How to use this deck

Name:

Lab Guide - Gitops with Event Driven Ansible

Purpose:

This deck is for teaching an Ansible Lab "Gitops with Event Driven Ansible" for Ansiblefest 2022

Last updated:

Oct 18th, 2022

What this deck is for?

Training, it goes hand-in-hand with self-paced exercises

What is this deck is NOT for?

Business level discussions

Google Slides source link (Red Hat internal):

https://docs.google.com/presentation/d/1wrJ90OEvkais6wcyinMq42uv1_VJJQlzrxHy8UgC220/edit?usp=sharing

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Event-driven Ansible for Gitops

Ansible Self-Guided Labs

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Event-driven Ansible for Gitops

01 What is Event Driven Ansible?

02 How does it work?

03 Lab 1 - Rulebooks: Getting started

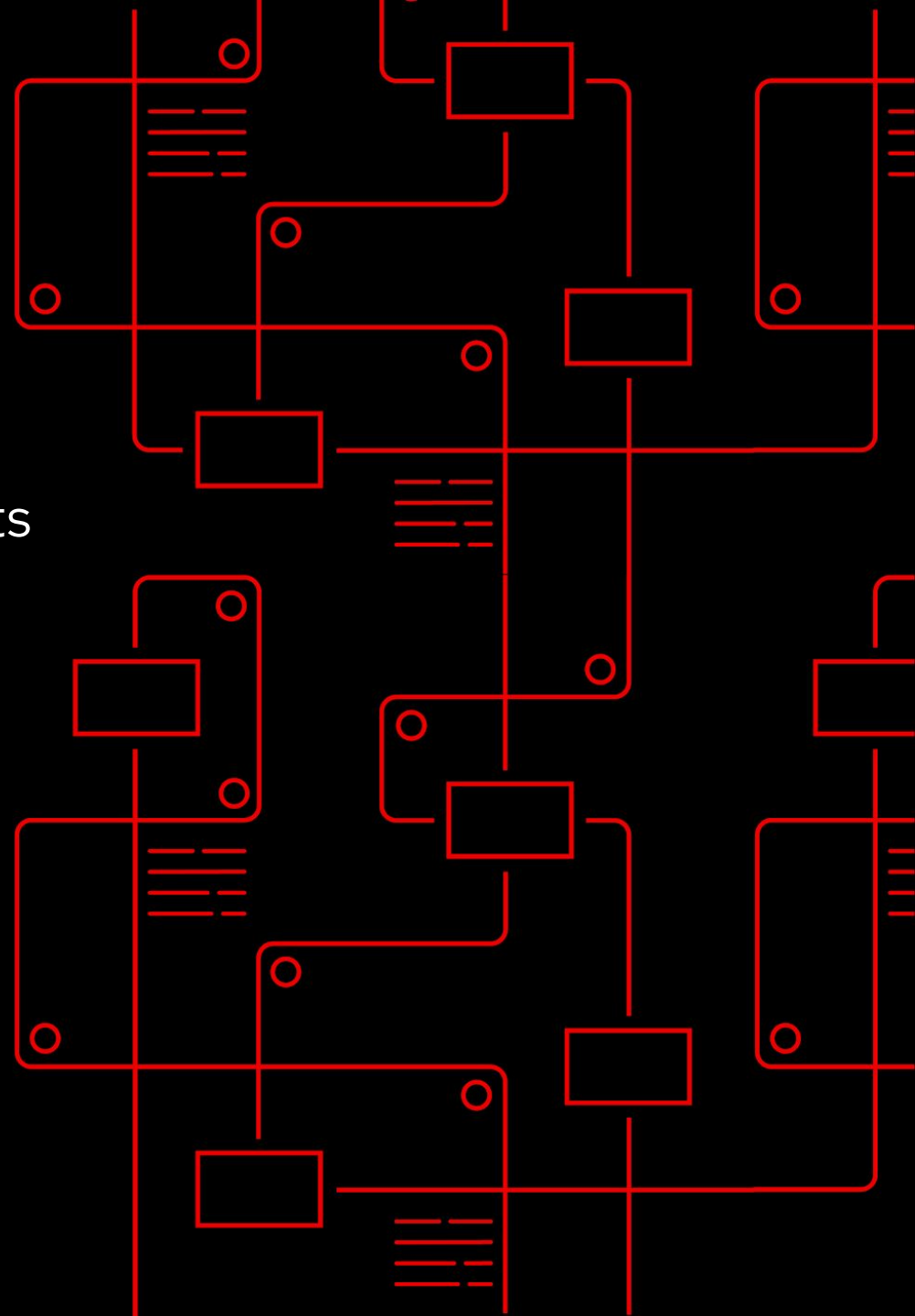
04 Lab 2 - Gitops with Event Driven Ansible

05 Next steps

What is event-driven automation?

Connecting intelligence, analytics and service requests

to achieve single-motion automation



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Achieve goals and focus teams with advanced automation techniques

Speed

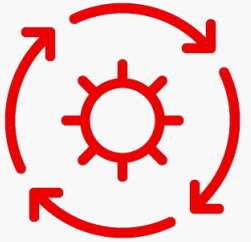
Reduce the number of manual steps, enable orchestration of multiple tools and accelerate cross-tool interaction

to
become more **agile**

Consistency

Minimize risks with automated workflows, avoid human errors and use auditable and verifiable processes

to
ensure **resilience**



Innovation

Innovate to more advanced levels of automation and free productivity for innovation and higher level projects

to
transform IT

Typical event driven automation process

Red Hat Point of View

OBSERVE

- Watch for conditions that matter to you
- Work with third party sources of events

EVALUATE

- Known problem identified
- Automated resolution triggered

ACT

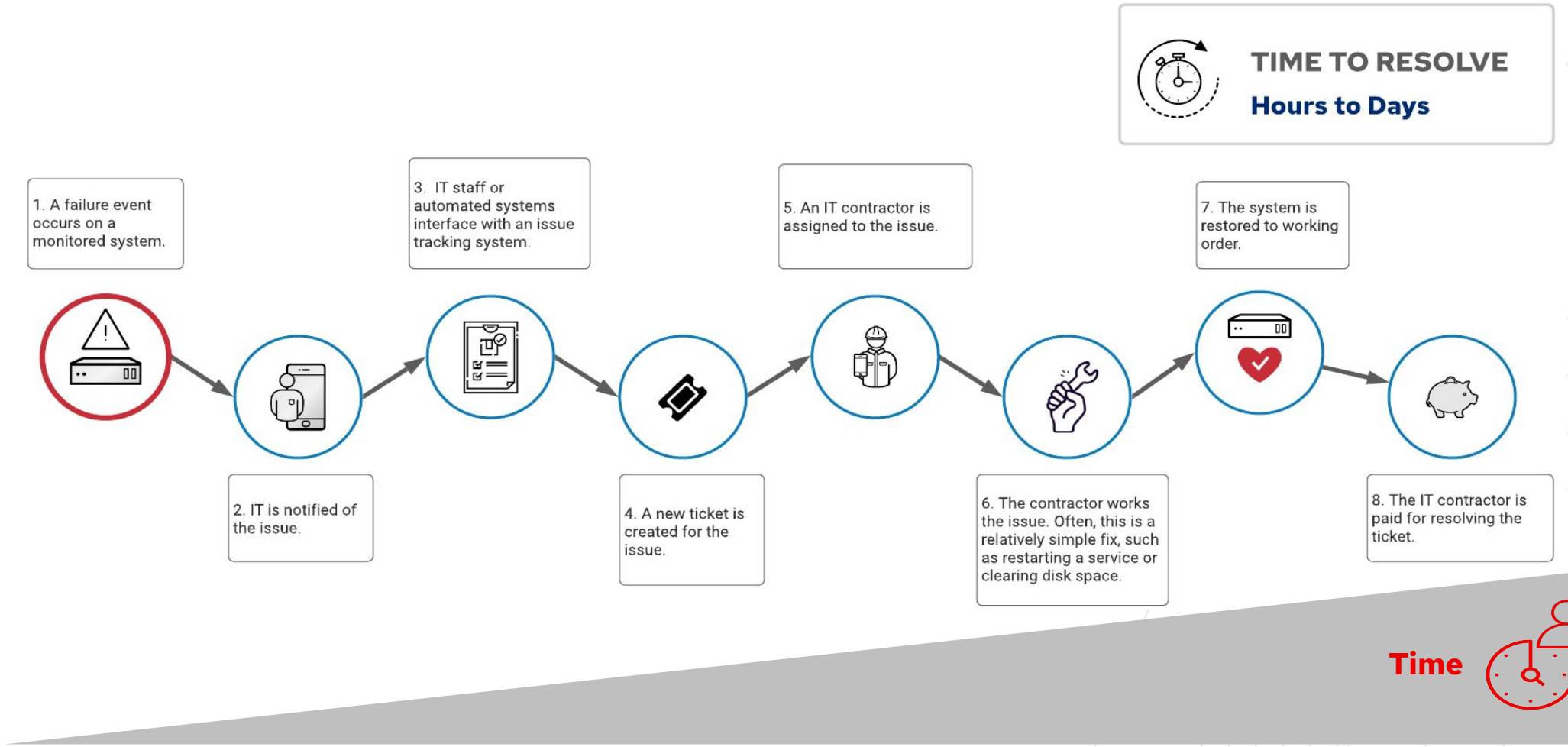
- Outage incident created
- Support team notified
- Remediation executed

CO-OPERATE

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

Example manual workflow:

Time is spent on toil and churn



Example event-driven workflow

Event driven automated remediation: same issue, fully automated workflow

OBSERVE

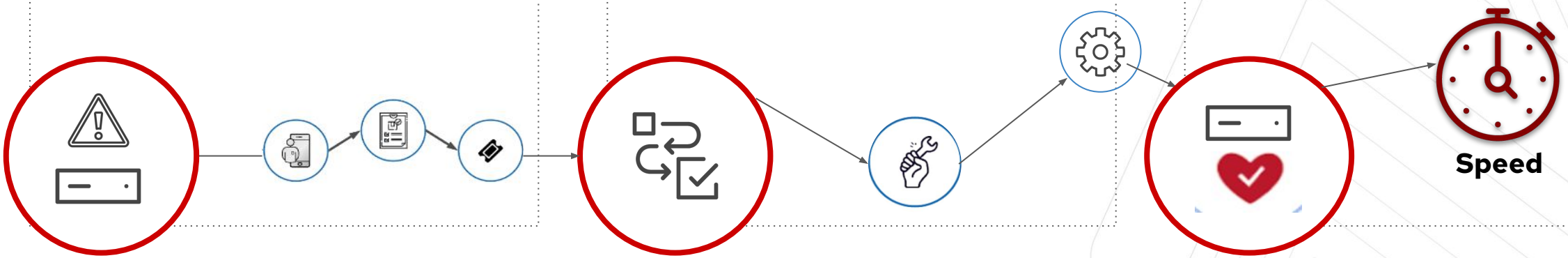
- Watch data / streaming data
- Identify event
- With or without notification and ticketing integration

EVALUATE

- Routed for remediation
- Known problem identified
- Required action identified

ACT

- Automated resolution triggered
- Remediation action completed
- Shorter MMTR



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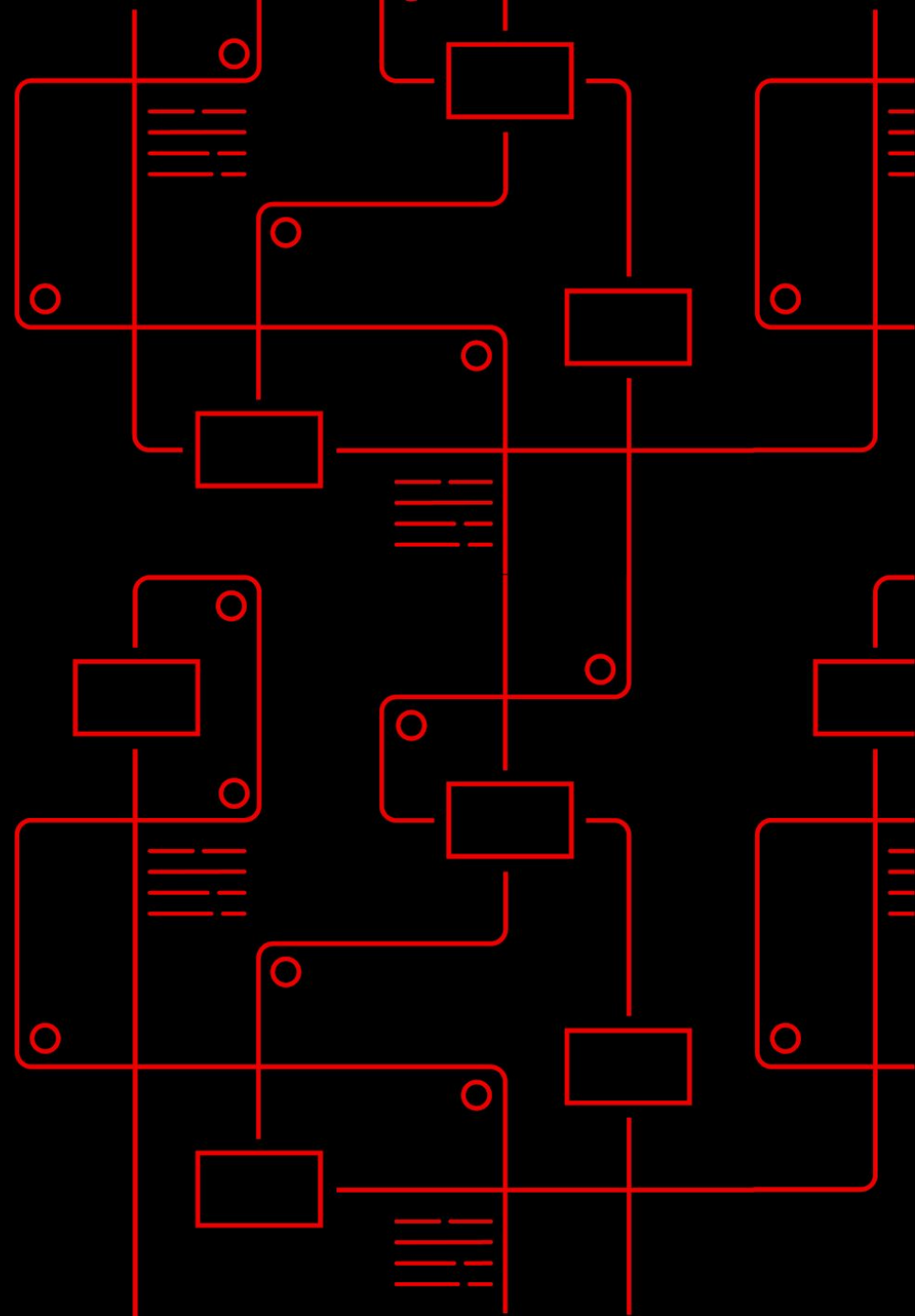
Ansible rulebooks



Key building blocks in Event Driven Ansible

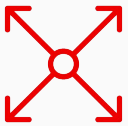
Flexible and interoperable from source to rule to action to automate IT

Certified Sources

- Define where events come from, consume events and pass to the rules engine.
- Source support includes Alertmanager, Azure Service Bus, webhooks and Kafka.
- “Custom source” plugin support.

Rules

- Conditional structure for describing when actions should occur, based on event information



Actions

- Familiar Ansible actions such as playbooks, and “ad-hoc” tasks
- “Create Event” function allows system to still act on data not contained in a source file
- Set event facts to be used in subsequent rules

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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: benthomasson.app.start_app
```

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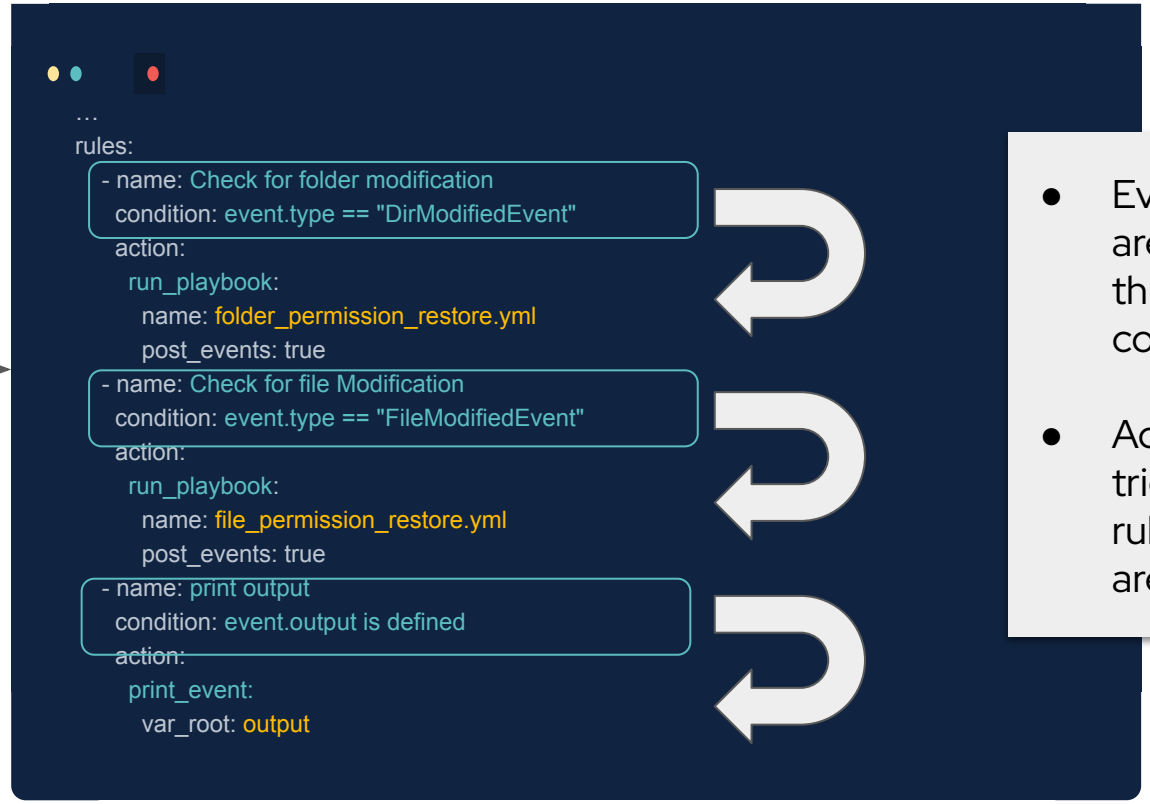
How does Ansible handle rules processing?

Smart automation from conditional rules

Event Source



- Event sources are processed through conditional rules
- Actions are triggered once rule conditions are met

Automation

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Lab Time

Lab 1 - Rulebooks: Getting started

15 Minutes

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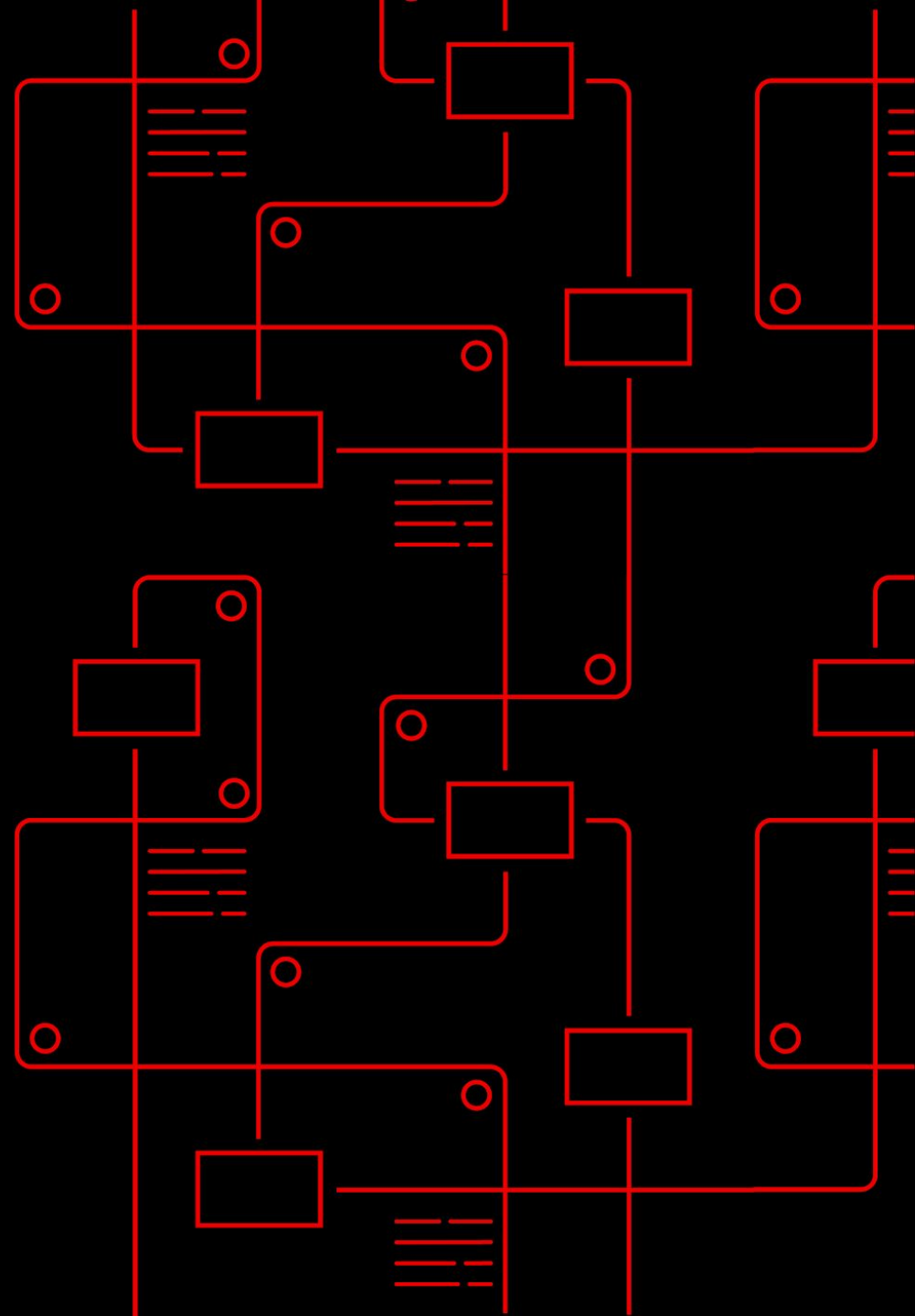
Event driven gitops



So what is **GitOps?**

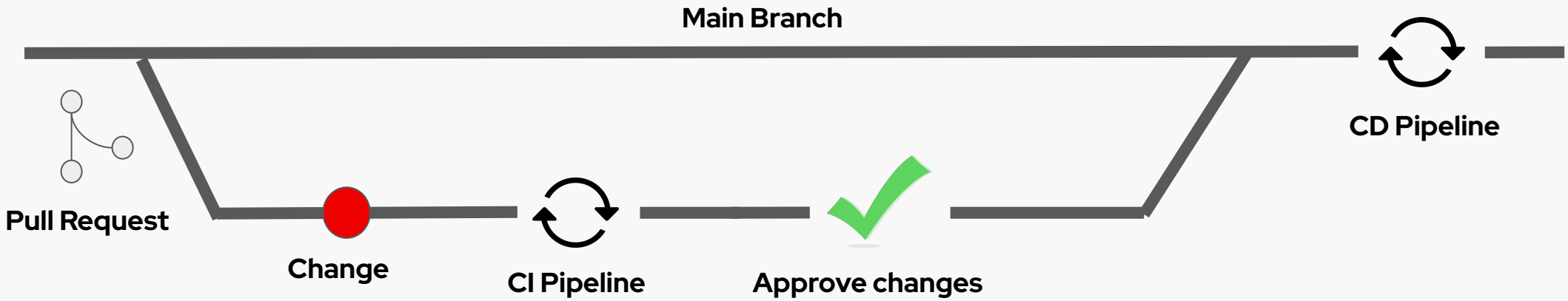
GitOps it is an operational framework that takes DevOps best practices for application development and applies them to infrastructure automation.

In other words?

Treat infrastructure as code as you would application code.

GitOps **workflow**

1. Create Pull Request
2. Run CI Pipeline
3. Approve changes
4. Run CD Pipeline



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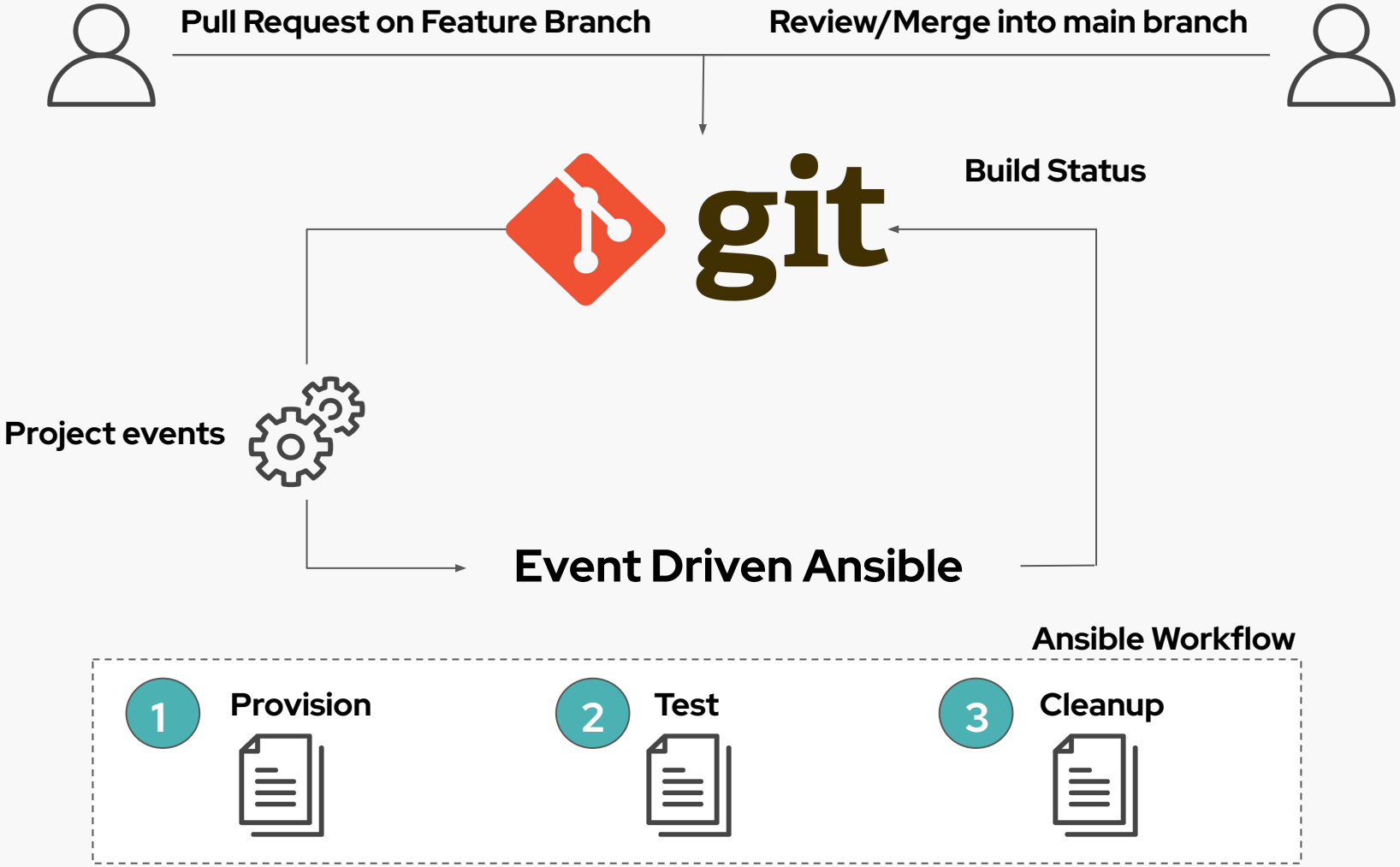
The benefits of **GitOps**

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

Event Driven Ansible GitOps workflow

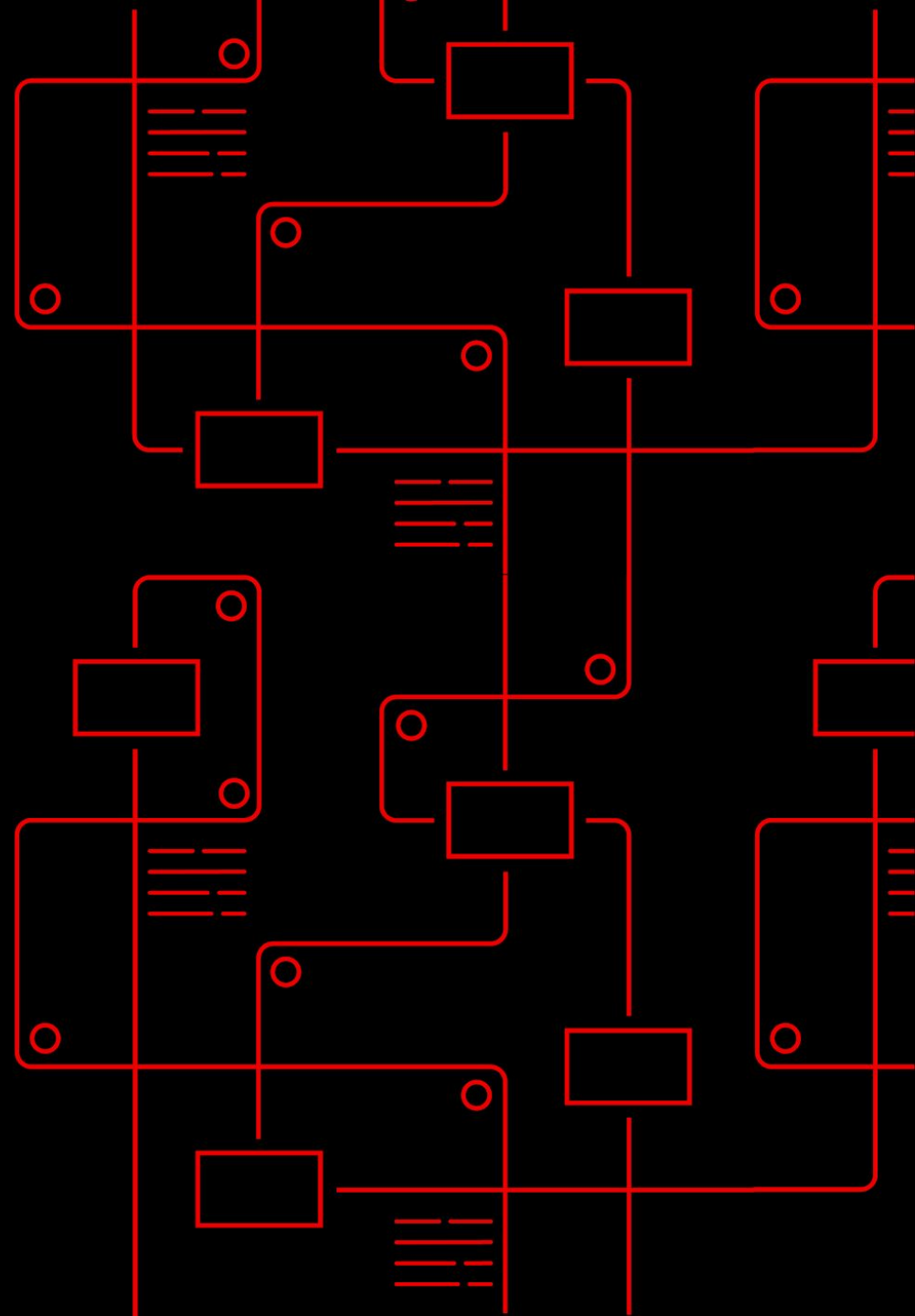


Lab Time

Lab 2 - Gitops with Event Driven Ansible

30 Minutes

Next steps



Learning resources

Continue your automation journey with Red Hat Ansible for public cloud automation

Ansible Automation Labs
red.ht/ansible_labs

E-book:
An IT executive's guide to automation
red.ht/automate_guide

Ansible Basics:
Automation Technical Overview
red.ht/automation_basics

Thank you

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