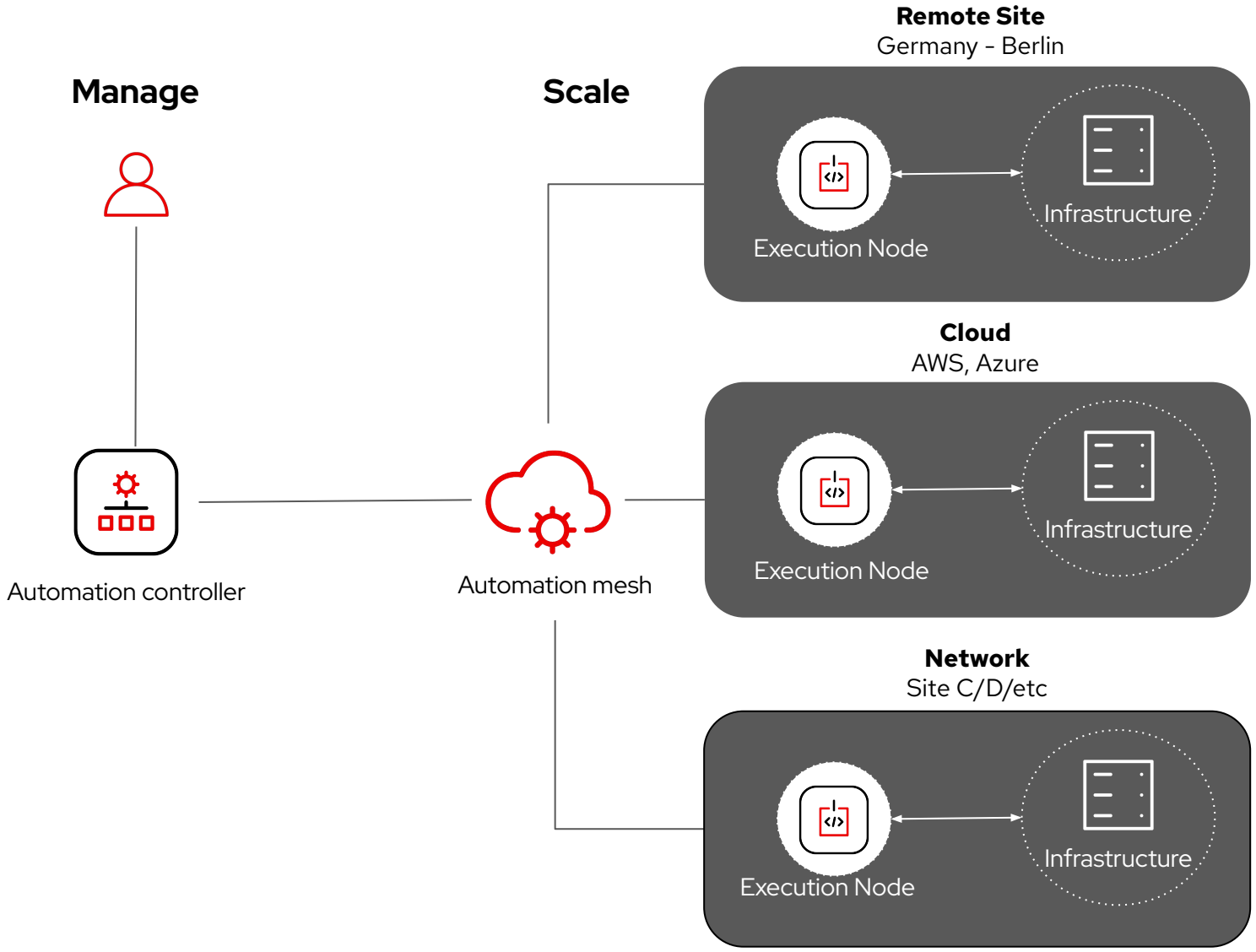
- **Started** to **modularize**
- **Control node still contains control plane and execution plane**
- Containerized **execution environments**

Ansible Automation Platform 2.1 – GA since December 2021



- **Dynamic cluster capacity**, Cluster capacity scales independently
- **Decoupled execution and control plane**, deploy execution capacity where it's needed
- Execution plane **resilient to latency/interruptions**
- Natively build **redundant mesh** topologies
- **Centralized management** with automation controller


Manage
Ansible Tower
Remote Site
Germany - Berlin
Infrastructure
Cloud
AWS, Azure...
Infrastructure
Network
Site C/D/etc
Infrastructure


Manage
Scale
Remote Site
Germany - Berlin
Execution Node
Infrastructure
Cloud
AWS, Azure
Execution Node
Infrastructure
Network
Site C/D/etc
Execution Node
Infrastructure
Automation controller
Automation mesh

Automation Mesh

Red Hat

What is automation mesh?

Simple, flexible and reliable scaling of execution capacity

Automate at a global scale

Simple, flexible and reliable way to scale automation.

Distributed overlay network

Overlay network which eases distributing automation execution

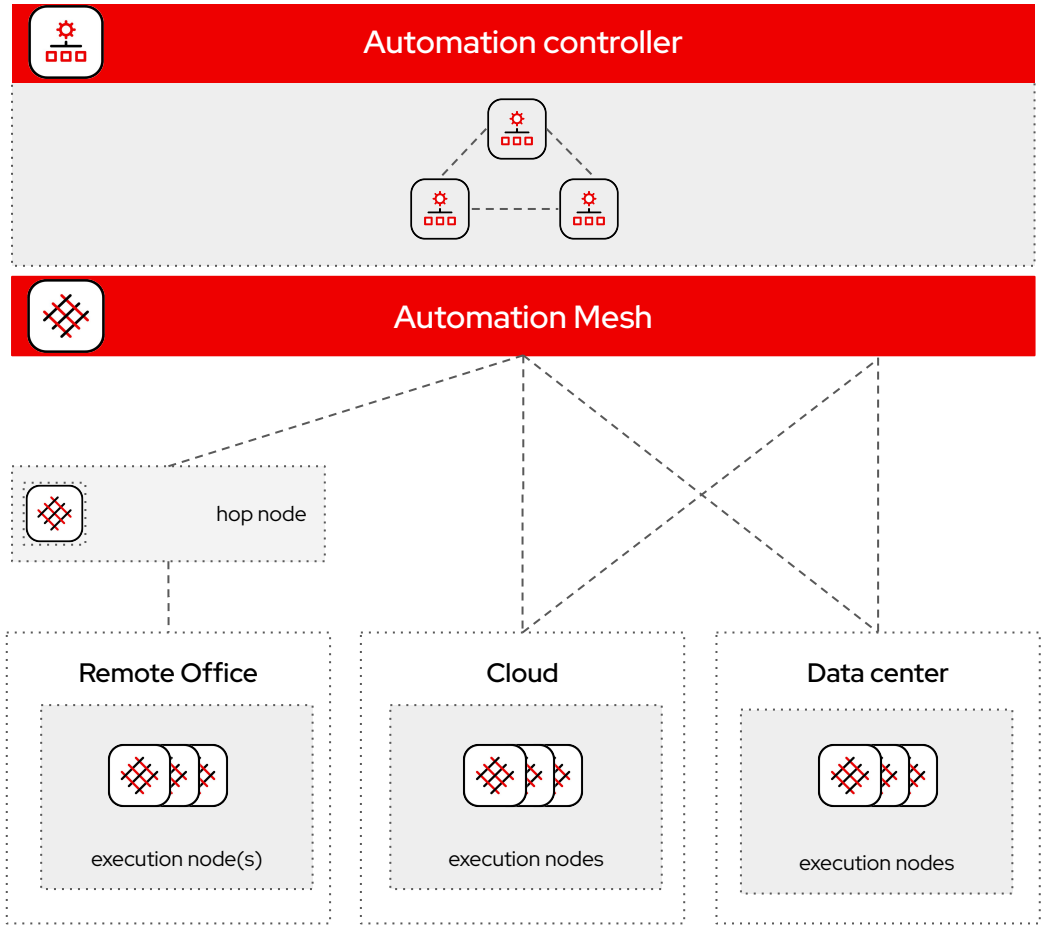
Based on https://github.com/ansible/receptor

Flexible architecture

Flexible architecture offers multiple design choices

Execution node health

Health checks performed on execution nodes



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Automation mesh node types

Hybrid node

Default for controller nodes

Performs controller runtime functions and automation execution

Controller node

Dedicated to controller runtime functions

Execution capabilities disabled

Execution node

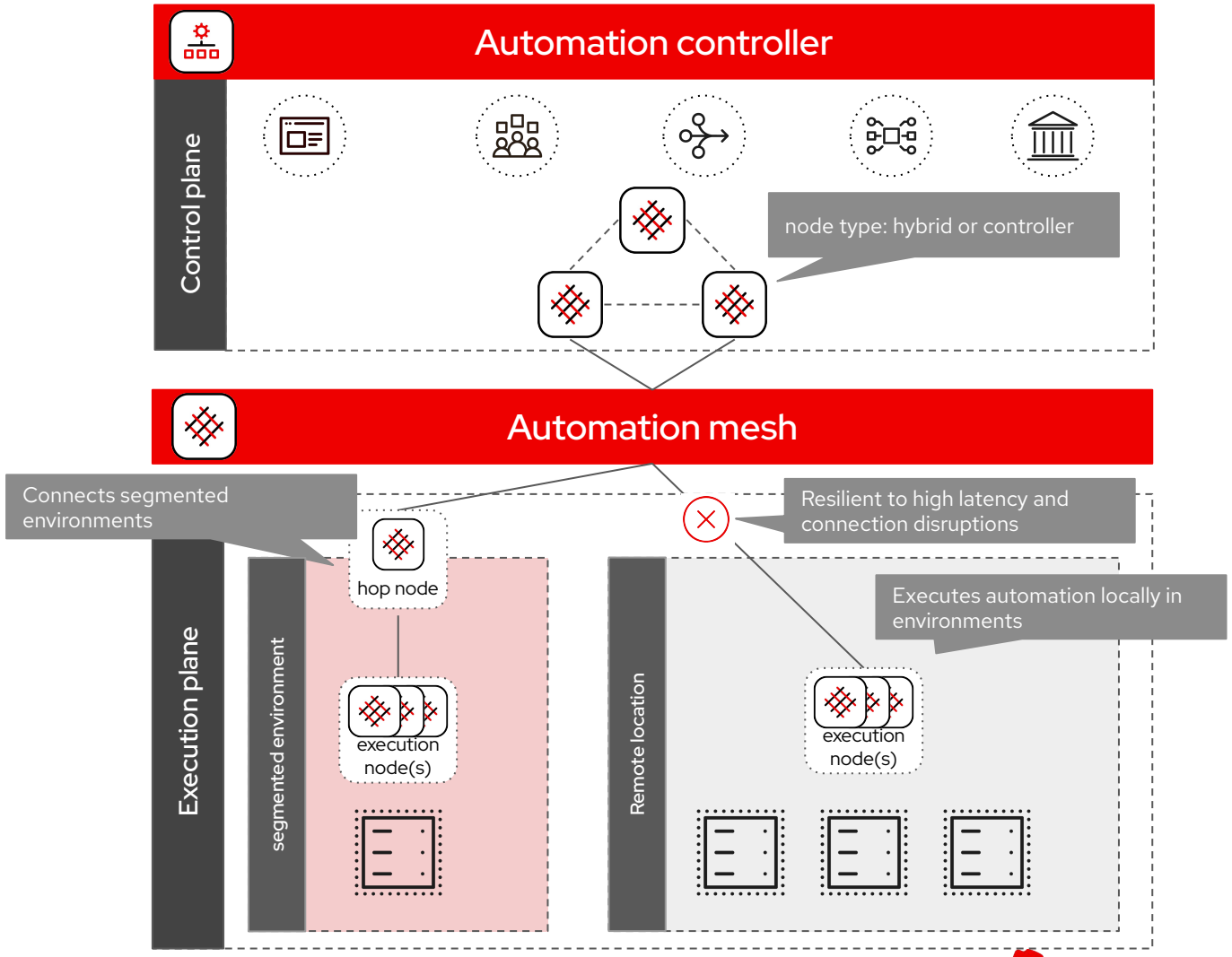
Dedicated to run automation on behalf of controller

Job isolation via podman and execution environments

Hop node

Dedicated to route traffic to other execution nodes

Cannot execute automation



Red Hat

Ansible Automation Mesh in 2.1

Mesh replaces Isolated Nodes

Isolated node where extremely sensitive to latency and connection disruption

Isolated Nodes are discontinued, functionality is provided by automation mesh

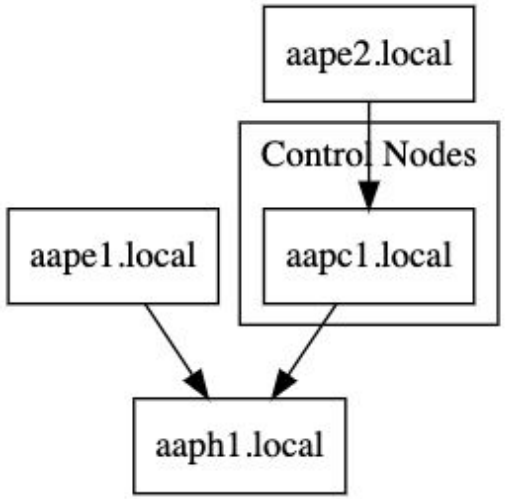
Mesh installation

Mesh is installed using inventory installer method

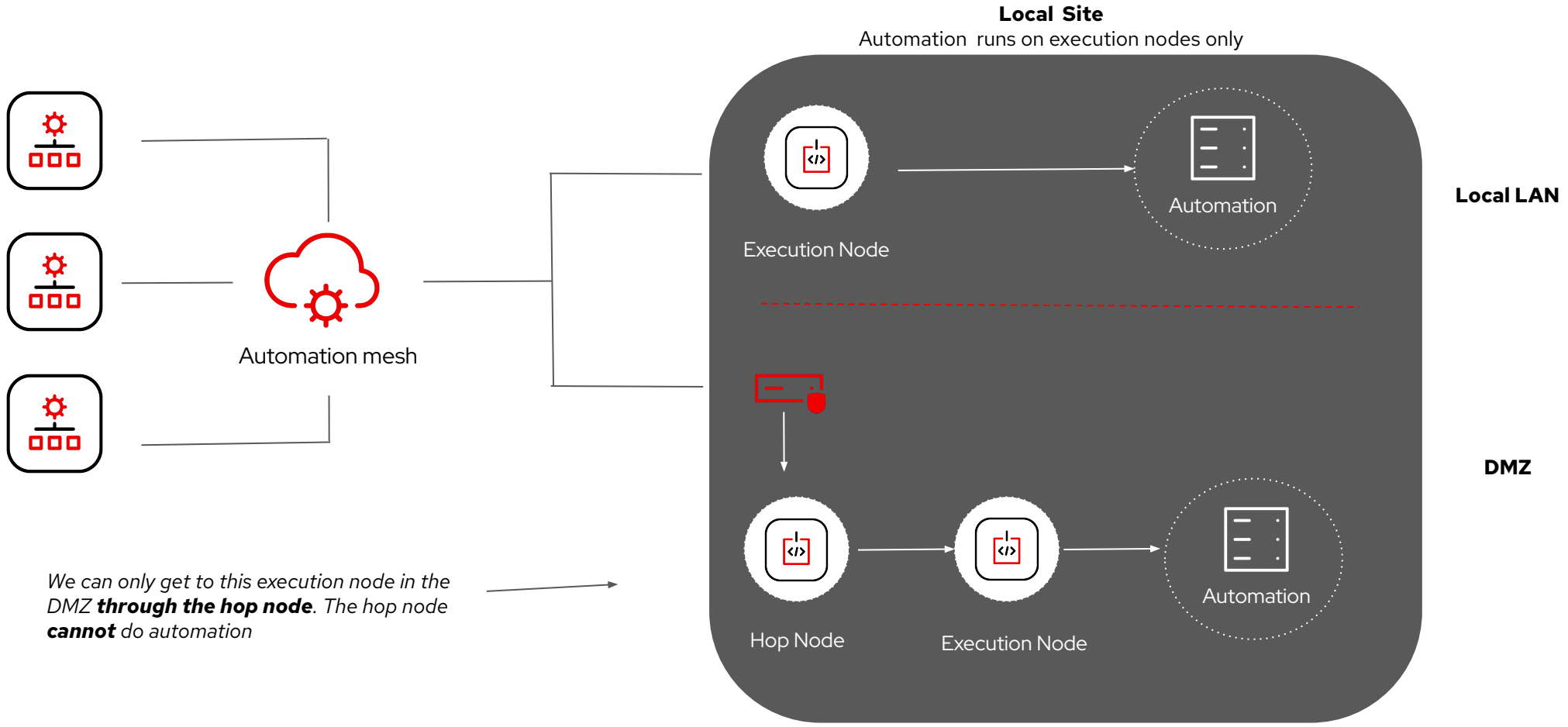
New sections added to inventory file for automation mesh configuration

Graphing

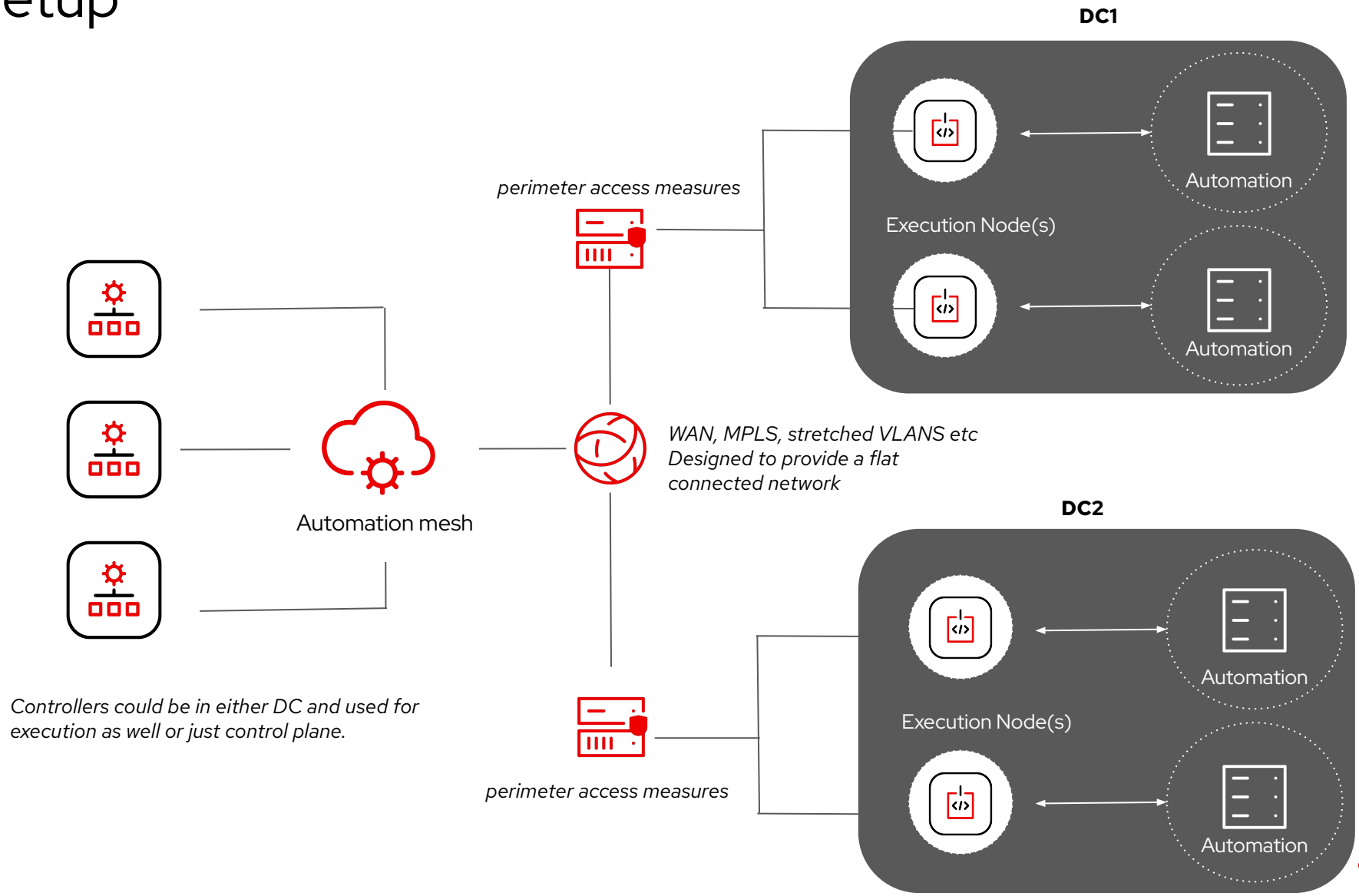
AAP2 installer can be used to create Graphviz dot file



Multi Controller/Multi Execution Nodes and Hop



Multi DC Setup



Automation for **Developers** and **IT Operations**

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Refresher:
Ansible Content Collections

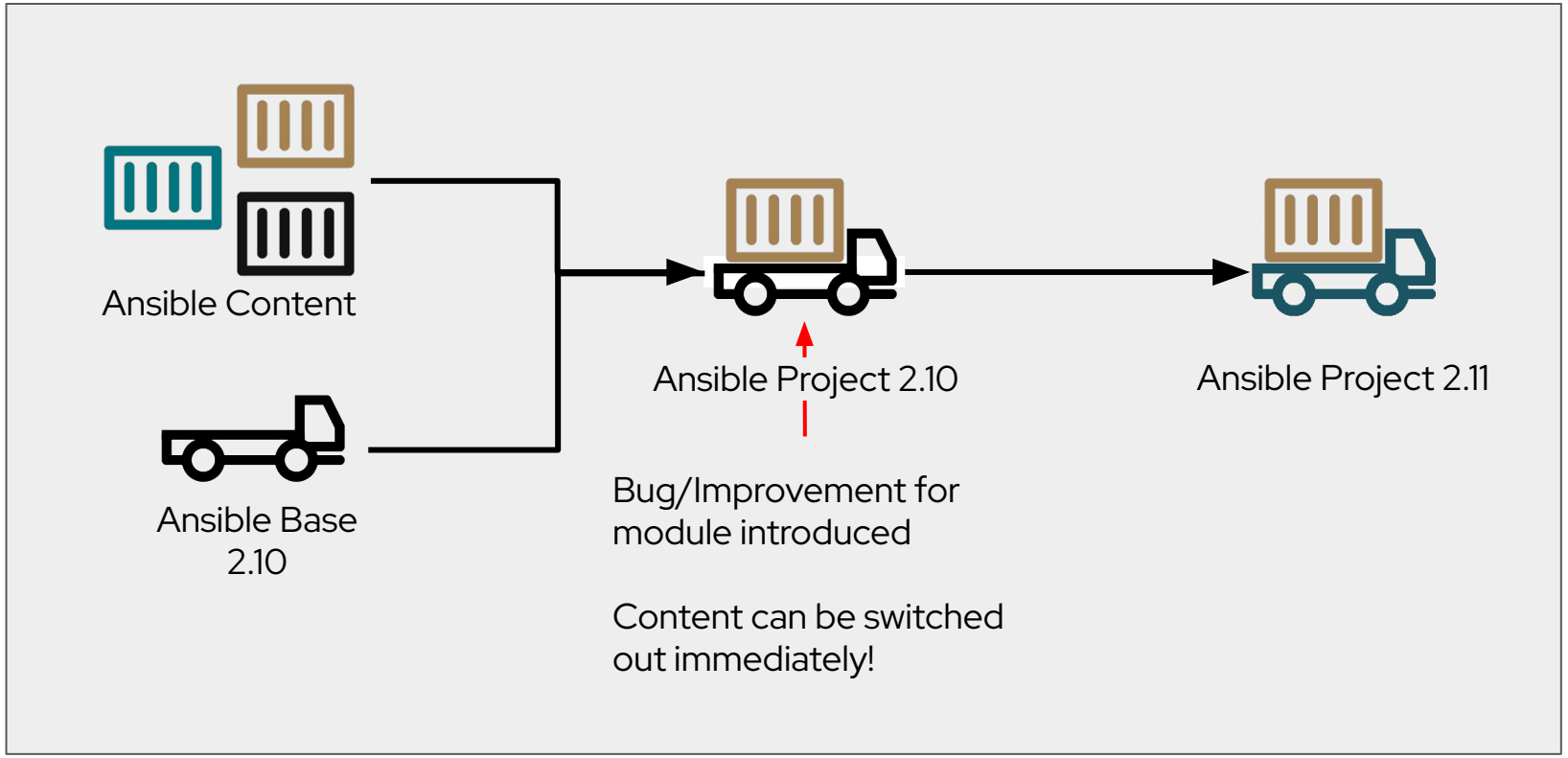
Red Hat

Collections: Simplified and Consistent Content Delivery

What are they?

Collections are a data structures containing automation content:

- Modules
- Playbooks
- Roles
- Plugins
- Docs
- Tests

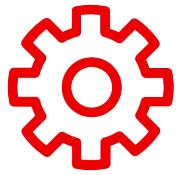


Automation execution environments

Red Hat

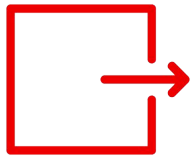
Limitations of Python Virtual Environments

They don’t work for the enterprise



Tooling

Python Virtual Environments are not part of the Red Hat Ansible Automation Platform, they are Python constructs meant for Python developers.



Portability

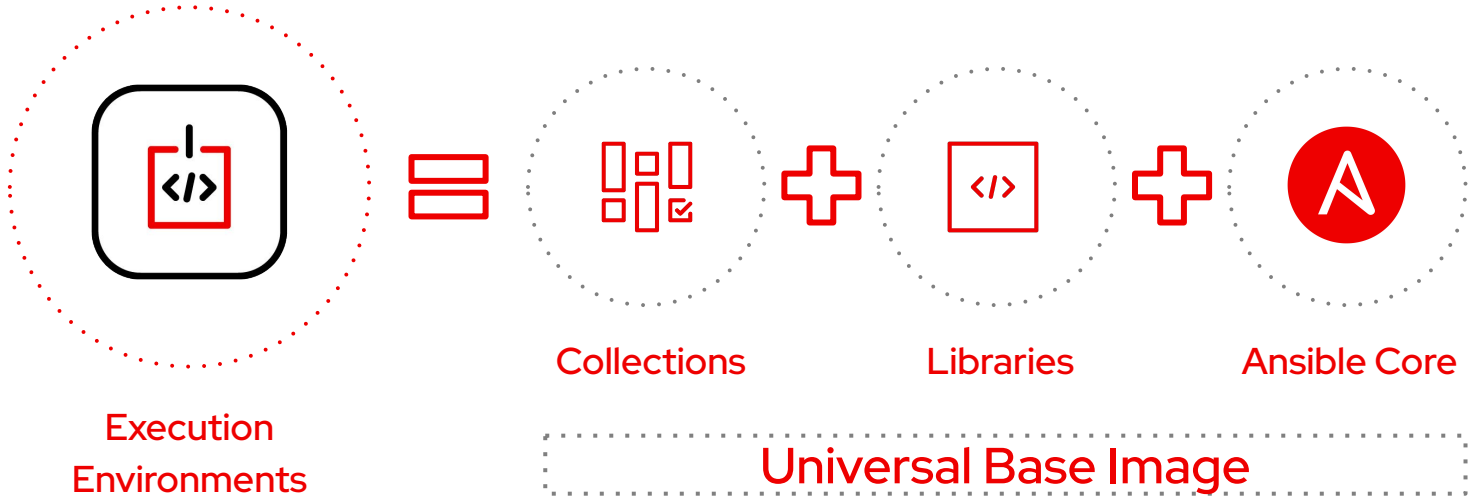
Python Virtual Environments are unique to a single system and hard to replicate on another system.

Maintenance

Python Virtual Environments may have dozens of Python dependencies and become increasingly hard to manage and maintain overtime.

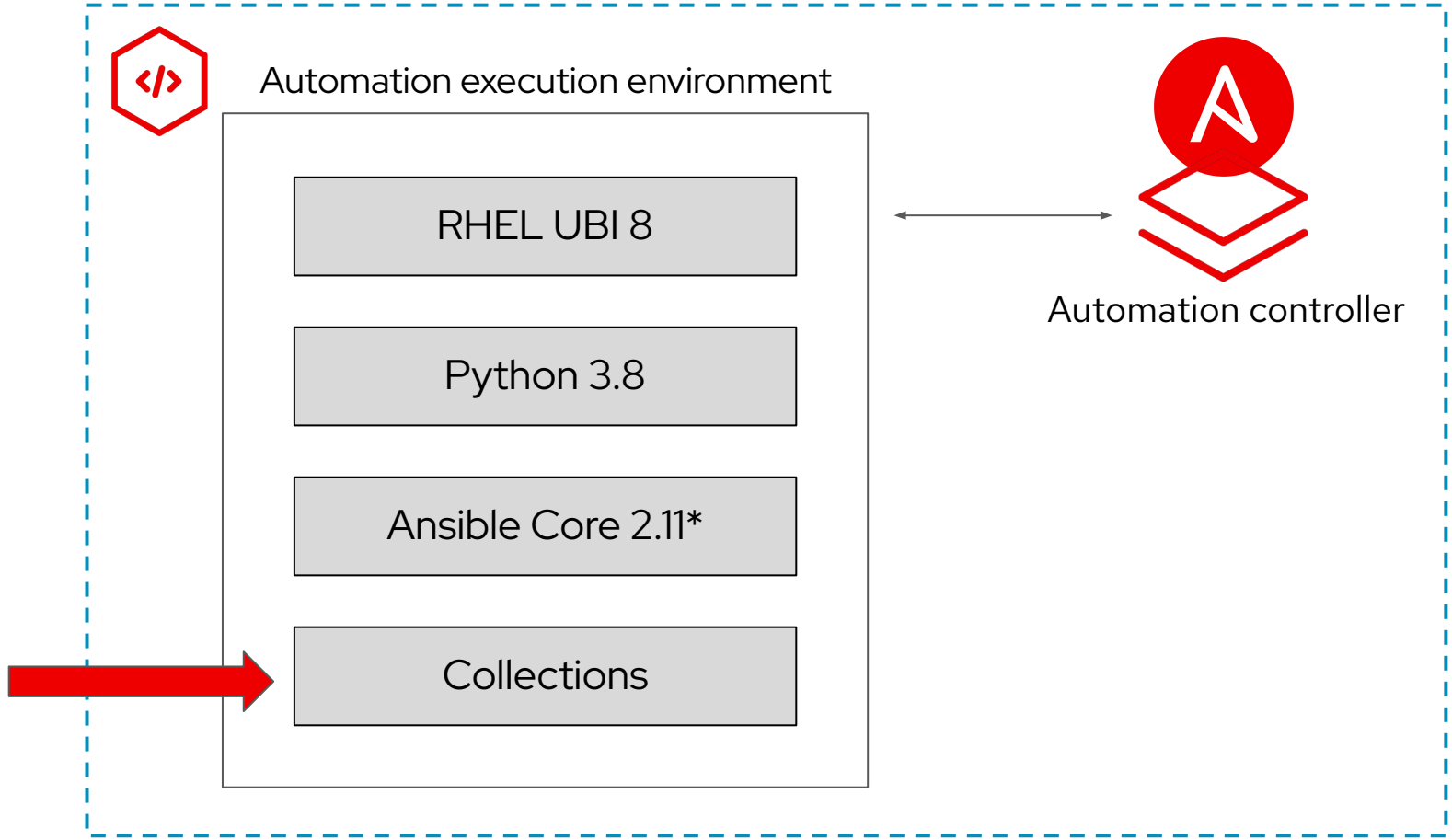
Automation Execution Environments

Components needed for automation, packaged in a cloud-native way



Example Packaging with automation execution environments

- amazon.aws Collection
- ansible.utils Collection
- arista.cvp Collection
- azure.azcollection Collection
- ibm.qradar Collection
- redhat.satellite Collection



*includes other Ansible dependencies/packages

Available automation execution environments with AAP 2

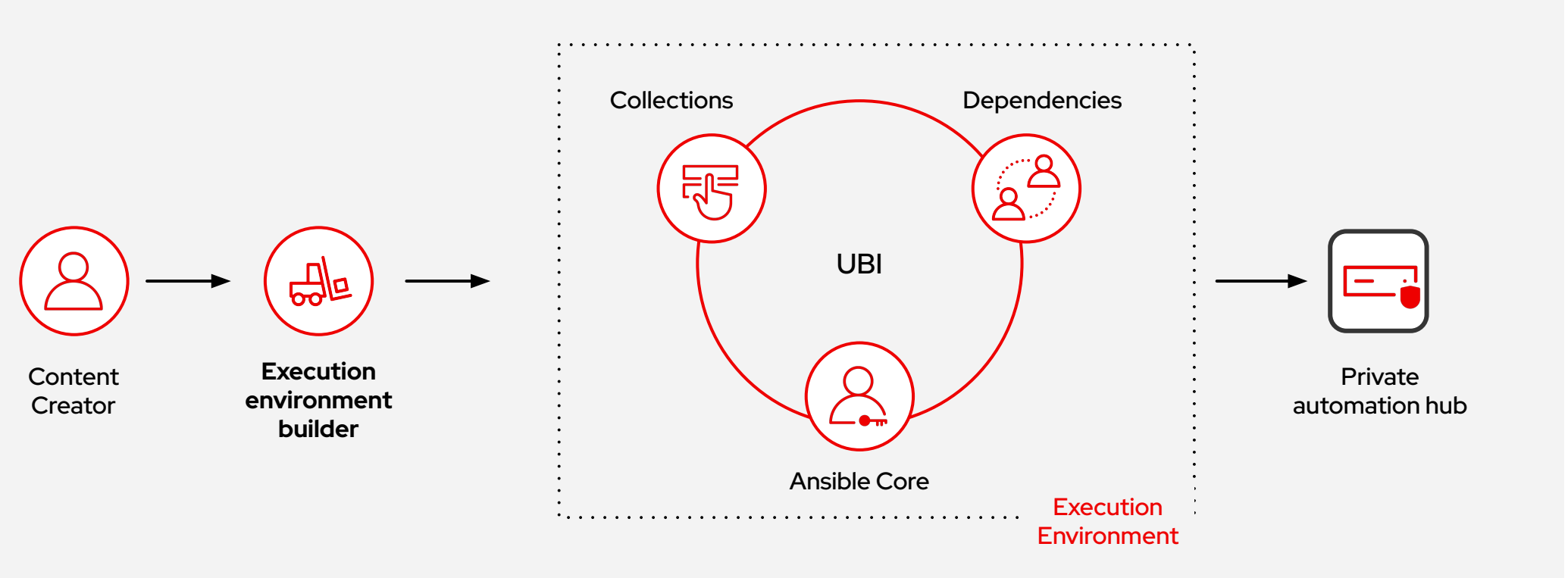
- **Minimal** (`ee-minimal-rhel8`) - Contains Ansible Core 2.11 and doesn't contain any Collections.
- **Supported** (`ee-supported-rhel8`) - This is the default image. It is built on top of the minimal image and contains content supported by Red Hat.
- **Compatibility** (`ee-29-rhel8`) - Contains Ansible 2.9 "batteries included" and is best for customers migrating from Ansible Automation Platform 1.2.

Execution environment builder

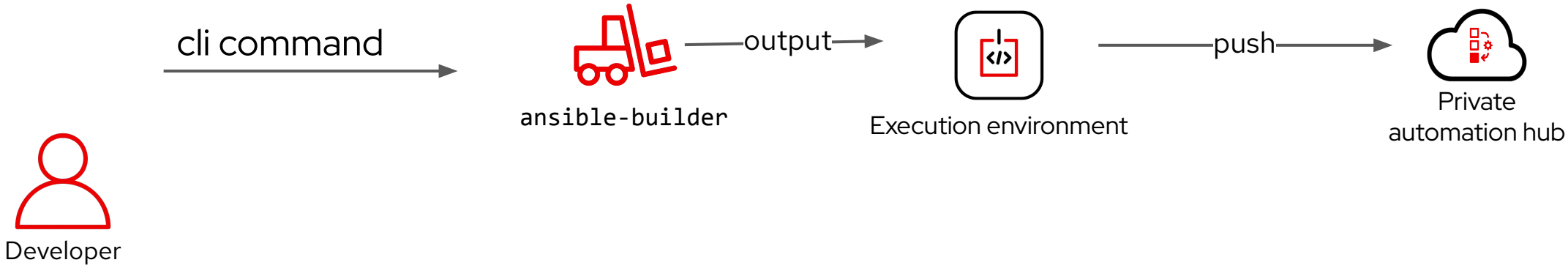
Red Hat

Build, create, publish

Development cycle of an automation execution environment



Adapting execution environments

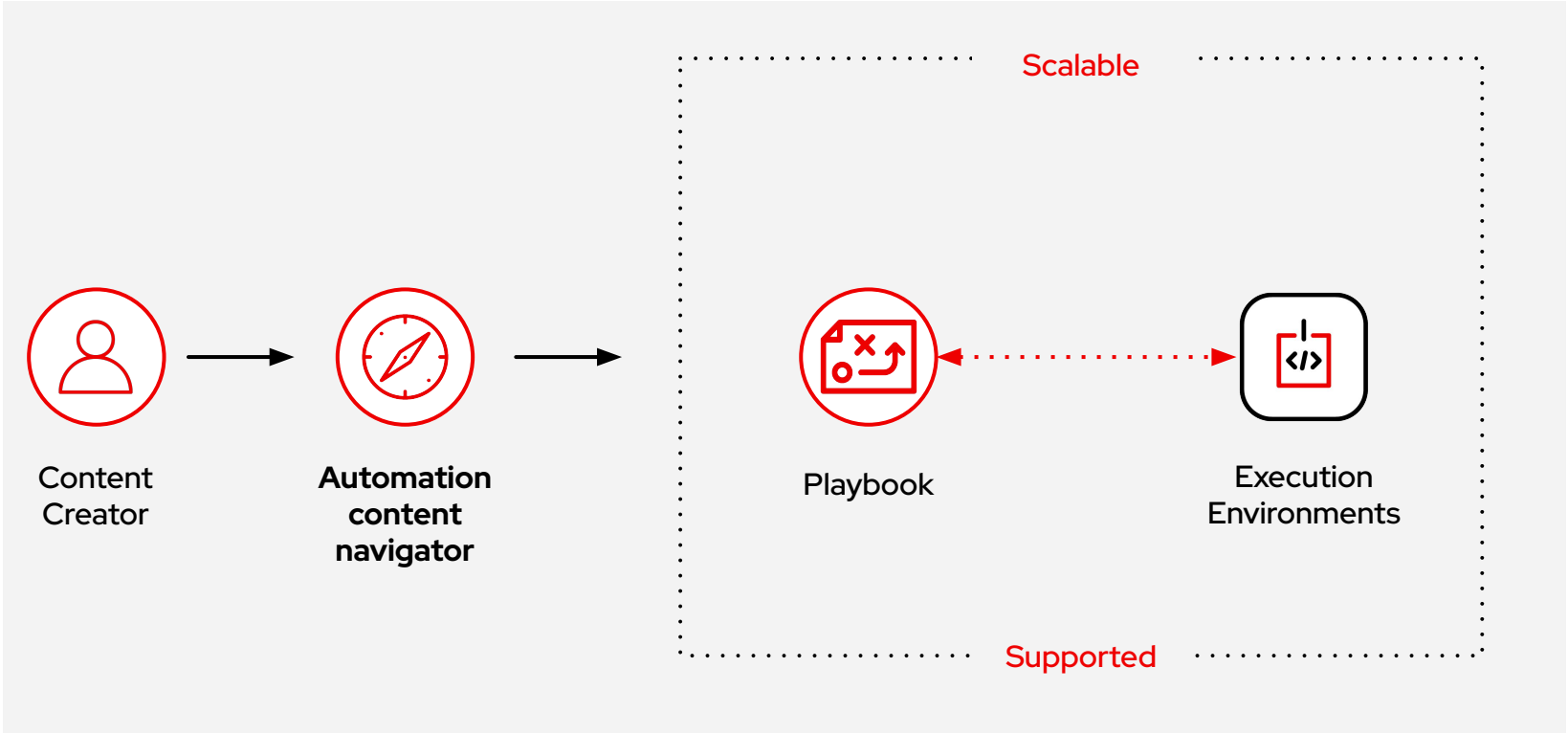


Automation content navigator

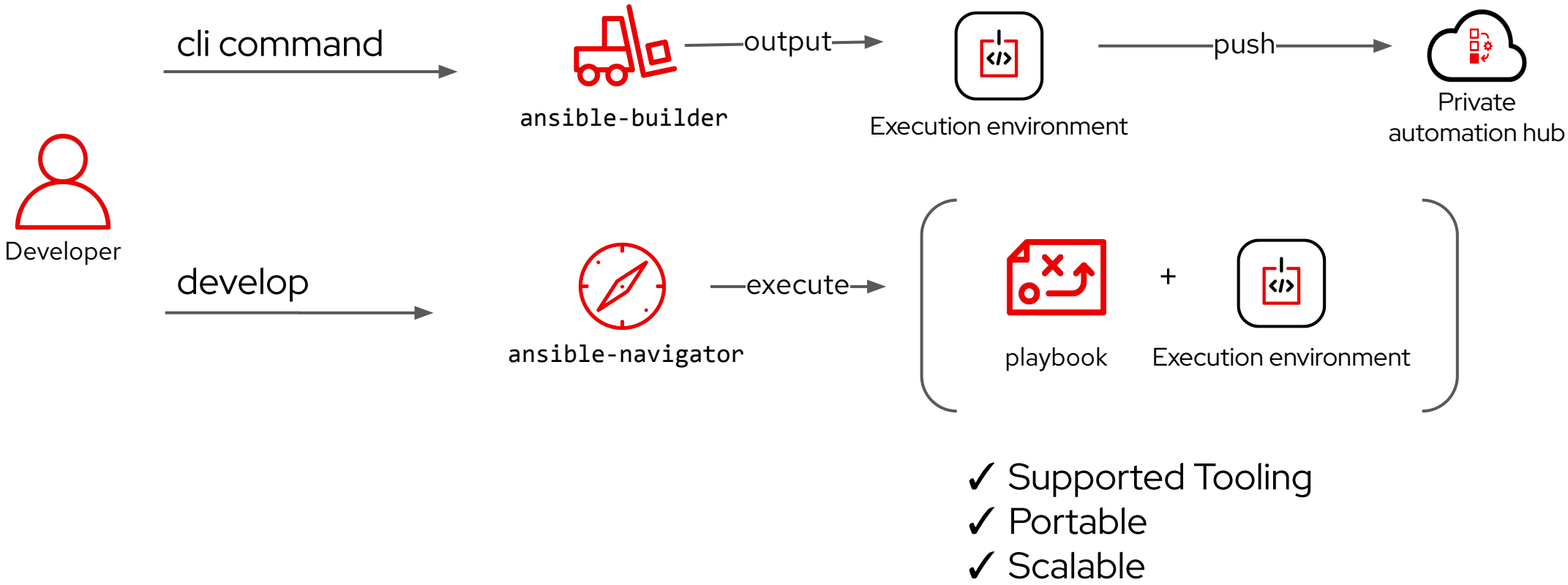
Red Hat

Develop, test, run

How to develop, test and run containerized Ansible content

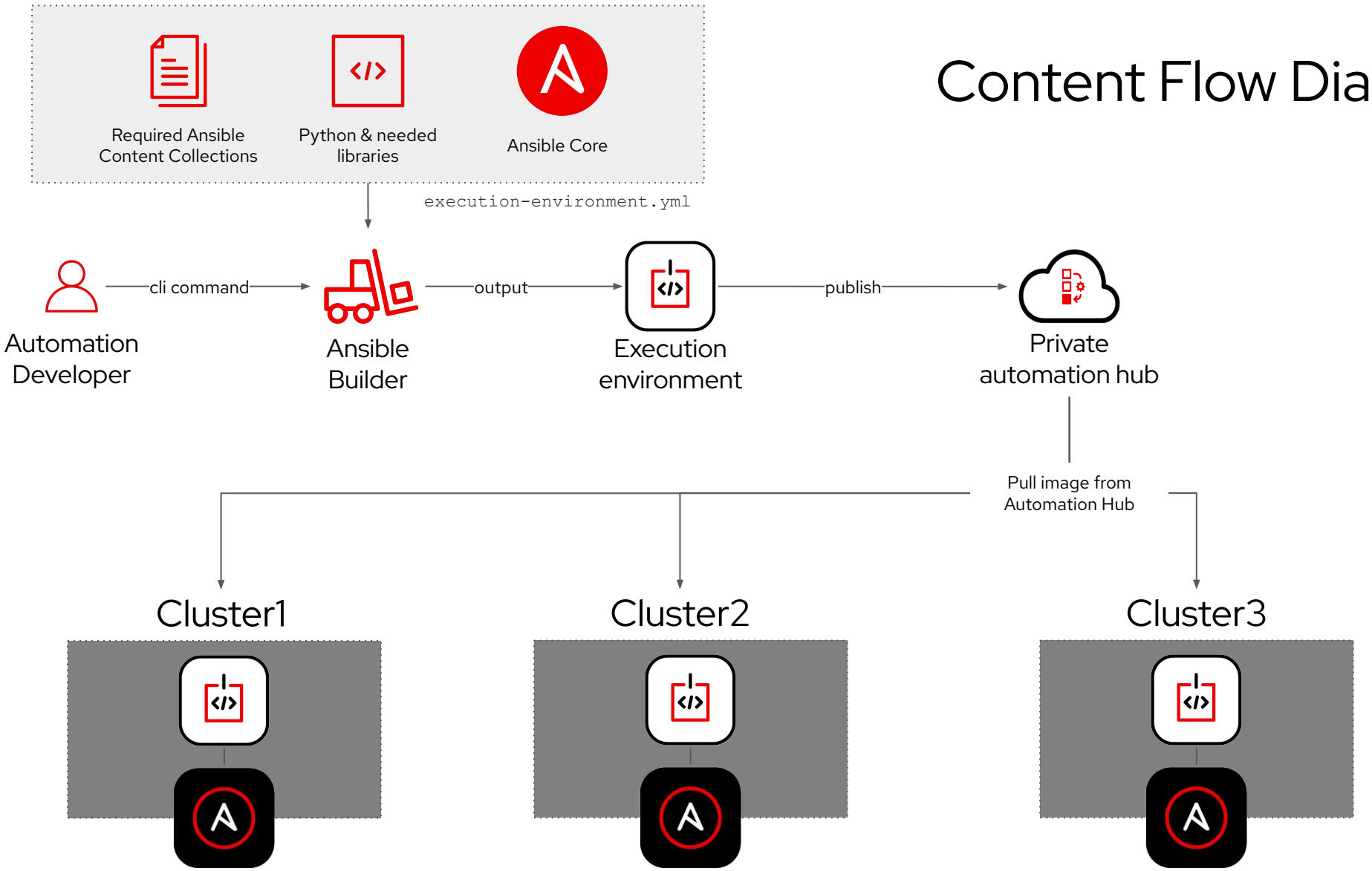


Content Development with Execution Environments



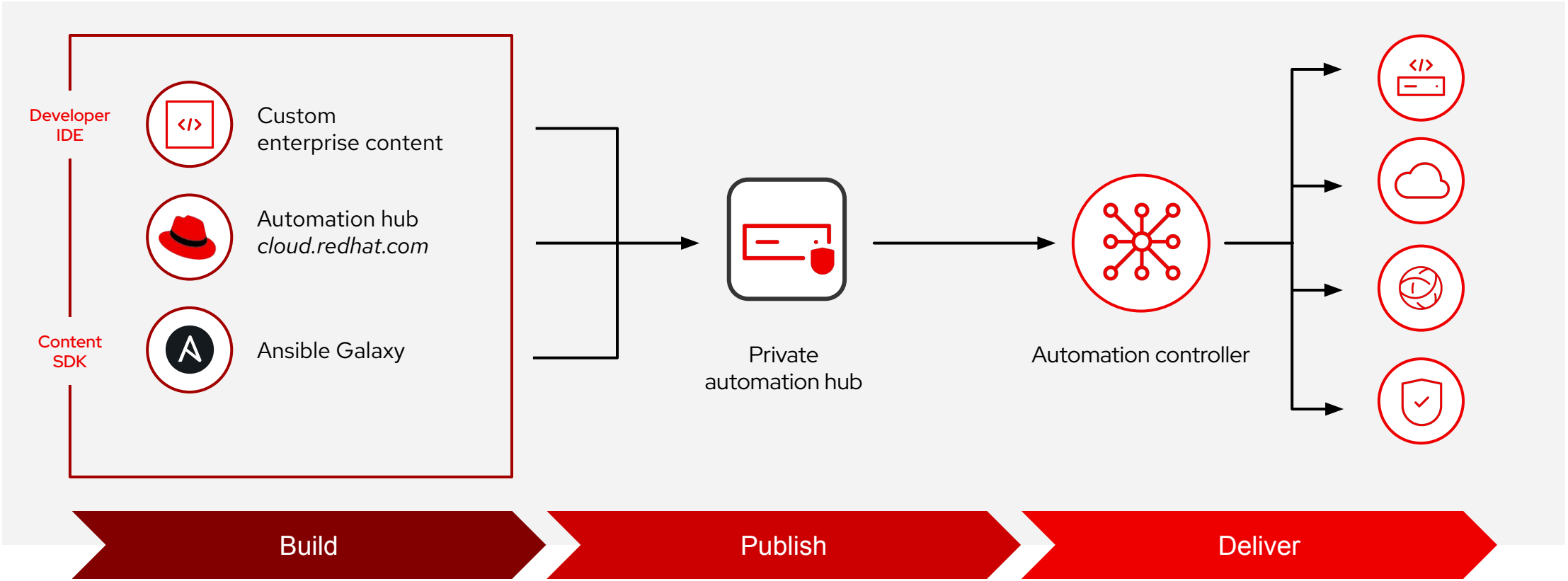
- ✓ Supported Tooling
- ✓ Portable
- ✓ Scalable

Content Flow Diagram



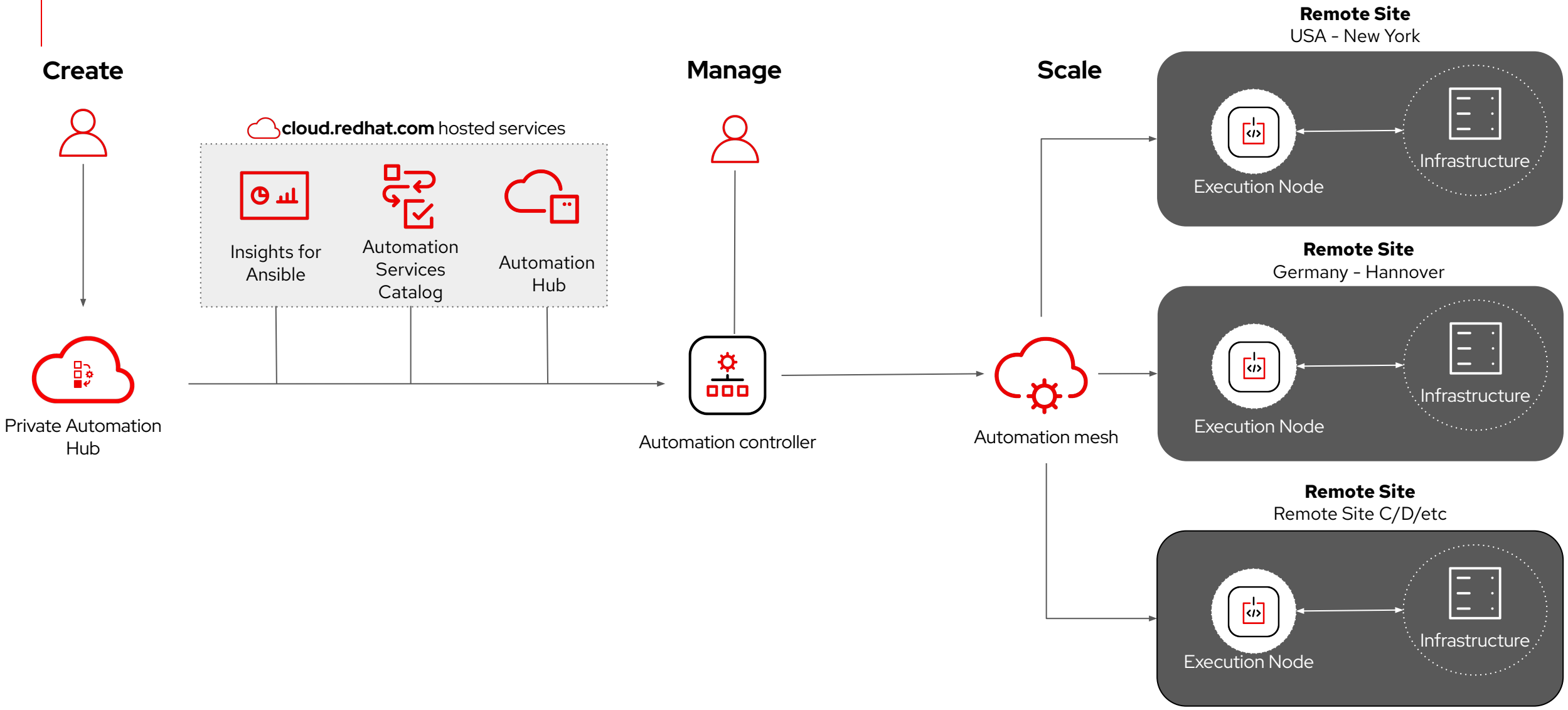
Private Automation Hub

Value of private Automation Hub

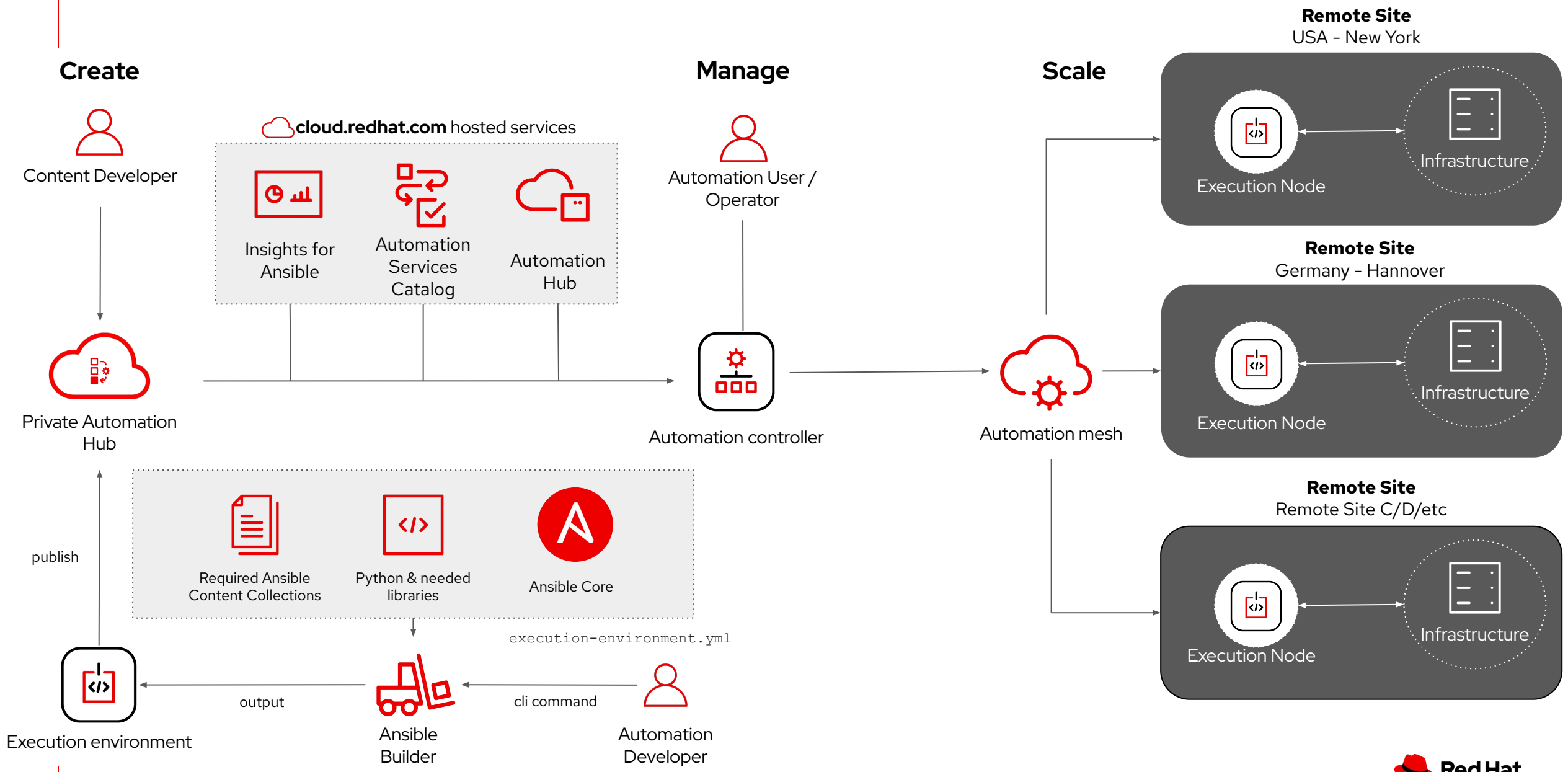


The **Big Picture**

Red Hat


Create
Manage
Scale
cloud.redhat.com hosted services
Insights for Ansible
Automation Services Catalog
Automation Hub
Private Automation Hub
Automation controller
Automation mesh
Remote Site
USA - New York
Execution Node
Infrastructure
Remote Site
Germany - Hannover
Execution Node
Infrastructure
Remote Site
Remote Site C/D/etc
Execution Node
Infrastructure

Red Hat


Create
Manage
Scale
Content Developer
cloud.redhat.com hosted services
Insights for Ansible
Automation Services Catalog
Automation Hub
Automation User / Operator
Private Automation Hub
Automation controller
Automation mesh
Remote Site
USA - New York
Execution Node
Infrastructure
Remote Site
Germany - Hannover
Execution Node
Infrastructure
Remote Site
Remote Site C/D/etc
Execution Node
Infrastructure
publish
Required Ansible Content Collections
Python & needed libraries
Ansible Core
execution-environment.yml
Execution environment
output
Ansible Builder
cli command
Automation Developer

Red Hat

Roadmap:
Ansible Automation Platform 2.2 and onwards

Red Hat

Ansible Automation Platform 2.2 - Planned for May 2022

Enhancing the automation user experience

AAP General
- Subscription Consumption reporting
- Collection migration tooling

Automation controller
- Automation Mesh Configuration and Deployment Utility
- Live Topology in WebUI

Automation mesh
- Delivery; sync executions environments over mesh
- Health checks

Automation execution environments
- Lifecycle Definition files

Automation services catalog
- On-premises offering
- OCP Operator

Private automation hub
- Ansible Content Collection signing
- Repo Management

Ansible content tools
- molecule support
- ansible-lint support

Automation content
- Certified Collections with signatures

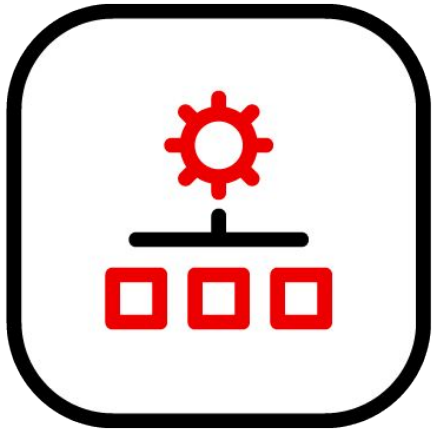
Automation Controller

Enterprise control plane for automation

Major changes for AAP 2.2

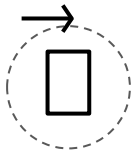
- **Automation Mesh Configuration and Deployment Utility**
  WebUI based experience for configuring and deploying Automation mesh

- **Mesh UI visualization**
  View existing topologies including hop nodes, execution nodes and controller nodes across multiple sites



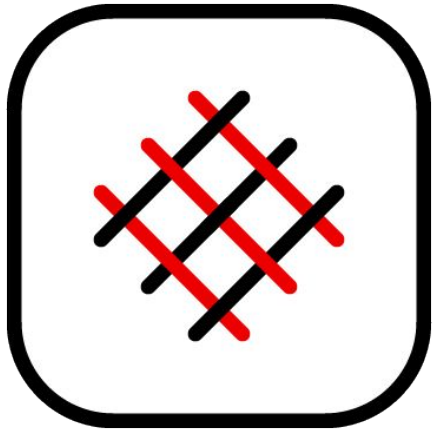
Automation Mesh

Execution Environments decoupled from control plane for flexibility



Major changes for AAP 2.2

- **Execution Environment Delivery**
  Automatically sync needed Execution Environments
- **Execution Environments for Edge**
  Opinionated delivery method for Edge use-cases



Automation services catalog

Self-service access across environments

Major changes for AAP 2.2

- **Self-hosted on-premises version**
  In addition to the hosted services on console.redhat.com, Automation services catalog can be standalone and self-hosted
- **Operator for Openshift**
  In addition to Automation controller and Private automation hub, Automation services catalog can be installed through Operatorhub

Automation content signing

Major changes for AAP 2.2

Major changes for AAP 2.2

- **Automation Hub**
  Certified content from Red Hat and partners is signed on console.redhat.com ensuring end-to-end security
- **Content signing**
  Sign private content when you publish to Private automation hub. Both execution environments and Ansible content collections can be signed.
- **Certified Content with signatures**
  Certified content from Red Hat will come with accompanying signatures

Q4
November 2022

Red Hat

Ansible Automation Platform 2.3 - November 2022

Extend use-cases and secure enterprise automation end-to-end

Event Driven Automation

Secure Compliant Execution

Differentiated Automation Experience (“Opinionated Content”)

Thank you

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