Unleashing the Power of Red Hat Event-Driven Ansible for NetOps

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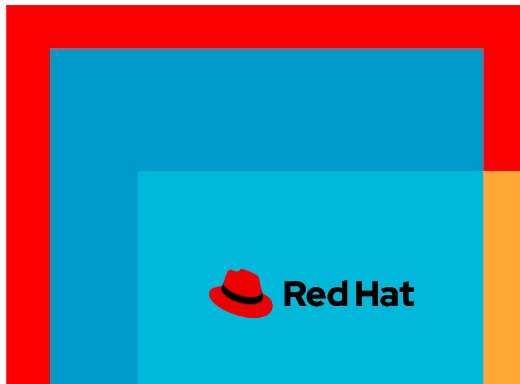
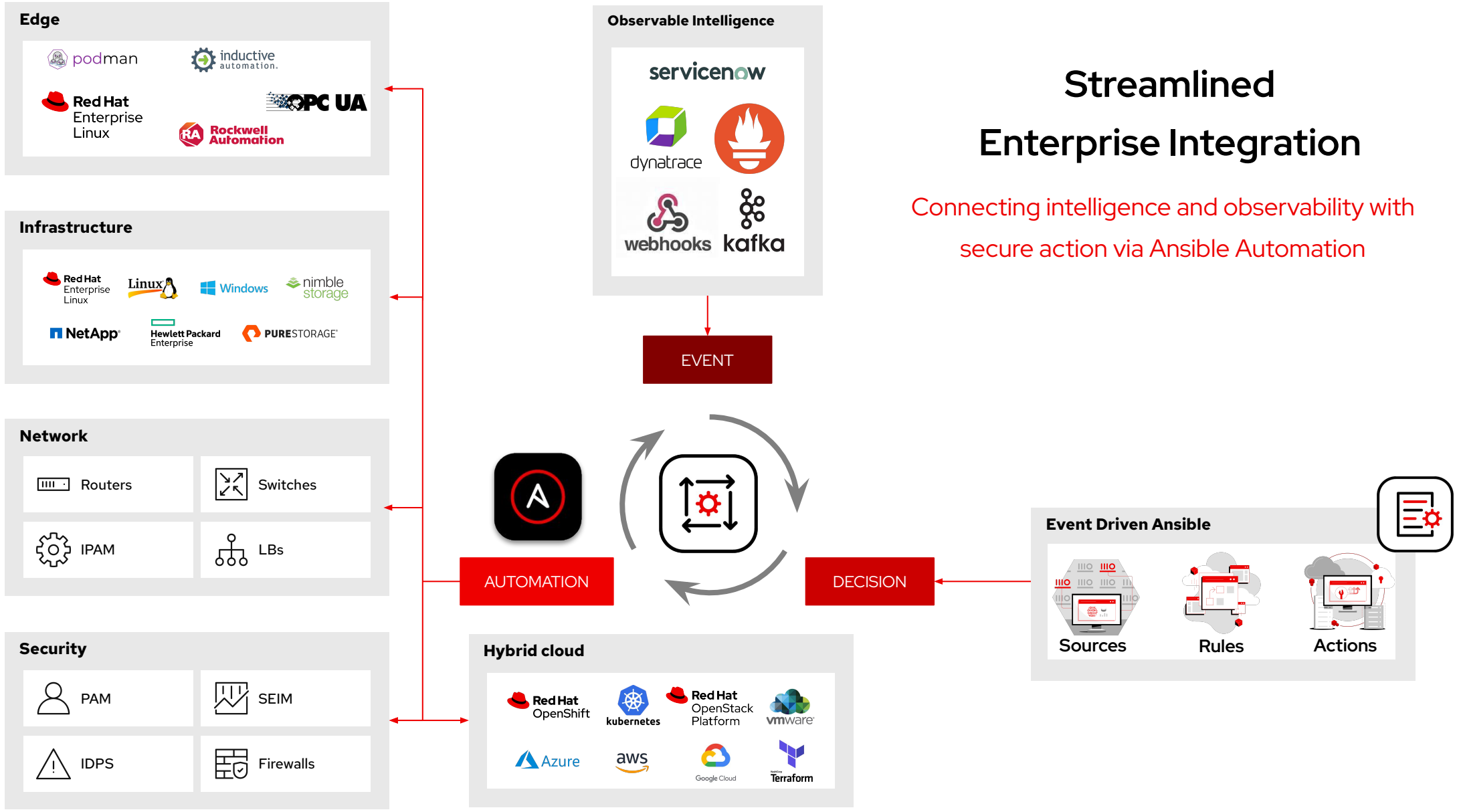


Streamlined Enterprise Integration

Connecting intelligence and observability with secure action via Ansible Automation



Ansible Rulebooks

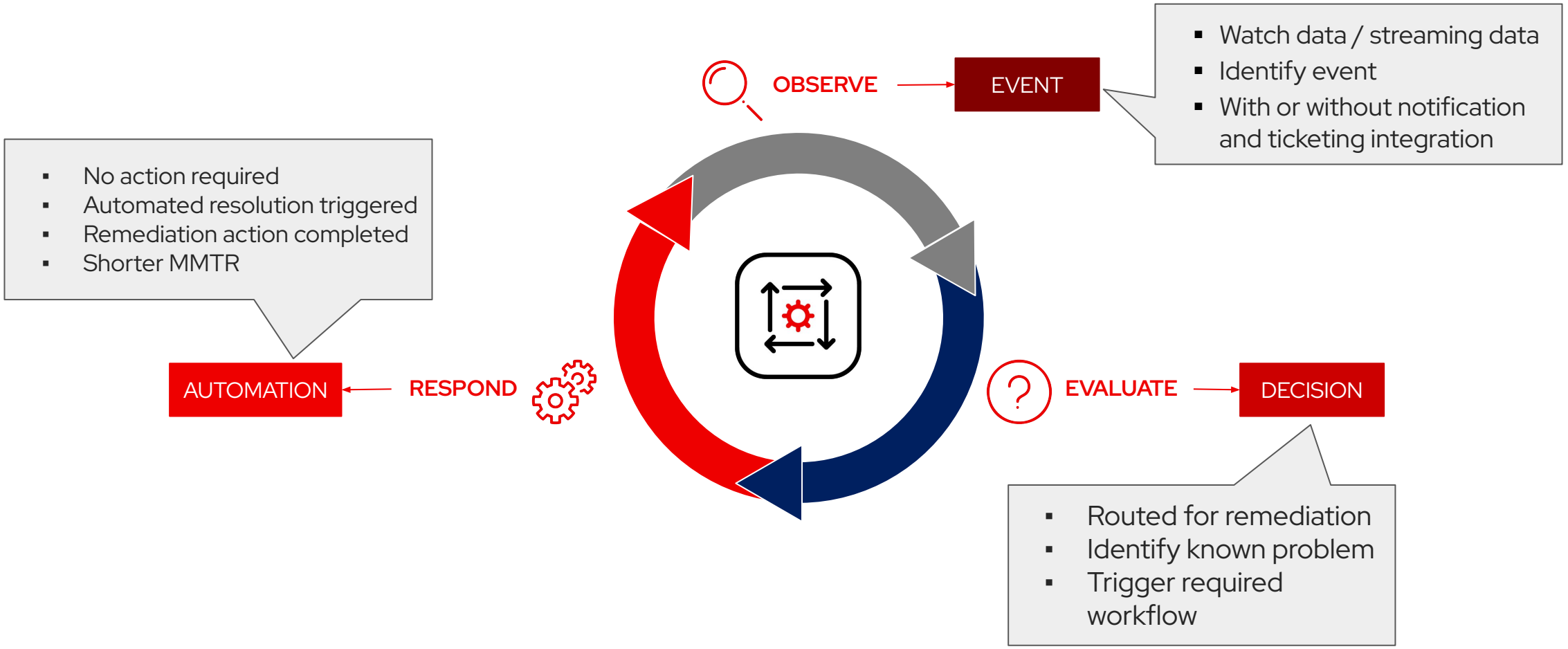
Simple declarative decisions through rules

- **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_job_template:
            name: "[JT] Restart Web Server"
```

Event-Driven Ansible

Automation Supporting Mission Critical Workloads



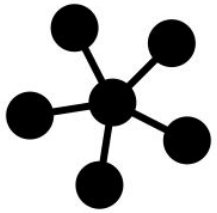
Red Hat

Model-Driven Telemetry

Push-model monitoring and real-time operational statistics

Streamed from network devices. No polling required

Uses **Reliable** transport protocols. E.g. gRPC over HTTP



Powerful **YANG** data models vs weak SNMP MIBs. Can use Netconf and Restconf

Ansible Utils

An Ansible Collection to ease the management, manipulation, and validation of data

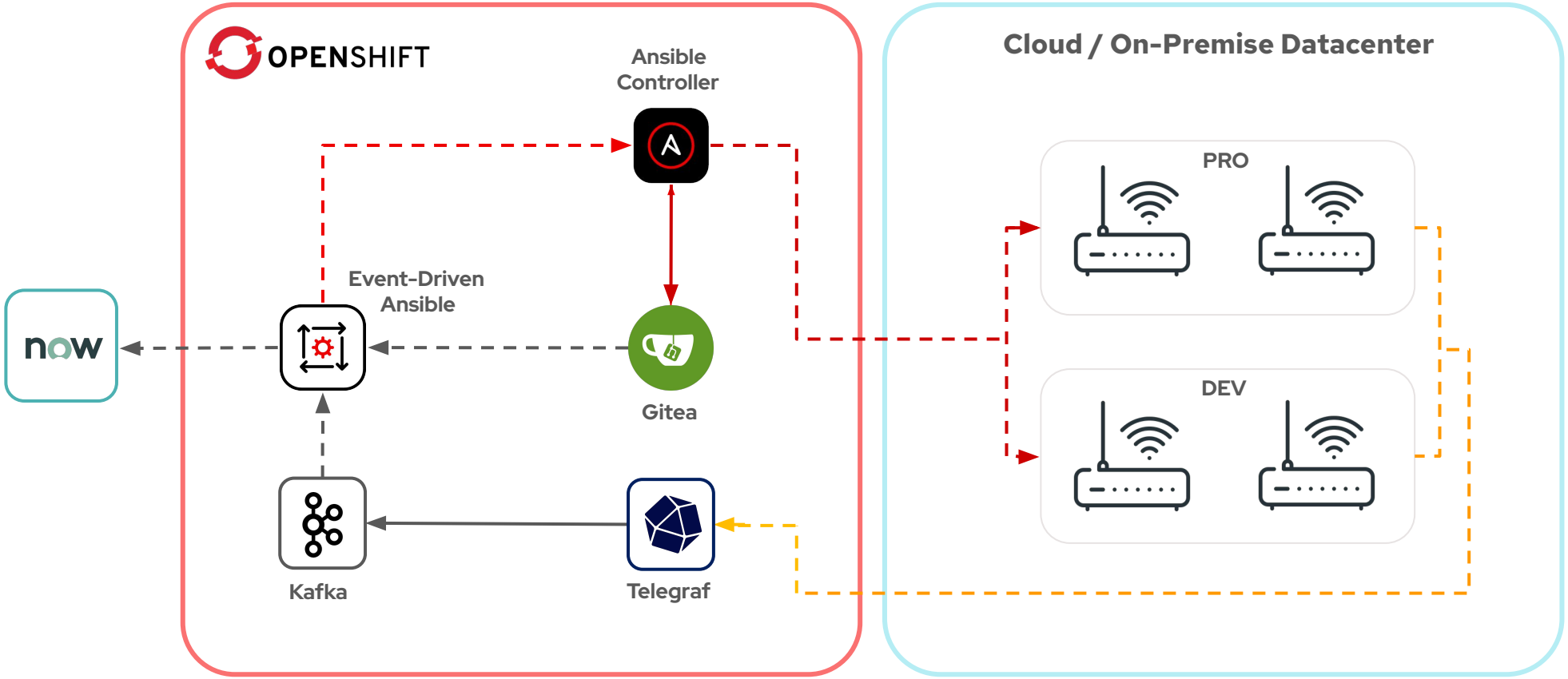
Network Device output

```
# show interfaces
Ethernet1 is up, line protocol is up (connected)
  Hardware is Ethernet, address is 022e.dbe8.1375 (bia
022e.dbe8.1375)
  Internet address is 172.18.104.95/16
  Broadcast address is 255.255.255.255
  Address determined by DHCP
  IP MTU 1500 bytes , BW 1000000 kbit
  Full-duplex, 1Gb/s, auto negotiation: on, uni-link:
n/a
  Up 10 hours, 51 minutes, 55 seconds
  Loopback Mode : None
  3 link status changes since last clear
  Last clearing of "show interface" counters never
  5 minutes input rate 950 bps (0.0% with framing
overhead), 1 packets/sec
  5 minutes output rate 858 bps (0.0% with framing
overhead), 1 packets/sec
     19361 packets input, 2964452 bytes
     Received 0 broadcasts, 0 multicast
     0 runts, 0 giants
<rest of output removed for brevity>
```

Parsed Data

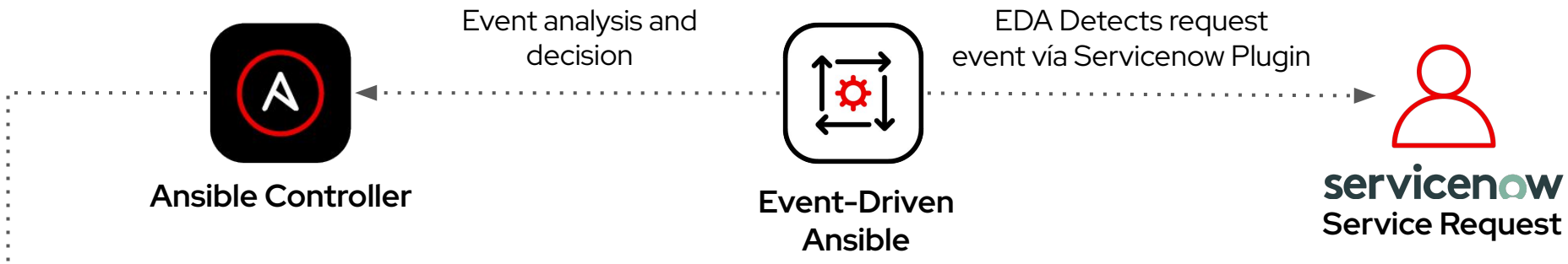
```
result["parsed"]:
  Ethernet1:
    hardware: Ethernet
    mac_address: 022e.dbe8.1375
    state:
      operating: up
      protocol: up
  Loopback0:
    hardware: Loopback
    state:
      operating: up
      protocol: up
  Tunnel0:
    hardware: Tunnel
    mac_address: ac12.685f.0800
    state:
      operating: up
      protocol: up
```

Demo Environment



Infrastructure Provision

Provision, discovery and configuration
as code in a single workflow



Provision instances

- Deploy in EC2
- Get IPS and FQDNs
- Create Inventory in the Ansible controller

Auto-Discovery

- Get Facts
- Complete ServiceNow CMDB
- Create configuration and push to Git
- Create desired state json and push it to Git

Base line

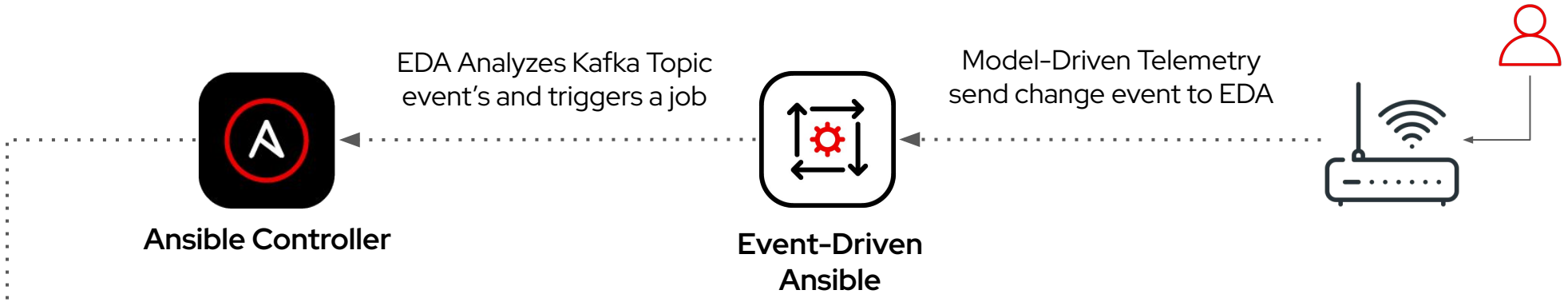
- Configure Hostname
- Configure Credentials
- Configure Model-Driven Telemetry

Custom configuration

- Download configuration files from Git
- Apply custom configuration
- Validate desired State
- Close Request

Operational State Validation

Analyze changes and validate them to force the desired configuration state



Check Operational State

- Download JSON from Git
- Parse and compare with operational state
- Fail if doesn't match

Open ticket

- Open a ticket in ServiceNow

Fix Configuration

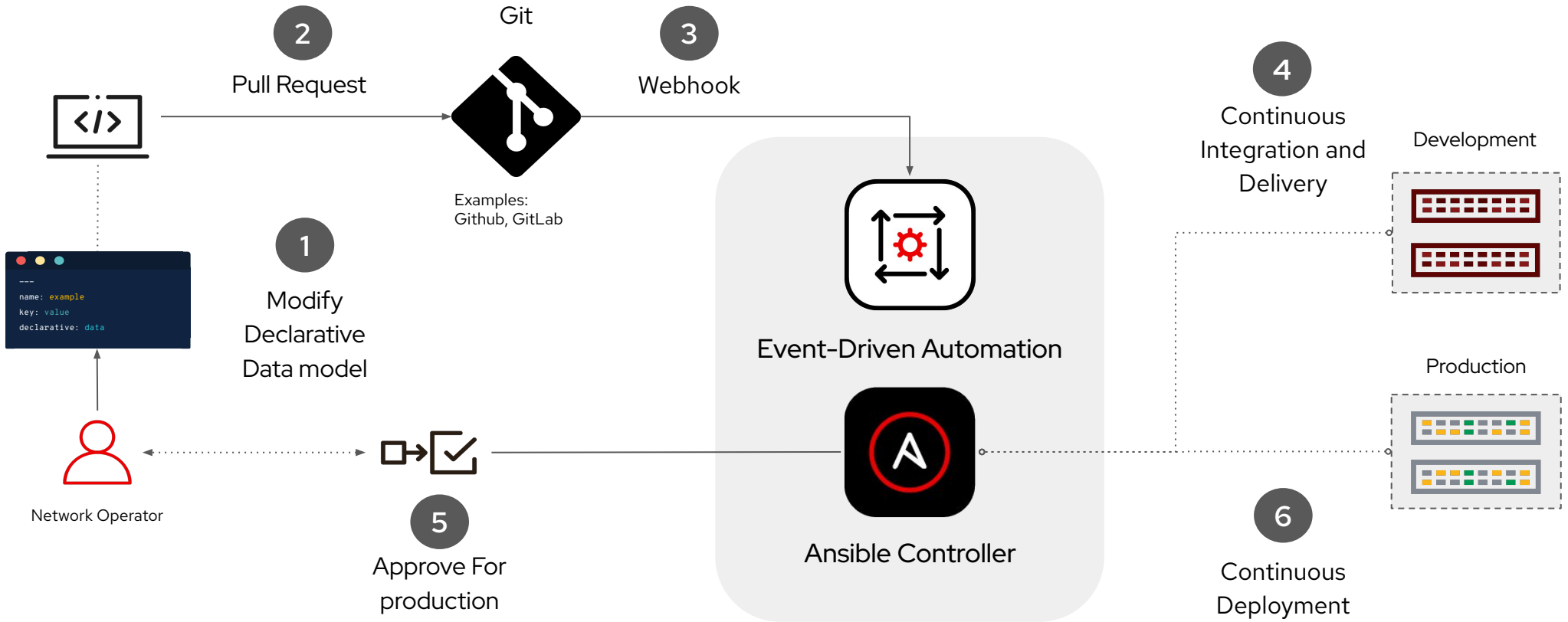
- Download Configuration from Git
- Apply Configuration
- Parse and compare with operational state

Close ticket

- Fill and close Servicenow ticket

Automated NetOps

Using Gitops and Infrastructure as code to keep standard configurations



Thank you!