Red Hat
Ansible Automation
Platform

Automated Day 2 Operations

or

How to be ~~a Lazy~~ *an Efficient* Engineer

Brad Krumme

Senior Specialist Solution Architect

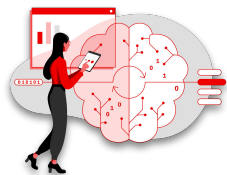Ansible Automation Platform

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What we'll discuss today

- ▶ Day 0/1 vs Day 2 Operations

- ▶ Day 2 Use Cases Examples

- ▶ Event Driven Ansible

- ▶ DEMOS!

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Day 0/1 vs Day 2 Operations

Accelerate enablement and reduce costs | **Maintain performance and reliability**

Day 0
Design/Plan

Architecture Decisions

Software Preparation

Core Service Preparation/Integration

Prepare Hypervisors/Kubernetes

Preconfiguring Operating Systems

Day 1
Install/Build

Software Installation

Network Implementation

OS/Platform Provisioning

Infrastructure Configuration

OS Migrations/Upgrades

Day 2
Maintain/Optimize

App/DB Maintenance

Backup/Restore

Upgrades/Patching

Configure Security/Firewalls

Identity and Access Management

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Day 2 automation
## Automation beyond provisioning and configuration

Why is it important?

▸ Automating routine operational tasks versus just configuration management

▸ Automatic IT awareness of infrastructure state

▸ Moving administrators from reactive to proactive IT management

Why Red Hat Ansible Automation Platform?

▸ Validate operational state and not just configuration state

▸ Orchestrate IT processes with workflows

▸ Easily integrate data into other systems (websites, databases, ITSM)

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Day 2 use cases for automation
Three logical categories for day 2 use cases
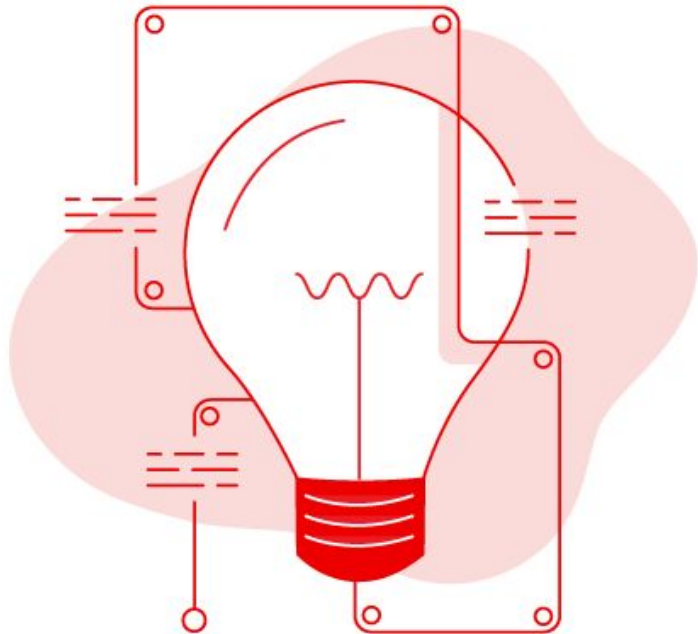
Updating Configurations

Modifying OS settings, installing software updates, or applying security patches to keep VMs secure and up to date.

Snapshot and Backup Management

Create, manage, and restore VM snapshots and backups to ensure data integrity and facilitate recovery processes.
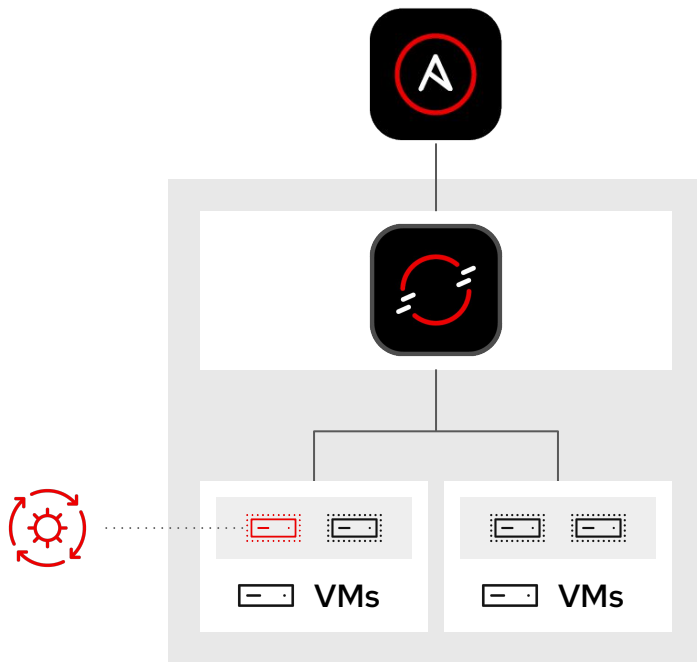
Lifecycle Management

Gathering facts of VMs, powering off/on systems, changing resource allocations of (vCPU, memory, storage), changing network adaptor settings such as configuring a NIC or creating a Bond

Day 2 Use Case Examples
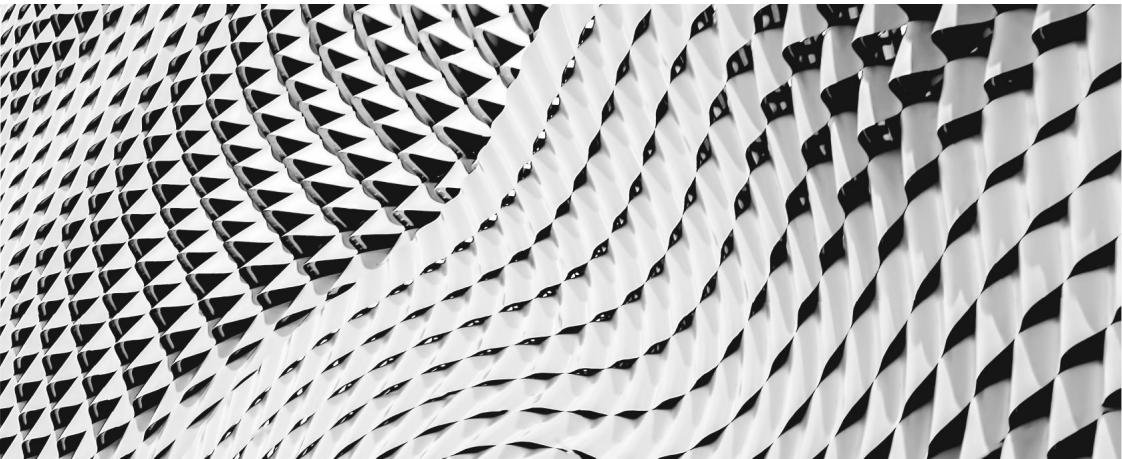
Use case: Patching/Updating Packages
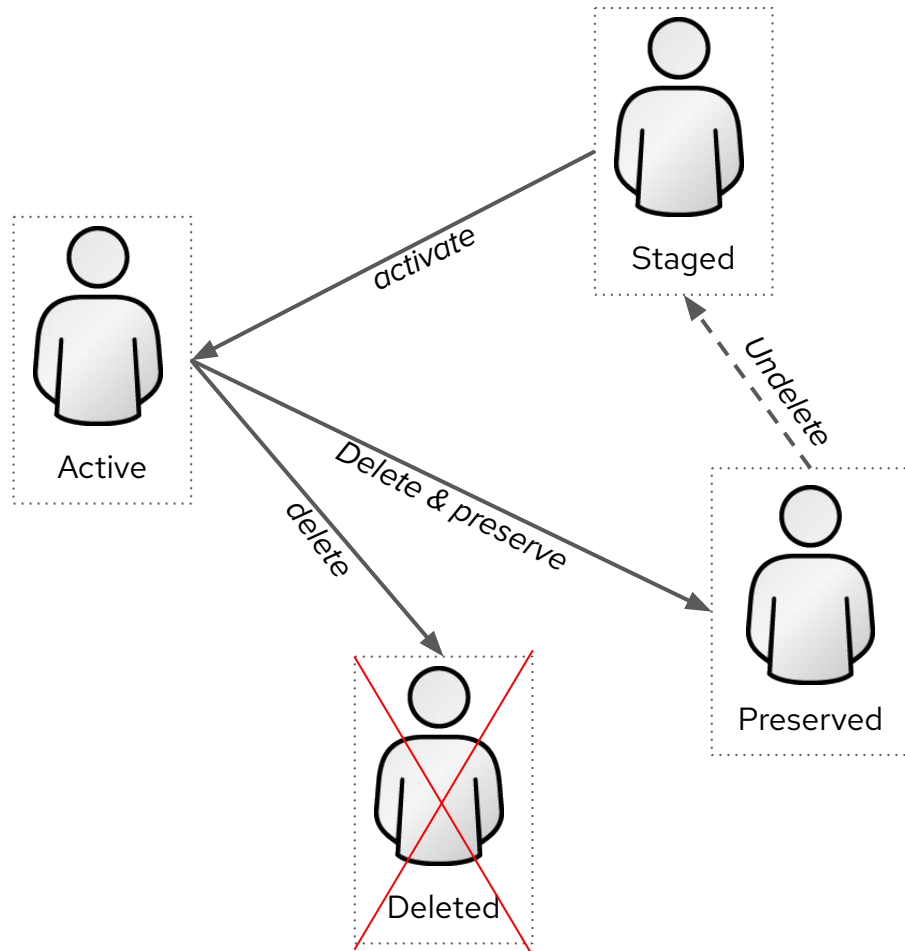## Maintaining Software Lifecycle

```yaml
---
- name: Updating VM packages
  hosts: localhost
  gather_facts: false
  tasks:
    - name: Update VM packages
      ansible.builtin.dnf:
        name: "{{ package_list | default('*') }}"
        state: latest
```

Use case: Identity and Access Management
Access Control for Systems and Platforms


```yaml
---
- name: Create a user in IDM
  hosts: ipaserver
  gather_facts: false
  tasks:
    - name: Create an IDM User
      redhat.rhel_idm.ipauser:
        name: "{{ idm_user_name }}"
        first: "{{ idm_user_firstname }}"
        last: "{{ idm_user_lastname }}"
        phone: "{{ idm_user_phone_number }}"
        email: "{{ idm_user_email_address }}"
        random: true
        update_password: on_create
```

Use case: Automatic Remediation
Maximize Uptime and Reduce Engineer callouts
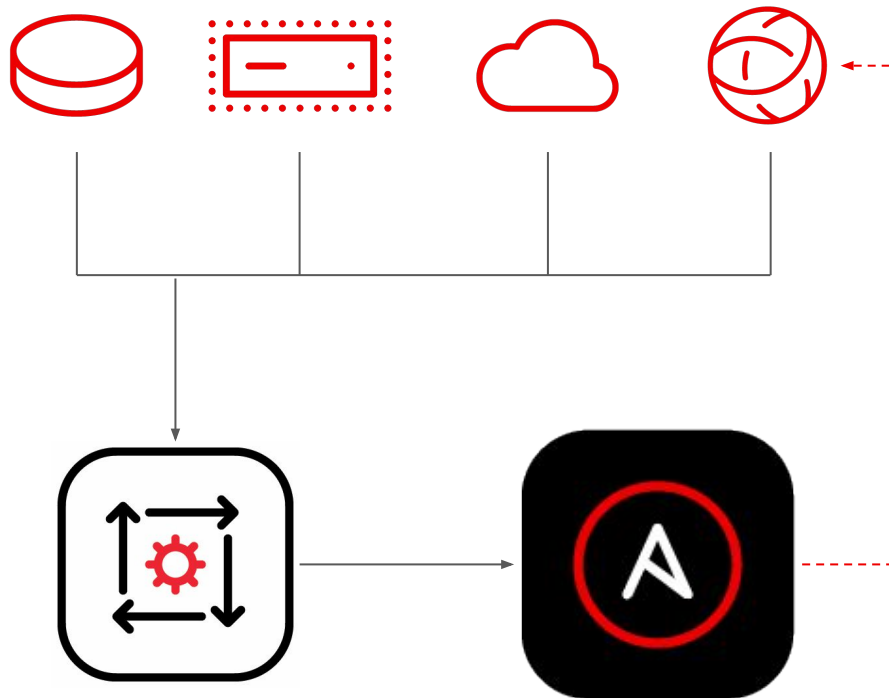


```yaml
---
- name: Watch a URL for the correct content
  hosts: all
  sources:
    - name: Check a URL
      ansible.eda.url_check:
        urls:
          - http://app01.bk.mobile
          - http://app02.bk.mobile
        delay: 60
        verify_ssl: false

  rules:
    - name: Redeploy on Server Down
      condition: event.url_check.status == "down"
      action:
        run_job_template:
          name: "DAY2 - Deploy App Content"
          organization: "Default"
```

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Use case: Event–Driven GitOps/CICD
Automatic Code Deployment on Repo Update
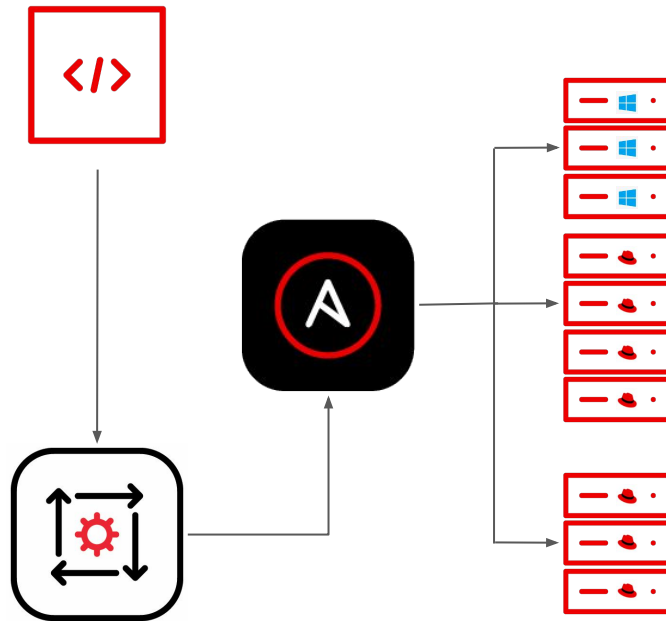

```yaml
---
- name: Listen for events on a webhook
  hosts: all
  sources:
    - name: Listen for a webhook
      ansible.eda.webhook:
        host: 0.0.0.0
        port: 5000

  rules:
    - name: Deploy on push event to repo
      condition: event["payload"]["repository"]["name"] ==
"day2ops"
      action:
        run_job_template:
          name: "DAY2 – Deploy Web Content"
          organization: "Default"
```
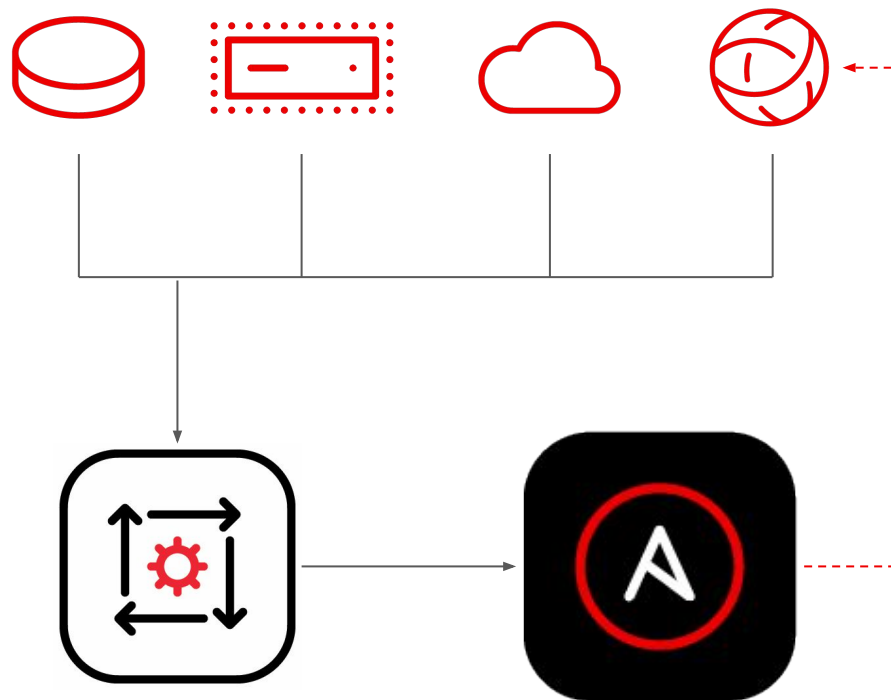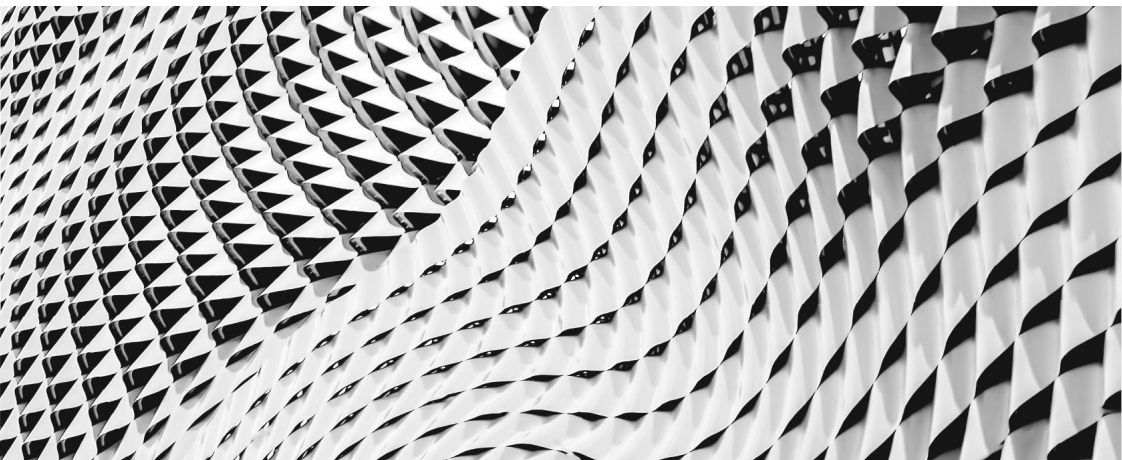
Use case: Compliance/Vulnerability Reponse
Response to Security and Compliance Events


```yaml
---
- name: Listen for events from Red Hat Insights
  hosts: all
  sources:
    - name: Listen for a webhook
      ansible.eda.webhook:
        host: 0.0.0.0
        port: 5555

  rules:
    - name: Handle a Red Hat Insights event
      condition: event.payload is defined
      action:
        run_job_template:
          name: "DAY2 - Process Insights Notification"
          organization: "Default"
          job_args:
            extra_vars: '{ "site_content": "{{
event.payload.timestamp }}" }'
```

Event Driven Ansible

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The reality of **hybrid infrastructure**

Infrastructure

Red Hat Enterprise Linux · Linux · Windows · nimble storage · NetApp · Hewlett Packard Enterprise · PURESTORAGE

Edge

podman · inductive automation · Red Hat Enterprise Linux · Rockwell Automation · OPC UA

Cloud native

Red Hat OpenShift · kubernetes

Network

Routers · Switches · IPAM · LBs

Private cloud

Red Hat OpenStack Platform · NUTANIX · vmware

Security

PAM · SEIM · IDPS · Firewalls

ITSM

servicenow

Public cloud

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

It's Day 2 Now what?

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 · PURESTORAGE

Edge

podman · inductive automation · Red Hat Enterprise Linux · Rockwell Automation · OPC UA

Cloud native

Red Hat OpenShift · kubernetes

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

Security

PAM · SEIM · IDPS · Firewalls

ITSM

servicenow

Public cloud

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

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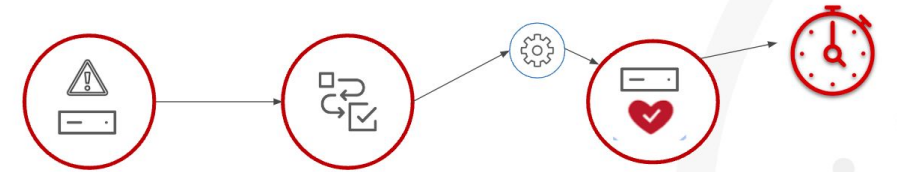Ansible Automation Platform

A brief history of IT Operations

The Old Way: Toil and Churn
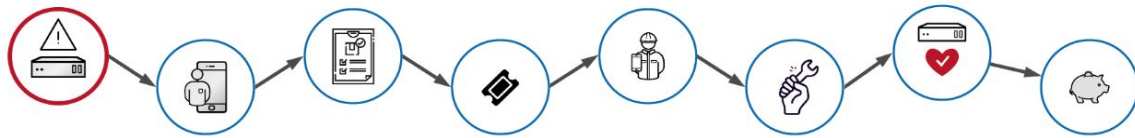
The new way: Event-Driven Automated Ops

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.

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# Event-Driven Ansible. Observe, evaluate, respond.
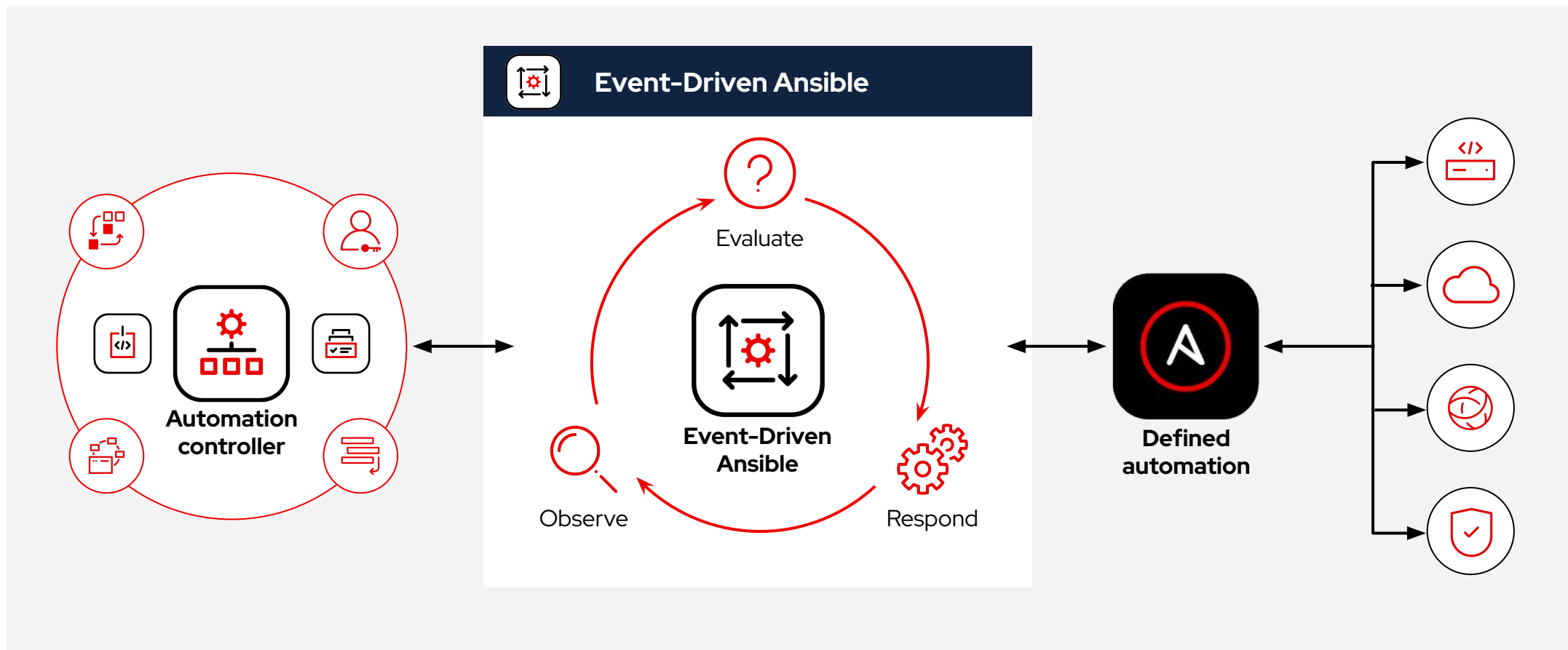
Current Event-Driven Ansible Integrations

Current Partner certified and validated Content Collections	Current *ansible.eda* certified Content Collection included in **subscription**
• CrowdStrike • Dynatrace • F5 (coming) • Instana • Kentik • LogicMonitor • Palo Alto Networks • Red Hat Insights • ServiceNow • ThousandEyes (coming) • Turbonomic • Zabbix	• 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 Content Collections or here (scroll down) or create a custom plug-in.	

Check these links often, as the list is expanding.

DEMOS!!!
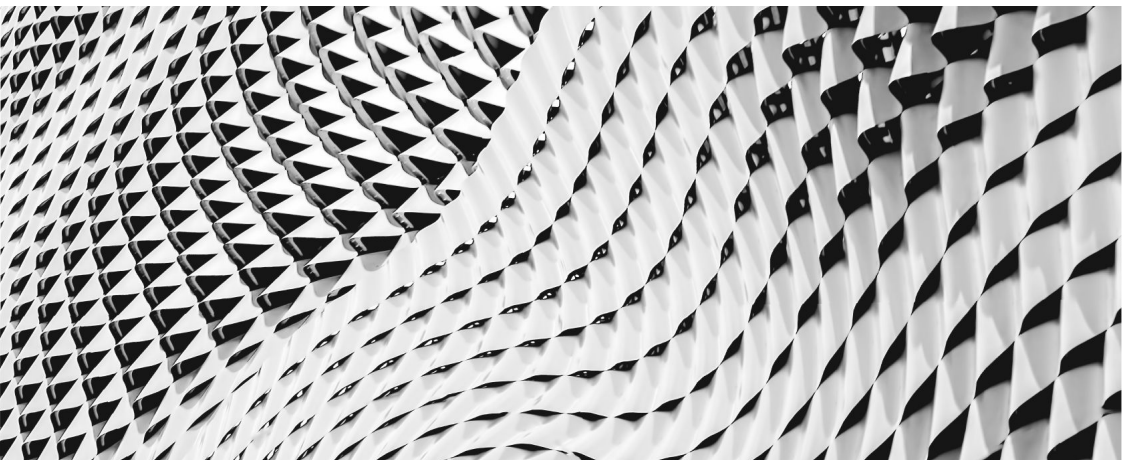
Thank you

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