Event-Driven Automated Ops with AAP and OCP

Red Hat
Ansible Automation
Platform

The reality of **hybrid infrastructure**

Infrastructure

Edge

Cloud native

Network

Routers

Switches

IPAM

LBs

**It's Day 2
Now what?**

Private cloud

Security

PAM

SEIM

IDPS

Firewalls

ITSM

Public cloud
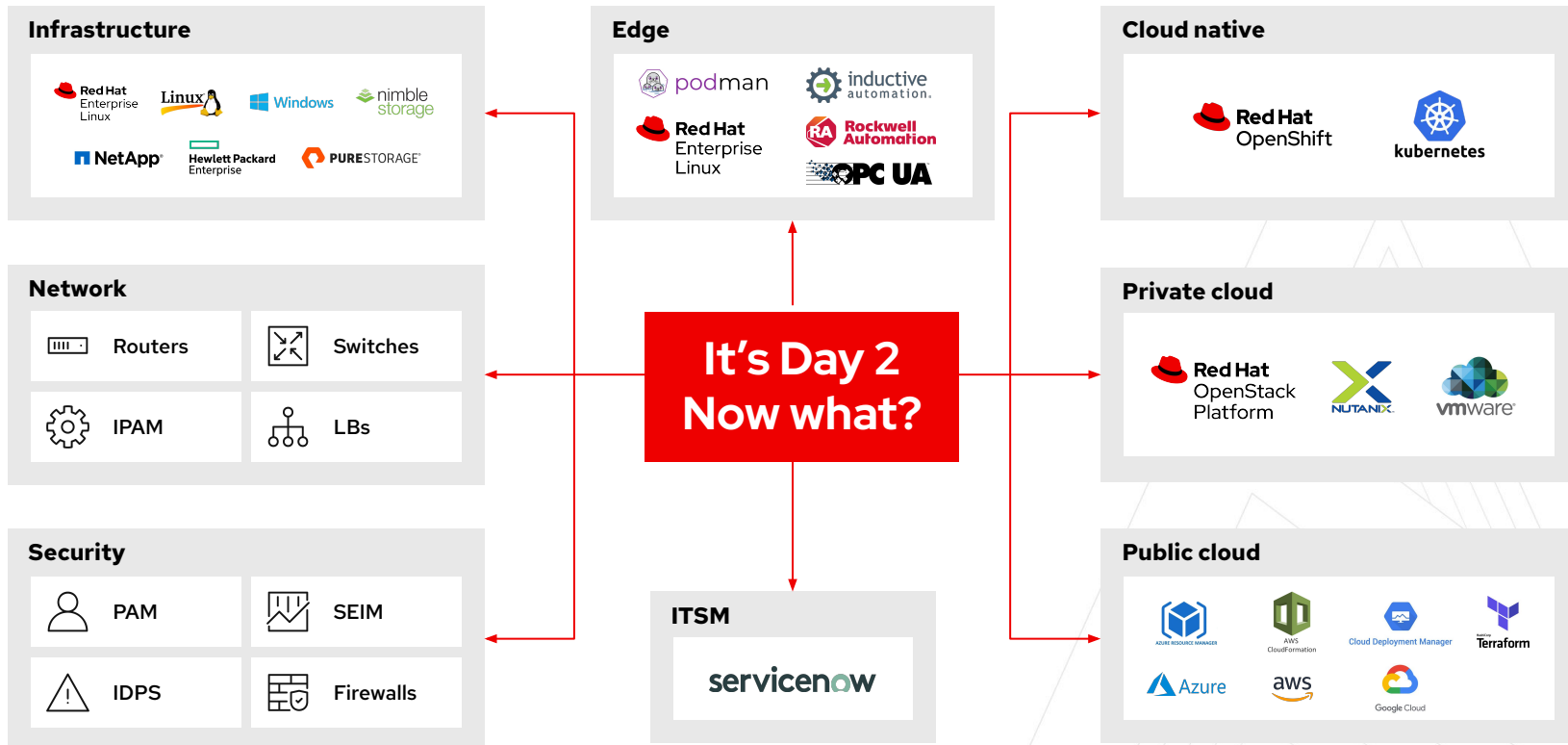
A brief history of IT Operations

The Old Way: Toil and Churn
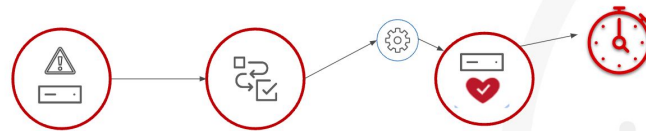

The new way: Event-Driven Automated Ops
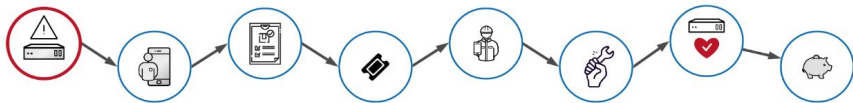
Outage resolution:
Follow a people-intensive multi-step manual process including opening tickets and multiple handoffs.

▶

Event-Driven outage resolution:
Receive event, matching to rule, respond and act automatically

Security risk resolution:
Monitor to identify risk, notify and open a ticket, manually apply a patch or manually initiate automation job.

▶

Event-Driven security risk resolution:
Receive risk event, match to rule, automatically apply patch to impacted inventory.

Open to the world
Tech Exchange | 2023

Red Hat

Introducing Event-Driven Ansible

Achieve new milestones in IT service efficiency

Automate decision making

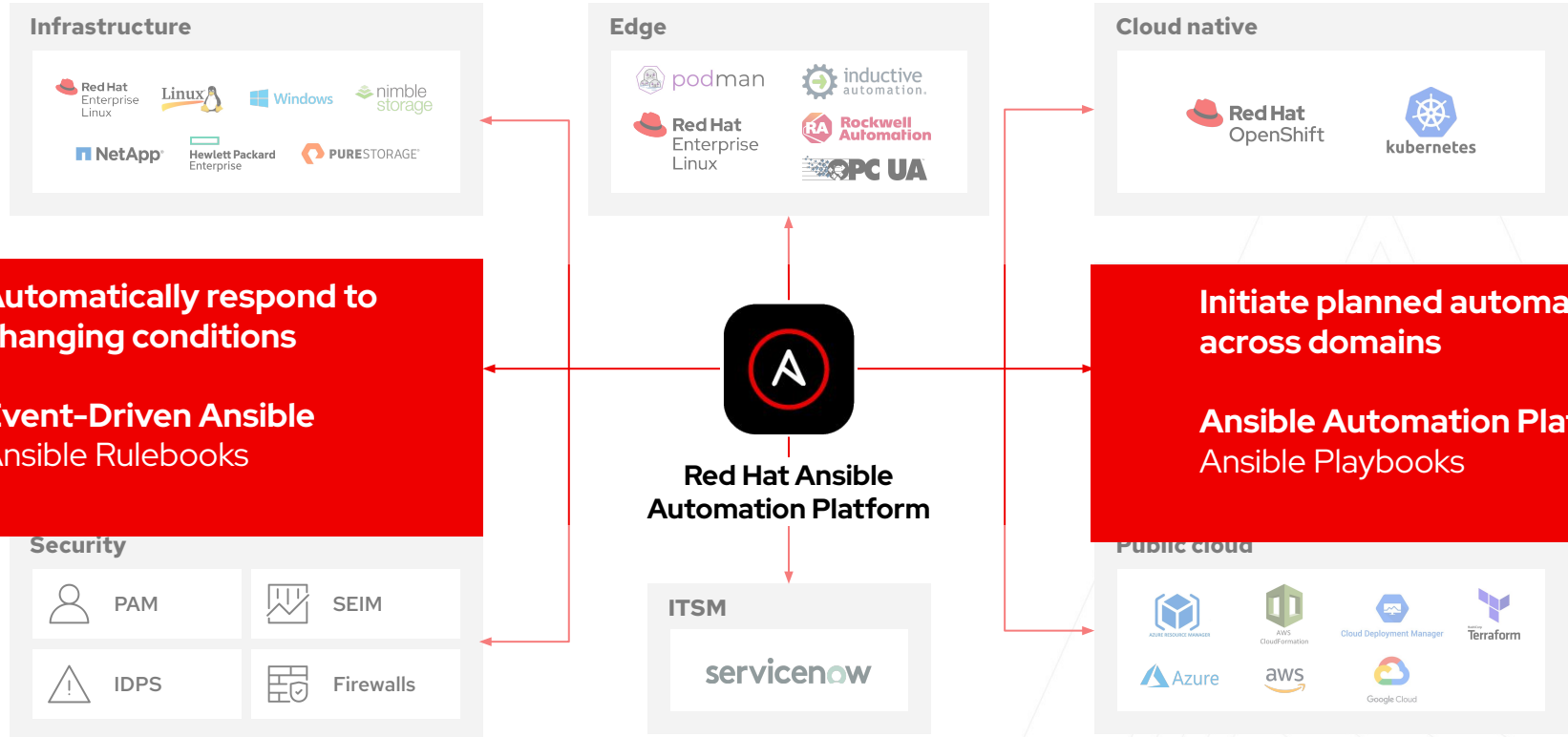**Implement** event-driven automation within and across multiple IT use cases

Leverage numerous sources of events

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

Red Hat
Ansible Automation
Platform

Single enterprise platform now with more automation options

Infrastructure

Red Hat Enterprise Linux • Linux • Windows • nimble storage • NetApp • Hewlett Packard Enterprise • PURE STORAGE

Edge

podman • inductive automation. • Red Hat Enterprise Linux • Rockwell Automation • OPC UA

Cloud native

Red Hat OpenShift • kubernetes

Security

PAM	SEIM
IDPS	Firewalls

ITSM

servicenow

Public cloud

AZURE RESOURCE MANAGER • AWS CloudFormation • Cloud Deployment Manager • Terraform • Azure • aws • Google Cloud

---

Automatically respond to changing conditions

Event-Driven Ansible
Ansible Rulebooks

Red Hat Ansible Automation Platform

Initiate planned automation across domains

Ansible Automation Platform
Ansible Playbooks

5

Red Hat Ansible Automation Platform

One subscription. One integrated platform.

Automation controller
Automation control plane

Automation execution environments
Scalable packaging and runtime execution plane

Automation mesh
Connectivity across diverse enterprise automation environments

NEW

Event-Driven Ansible
Automatic response to environment changes based on environment intelligence

Ansible-builder
Ansible containerized execution environment builder

Automation analytics & Red Hat Insights
Visibility, predictive analytics, and more

Ansible Content Collections
100+ certified content collections

Automation hub
Hosted certified content repository.

Ansible-navigator
Execution environment orchestration tooling

Ansible Platform Operator
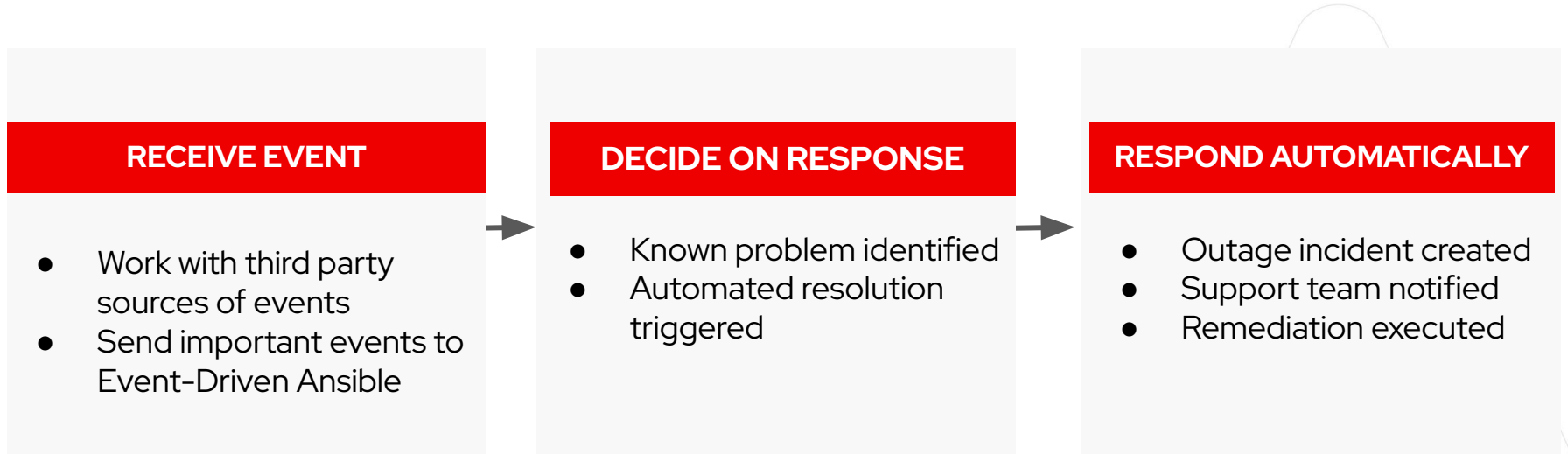Package, deploy and manage this platform on Red Hat OpenShift

Microsoft VS code plugin
Write and manage Ansible code with Visual Studio

Red Hat Ansible Automation Platform

Red Hat

A typical event driven automation process

RECEIVE EVENT

- Work with third party sources of events
- Send important events to Event-Driven Ansible

DECIDE ON RESPONSE

- Known problem identified
- Automated resolution triggered

RESPOND AUTOMATICALLY

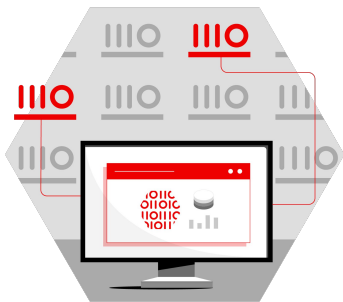- Outage incident created
- Support team notified
- Remediation executed

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

Red Hat

Key building blocks in Event-Driven Ansible

Simple, powerful, agentless

Sources

All the sources of event data you want to use
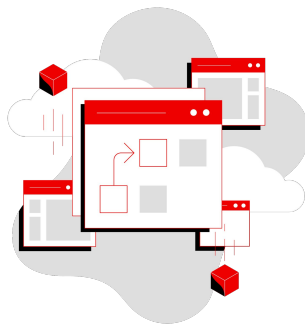
Rules

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.

Red Hat
Ansible Automation
Platform

Event-Driven Ansible stands out.

Flexible event-driven automation

Flexible from source to rule to action with multiple event sources. Create and change automation easily.
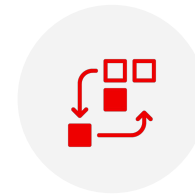
IT environment friendly

Automate any IT use case quickly and simply. Jumpstart with Red Hat and partner content collections.
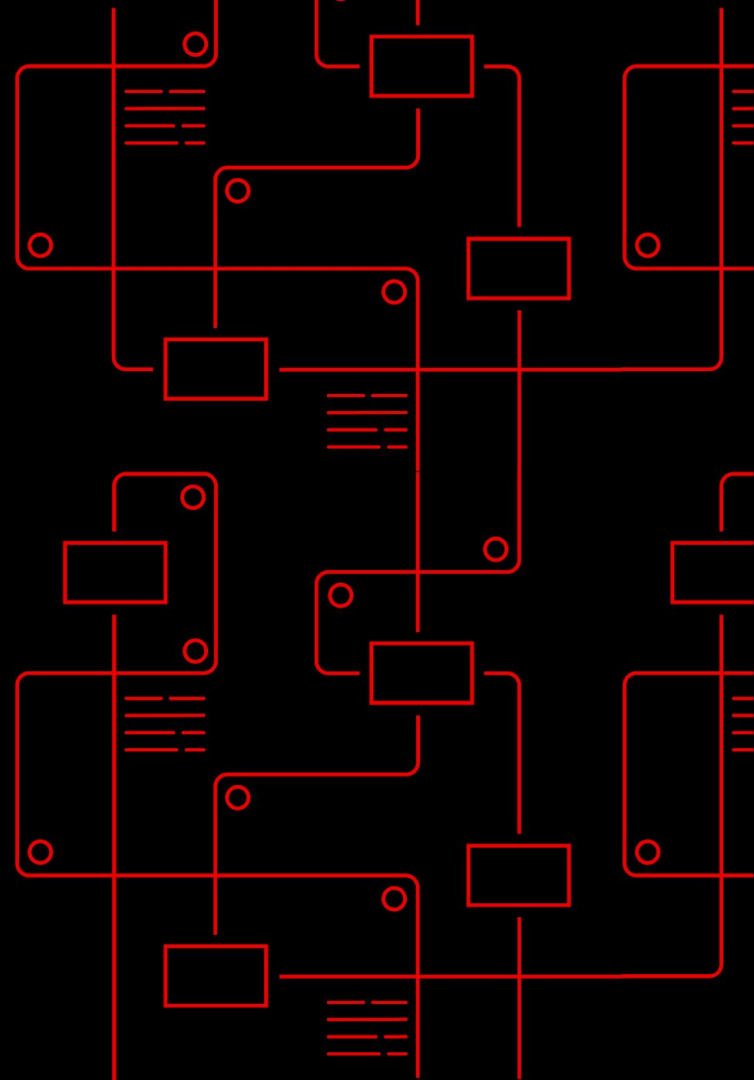
Robust automation handling

Scalable decisioning and implementation with flexible actions

Single automation platform

Choose your automation style, leverage existing automation content and extend skills

Red Hat

T

Ansible Rulebooks

Red Hat
Ansible Automation
Platform

Ansible Rulebooks
Simple declarative decisions through rules

▶ **Events are processed by a rules engine**
  ▷ Rules trigger based on conditions and actions can be carried out by the rules engine
  ▷ Rules are organized into Ansible Rulebooks
  ▷ Ansible rules can apply to events occurring on specific hosts or groups

▶ **Conditional management of actions to events**
  ▷ Simple YAML structure for logical conditions
  ▷ Events can trigger different types of actions:
    ■ Run Ansible Playbooks
    ■ Run Modules
    ■ Post new events to the event handler

▶ **YAML-like format familiarity**
  ▷ Current Ansible users quickly learn and use Rulebook writing

```yaml
- name: Automatic Remediation of a web server
  hosts: all
  sources:
    - name: listen for alerts
      ansible.eda.alertmanager:
        host: 0.0.0.0
        port: 8000
  rules:
    - name: restart web server
      condition: event.alert.labels.job == "fastapi" and
event.alert.status == "firing"
      action:
        run_playbook:
            name: ansible.eda.start_app
```

Anatomy of an Ansible Rulebook

Smart automation from conditional rules

Receive

Decide

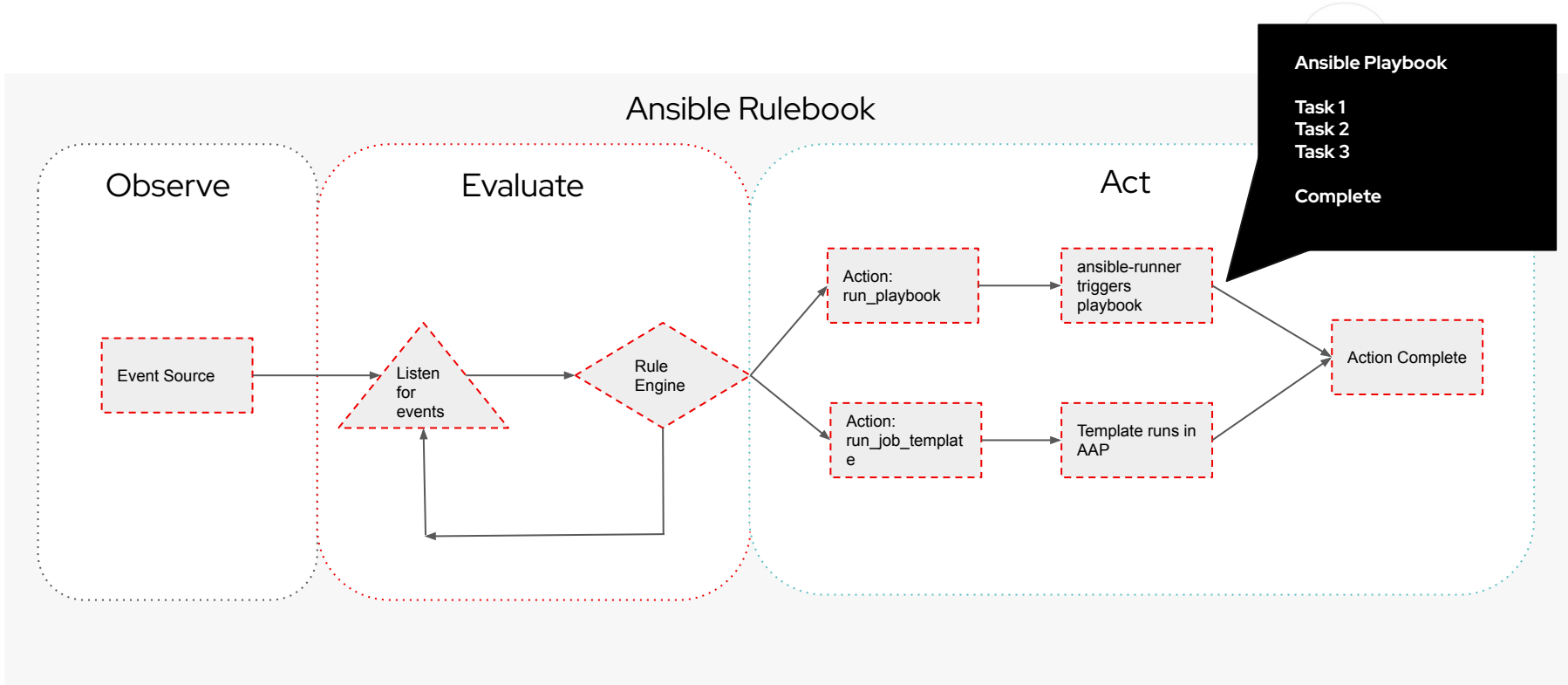**Respond**

Event Source

```
…
source:
  - name: watchdog
    ansible.eda.watchdog:
      path: "{{src_path}}"
      recursive: true
      ignore_regexes: ['.*\.pytest.*', '.*__pycache__.*', '.*/.git.*']
rules:
  - name: Check for folder modification
    condition: event.type == "DirModifiedEvent"
    action:
      run_playbook:
        name: folder_permission_restore.yml
      post_events: true
  - name: Check for file Modification
    condition: event.type == "FileModifiedEvent"
    action:
      run_playbook:
        name: file_permission_restore.yml
      post_events: true
```

- Event sources are processed through conditional rules

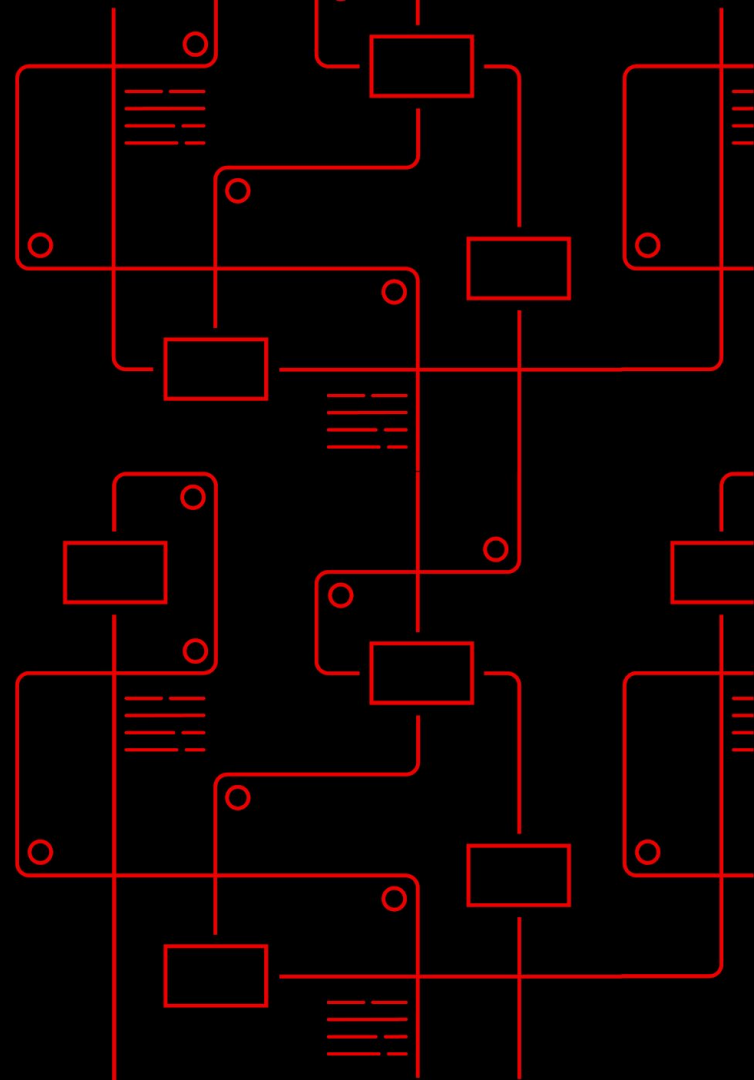- Actions are triggered once rule conditions are met
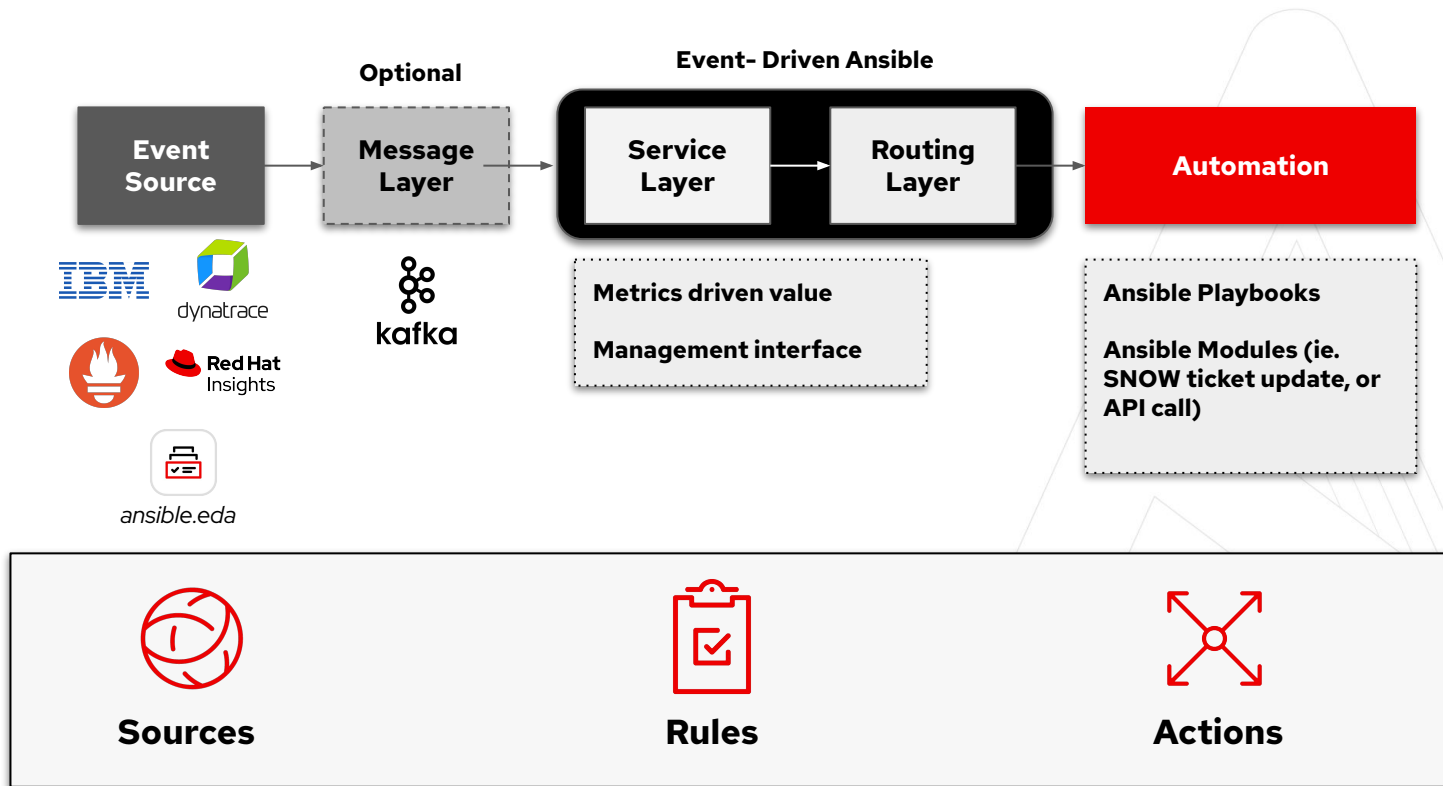
Automation

Red Hat

Event-Driven Ansible

Ansible Rulebooks can call playbooks to leverage and extend trusted playbooks

Event-Driven Ansible Integrations

Red Hat
Ansible Automation
Platform

Execution layers of Event Driven Automation

Optional

Event- Driven Ansible

Event Source	→	Message Layer	→	Service Layer	→	Routing Layer	→	Automation

Metrics driven value

Management interface

Ansible Playbooks

Ansible Modules (ie. SNOW ticket update, or API call)

IBM

dynatrace

kafka

Red Hat Insights

ansible.eda

Sources

Rules

Actions

Red Hat

Current Event-Driven Ansible Integrations

Current Partner certified and validated Content Collections	Current *ansible.eda* certified Content Collection included in **subscription**
- CrowdStrike* - Dynatrace* - F5 (validated content coming soon) - Instana* - LogicMonitor* - Palo Alto Networks* - Red Hat Insights* - Turbonomic* - Zabbix (existing validated content with event source plug-in in process) * Currently includes event source plug-in.	- AWS SQS - AWS CloudTrail - Azure Service Bus - Kafka (AMQ Streams) - Prometheus/Alertmanager - Webhooks - watchdog (file system watcher) - url_check (url status check) - range (event generation plugin) - file (loading facts from yaml) - journald - tick
Learn the details about these <u>Content Collections</u> or <u>here</u> (scroll down) or create a <u>custom plug-in</u>.	

+

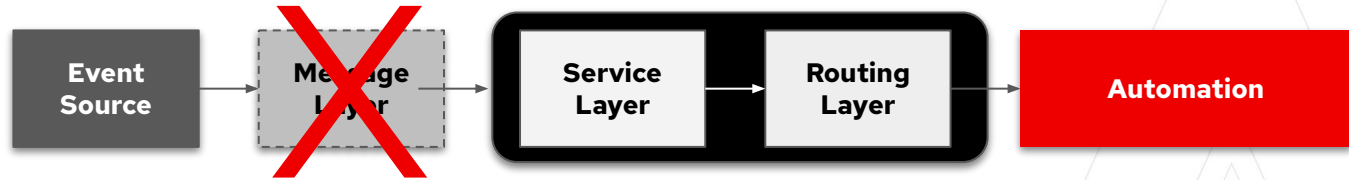Check these links often, as the list is expanding.

Demo Time!
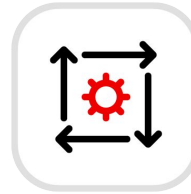
Red Hat
Ansible Automation
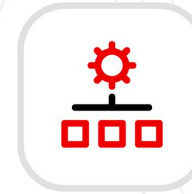Platform
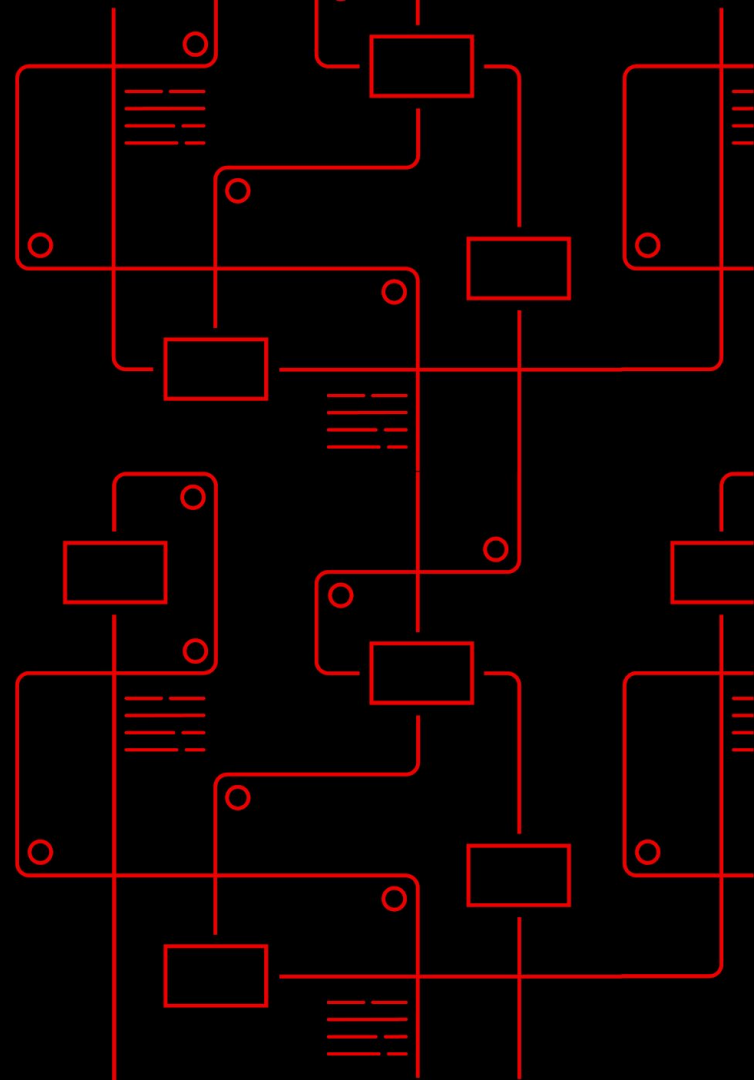
Demo Environment Execution layers

Red Hat OpenShift (K8s API)

Events Occur in
Kubernetes API

EDA Controller

Rule Activations
See Events,
Evaluate Them, and
Trigger
Automations

Automation Controller

Automation
Controller
Executes Job
Templates
triggered by
EDA

Summary and Resources

Red Hat
Ansible Automation
Platform

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 |

Red Hat

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: Introducing Event-Driven Ansible

TECHNICAL ROLES

Event-Driven Ansible web page

Free self-paced labs

Ansible Rulebook documentation

Event-Driven Ansible blog series

Blog: Getting started with Event-Driven
Ansible

Blog: Creating custom plugins

PARTNERS

Event-Driven Ansible web page

Free self-paced labs

Blog: Creating custom plugins blog

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

ansible.com/event-driven

Red Hat

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.

linkedin.com/company/red-hat

youtube.com/user/RedHatVideos

facebook.com/redhatinc

twitter.com/RedHat