

自動化最後一哩

GitOps with Event-Driven



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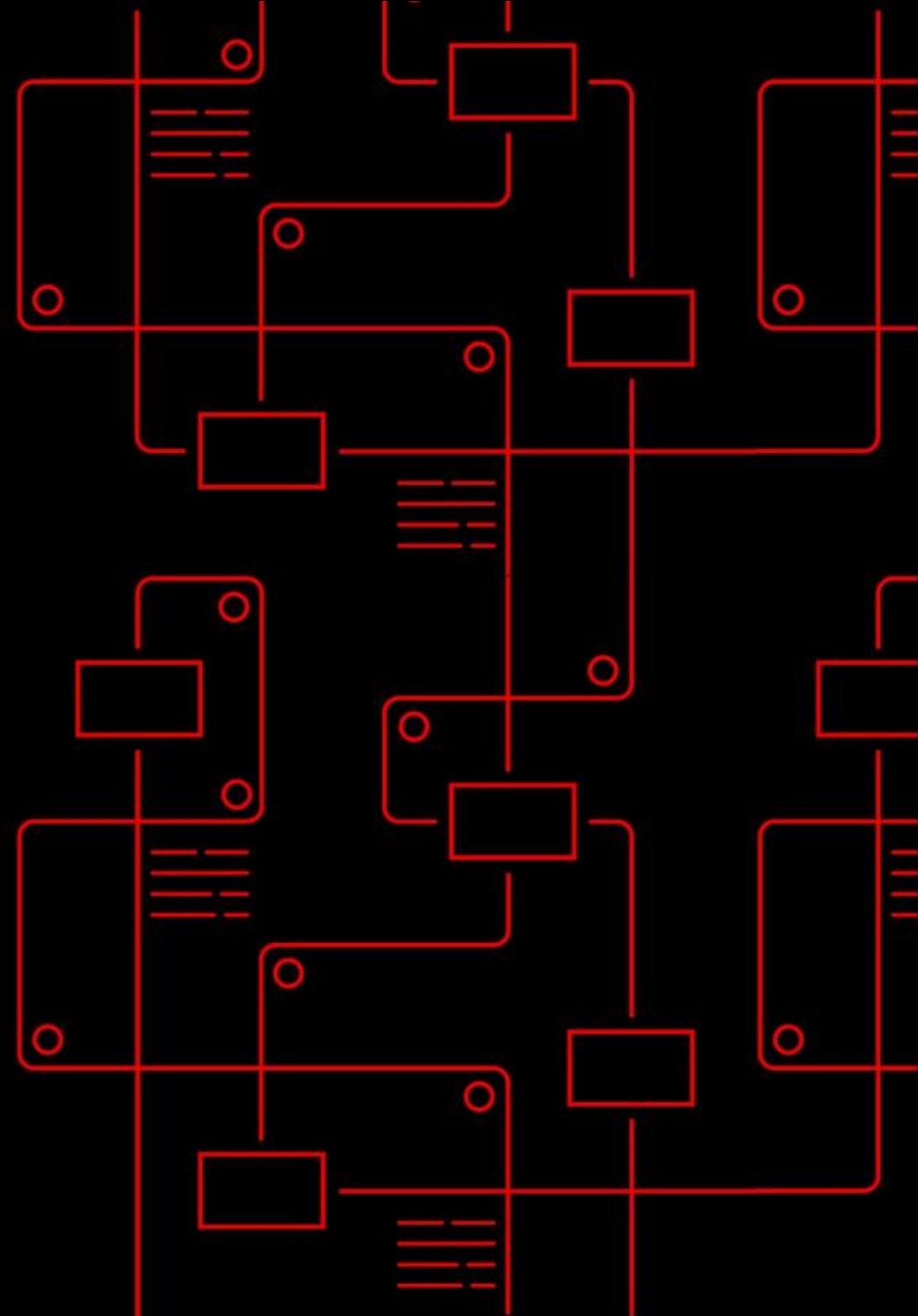


About Weithenn



- Blog: weithenn.org
- Microsoft MVP 2012 – 2024
- VMware vExpert 2012 – 2024
- Weithenn has authored 19 IT books
- SRE Conference 2024, DevOpsDays Tokyo 2024, Google DevFest Taipei 2023, .NET Conf Taiwan 2023, Modern Web Conference 2023, Kubernetes Summit 2023, DevOpsDays Taipei 2023, COSCUP 2023, Kubernetes Summit 2022, DevOpsDays Taipei 2022, Cloud Summit 2022, SRE Conference 2022...etc.

Workshop Environment



Azure VM (Enable Nested Virtualization) – Day1

eda-workshop-[1 ~ 30]

.eastasia.cloudapp.azure.com

Username

Dragon

Password

EDAWorkshop@2024

Azure VM (Standard_E4s_v5)

4 vCPU / 32 GB vMemory / Premium SSD LRS



Azure VM (Enable Nested Virtualization) – Day2

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.eastasia.cloudapp.azure.com

Username

Dragon

Password

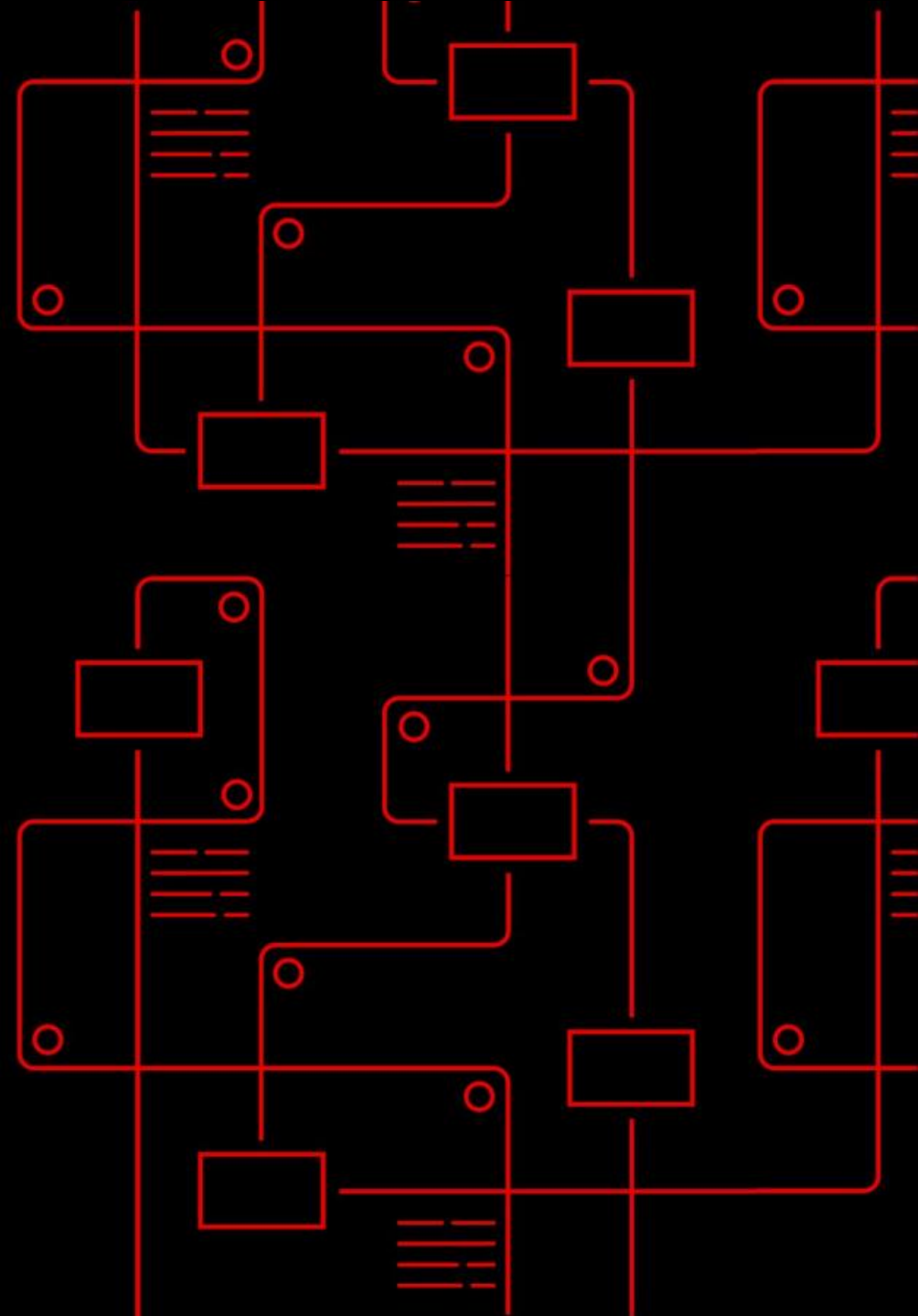
EDAWorkshop@2024

Azure VM (Standard_E4s_v5)

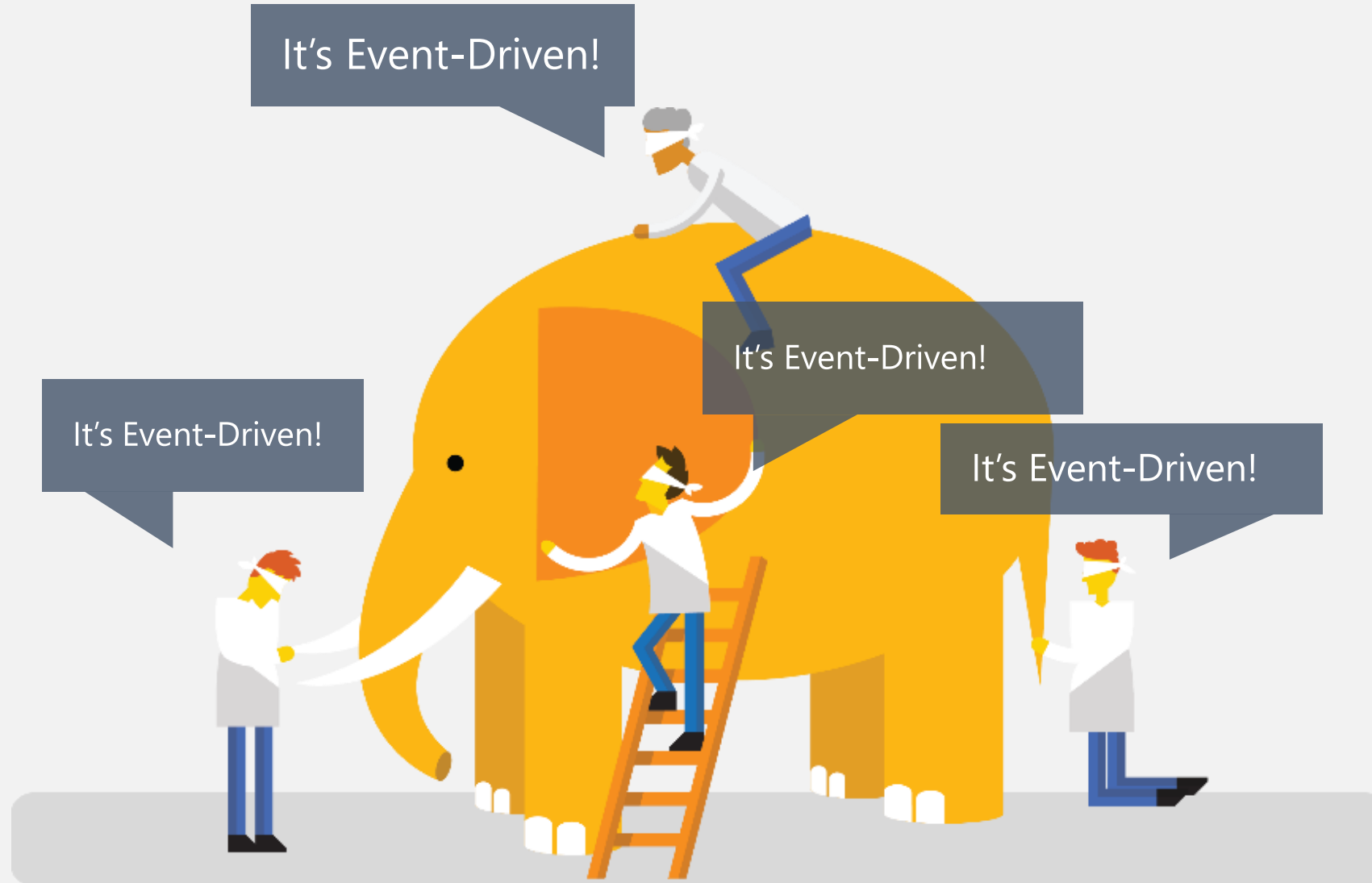
4 vCPU / 32 GB vMemory / Premium SSD LRS



What is Event-Driven automation?

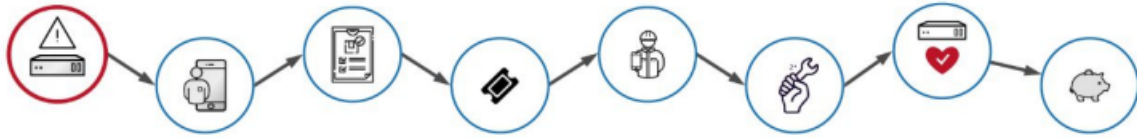


“The ability to connect intelligence, analytics and service requests for an IT solution to automated actions so that activities can take place in a single motion.”



A brief history of IT Operations

The Old Way: Time, 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.

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
 - Azure Service Bus
 - GCP Pub/Sub
 - Kafka (AMQ Streams)
 - Prometheus/Alertmanager
 - Webhooks
 - watchdog (file system watcher)
 - 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

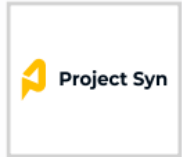
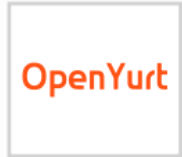
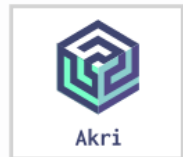
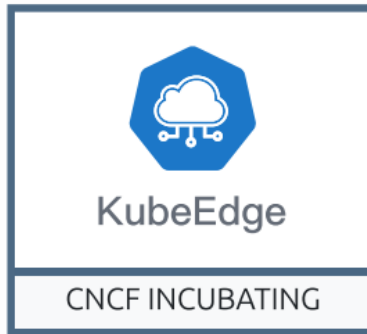
[Blog: Event-Driven Ansible ecosystem partners](#)

(as of May, 2023)

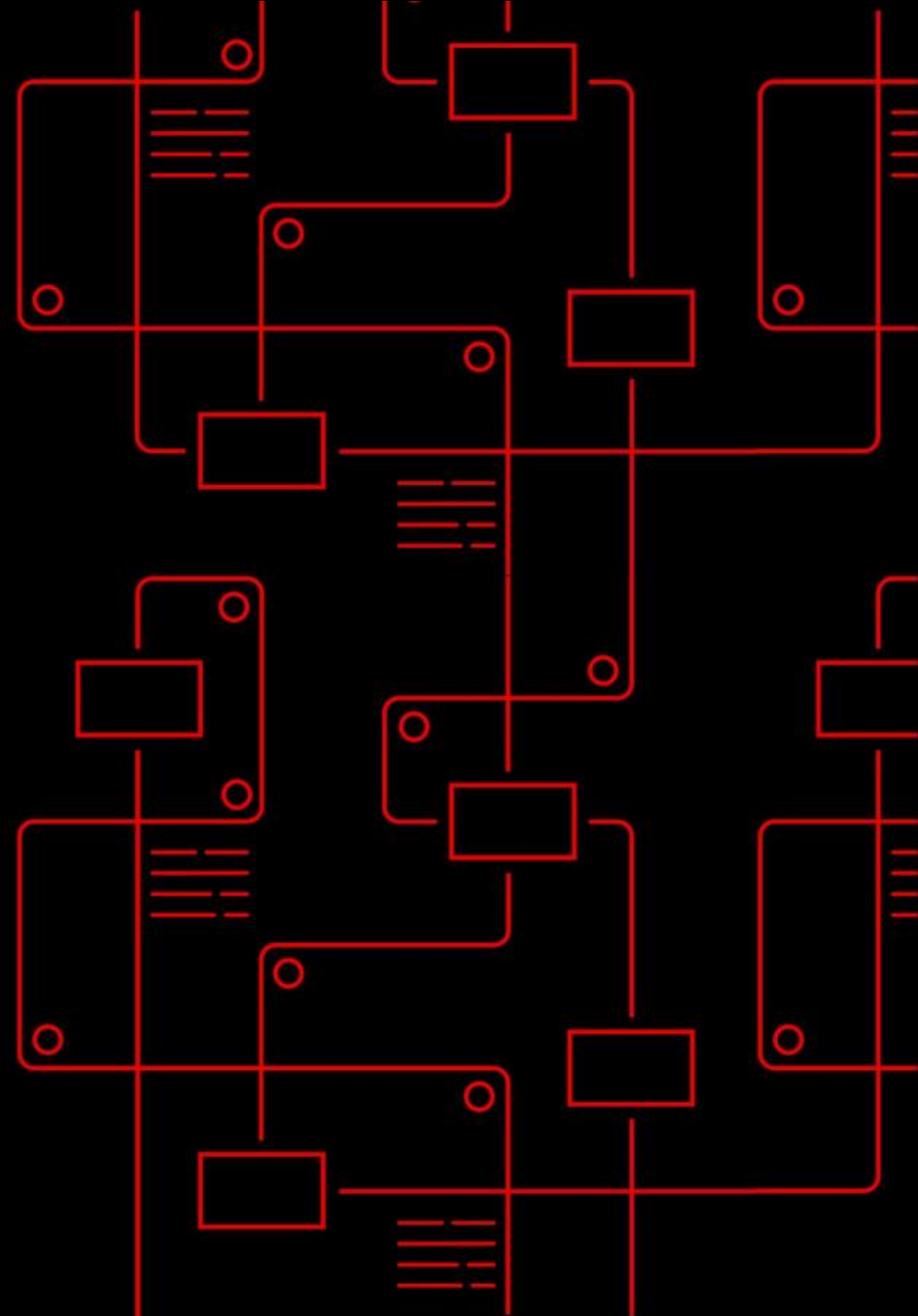


CNCF – Cloud Native Landscape

Automation & Configuration



Ansible Rulebooks



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.



Ansible Rulebooks

- ▶ **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

```
- 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

Receive

Decide

Respond

Event Source

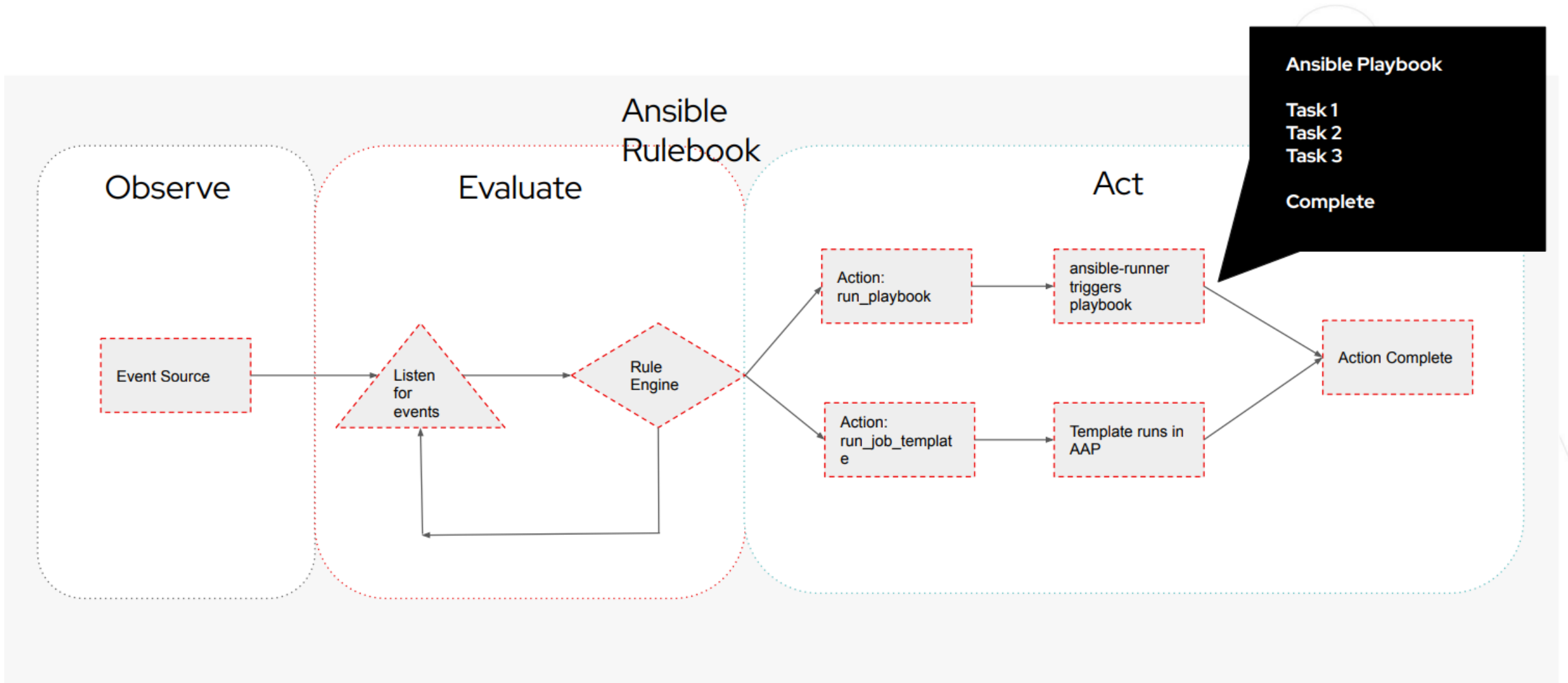
```
...
source:
- name: watchdog
  ansible.eda.watchdog:
    path: "{{src_path}}"
    recursive: true
    ignore_regexes: [".*\pytest.*", ".*__pycache__.*", ".*\.git.*"]
rules:
- name: Check for folder modification
  condition: event.type == "DirModifiedEvent"
  action:
    run_playbook:
      name: 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

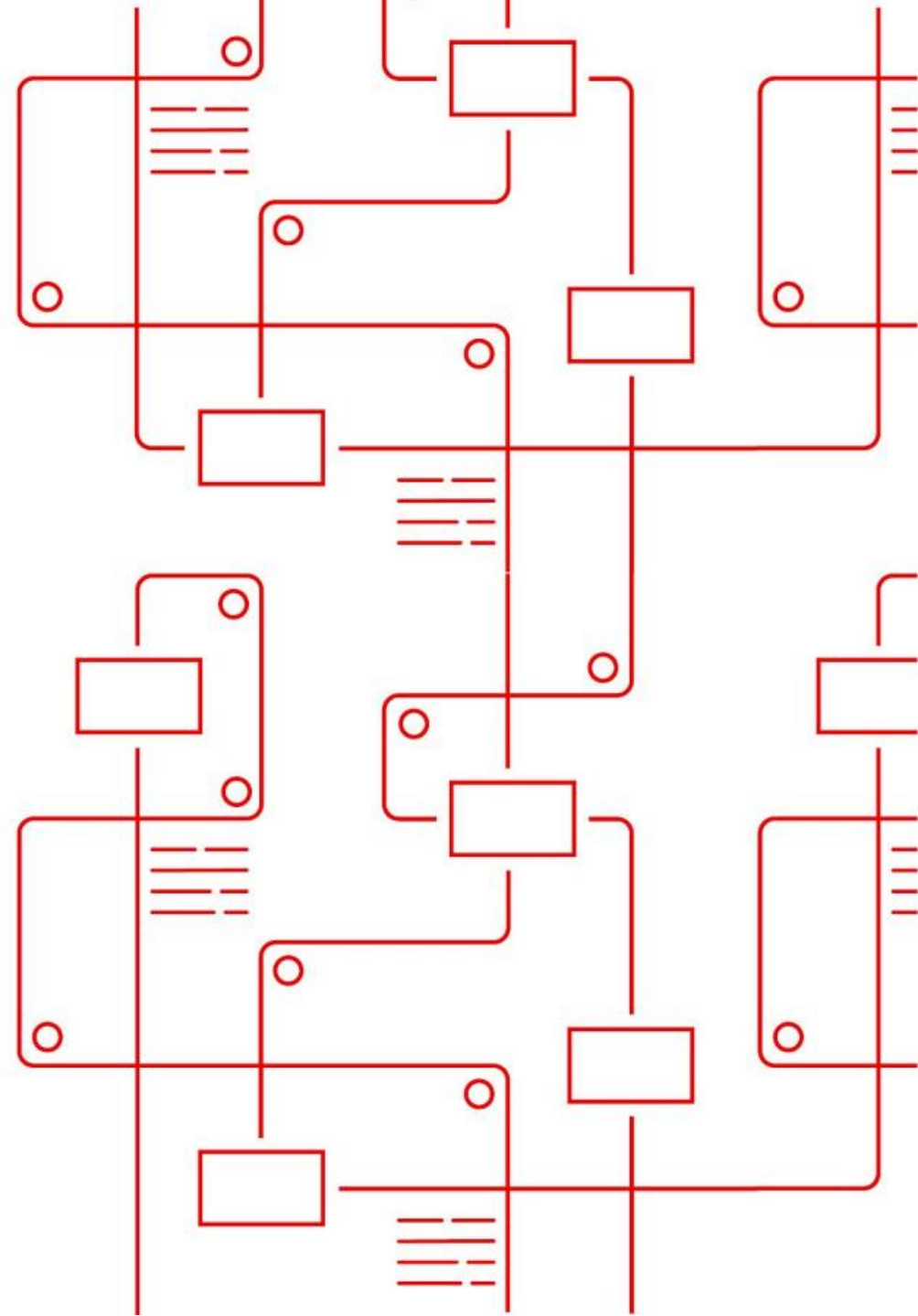


Event-Driven Ansible

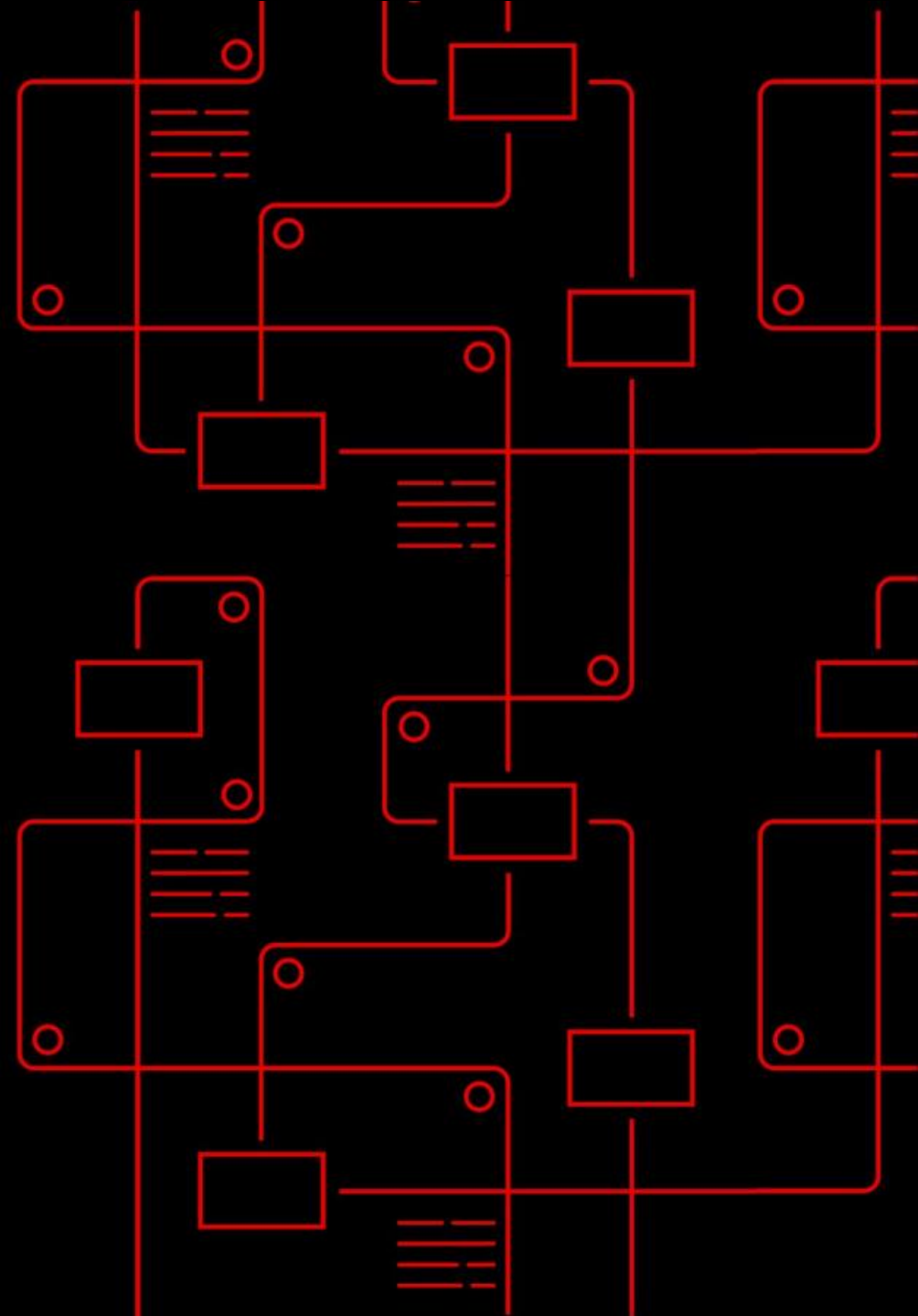


Lab Time

Ansible Rulebooks



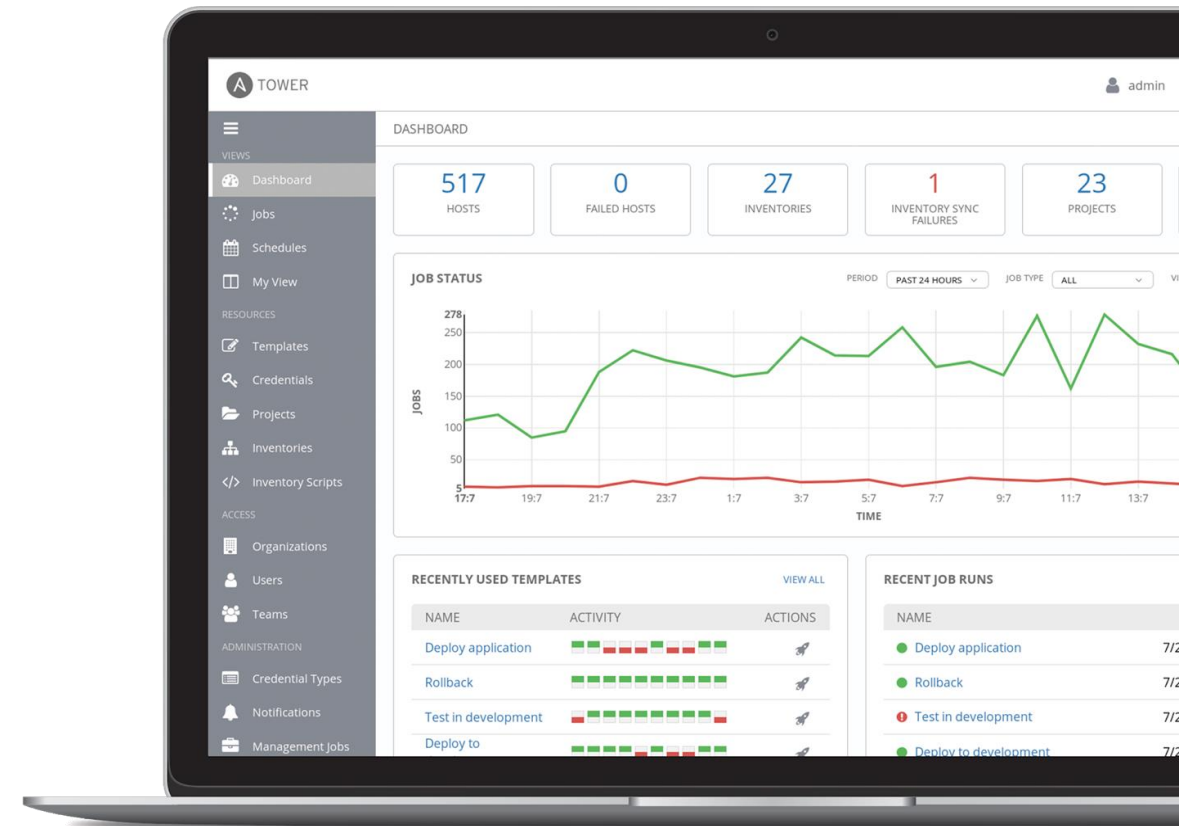
Ansible AWX



Why Ansible AWX

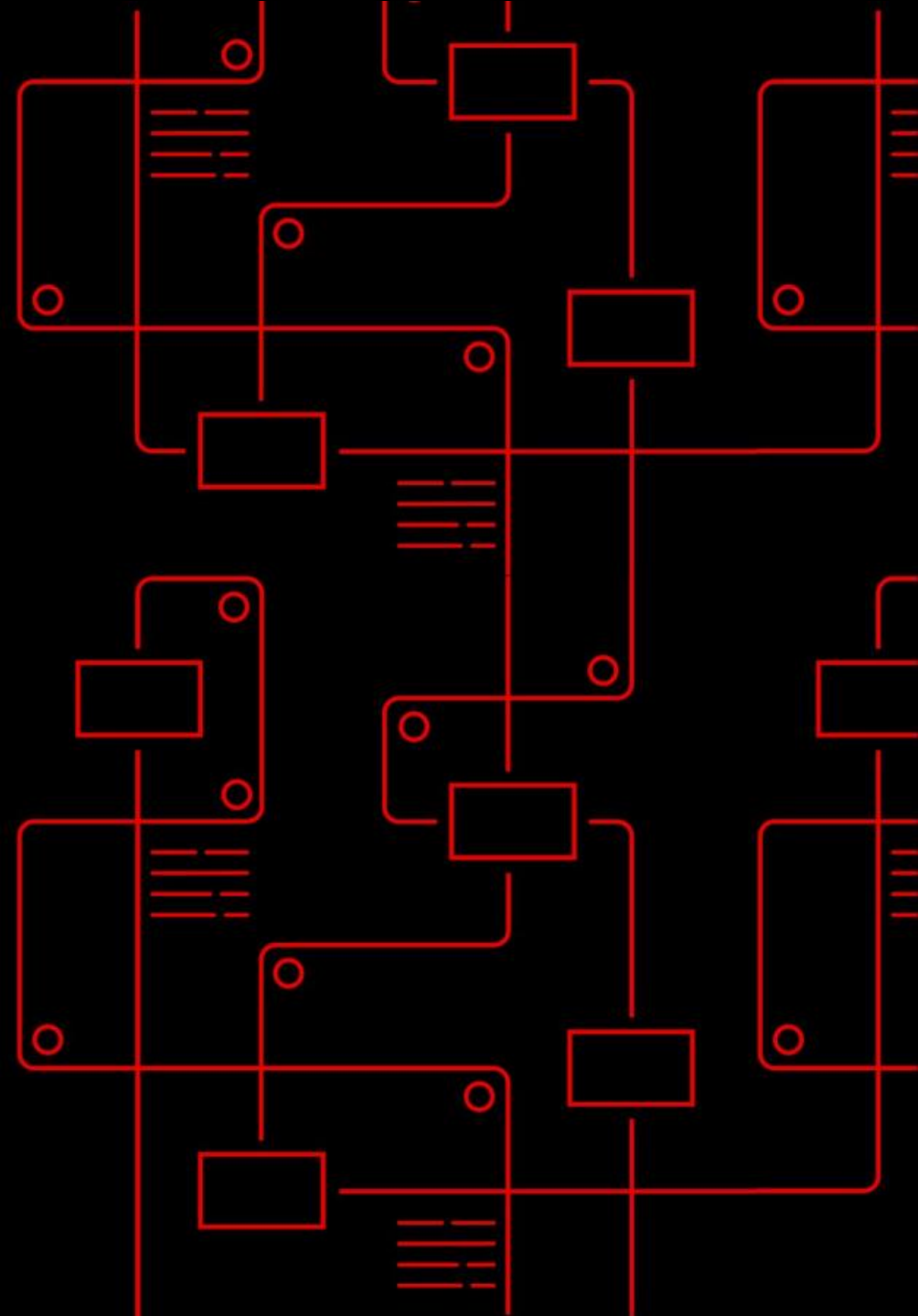
AWX provides a web-based user interface, REST API, and task engine built on top of Ansible. It is one of the **upstream projects** for Red Hat Ansible Automation Platform.

- ✓ RBAC (Role-Based Access Control)
- ✓ Push Button – Easy to execute playbook
- ✓ RESTful API
- ✓ Webhook
- ✓ Workflow
- ✓ Enterprise Integrations
- ✓ Centralized Logging
- ✓ Ansible AWX is **Open Source Community Project**



EDA Controller

- Projects
- Decision Environments
- Rulebook Activation



Event-Driven Ansible Management

EDA Controller

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

The image shows a screenshot of the EDA Controller interface for a rulebook named 'Dev_test'. The interface displays the following details:

Name	Decision environment	Rulebook
Dev_test	ansible-rulebook	hello_controller.yml
Restart policy	Project	Activation status
Always	eda-project2	Running
Project git hash	Restarted count	Created
a6bd882ded2b413b9346edaa9e6faf7b30ebfb13	0	22/06/2023, 19:39:04

Below the screenshot, a diagram illustrates the rulebook activation process. It shows two rulebook cards for 'hello_controller.yml' with an activation status of 'Starting'. A central box labeled 'Rulebook Activated' has an arrow pointing down to a box labeled 'Waiting for Events'. Another rulebook card on the right shows the activation status as 'Running'.



EDA Controller getting started

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.

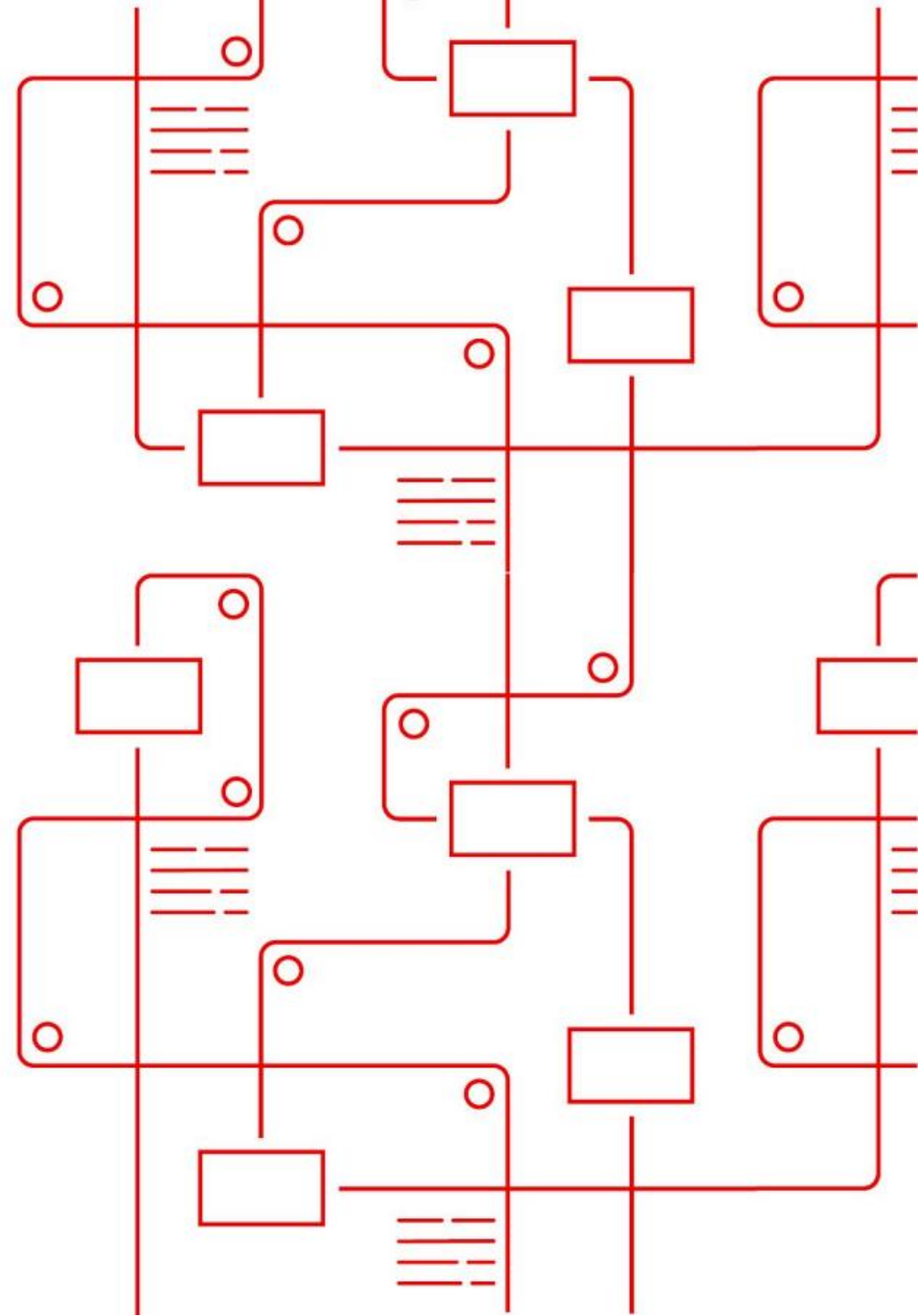
Rulebook Activation

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

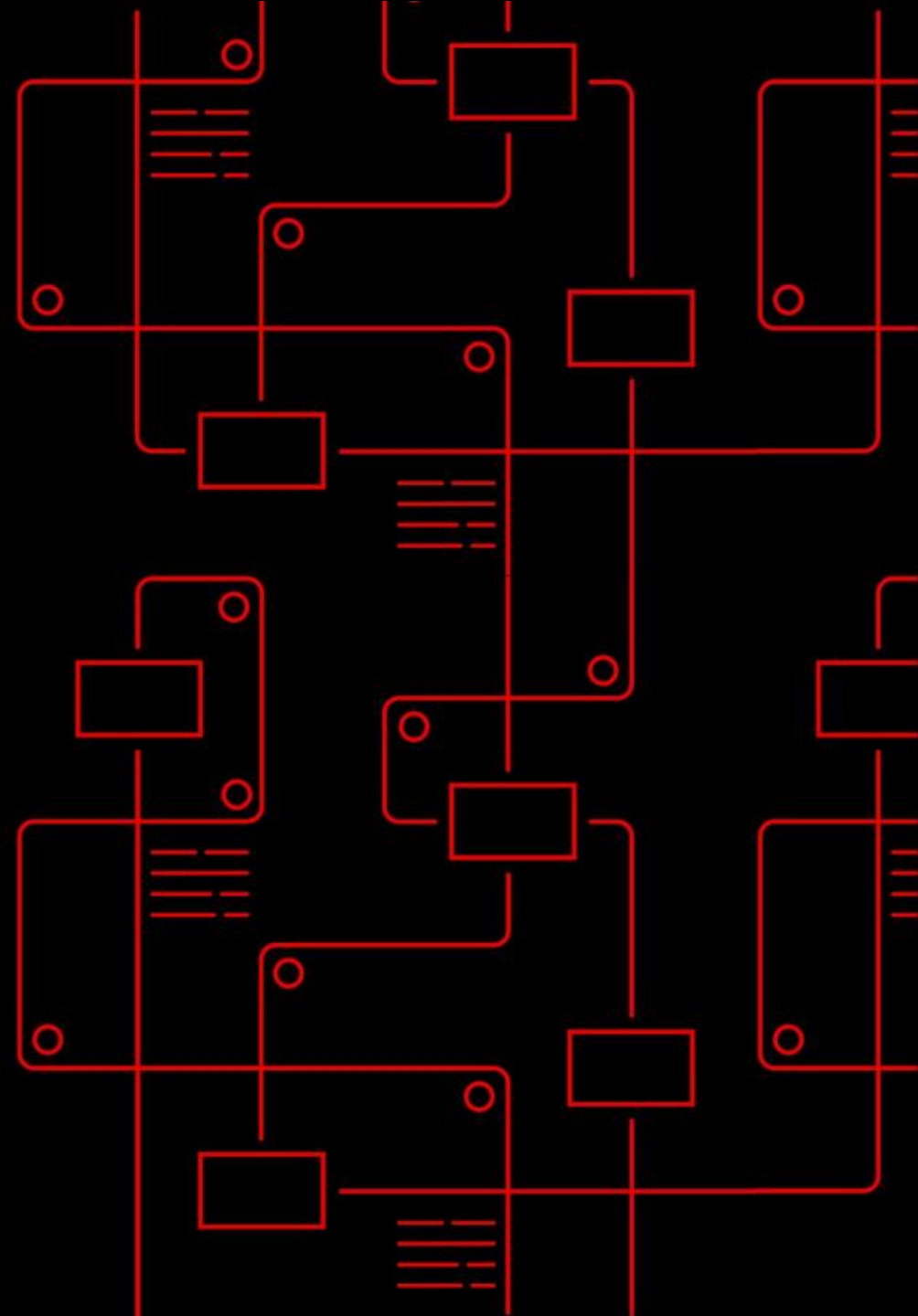


Lab Time

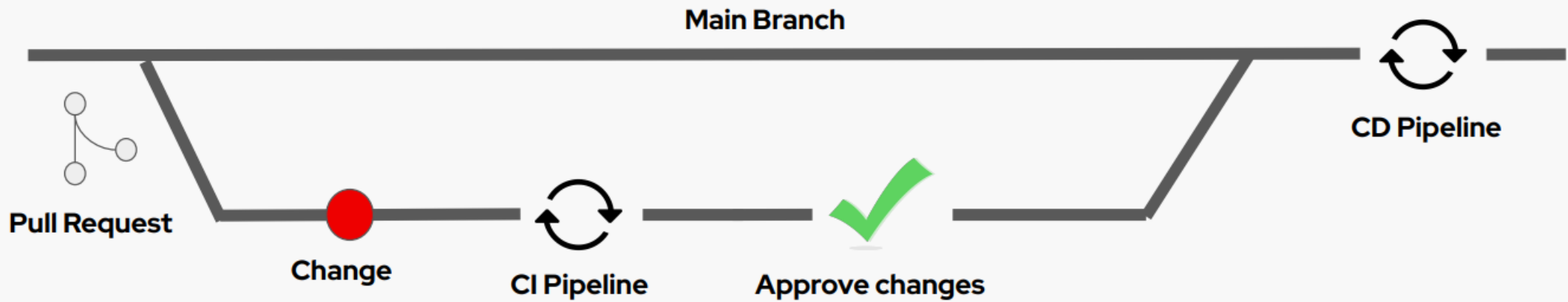
EDA Controller



GitOps with Event-Driven



GitOps workflow



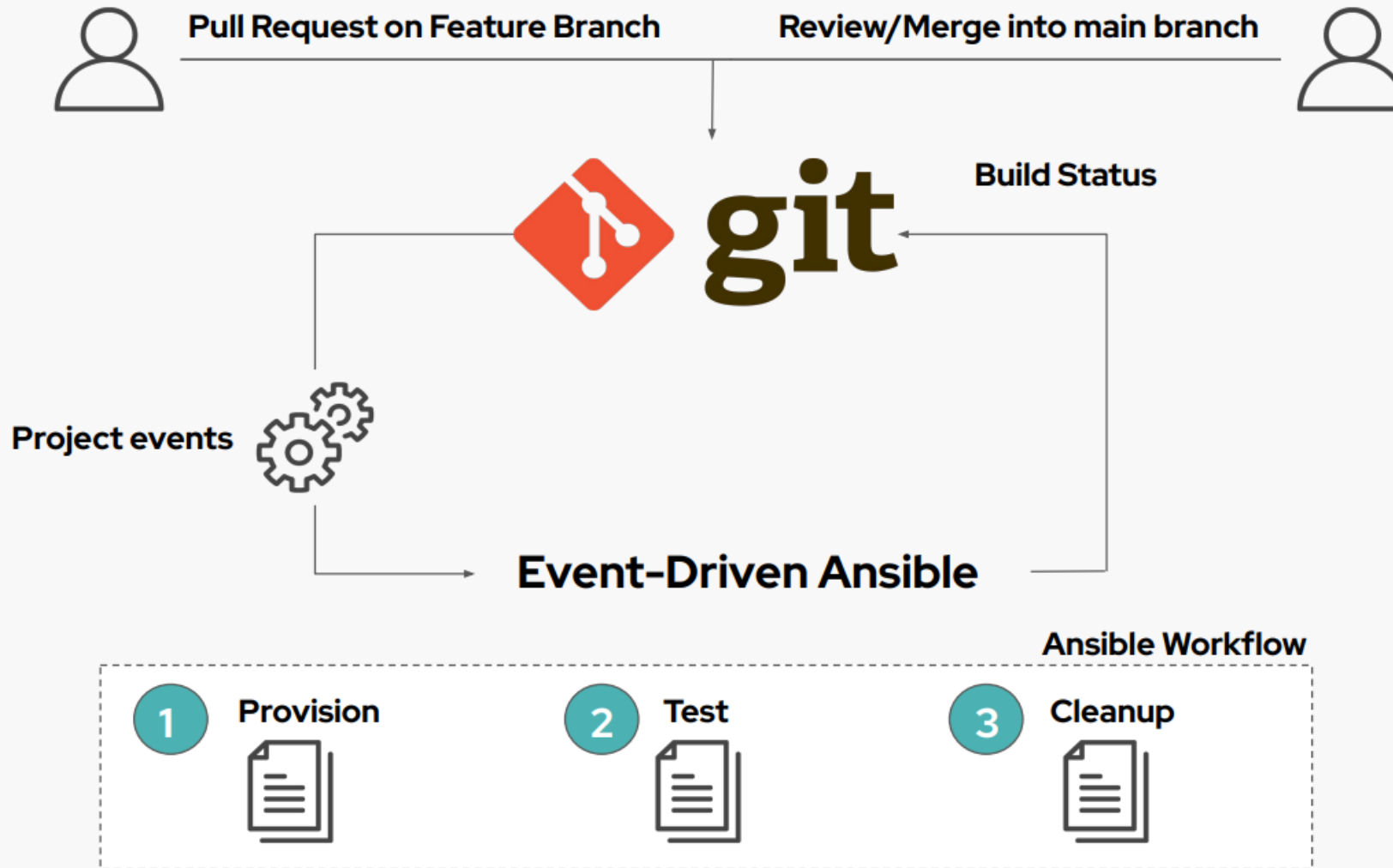
The benefits of GitOps

1. Increased productivity
2. Enhanced developer experience
3. Improved stability
4. Higher reliability
5. Consistency and standardization

Plan

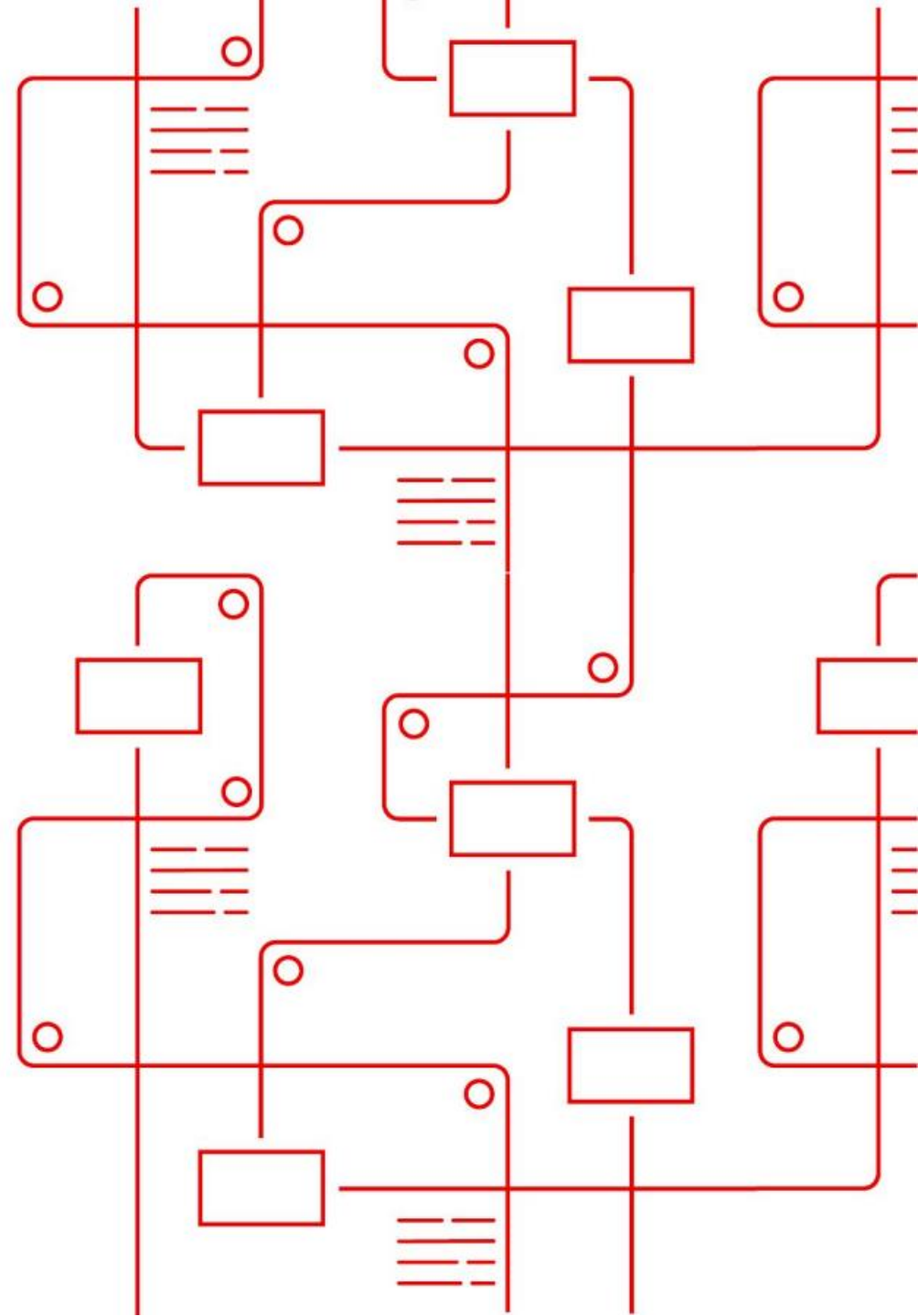


Event Driven Ansible GitOps workflow

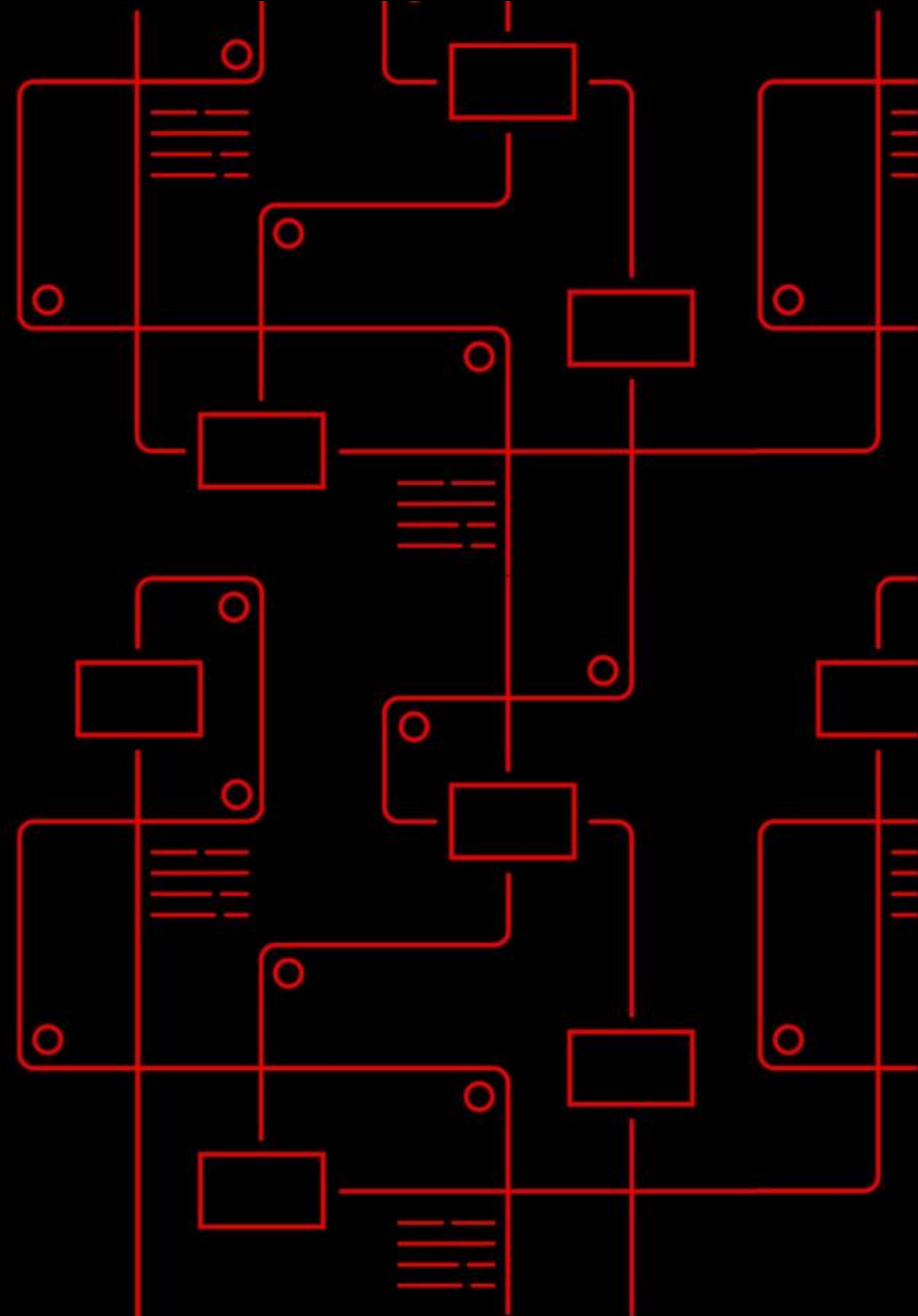


Lab Time

GitOps with Event-Driven



Interactive-labs



Red Hat Interactive-labs

Event-Driven Ansible

JUMP TO SECTION

Getting Started

Network and Edge

Event-Driven Ansible

Hybrid Cloud

Automate routine tasks and deliver more efficient IT operations with Event-Driven Ansible.

Get started with Event-Driven Ansible and Ansible Rulebooks

Learn about the fundamental components of Event-Driven Ansible and go through some examples.

30 mins



GitOps with Event-Driven Ansible

Use Event-Driven Ansible to react to events generated by Git operations.

40 mins



Event-Driven Ansible and NetOps

Use Event-Driven Ansible to react to network events as well as work with ChatOps.

45 mins



Event-Driven Ansible controller: get up and running

Learn the basics of using Event-Driven Ansible controller—the graphical user interface for event-driven automation that enables the automated resolution of IT requests.

55 mins



Resources & More

- [What is GitOps? \(redhat.com\)](#)
- [What is an Ansible Rulebook? \(redhat.com\)](#)
- [10 ways to integrate event-driven automation into IT operations | Enable Sysadmin \(redhat.com\)](#)
- [Learn Red Hat Ansible Automation Platform | Interactive labs](#)



Thank you!

