Red Hat
Ansible Automation
Platform
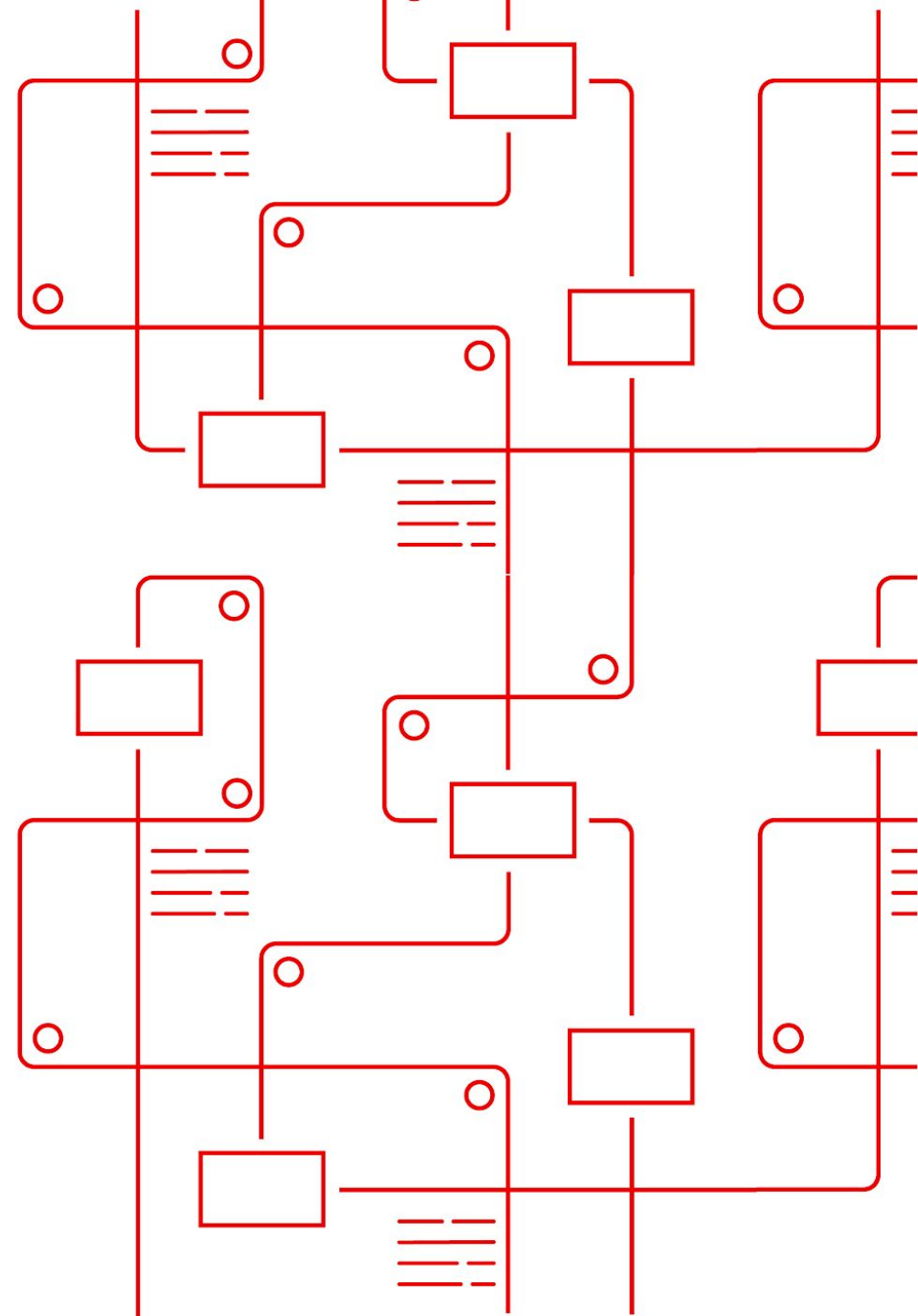
# Getting started with ServiceNow automation

Ansible Self-Guided Labs

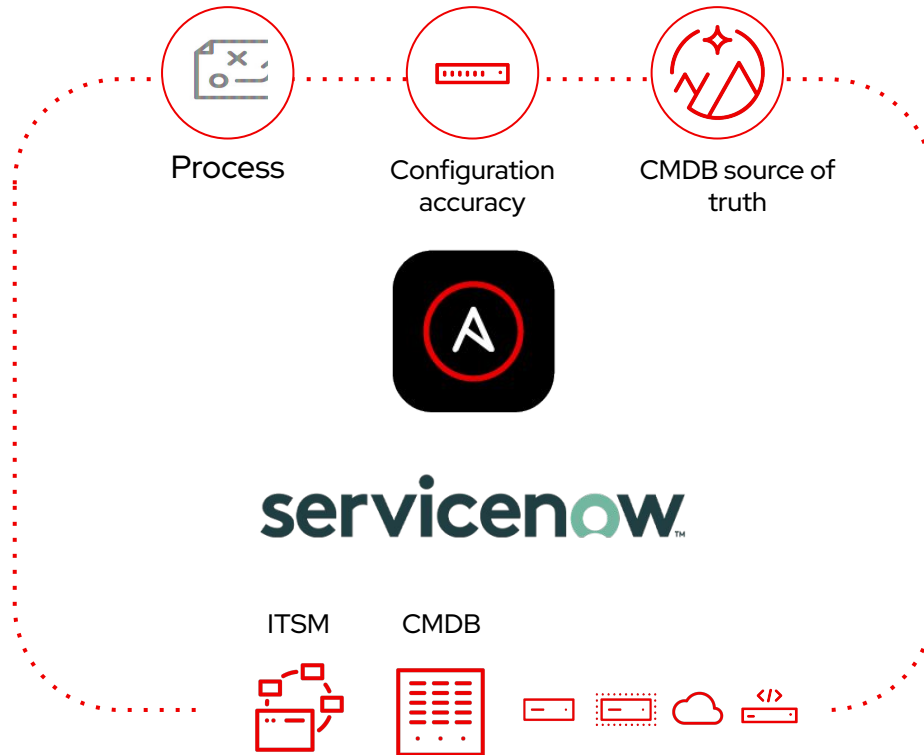# Getting Started With ServiceNow Automation

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# Overview

# Ansible for ServiceNow ITSM

## Increase the value and efficiency of your ITSM

Process

Configuration accuracy

CMDB source of truth

servicenow.™

ITSM        CMDB

- Enable "closed loop" automation of ITSM workflows without time-consuming manual intervention

- Open, close and update ServiceNow ITSM requests through automated workflows

- Automate common service request actions and remediation events

- Establish ServiceNow CMDB  as a single-source-of-truth inventory source

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Ansible Automation Platform

# IT Organizations Moving to New Operational Models

Enable digital enterprise

Increased demand on IT

New technologies

New IT management practices

## DevOps and ITIL combined

ITSM

Provide end-to-end transparency and traceability

Streamline and automate IT activities

Feedback loop for continuous improvement

Management and automation

ITSM

Make IT flow

Dev

Ops

"
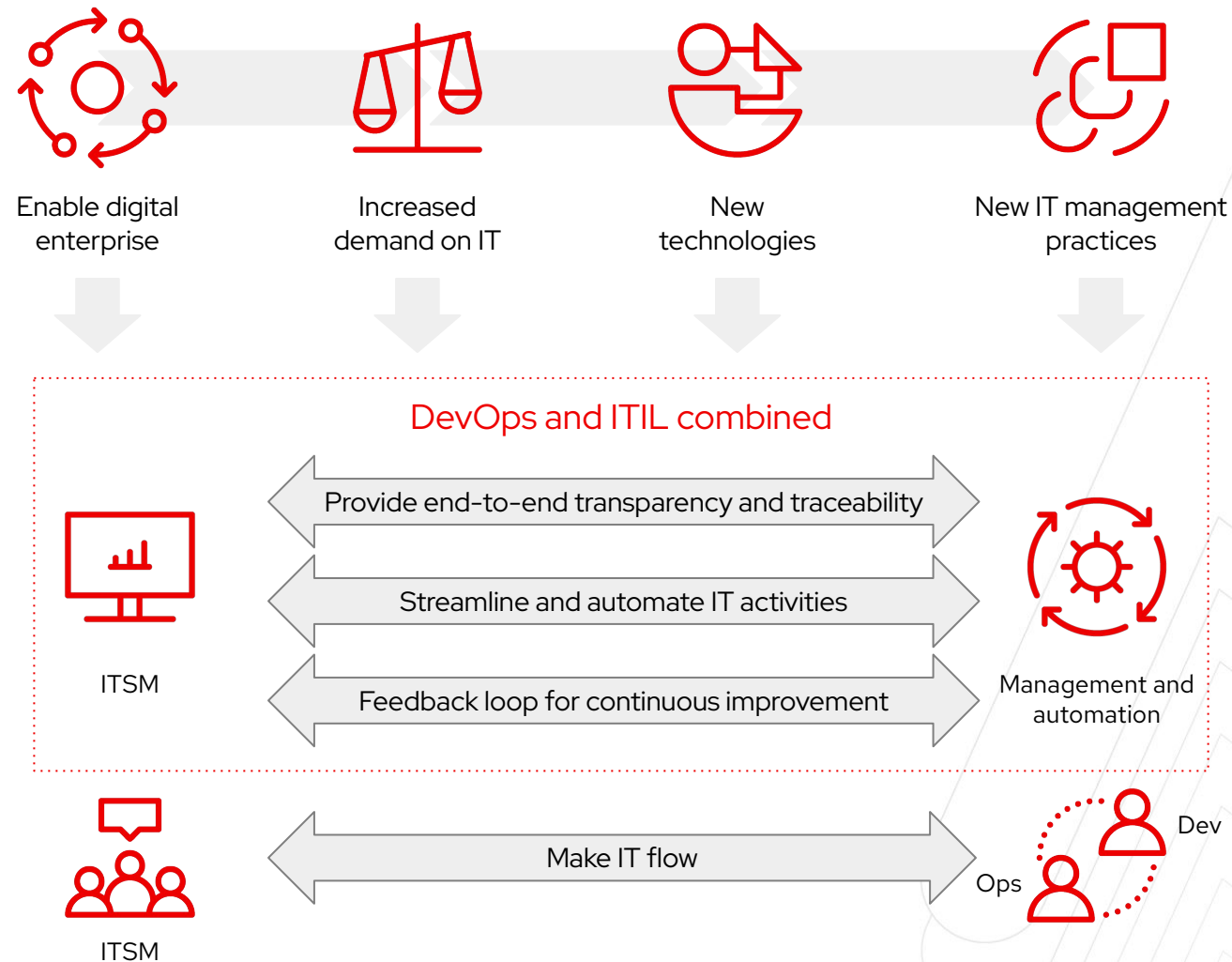
Organizations **must adopt automation**, as it is not possible to scrutinize and manually execute every change.

This approach can be used to **improve existing change management practices or to build new change management practices**.

———

Gartner

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# Ansible Automation Platform for ServiceNow ITSM

## Integrated automation for greater speed, accuracy, and efficiency

DevOps and ITIL Combined

servicenow.

✓ Change management

✓ Incident management

✓ Problem management

✓ CMDB updates

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**Make ITSM your superpower**
Deliver more resilient services, increase productivity, and improve mean time to resolution (MTTR)

**Enterprise IT automation**
Integrate automation into ServiceNow AND other infrastructure workloads for end-to-end automation workflows

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# IT Service Management Key Phrases

**Incident**

An unplanned outage or reduction in quality of an IT service or application

**Problem**

The cause of one or more incidents – The root cause of the problem may not be known at the time of creation and may represent a root cause analysis through the problem management process.

**Change**

Anything added, removed, or modified to address a problem that may be related to a past or ongoing incident

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# Ansible Certified Content Collection for ServiceNow ITSM 2.0

## API for Red Hat Ansible Automation Platform Certified Content Collection*

**API for Red Hat Ansible Automation Platform Certified Content Collection**

Integrates Ansible Certified Content Collection for ServiceNow ITSM into your ServiceNow instance

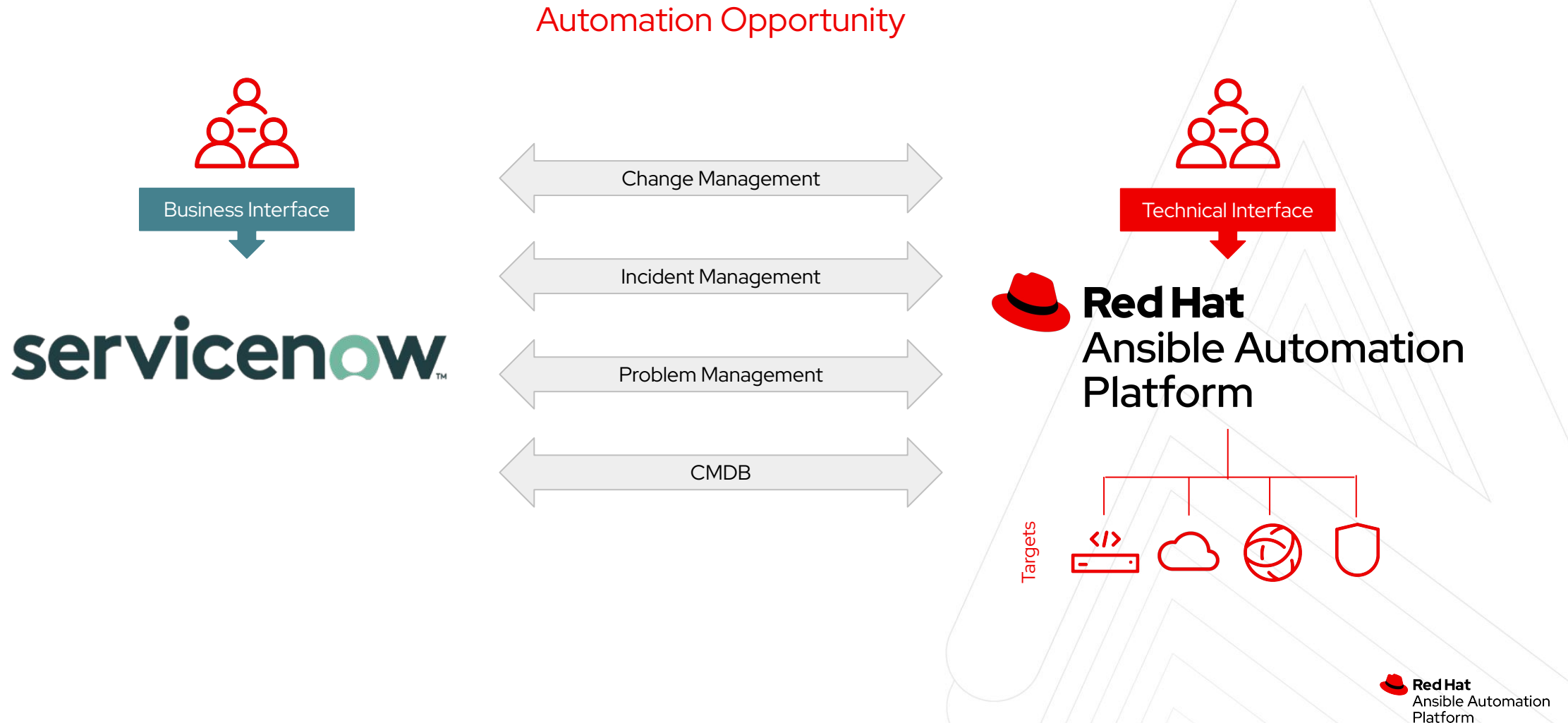Available at
**store.servicenow.com**

**Ansible Certified Content Collection for ServiceNow ITSM**

Helps create new automation workflows faster; while establishes a single source of truth in the ServiceNow CMDB.

Available at
**console.redhat.com**

*For ServiceNow ITSM releases Rome and later*

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# Ansible Automation Platform for ServiceNow Solution

## Automation Opportunity

**Business Interface**

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Change Management

Incident Management

Problem Management

CMDB

**Technical Interface**

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Targets

Red Hat
Ansible Automation
Platform

# ServiceNow Use Cases

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Platform
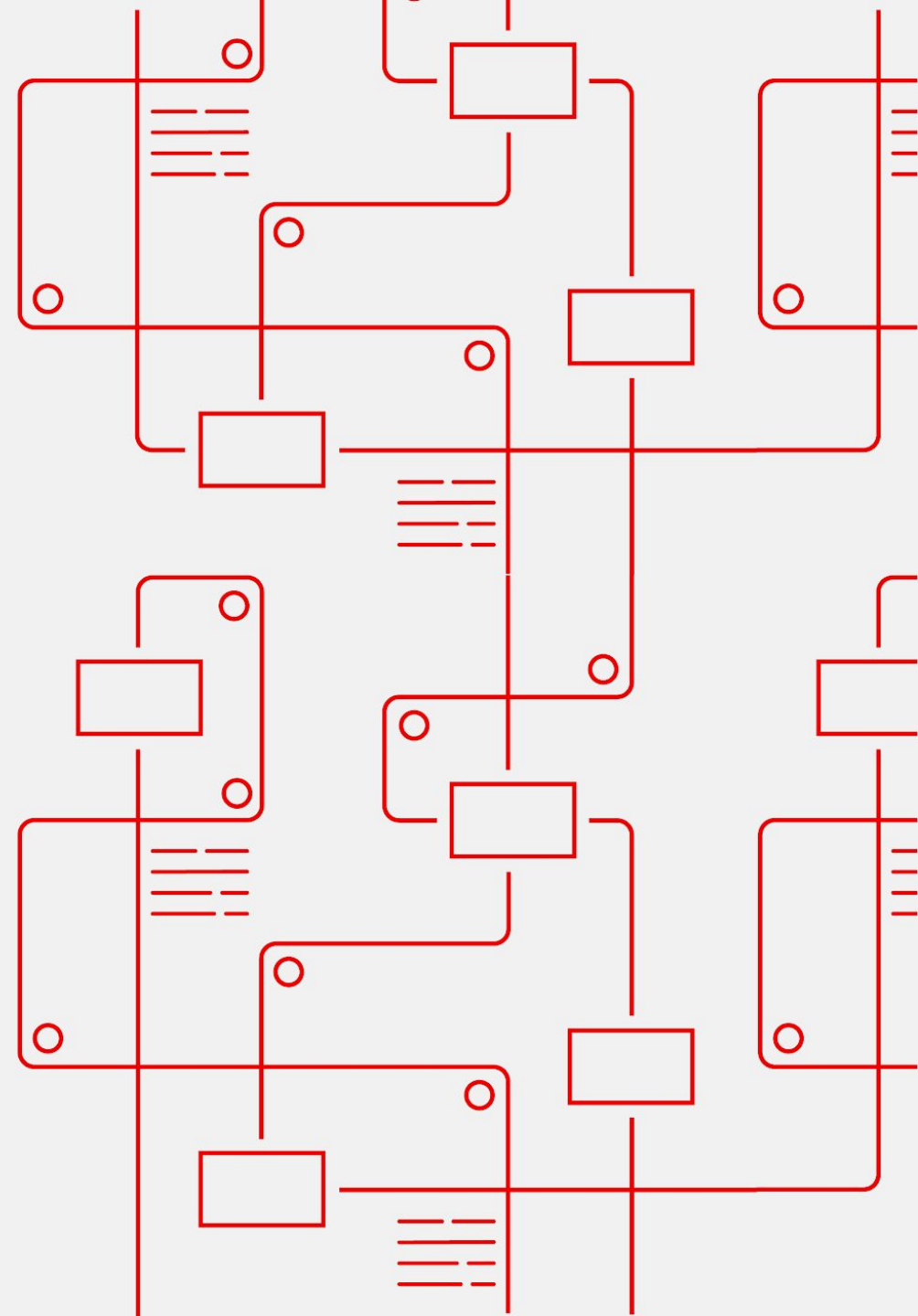
# Ansible for ServiceNow solution

## Components

**servicenow** (logo)

**Red Hat Ansible Automation Platform** (logo)

Source of truth and process orchestrator

Ansible spoke v2.2.5 – Automate job scheduling, job templates, inventory and user management in Tower environment from the ServiceNow instance.

*Distributed through ServiceNow Store and included in the IntegrationHub 'Professional' package*

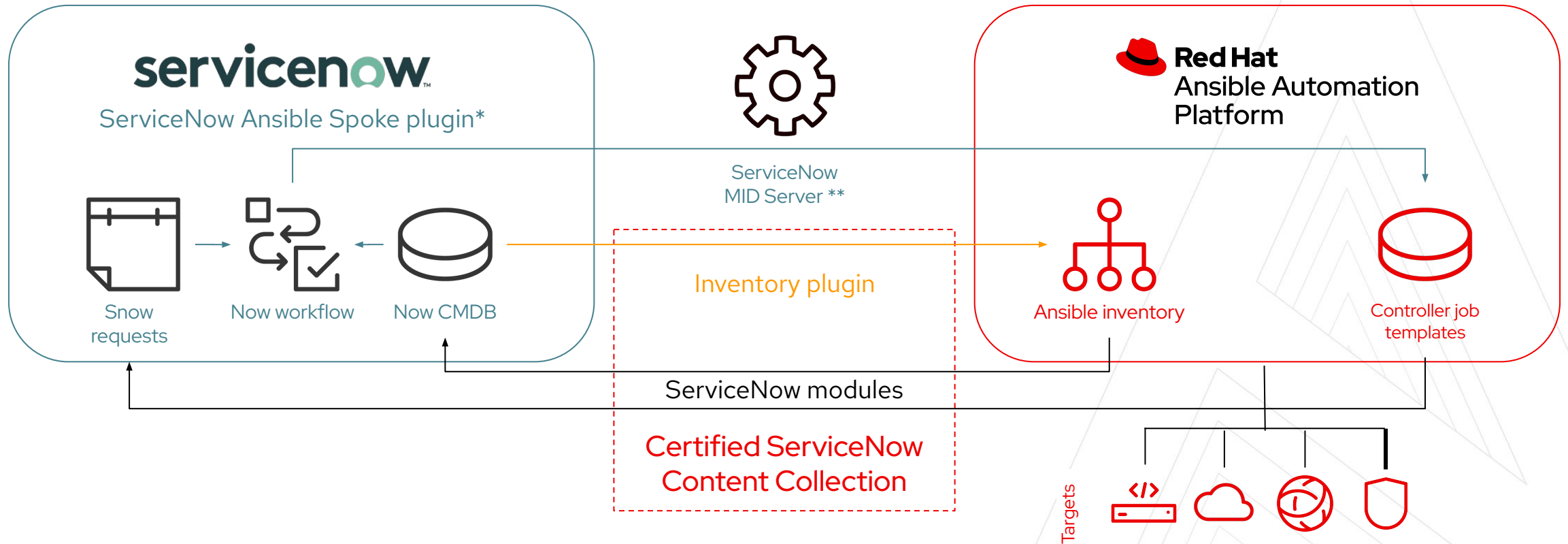Infrastructure integration and task automation

servicenow.itsm – Certified Content Collection
- ● ServiceNow Modules
- ● ServiceNow CMDB Inventory PlugIn

*Distributed through Ansible automation hub and included into the Ansible Automation Platform subscription*

Red Hat Ansible Automation Platform (logo)

# Ansible for ServiceNow solution

## Logical architecture



ServiceNow Ansible Spoke plugin*

Snow requests

Now workflow

Now CMDB

ServiceNow MID Server **

Inventory plugin

ServiceNow modules

Certified ServiceNow Content Collection

Red Hat Ansible Automation Platform

Ansible inventory

Controller job templates

Targets

* Distributed through ServiceNow Store
** Optional

Red Hat Ansible Automation Platform

# Automated change request fulfillment

User creates a change request

**servicenow**

Change Request → NOW Workflow → NOW CMDB

**1)** ServiceNow Ansible Spoke Plugin initiates Job Template

**2)** Ansible Inventory loaded from CMDB with inventory plugin

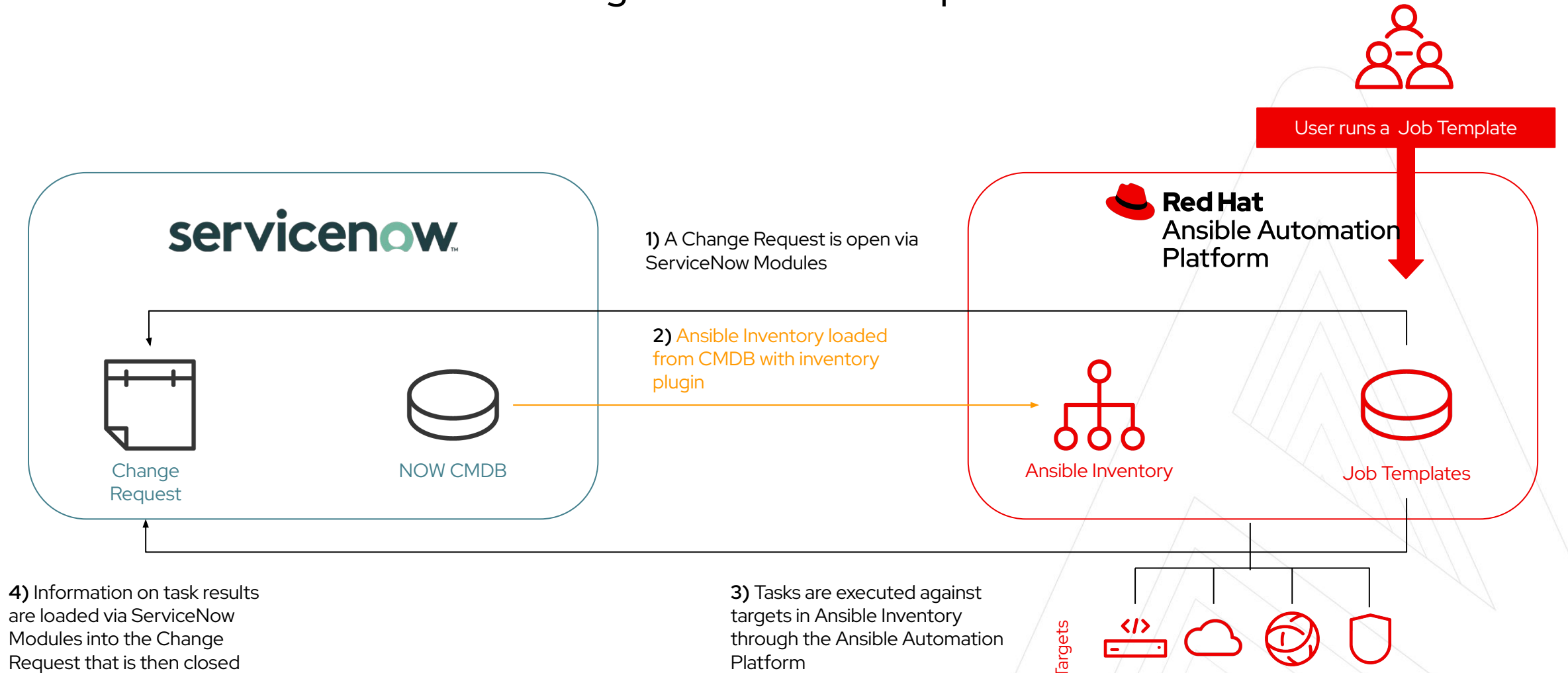**Red Hat Ansible Automation Platform**
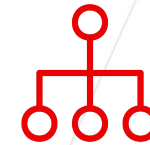
Ansible Inventory

Controller Job Templates

**4)** Information on task results are loaded via ServiceNow Modules into the Change Request that is then closed

**3)** Tasks are executed against targets in Ansible Inventory through the Ansible Automation Platform

Targets

**Red Hat Ansible Automation Platform**

# ITSM filing of automated operations

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Ansible Automation
Platform**

User runs a Job Template

**1)** A Change Request is open via ServiceNow Modules

Change Request

NOW CMDB

**2)** Ansible Inventory loaded from CMDB with inventory plugin

Ansible Inventory

Job Templates

**4)** Information on task results are loaded via ServiceNow Modules into the Change Request that is then closed

**3)** Tasks are executed against targets in Ansible Inventory through the Ansible Automation Platform

Targets

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# ServiceNow Implementation
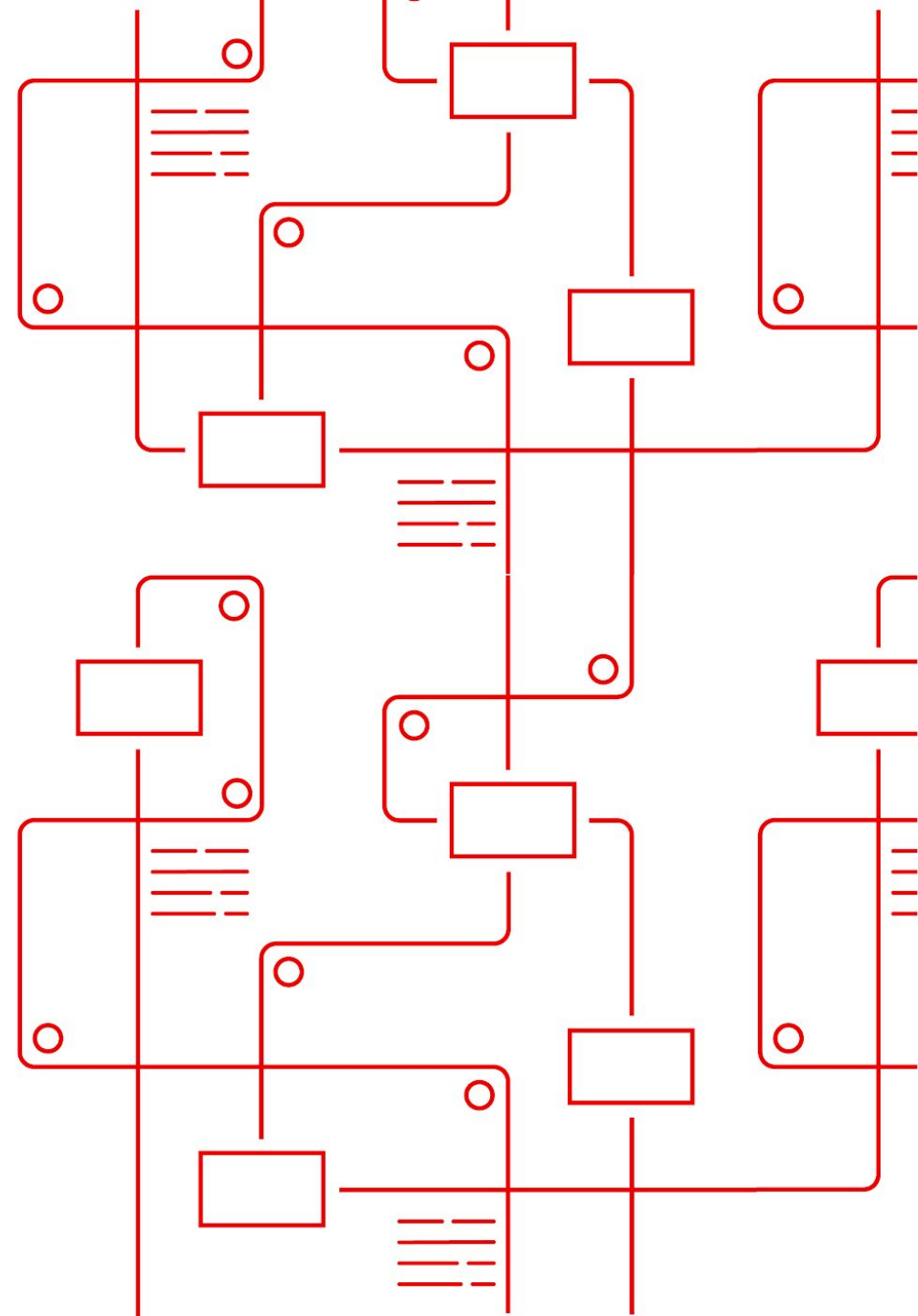
# ServiceNow Store component

## API for Red Hat Ansible Automation Platform Certified Content Collection

Connect your ServiceNow ITSM with the Ansible-certified Content Collection for ServiceNow

**Red Hat Inc TPP**
**Compatibility:** Tokyo, San Diego, Rome

**Pricing**
Free

now Certified App

[API for Red Hat Ansible Automation Platform Certified Content Collection](#)

- Allows greater control and stability of endpoints leveraged by collection modules

- Roles required for service account documented in Installation Guide on the store page

- No additional ServiceNow configuration needed post installation

- Compatible with latest release

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# ServiceNow Authentication

Connecting to an instance

What's wrong here?

Plain text password?

```yaml
---

- name: Sample playbook
  hosts: localhost
  gather_facts: false

  tasks:
    - name: Create a new incident
      servicenow.itsm.incident:
        # Instance data
        instance:
          host: https://dev12345.service-now.com
          username: user
          password: pass
          client_id: cid
          client_secret: csecret
```

# ServiceNow Authentication

**Input Configuration**

```
fields:
  - id: SN_HOST
    type: string
    label: Snow Instance
  - id: SN_USERNAME
    type: string
    label: Username
  - id: SN_PASSWORD
    type: string
    label: Password
    secret: true
required:
  - SN_HOST
  - SN_USERNAME
  - SN_PASSWORD
```

**Injector Configuration**

```
env:
  SN_HOST: '{{ SN_HOST }}'
  SN_PASSWORD: '{{ SN_PASSWORD }}'
  SN_USERNAME: '{{ SN_USERNAME }}'
```

Read this blog!

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# Use case: Incident management

Something happened:
Create an incident

Attach a sosreport to
the incident

```yaml
- name: Create new incident
  servicenow.itsm.incident:
    caller: admin
    state: new
    short_description: Demo incident
    attachments:
      path: /tmp/sosreport.bz2
    impact: low
    urgency: low
  register: incident
```

# Use case: Incident management

Create a problem
Attach it to existing incident

```yaml
- name: Create a problem from incident
  servicenow.itsm.problem:
    short_description: Demo problem
  register: problem

- name: Update incident with a problem information
  servicenow.itsm.incident:
    number: "{{ incident.record.number }}"
    state: in_progress
    other:
      problem_id: "{{ problem.record.sys_id }}"
```

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# Use case: Incident management

Change the state of the problem
Create a change request

```yaml
- name: Assign problem for assessment
  servicenow.itsm.problem:
    sys_id: "{{ problem.record.sys_id }}"
    state: assess
    assigned_to: problem.manager

- name: Create change request for resolving a problem
  servicenow.itsm.change_request:
    state: new
    type: standard
    short_description: Demo change request
    template: Clear BGP sessions on a Cisco router - 1
    other:
      parent: "{{ problem.record.sys_id }}"
  register: change
```

# Use case: Incident management

Mark the problem for root
cause analysis
Fix the problem

```yaml
- name: Mark the problem for root cause analysis
  servicenow.itsm.problem:
    number: "{{ problem.record.number }}"
    state: root_cause_analysis
    cause_notes: Document thoroughly!
    other:
      rfc: "{{ change.record.sys_id }}"

- name: Start fixing the problem
  servicenow.itsm.problem:
    sys_id: "{{ problem.record.sys_id }}"
    state: fix_in_progress
    fix_notes: Detailed fix description here.
```

# Use case: ServiceNow CMDB Inventory

**Inventory configuration**

Query parameter allows for reusing of ServiceNow filters and operators just like in modules

```yaml
---
plugin: servicenow.itsm.now
query:
  -os: = Linux Red Hat
  -os: = Windows XP
keyed_groups:
-   key: os
    prefix: os
```

**Example output**

```
ansible-inventory -i inventory.now.yaml --graph
 @all:
  |--@os_Linux_Red_Hat:
  |   |--FileServerFloor1
  |   |--FileServerFloor2
  |--@os_Windows_XP:
  |   |--DatabaseServer1
  |   |--DatabaseServer2
...
```

# Use case: CMDB update

Add/update linux instance in CMDB

```yaml
- name: Register instance in ServiceNow
  servicenow.itsm.configuration_item:
    name: "{{ item.hostname }}"
    ip_address: "{{ item.default_ip }}"
    mac_address: "{{ item.default_mac }}"
    assigned_to: "{{ username }}"
    other:
        sys_class_name: cmdb_ci_ec2_instance
  loop: "{{ node_info }}"
  register: item
```

# Ansible based mappings

```yaml
- name: Retrieve all incidents
  servicenow.itsm.incident_info:
    incident_mapping:
      state:
        1: "new"
        2: "in_progress"
        3: "on_hold"
        4: "resolved"
        5: "closed"
        6: "canceled"
        7: "test"
  register: result
```

- ServiceNow choice lists can be updated for things like problem/incident/change request, etc.

- Choice lists contain things like incident state of: **New, Known Issue, Investigating, Closed** and are customizable

- As choice lists are modified in ServiceNow, mappings allow to keep Ansible in sync with customized choice lists

- Makes state transitions more predictable by using the value instead of the number ID

# API and API_info Modules

- ServiceNow is highly customizable across many different tables including the ability to define new tables

- Modules for incident/problem/change request, etc., are only targeting one table

- API modules allow automation creators to target all other resources available in ServiceNow

- Allows for automated tasks outside what is covered by ITSM modules

```yaml
- name: Find tag ID by name
  servicenow.itsm.api_info:
  resource: label
  sysparm_query: name={{ tag_name }}
  columns:
        - name
        - sys_id
  register: tag_info

- name: Attach role to new user
  servicenow.itsm.api:
  resource: sys_user_has_role
  action: post
  data:
        user: "{{ username }}"
        role: "{{ role }}"
  register: user_role
```

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# Event-Driven Ansible – ServiceNow ITSM integration

## Events to human observation

**EDA**

| Event Source | Decision Making and Workflows | Automation |
|---|---|---|

- ▶ **Observe events in the environment**
  - ▷ Places where the same remediation is applied again and again.

- ▶ **Use events to trigger ITSM ticket escalation**
  - ▷ Critical system or infrastructure failure triggers an action to create an incident on ServiceNow for human intervention.

- ▶ **Update ServiceNOW CMDB**
  - ▷ Infrastructure changes can be observed and used to trigger ServiceNow to update its inventory

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# Lab Time

## Lab: Get started with ServiceNow automation

40 Minutes (click to start timer)

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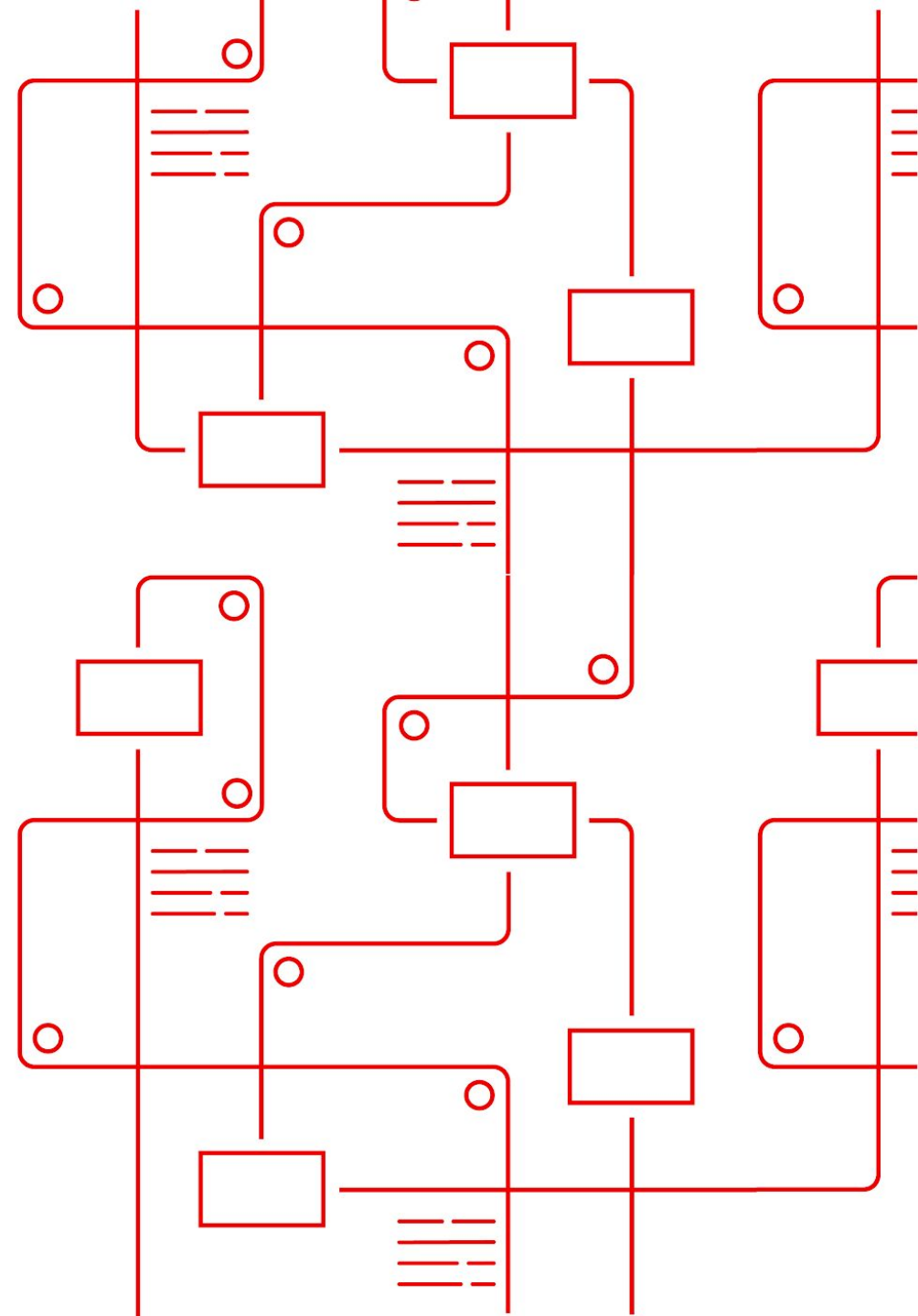
# Additional resources

Blog: Introducing the Ansible API for ServiceNow ITSM

Blog: Enabling modern IT service management actions for ServiceNow with Red Hat Ansible Automation Platform

Blog: Automating ServiceNow with Red Hat Ansible Automation Platform

Blog: Inside the newest features in the Red Hat Ansible Certified Content Collection for ServiceNow ITSM

Overview: Ansible Certified Content Collection for ServiceNow

YouTube: Automate ServiceNow ITSM

Webinar: Ansible certified Content Collection for ServiceNow

Website: Ansible Automation Platform: ServiceNow Integration

# 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.

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