



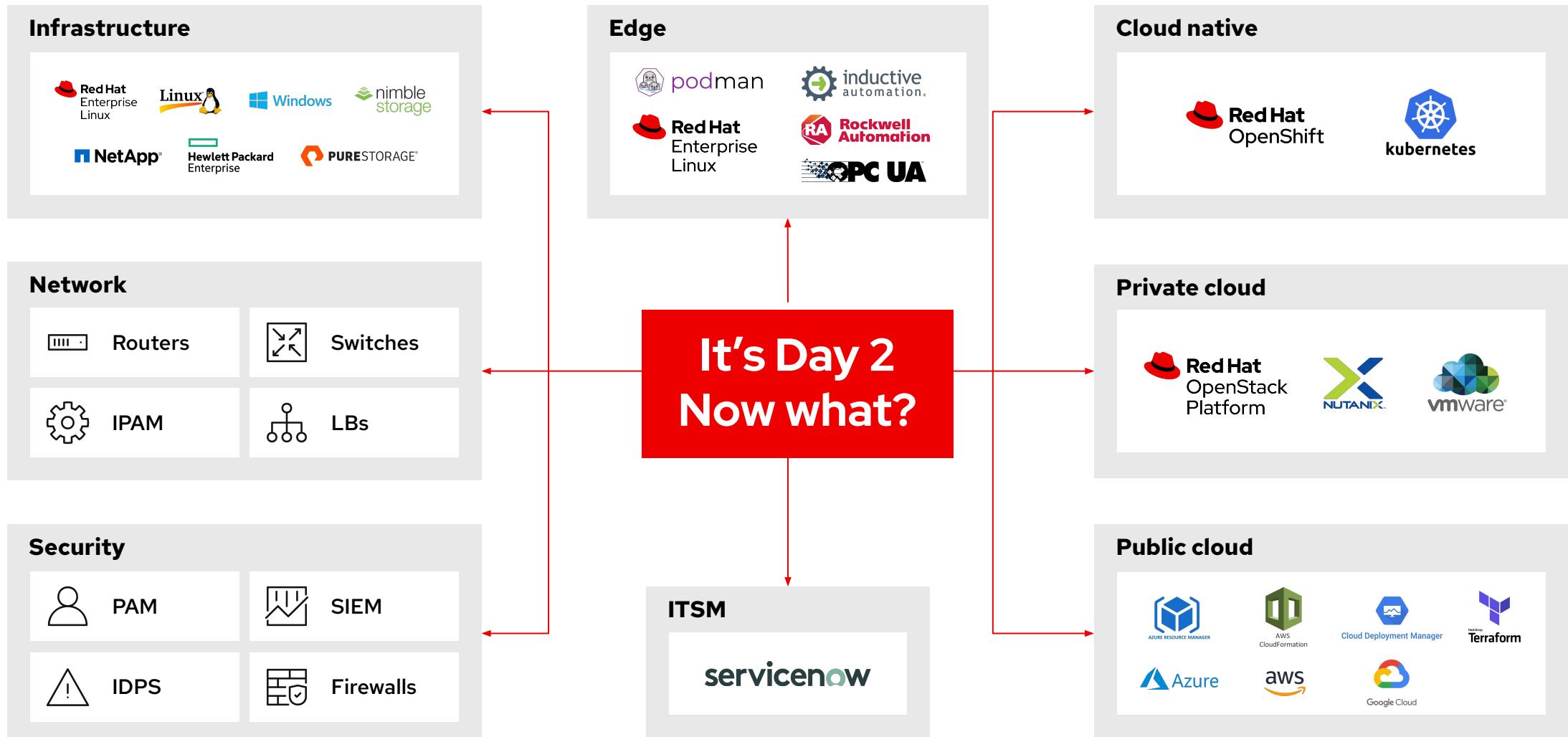
Connect Event-Driven Automation and Lightspeed

Powerful new additions to the Ansible Automation Platform

Patrick Toal
Automation Specialist
Red Hat Canada

Automation Evolution

The reality of hybrid infrastructure



Advanced Automation

Build on existing automation

Tactical IT automation

- ▶ Remove the rote: automate low-value, high volume tasks
- ▶ Learn and assess benefits
- ▶ E.g., Security patching

IT Process automation

- ▶ Align siloed processes for faster innovation / resilience
- ▶ Automation-first culture
- ▶ E.g. automated DevOps

Advanced automation

- ▶ Trusted data - AI/ML - action with event driven automation
- ▶ Edge use case management
- ▶ Validated operations (e.g enforced network environment)
- ▶ Hybrid cloud consistency

Journey to hybrid cloud and modernization

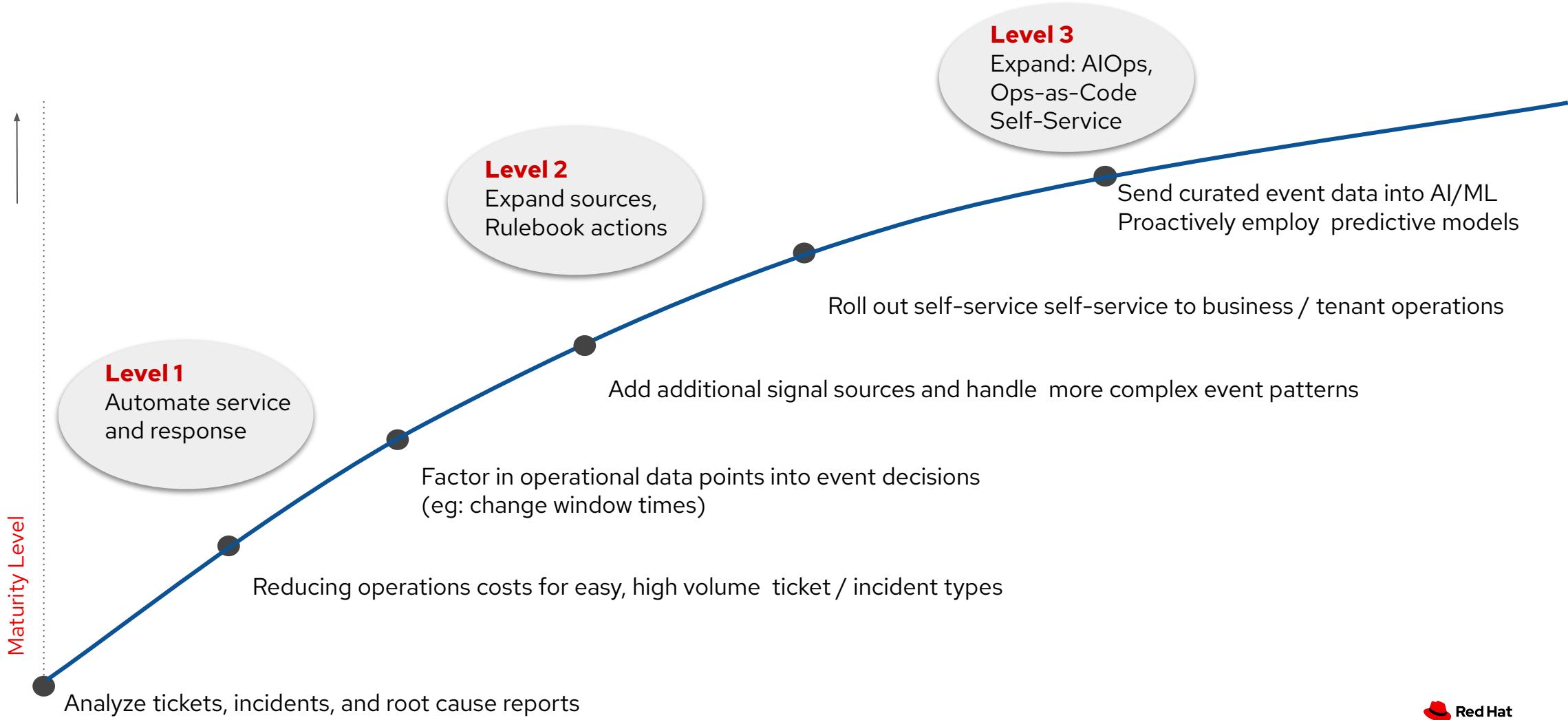
Multi-cloud, Edge, Event-driven, AIOps

Automation-first culture transformation

Simplicity and ROI

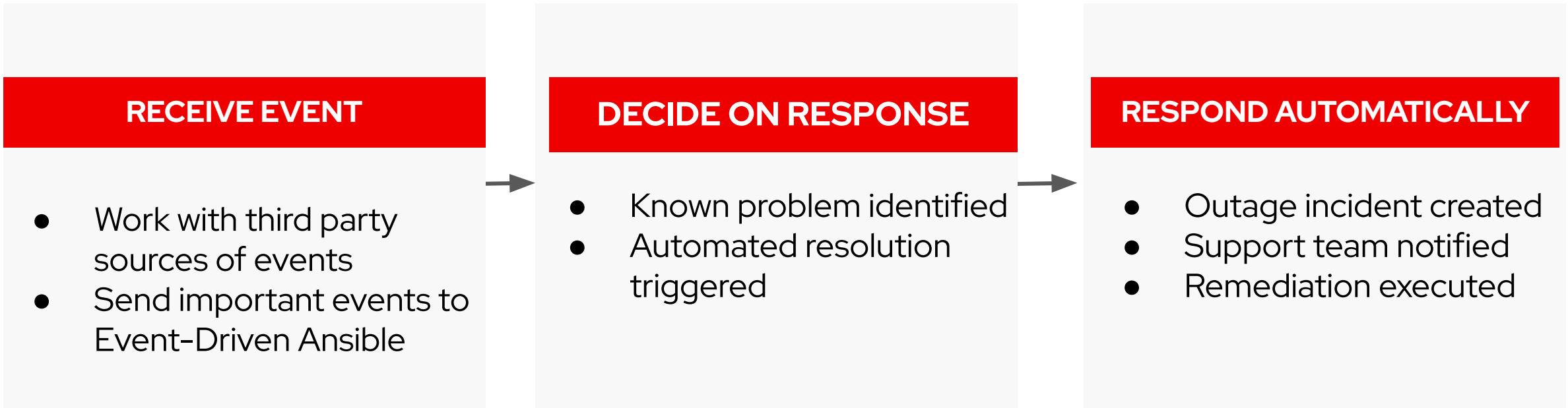
Suggested path to Mature Automation

Simple to sophisticated use cases



Event-Driven Ansible

A typical event driven automation process



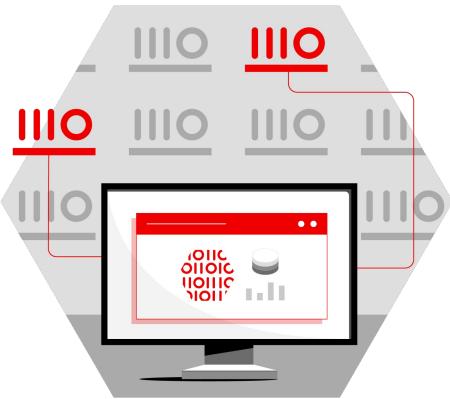
WORK ACROSS MULTI-VENDOR IT OPERATIONS

Work flexibly and well with multi-vendor monitoring and other solutions across the event driven architecture with appropriate approvals, controls and awareness



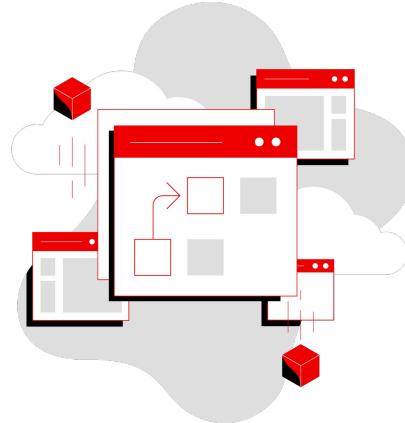
Key building blocks in Event-Driven Ansible

Simple, powerful, agentless



Sources

All the sources of event data you want to use



Rules

What you will create using Event-Driven Ansible®

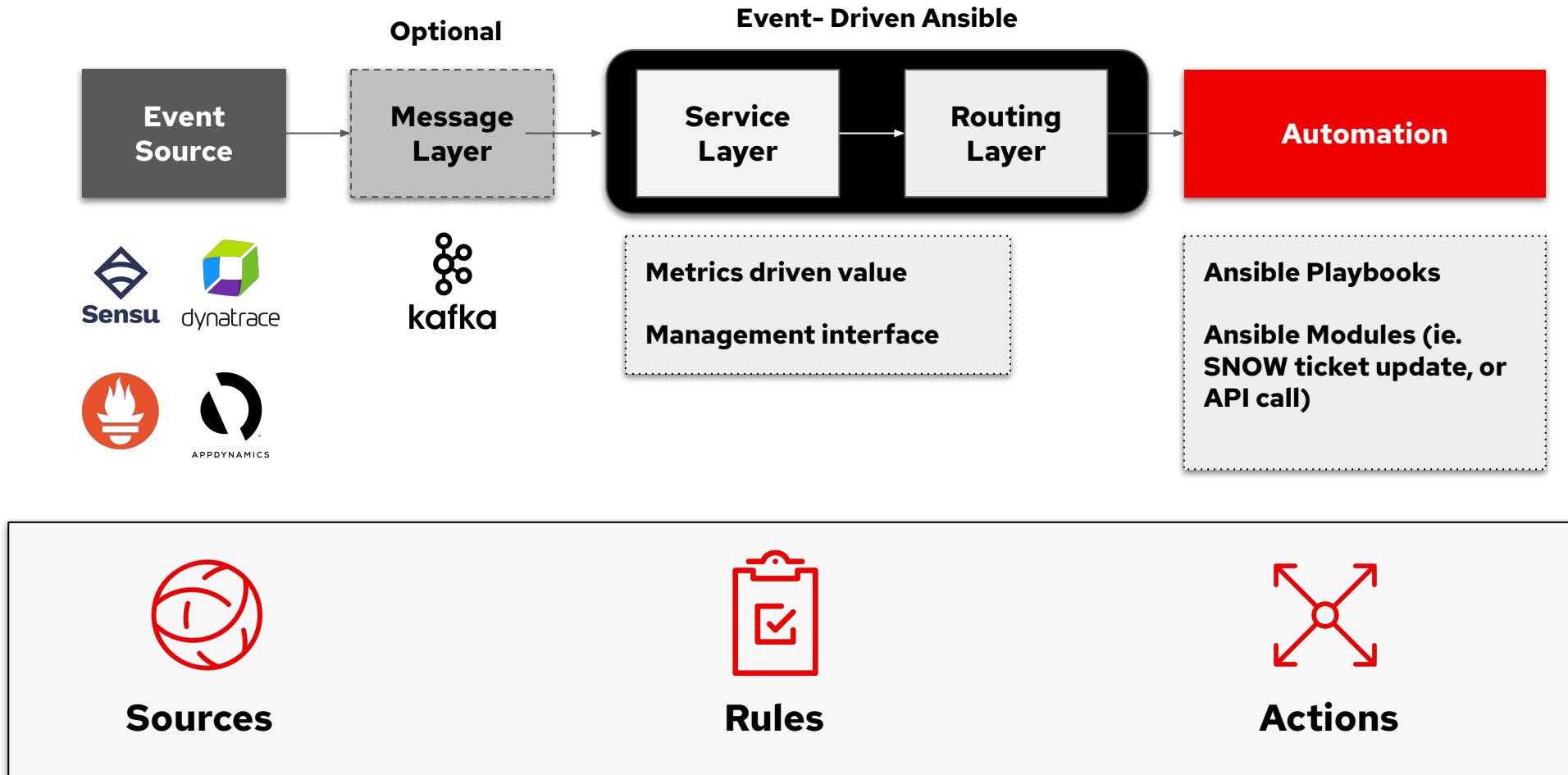


Actions

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

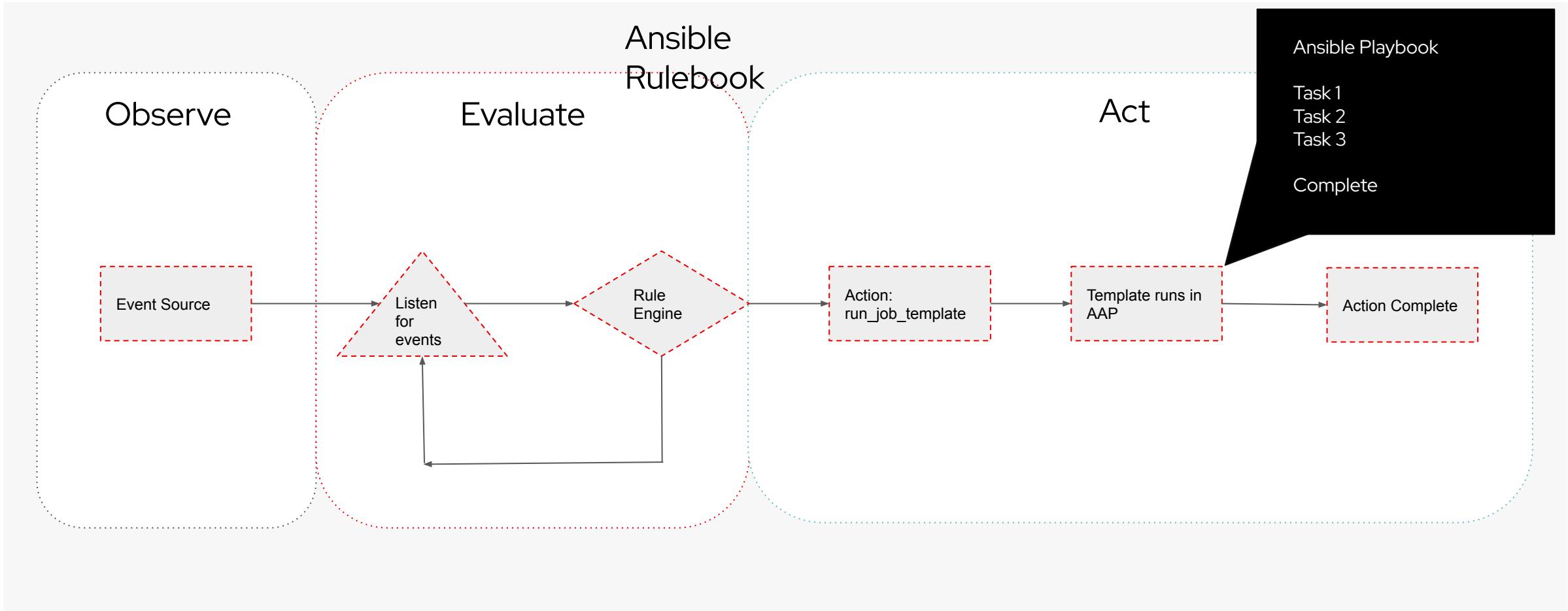
Ansible Rulebooks contain the source of the event, as well as the instructions on what steps to perform when a certain condition is met—and it is all very flexible.

Execution layers of Event Driven Automation



Event-Driven Ansible

Rulebook vs Playbook



Event Sources and Rulebooks

- Rules, Rulesets and Rulebooks
- Building your conditions
- Events, facts and persistence
- Event Filters

Event-Driven Ansible integrations and roadmap

CERTIFIED AND VALIDATED CONTENT

(Expected delivery Q2 and Q3 2023)

- Cisco NX-OS
- Cisco ThousandEyes
- CrowdStrike
- Cyberark
- Dynatrace*
- F5
- IBM Instana* and IBM Turbonomic*
- Palo Alto Networks
- Red Hat Insights
- Red Hat OpenShift
- ServiceNow
- Zabbix

- AWS SQS
- AWS CloudTrail
- Azure Service Bus
- GCP Pub/Sub
- Kafka (AMQ Streams)
- Prometheus/Alertmanager
- Webhooks
- watchdog (file system watcher)
- journald
- tick
- url_check (url status check)
- range (event generation plugin)
- file (loading facts from yaml)

*Collection includes both certified and validated content.

COMMUNITY CONTENT

- Arista

ROADMAP FOR INTEGRATIONS

- Additional ITSM solutions
- Additional observability / monitoring tools

[Blog: Event-Driven Ansible ecosystem partners](#)

(as of May, 2023)

Rule Overview

Rules >> Rule sets >> Rulebook



► **Rules require**

- ▶ Conditions to match
- ▶ and an Action(s)

► **Rulesets require**

- ▶ An event source
- ▶ Conditions to match
- ▶ and an Action(s)

► **Rulebooks require**

- ▶ Rulesets

Rules

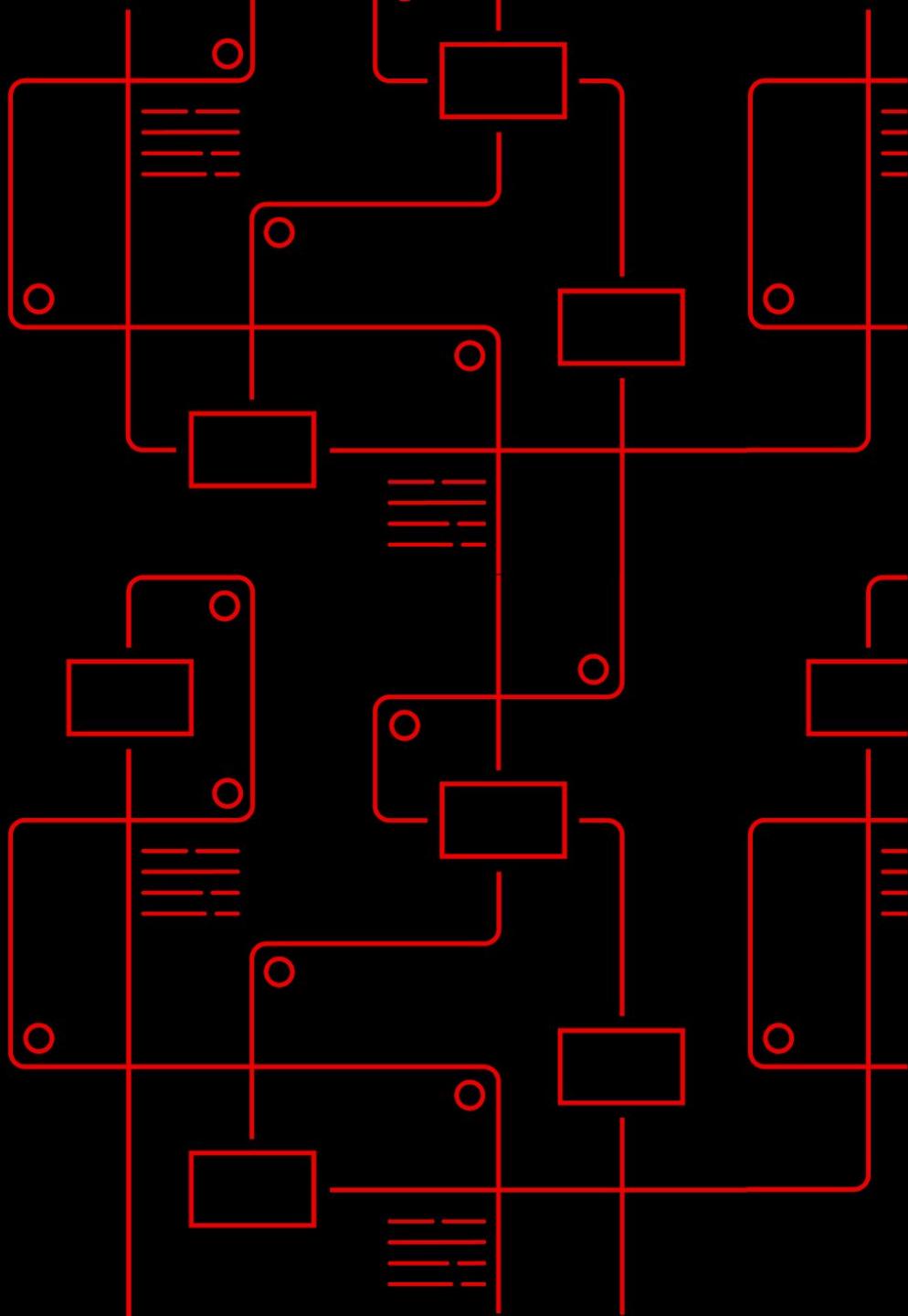
Executing actions from matched conditions

- ▶ **Rules consist of conditional statements**
 - ▷ Event-Driven Ansible uses rules to determine if an action or actions should take place
 - ▷ Rules can have single and multiple actions
 - ▷ Rules are organized into Rulesets
 - ▷ [Getting started – Ansible Rulebook Documentation](#)

```
rules:  
  - name: An remediation rule with 1 action  
    condition: event.outage == true  
    action:  
      run_playbook:  
        name: remediate_outage.yml  
  
  - name: A remediation rule with multiple actions  
    condition: event.outage == true  
    actions:  
      - run_playbook:  
          name: remediate_outage.yml  
      - print_event:  
          pretty: true
```

EDA Controller

- Projects
- Decision Environments
- Rulebook Activation



EDA Controller

Event-Driven Ansible Management

The screenshot shows the Red Hat Ansible Automation Platform dashboard. At the top, there's a navigation bar with a Red Hat logo, the text "Red Hat Ansible Automation Platform", and user information like "admin". The main content area has a dark background with white text. It starts with a "Welcome to Ansible Automation Platform" message: "Connect intelligence, analytics and service requests to enable more responsive and resilient automation." Below this is a "Getting Started" section with a diagram showing three interconnected components: "Project", "Decision Environment", and "Rulebook Activation". Each component has a brief description and a link to "check out our instruct guides". Below the diagram are two sections: "Projects" and "Decision Environments". The "Projects" section shows a large plus sign button and a message: "There are currently no projects. Create a project by clicking the button below." A blue "Create project" button is at the bottom. The "Decision Environments" section shows a table with one row: "Default Decision Environment" and "15/06/2023, 13:49:17". On the left side, there's a sidebar with categories: "Dashboard", "Views" (with "Rule Audit" and "Rulebook Activations" sub-options), "Resources" (with "Projects", "Credentials", and "Decision Environments" sub-options), and "User Access" (with "Users" and "Roles" sub-options). Each category has a dropdown arrow next to it.

▶ EDA Controller

- ▷ Manage EDA projects, Decision Environments and rulebook activation
- ▷ Audit running rulebooks
- ▷ View event history
- ▷ Securely connected to **Automation Controller** via **Token**

Getting Started

Event-Driven Ansible Management

Getting Started

Event-Driven Ansible is a highly scalable, flexible automation capability that works with event sources such as other software vendors' monitoring tools. In an automatic remediation use case, these vendor tools watch your IT solutions and identify "events," such as an outage.

To learn how to get started, view the documentation, [check out our instruct guides](#), or follow the steps below.



Project

Create a project.



Decision Environment

Create a decision environment.



Rulebook Activation

Create a rulebook activation.

► Project

- ▷ Grab your Rulebooks and synchronize from source control

► Decision Environment

- ▷ Select the Container environment that contains ansible-rulebook and any additional Ansible content that is needed.

► Rulebook Activation

- ▷ Select your Ansible Rulebook form the project and configure how it runs.

Projects

Single source of truth for your Rulebooks

The screenshot shows a 'Create Project' form with the following fields:

- Name: CloudVision Monitoring
- Description: Enter description
- SCM type: Git
- SCM URL: https://github.com/nmartins0611/cloud_vision.git
- Credential: Github

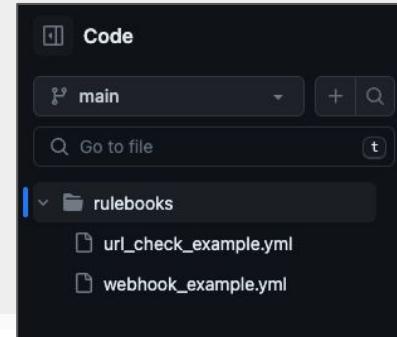
At the bottom, there are 'Create project' and 'Cancel' buttons.

▶ Projects

- ▶ Similar to Automation controller, we create projects on EDA Controller and synchronize from a source of truth.
- ▶ Projects will contain all the resources you need such as Ansible Rulebooks.

▶ Note:

- Rulebooks need to be kept in a rulebook subfolder in your project repository.



Decision Environments

Container based execution of Event-Driven Ansible

The screenshot shows two overlapping windows. The top window is titled 'Create Decision Environment' and contains fields for 'Name' (with placeholder 'Enter name'), 'Description' (with placeholder 'Enter description'), and 'Image' (with placeholder 'Enter image name'). Below this is a dropdown menu labeled 'Credential' with the option 'Select credential'. The bottom window is titled 'Decision Environments' and displays a list with one item: 'Default Decision Enviro...' (Decision Environment) with an 'Image' field showing 'registry.redhat.io/ansible-automation-platform...'. There are buttons for 'Create decision environment' and 'Cancel' at the bottom of both windows.

▶ Decision Environments

- ▶ Provides an container environment similar to an Execution Environment.
- ▶ Contains ansible-rulebook to run rulebooks
- ▶ Contains any additional Ansible content needed

Configure Rulebook Activation

Event-Driven Ansible Management

Rulebook Activations > Create Rulebook Activation

Create Rulebook Activation

Name * URL_Check

Description Enter description

Project * eda_samples

Rulebook * Select project rulebook

Decision environment * Default Decision Environment

Restart policy * Always

Variables

1

Rulebook activation enabled? Enabled

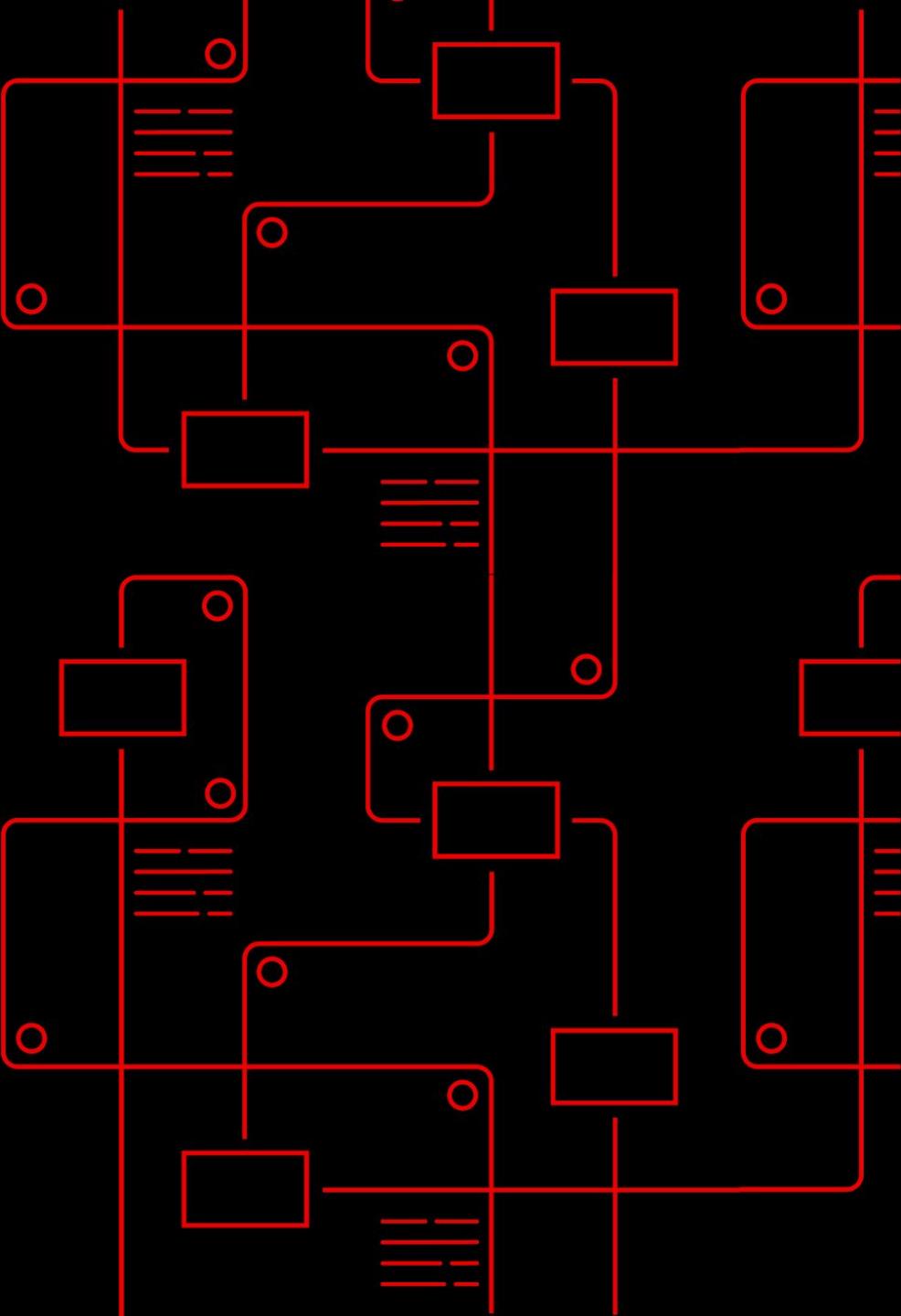
Create rulebook activation Cancel

This screenshot shows the 'Create Rulebook Activation' form. It includes fields for the rulebook's name ('URL_Check'), description ('Enter description'), project ('eda_samples'), rulebook ('Select project rulebook'), decision environment ('Default Decision Environment'), restart policy ('Always'), and variables ('1'). A toggle switch indicates that rulebook activation is enabled. At the bottom, there are 'Create rulebook activation' and 'Cancel' buttons.

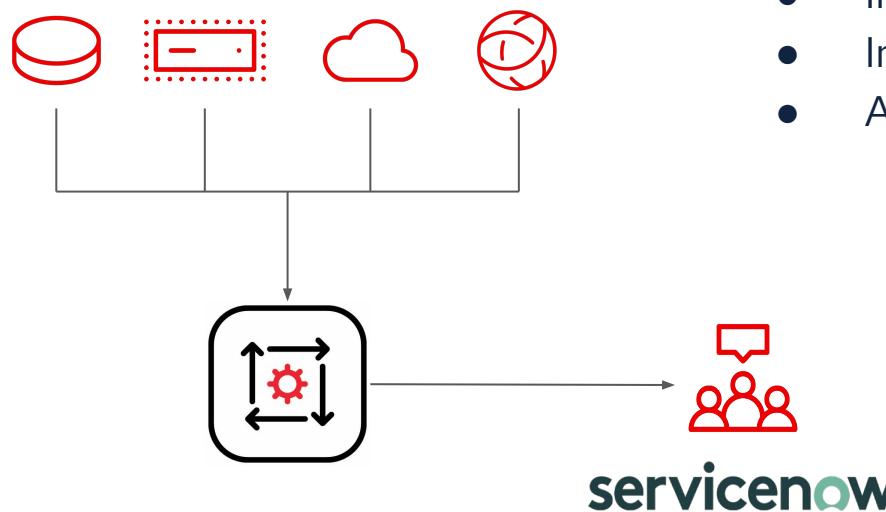
▶ Rulebook Configuration

- ▶ Rulebooks from our Projects can be configured via Rulebook Activation. Restart Policies, Decision Environments, Variables and enablement are configured here.
- ▶ Additional Variables can be supplied to the rulebooks
- ▶ Restart Policy allows us to restart rulebooks if needed.
 - Always
 - Never
 - On Failure

Example Use cases



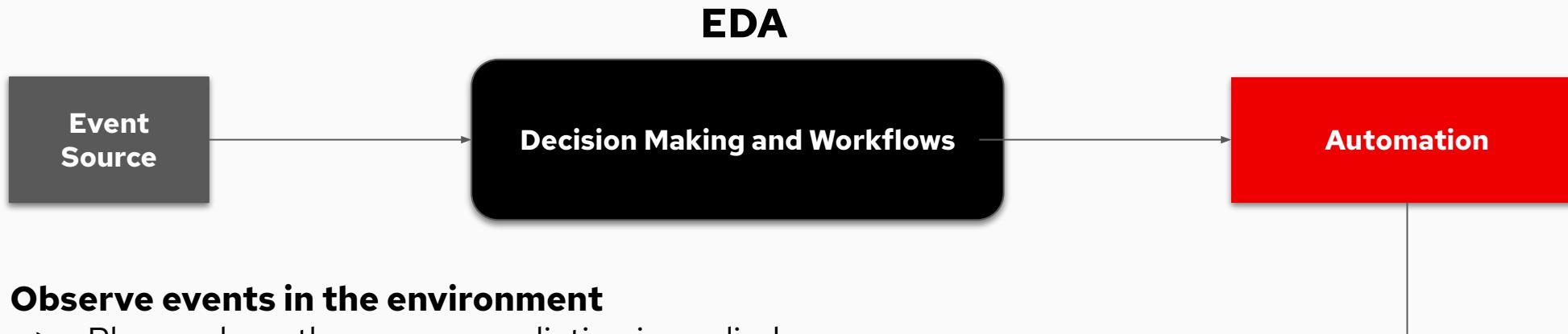
Fact and Ticket Enrichment



- Enhance observation with automated fact gathering
- Improve troubleshooting consistency
- Initiate change management
- Act on events safely without impacting systems

Event-Driven Ansible and ServiceNow ITSM integration

Events to human observation



- ▶ **Observe events in the environment**
 - ▷ Places where the same remediation is applied again and again.
- ▶ **Use events to trigger ITSM ticket escalation**
 - ▷ Critical system or infrastructure failure triggers an action to create an incident on ServiceNow for human intervention.
- ▶ **Update ServiceNOW CMDB**
 - ▷ Infrastructure changes can be observed and used to trigger ServiceNow to update its inventory

Event Source



servicenowTM

Event Observation as code

Observe first, remediate later

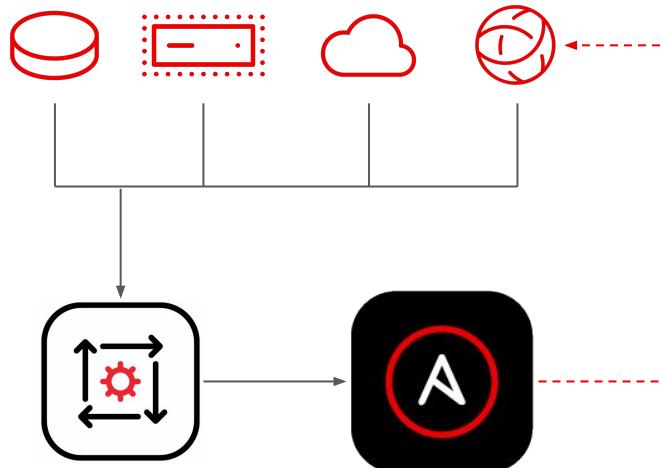
```
- name: Port state events
hosts: leaf-switches
sources:
  - ansible.eda.kafka:
    host: kafka-broker.acme-corp.com
    port: 9092
    topic: campus-net
rules:
  - name: Port is down
    condition: event.fields.admin_status == "DOWN"
    action:
      run_playbook:
        name: ticket_escalation_event.yml
```

► Infrastructure awareness from events

- ▷ Gather critical information around events to assist your teams in remediation
- ▷ Observe changes in infrastructure and applications from events.
- ▷ Ensure troubleshooting steps are consistent

| Number | Status | Short description |
|------------|--------|-----------------------------------|
| INC0010042 | Opened | Leaf Network Port Change detected |

Automatic remediation



- Remediate high occurrence low complexity events
- Free up crucial skills within teams and remove toil
- Improve Mean time to remediation
- Self-healing workloads and infrastructure

Simple Automation Mastered

Remediate without hassle

► Maintain applications and services

- ▷ Restart, redeploy applications and services
- ▷ Remediate system issues without interrupting your technical teams
- ▷ Self-healing infrastructure

► Automate business functions

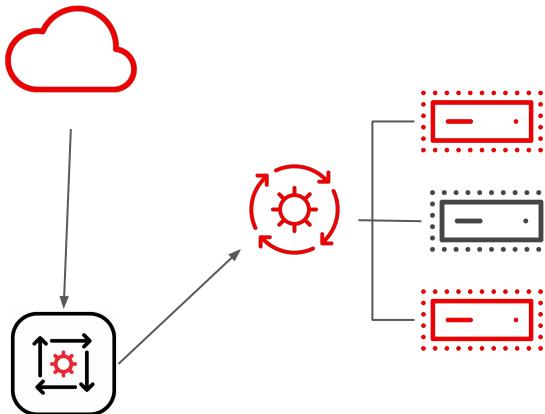
- ▷ Configure new user access to resources
- ▷ Automate CMDB updates

```
- name: Check Web Applications
  hosts: web_servers
  sources:
    - ansible.eda.url_check:
        urls:
          - http://mobileapp.acme-corp.com
          - http://banking.acme-corp.com
        delay: 10
  rules:
    - name: Web-applications are down
      condition:
        event.url_check.status == "down"
      action:
        run_playbook:
          name: redeploy_mobile_app.yml
```

► Automate remediation on critical events

- ▷ Ensure security configurations are maintained
- ▷ Limit configuration drift
- ▷ Maintain Cloud infrastructure footprint and hygiene
- ▷ Enrich log capturing and security responses

Insights and Event-Driven Ansible



- Utilize Red Hat Insights to remediate configuration drift
- Event-Driven Security and Compliance automation
- Improve recommendation to remediation time

From Insights to Remediation

Audit systems and respond

| Event | Application | Behavior |
|--|-------------|------------------------|
| Resolved recommendation | Advisor | Default behavior group |
| New recommendation | Advisor | Default behavior group |
| Deactivated recommendation | Advisor | Default behavior group |
| Policy report failed to upload | Compliance | Default behavior group |
| System is non compliant to SCAP policy | Compliance | Default behavior group |

Drift from baseline detected

| Action | Recipient | Status |
|----------------------|----------------------|-----------|
| Integration: Webhook | Event-Driven Ansible | ✓ Success |
| Enterprise Broker | Integrations: Slack | ✓ |
| Enterprise Broker | Integrations: Splunk | ✓ |
| Enterprise Broker | Email | ✓ |
| Enterprise Broker | Integration: Webhook | ✓ |
| Enterprise Broker | Show Less | |

| | | |
|--|---------------|------------------------|
| Any vulnerability with known exploit | Vulnerability | Default behavior group |
| New vulnerability containing Security rule | Vulnerability | Default behavior group |
| New vulnerability with Critical Severity | Vulnerability | Default behavior group |
| New vulnerability with CVSS >= 7.0 | Vulnerability | Default behavior group |

```
---  
- name: Listen for events on a webhook  
hosts: all  
sources:  
  - ansible.eda.webhook:  
    host: 0.0.0.0  
    port: 5000  
rules:  
  - name: Handle Red Hat Insights event  
    condition: event.payload is defined  
    action:  
      debug:  
        msg: "Received: {{ event.payload }}"
```

► Red Hat Insights as a source

- Gather all recommendations from Insights via payload
- Filter for relevant recommendations and create actions to remediate or configure your systems to the best possible standard

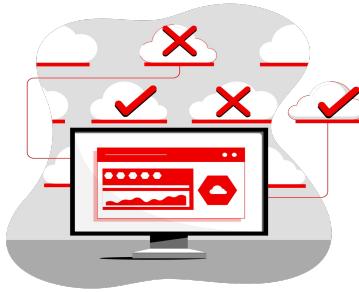
Summary and Resources

Suggested use cases for getting started



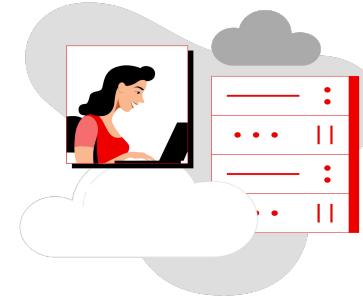
Service ticket enhancement

Automate fact gathering
Network administration
Edge device management



Remediation

Drift
Slow performance
Outages



User management

User authentication and access
Login issues
Group and role access

Three key technical learning resources

The screenshot shows the Red Hat Event-Driven Ansible labs page. At the top left is the Red Hat logo. Below it is a large red triangle graphic. In the top right corner, there's a small 'Powered by instruct' logo. The main title is 'Event-Driven Ansible labs'. A subtext explains: 'Event-Driven Ansible is a new way to enhance and expand automation. It improves IT speed and agility, while enabling consistency and resilience by running automated actions in response to your events.' Below this, a section titled 'Available content (2)' lists two items: 'Get started with Event-Driven Ansible and Ansible rulebooks' and 'GitOps with Event-Driven Ansible'. Each item has a 'View details' button and a 'Start' button.

Interactive labs

The screenshot shows a blog post from the Red Hat Ansible Automation Platform. The title is 'Creating custom Event-Driven Ansible source plugins'. Below the title, it says 'By Colin McNaughton on February 7, 2023'. To the left of the text is a large red triangle graphic, and to the right is the Red Hat logo.

Technical blogs

The screenshot shows the Ansible Rulebook Documentation. The top navigation bar includes the 'Ansible Rulebook Documentation' logo, a search bar, and a 'Welcome to Ansible Rulebook documentation' message. The left sidebar contains a table of contents with sections like 'CONTENTS', 'Introduction', 'Getting started', 'Installation', 'Development environment', etc. The main content area is titled 'Welcome to Ansible Rulebook documentation' and lists 'Contents' such as 'Introduction', 'Getting started', 'Installation', and 'Development environment'.

Rulebook docs

Smart IT delivered at the speed of automation

Event-Driven Ansible

Open

Based on open source technology, integrated and hardened for production use

Flexible

From source to rule to action, across your ecosystem

Fast

Close issues and tickets, proactively address problems, eliminate rote tasks

Use Case Friendly

Completely automate IT actions as needed

Familiar

YAML-like Ansible Rulebook constructs

Simple

Choice of automatically- or manually-initiated actions

Resources

Get started on your event-driven automation journey

MANAGERS

[Event-Driven Ansible web page](#)

[451 Research: The Impact of Event-Driven Automation on IT Operations](#)

[IDC QuickTake AnsibleFest 2922, including Event-Driven Ansible](#)

[Blog: Highly Efficient, Resilient IT operations](#)

[Blog: Event-Driven Ansible is Here!](#)

TECHNICAL ROLES

[Event-Driven Ansible web page](#)

[Free Self-paced lab](#)

[Ansible Rulebook documentation](#)

[Blog: Getting started with Event-Driven Ansible](#)

[Blog: Event-Driven Ansible is Here!](#)

[Blog: Creating custom plugins](#)

PARTNERS

[Event-Driven Ansible web page](#)

[Free Self-paced lab](#)

[Blog: Creating custom plugins blog](#)

Contact the partner team:
ansible-partners@redhat.com



ansible.com/event-driven

Red Hat Ansible Lightspeed

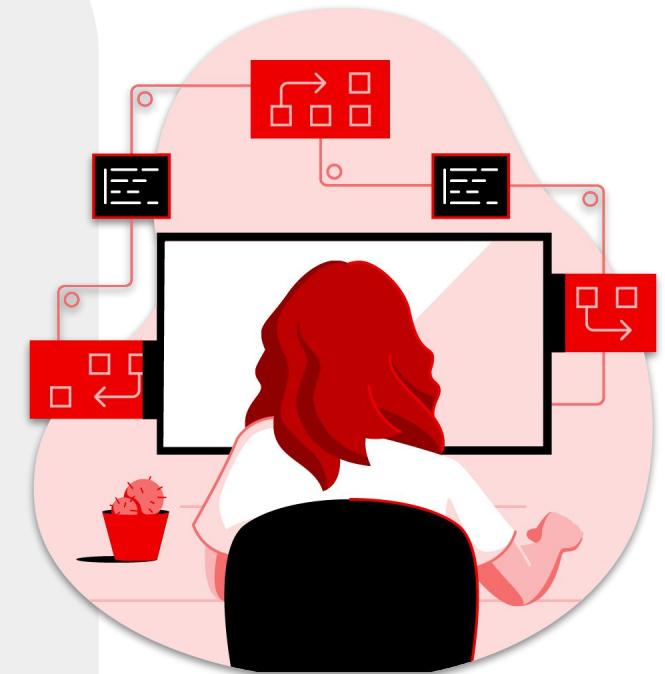
with IBM watsonx Code Assistant

Red Hat wants to accelerate automation, from creation through execution

Why? Because our customers are under increasing pressure to be more efficient, and turn to Ansible automation to help.

The key **to getting the most out of automation, is to drive it from an enterprise level**. That involves multiple teams working together to create automation code.

- › Code that **scales across domains**.
- › Code that **meets the varied needs of the teams using it**.
- › Code that is **trusted and compliant**.



Generative AI has the potential to transform enterprise automation

Enhance productivity

With AI-generated code recommendations that are more accurate, more reliable, and integrated into your automation developers' existing Ansible workflows.

Expand who can create

By reducing barriers to entry for automation code creation, and empowering automation SMEs with basic coding knowledge to translate their expertise into clean, compliant YAML code for Ansible Playbooks.

Extend compliance

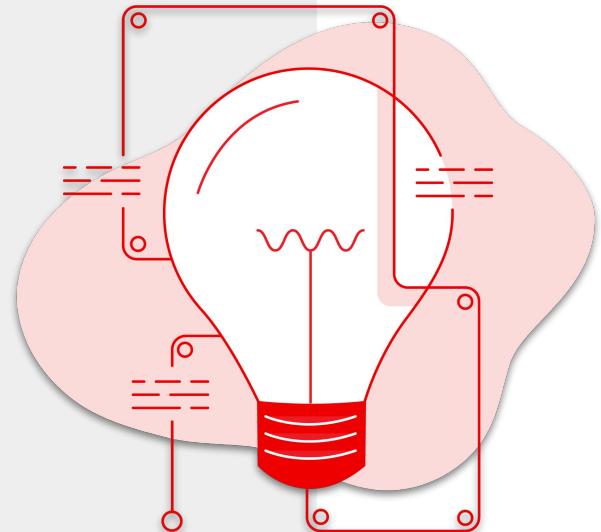
With generated code that adheres to accepted Ansible best practices, options to customize data models, and significant data safeguards in place.



But generative AI also raises a number of valid questions

Generative AI's potential is obvious, but in application, it comes with a litany of questions that need to be addressed. Among them:

- **Where is generated code coming from?**
- **Can companies trust that their private data is protected?**
- **What exactly are data models being trained on - and by whom?**



So we built Red Hat Ansible Lightspeed with IBM watsonx Code Assistant

Red Hat Ansible Lightspeed with IBM watsonx Code Assistant is a generative AI service accessed via the Ansible VSCode extension.

A Tech Preview of the service is now available to all Ansible users

The **IBM watsonx Code Assistant** integration is infused with IBM's watsonX foundation model for Ansible automation.

IBM watsonx Code Assistant is built on the **Red Hat OpenShift AI** platform.



Red Hat Ansible Lightspeed
with IBM watsonx Code Assistant

```
File Edit Selection View Go Run Terminal Help  
clouddops.yml 1, M ×  
playbooks > clouddops.yml  
1 - name: AWS EC2 Cloud operations  
2 hosts: localhost  
3 connection: local  
4  
5 tasks:  
6 - name: Create a virtual network  
7  
8 - name: Create a cloud instance  
9  
10  
11  
12
```

WatsonX.ai

watsonx Code Assistant



Red Hat OpenShift AI



Red Hat OpenShift



Built in collaboration to leverage respective strengths

**Ansible
Lightspeed**

End-User experience

Web Services

Service Integrations

Data pre + post processing

Goals

Make it easier for automators of all skill levels to write Ansible code

Empower seasoned Ansible users to automate with more speed + efficiency

AI infrastructure + experience

Foundation models

Machine Learning Tools

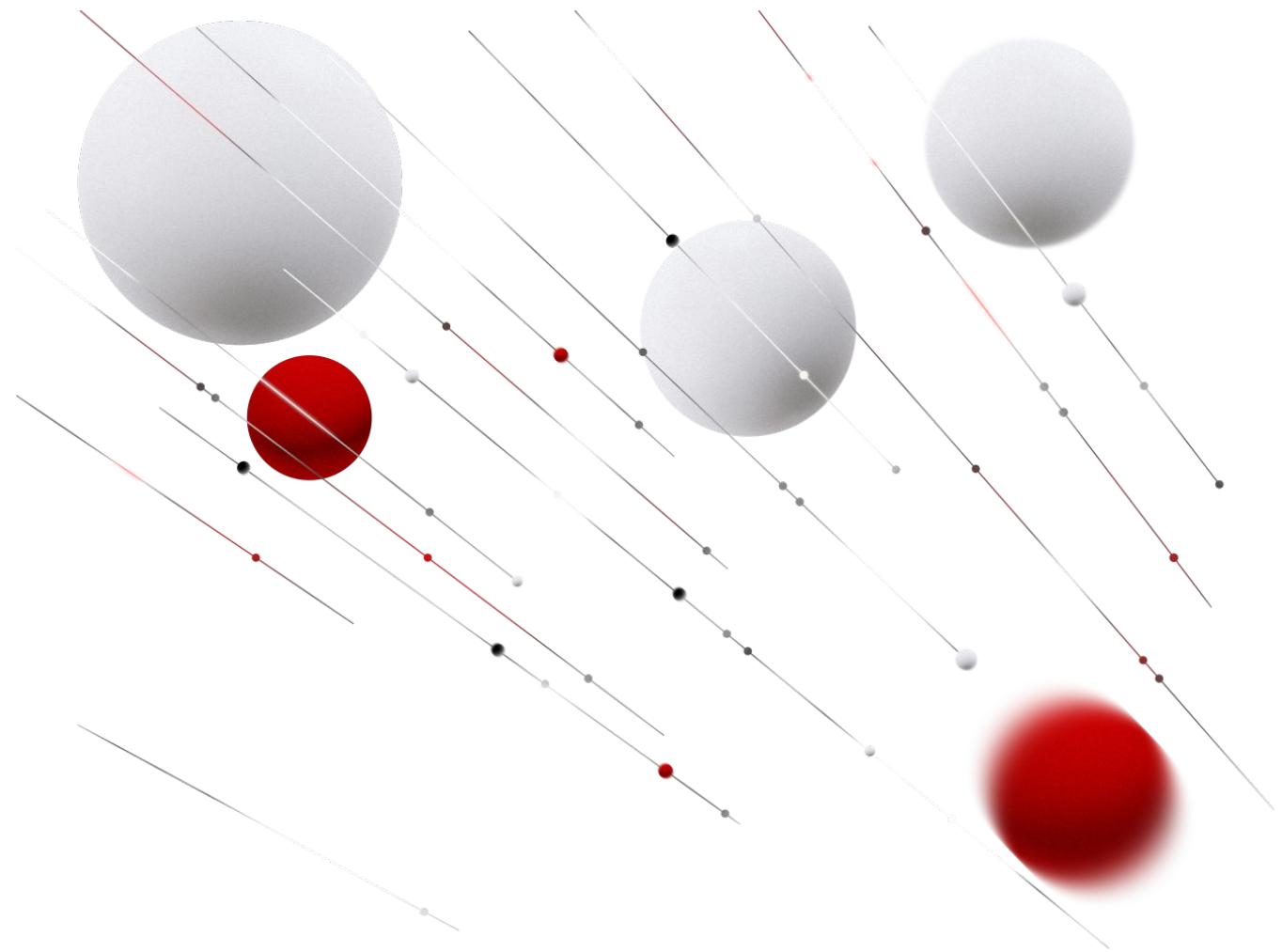
Model Runtime + Training Pipeline

**IBM Watsonx
Code Assistant**



The experience

Live Demo



Benefits for the entire IT automation team

Automators

With just a basic understanding of YAML syntax, *automators* can describe the automation that they hope to create in natural language, and get playbook code generated in return. **Red Hat Ansible Lightspeed helps get automation subject matter expertise out of their heads - and into usable code.**



Operators

Operators can have confidence that code being generated is compliant and reliable. **Red Hat Ansible Lightspeed is an enhancement to the automation platform they already know and trust.**

Developers get a major productivity boost directly in their code editing environment. **Red Hat Ansible Lightspeed is built to help them accelerate Ansible playbook and role creation.**

Developers



Red Hat Ansible Lightspeed will transform the automation developer experience

- > Generate playbook content from a natural language request

Content Generation

- > Find me a playbook or role similar to what I'm writing

Content Discovery

- > Review my playbook and help make it better

Content Optimization

- > Tell me what this playbook is doing - and its impact

Content Explanation

Features on roadmap for 2024

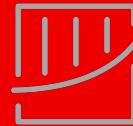


Generative AI, engineered for the enterprise



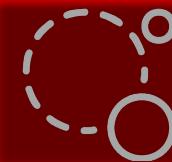
Red Hat Ansible Lightspeed with IBM Watsonx Code Assistant

- › Task + multi-task generation
- › Playbook generation



Efficiency

- › Content source matching
- › Post-processing



Transparency

- › Foundation model fine tuning
- › Model customization options



Accuracy

- › Data isolation
- › Content controls



Trust



Recap + next steps

› How does generative AI fit into automation?

Businesses need to do more with less, and it takes time and resources to stand automation up before it delivers value. Generative AI can help close skills gaps and drive efficiency, resulting in faster time to value.

› What makes Red Hat Ansible Lightspeed with IBM Watsonx Code Assistant different?

Unlike other generative AI solutions, Red Hat Ansible Lightspeed is purpose-built for IT automation. It is also designed to be a service users can trust, with transparency, collaboration, and choice at the forefront of the experience.

› How do I get started?

Ansible Lightspeed is now available to all Ansible users as a free Tech Preview. A commercial offering will be available to Ansible Automation Platform subscribers in Q4 2023.

A screenshot of the Red Hat Ansible Lightspeed website. The header includes the Red Hat logo and navigation links for Products, Solutions, Training & services, Resources, Partners, and About. Below the header, a banner for 'Red Hat Ansible Automation Platform' features the text 'Technical preview: Ansible Lightspeed with IBM Watson Code Assistant'. It mentions the announcement at Red Hat Summit 2023 and encourages users to explore the technology. A 'Get started →' button is visible. The background of the page has a blurred, colorful abstract design.

redhat.com/ansible-lightspeed

- ▶ [Community docs](#)
- ▶ [Self-guided interactive labs](#)
- ▶ [YouTube playlist](#)





Connect

Thank you



[linkedin.com/company/red-hat](https://www.linkedin.com/company/red-hat)



[facebook.com/redhatinc](https://www.facebook.com/redhatinc)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



twitter.com/RedHat