Red Hat Summit

Connect

Test Driven Ansible

Ein Experiment auf dem Weg zur robusteren Automation

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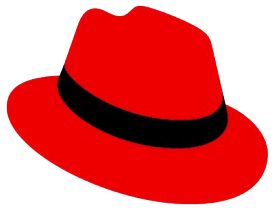

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Technical Account Manager
Red Hat

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Question time

We’ve asked 100 people ...

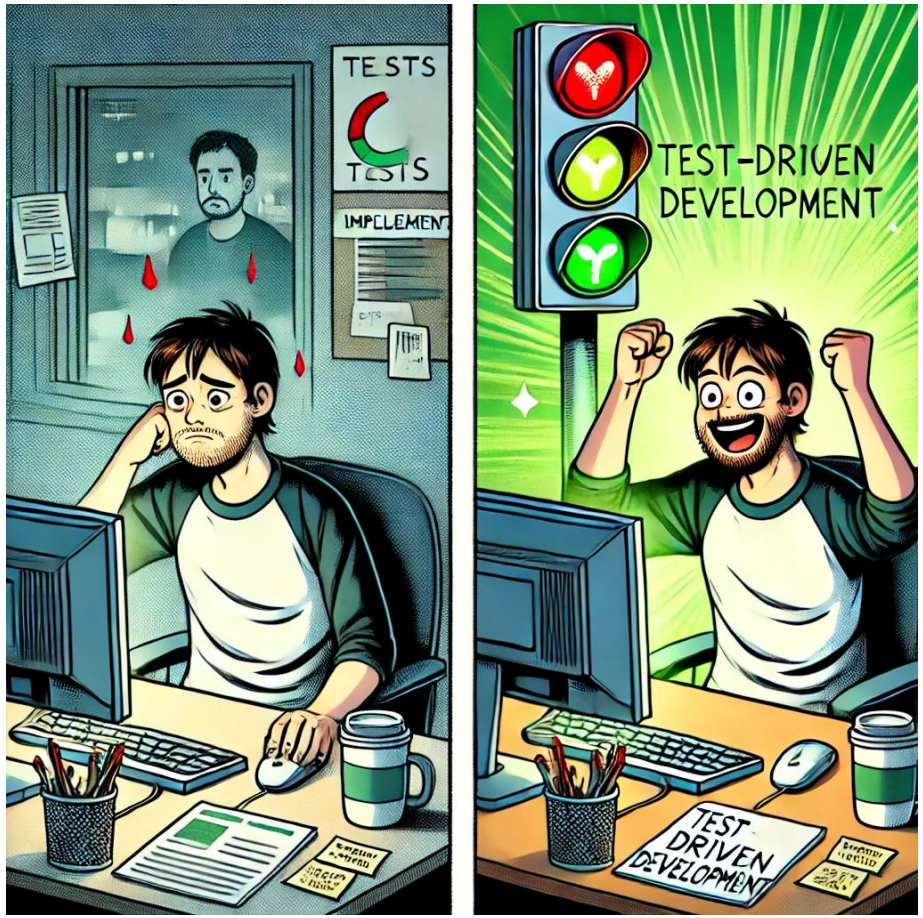
Motivation

Let me tell you a story ...

- I'm a Sysadmin
- I can code, but not develop
- Creating tests is boring and waste of time

Motivation

Let me tell you a story ...



- I'm a Sysadmin
- I can code, but not develop
- Creating tests is boring and waste of time

- Curious about TDD
- Used approach to develop a parser
- Run into challenge where complete refactor was necessary
- It went well without breaking anything

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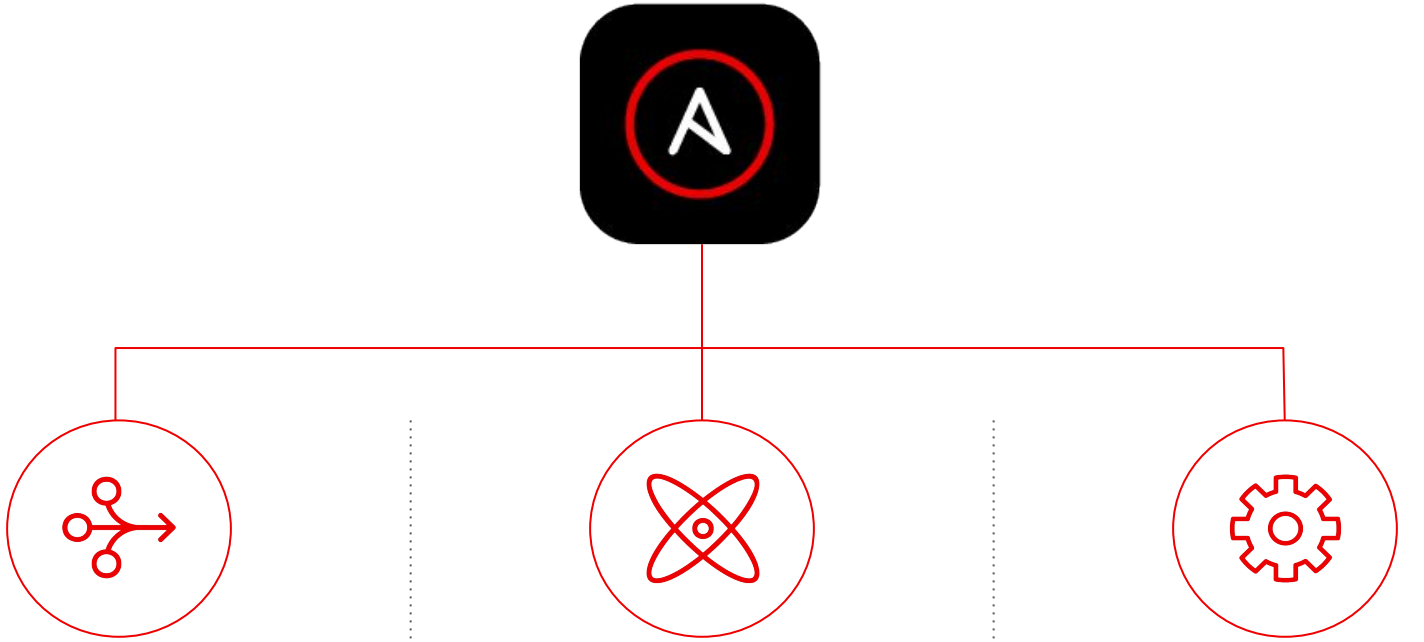
Why using Ansible?



Simple

Human-readable language with quick adoption

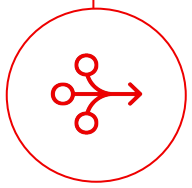
Powerful

Universal language spanning multiple IT domains

Agentless

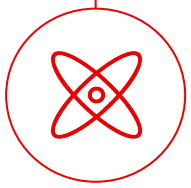
Easily integrate with hybrid environments

Why using Ansible?



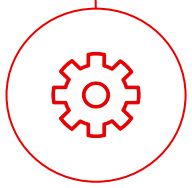
Simple

Human-readable language with quick adoption



Powerful

Universal language spanning multiple IT domains



Agentless

Easily integrate with hybrid environments

- Simplifying Infrastructure Management
- Streamlining configuration management
- improved Efficiency and Productivity
- Scalability and Flexibility
- Infrastructure as Code
- Security and Compliance

You need testing to fully realize these benefits

Ways of testing

- Ansible Lightspeed

webserver.yml U

webserver.yml

```yaml
---
- name: Install and configure webserver on RHEL box.
  hosts: webservers
  become: yes
  gather_facts: yes

  tasks:
    - name: Install and configure webserver on RHEL box.
      when: ansible_os_family == "RedHat"
      ansible.builtin.package:
        name: httpd
        state: present

    # Now open the port for the webserver.
    - name: Now open the port for the webserver
      ansible.posix.firewalld:
        port: 80/tcp
        permanent: true
        state: enabled
        immediate: true

    # Next, put a file in the webservers directory provided as index.html
    - name: Next, put a file in the webservers directory provided as index.html
      ansible.builtin.copy:
        src: files/index.html
        dest: /var/www/html/index.html
        owner: root
        group: root
        mode: '0644'

    # Finally, ensure selinux is not blocking the webserver
    - name: Finally, ensure selinux is not blocking the webserver
      ansible.posix.seboolean:
        name: httpd_can_network_connect
        state: true
        persistent: true

    # And make sure the services is running
    - name: And make sure the services is running
      ansible.builtin.service:
        name: httpd
        state: started
        enabled: true

```

Ways of testing

- Ansible Lightspeed
- ansible-playbook *--syntax-check*

```
$ ansible-playbook -i inventory --syntax-check
webserver.yml

playbook: webserver.yml
$
```

Ways of testing

- Ansible Lightspeed
- ansible-playbook *--syntax-check*
- ansible-lint

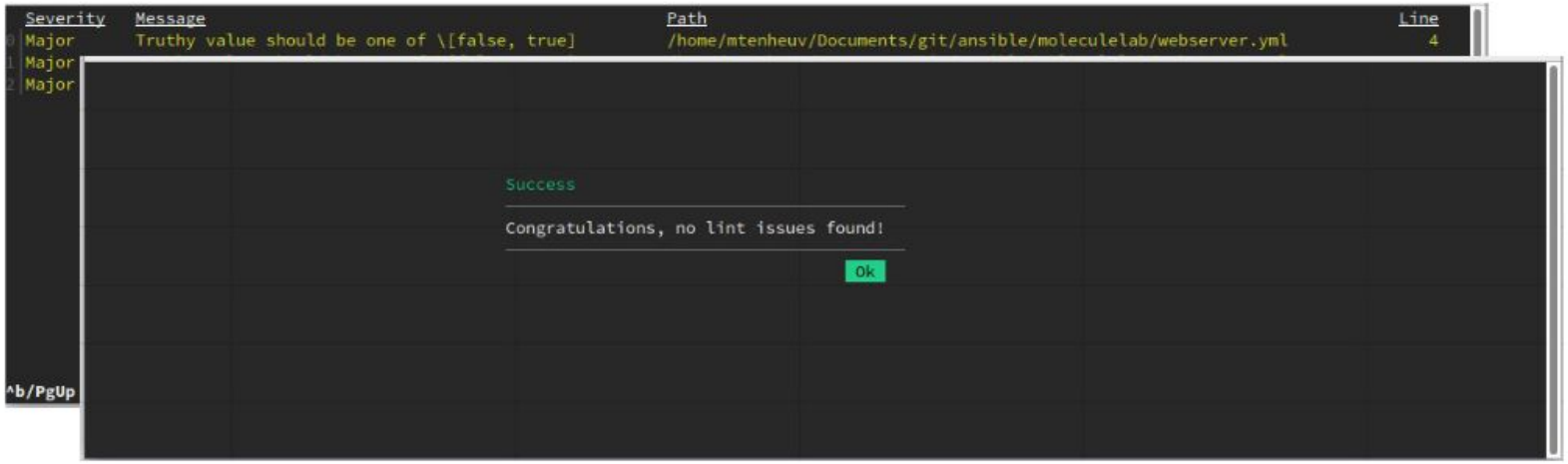
```
$ ansible-lint --offline -p webserver.yml

Passed: 0 failure(s), 0 warning(s) on 1 files. Last
profile that met the validation criteria was
'production'.

$
```

Ways of testing

- Ansible Lightspeed
- ansible-playbook *--syntax-check*
- ansible-lint
- ansible-navigator



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Ways of testing

- Ansible Lightspeed
- ansible-playbook *--syntax-check*
- ansible-lint
- ansible-navigator

Is that everything? Feels odd, there have to be better ways to perform testing.

Ansible molecule

Consistent, repeatable testing for Ansible content

- Molecule provides support for testing with multiple instances, operating systems and distributions, virtualization providers, test frameworks and testing scenarios.
- Molecule encourages an approach that results in consistently developed roles that are well-written, easily understood and maintained.

Molecule key concepts

What are the main components and functionalities?

Building

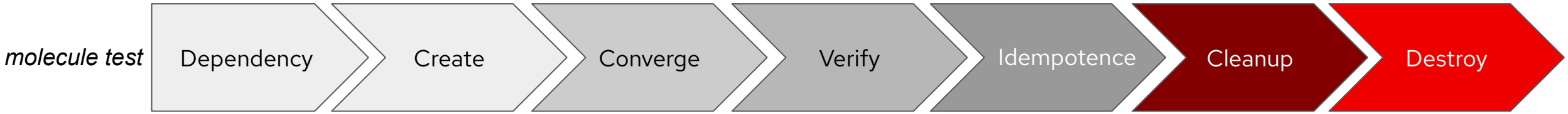
- Use a ***molecule "scenario"*** to define a customizable and modular sequence of test steps
- Use ***molecule init scenario*** to initialize the scenario while developing your collection
- Define an ***ephemeral test environment*** based on a selected driver (on cloud, podman, ocp ...) or custom driver

Testing

- Create/cleanup/destroy/re-create the ephemeral test environment
- ***Test roles or collection*** playbooks by developing your own "functional" tests
- Include playbook ***idempotence test*** and ***syntax check***

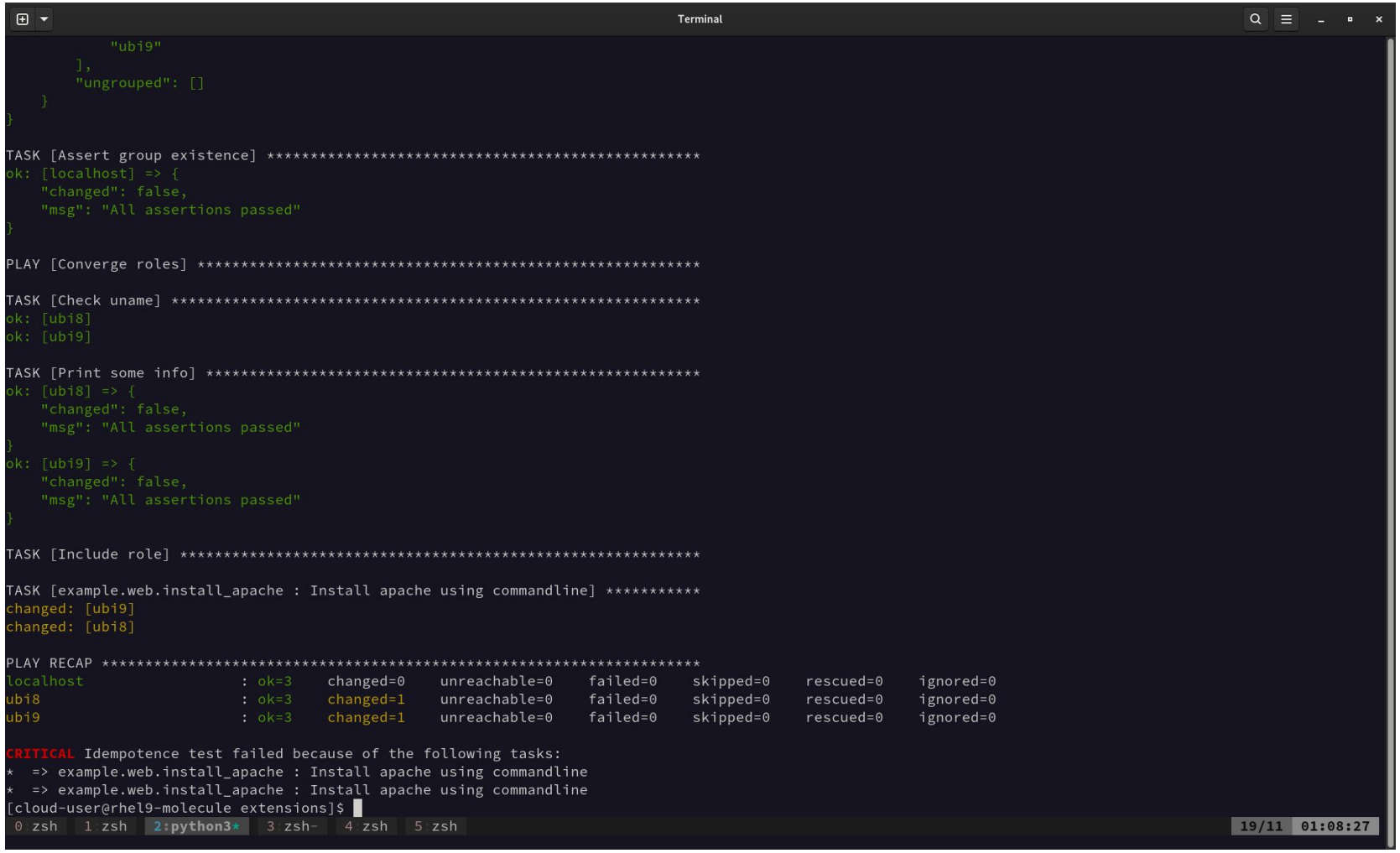
Molecule typical run

What happens when we run molecule?



- This is a typical sequence that can be expanded or modified based on the needs
- Each step can be executed individually (molecule <<step name>>)
- Steps are defined as individual files in yml format (“as a code”)
- A main molecule.yml configuration file, defines sequence of steps, driver to be used …

Demo


Terminal
"ubi9"
],
"ungrouped": []
}
}
TASK [Assert group existence] ***
ok: [localhost] => {
"changed": false,
"msg": "All assertions passed"
}
PLAY [Converge roles] ***
TASK [Check uname] **
ok: [ubi8]
ok: [ubi9]
TASK [Print some info] **
ok: [ubi8] => {
"changed": false,
"msg": "All assertions passed"
}
ok: [ubi9] => {
"changed": false,
"msg": "All assertions passed"
}
TASK [Include role] ***
TASK [example.web.install_apache : Install apache using commandline] ***********
changed: [ubi9]
changed: [ubi8]
PLAY RECAP **
localhost : ok=3 changed=0 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
ubi8 : ok=3 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
ubi9 : ok=3 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
CRITICAL Idempotence test failed because of the following tasks:
* => example.web.install_apache : Install apache using commandline
* => example.web.install_apache : Install apache using commandline
[cloud-user@rhel9-molecule extensions]$
0 zsh 1 zsh 2:python3* 3 zsh- 4 zsh 5 zsh
19/11 01:08:27

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