Ansible Intro

Develop Intelligence

Module Outline

Develop Intelligence

- Architecture
- Inventory files
- Ad Hoc commands
- Demo
- Lab
- Review

What is Ansible?

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"Automation Platform"

- Configuration Management
- Orchestration
- Application Deployment
- Provisioning (IaC)

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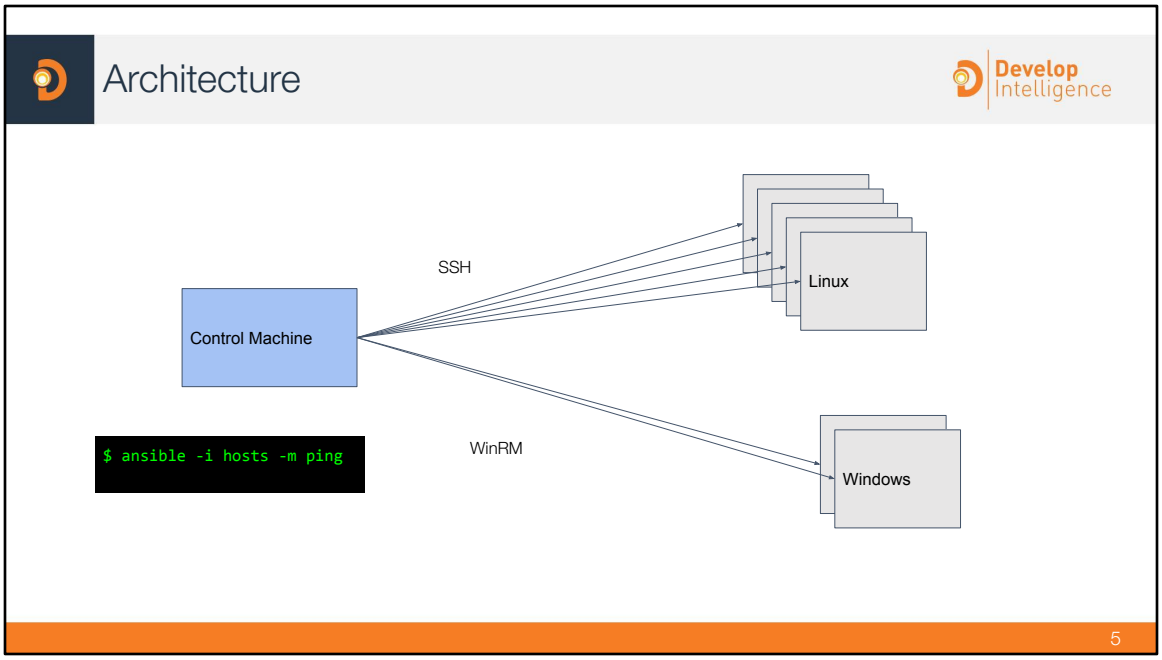
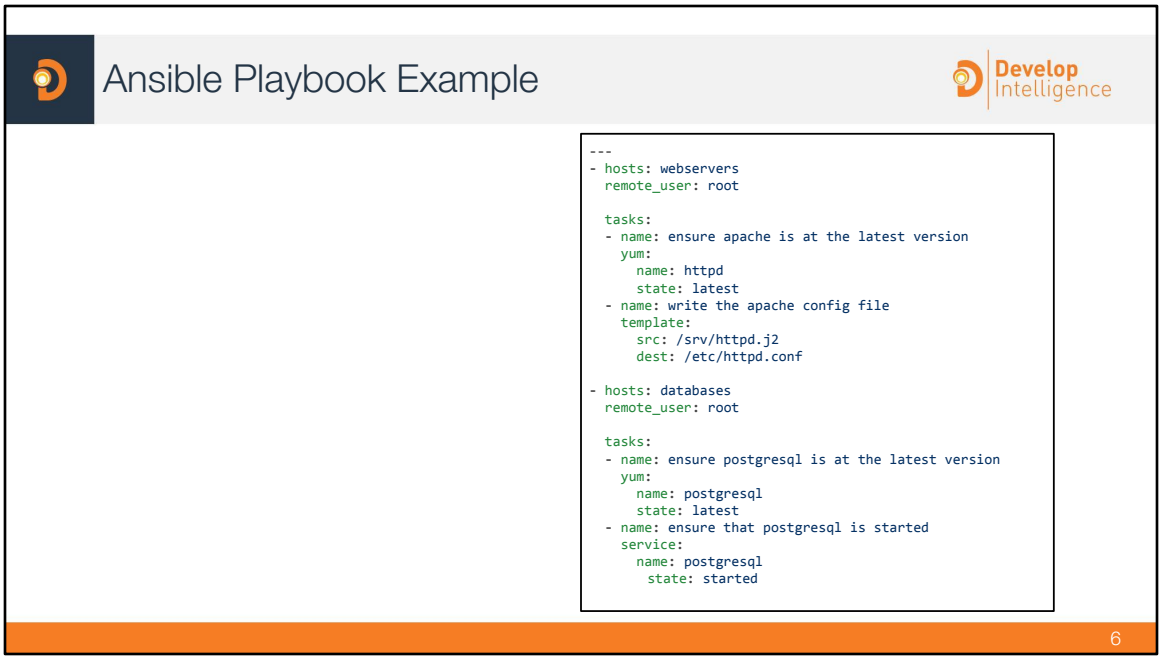
Ansible is an automation platform designed for configuration management, orchestration, application deployment, and provisioning (IaC). ("it runs tasks on a host") I can easily write "scripts" that do things like spin up VMs on a cloud, install packages, configure a database, etc without having to learn the APIs of those tools. Or you can simply run the same commands across a set of hosts

Key differentiators

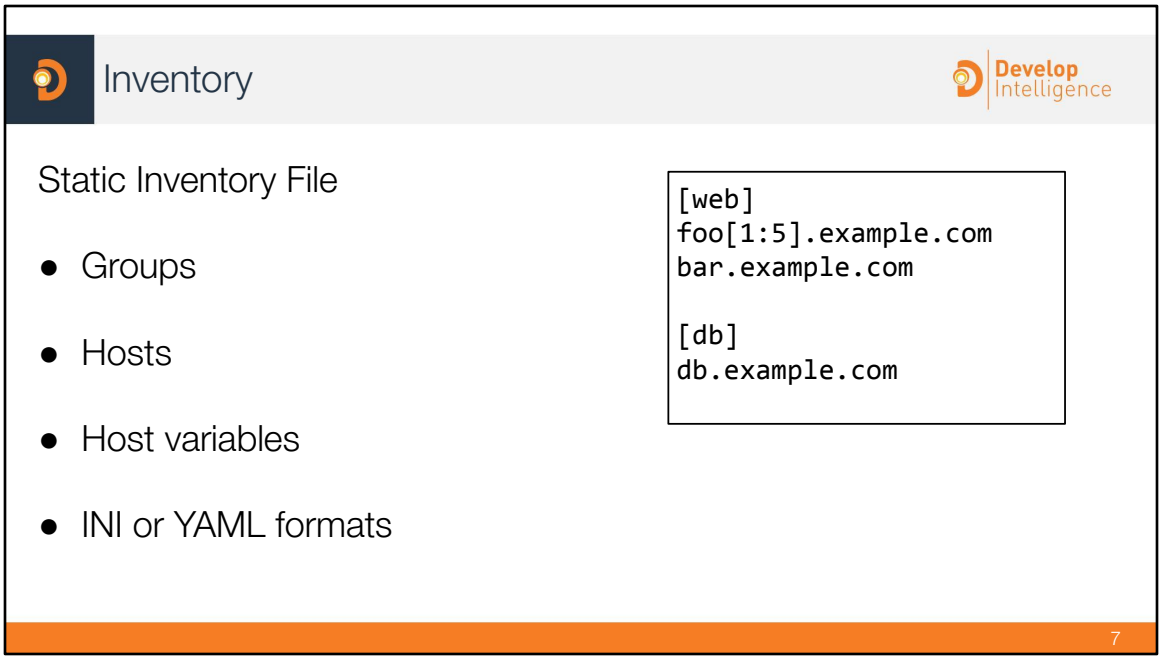
- Agentless
  - Uses OpenSSH and WinRM to run commands on machines
  - No agent to exploit or update
- Over 450 modules out there to handle integrations with clouds, databases, network tools, etc
- OpenSource on github
- Easy to use
  - Widely used format (YAML)
  - No management server



The control machine can be any machine with connectivity to the hosts under management, even someone's laptop. It is generally best practice to have a centralized control machine with tightly controlled access. You would not want to store credentials for a large part of your infrastructure on a laptop that can be stolen or left on top of a car.



This is an Ansible playbook that defines 4 tasks, 2 of which will run against "webservers" and 2 that will run against "databases". Playbooks allow you to define a set of actions that need to be performed on sets of servers. We will discuss Playbooks more in a bit.



Inventory files give us a place to list the machines we want to configure as well as any additional information we may need to give Ansible to connect to the machines.

Inventory Groups

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- Default groups: *all* and *ungrouped*
- Group variables
- Groups of groups

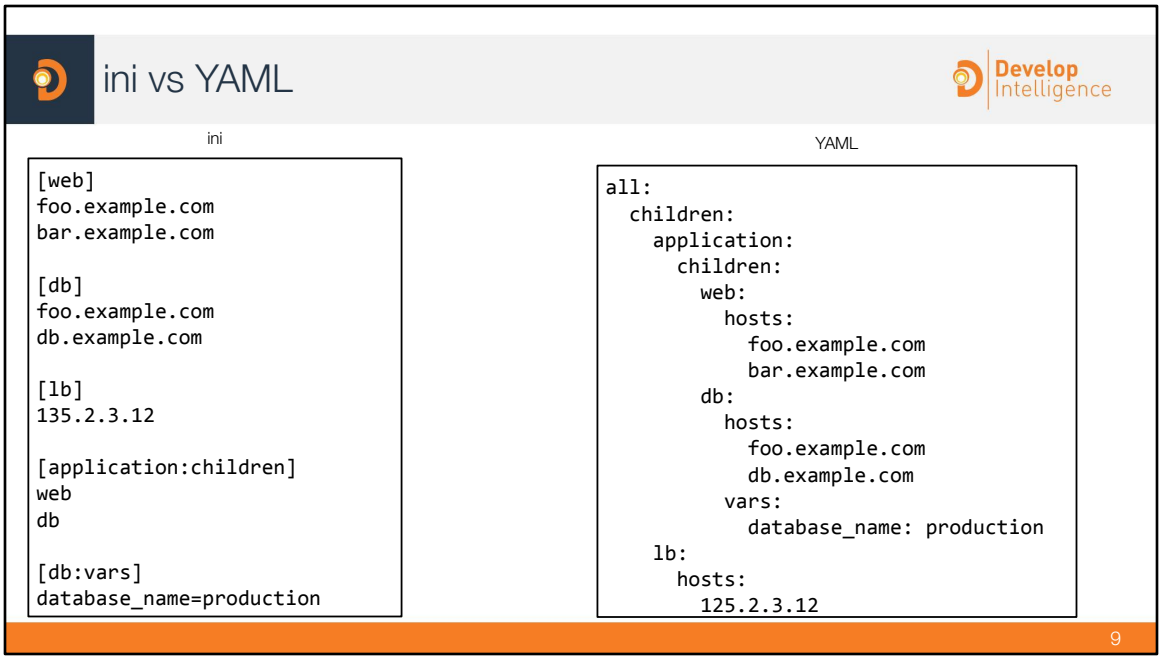
```
[web]
foo.example.com
bar.example.com

[db]
foo.example.com
db.example.com

[lb]
135.2.3.12

[application:children]
web
db

[db:vars]
database_name=production
```


ini vs YAML
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ini
[web]
foo.example.com
bar.example.com
[db]
foo.example.com
db.example.com
[lb]
135.2.3.12
[application:children]
web
db
[db:vars]
database_name=production
YAML
all:
children:
application:
children:
web:
hosts:
foo.example.com
bar.example.com
db:
hosts:
foo.example.com
db.example.com
vars:
database_name: production
lb:
hosts:
125.2.3.12
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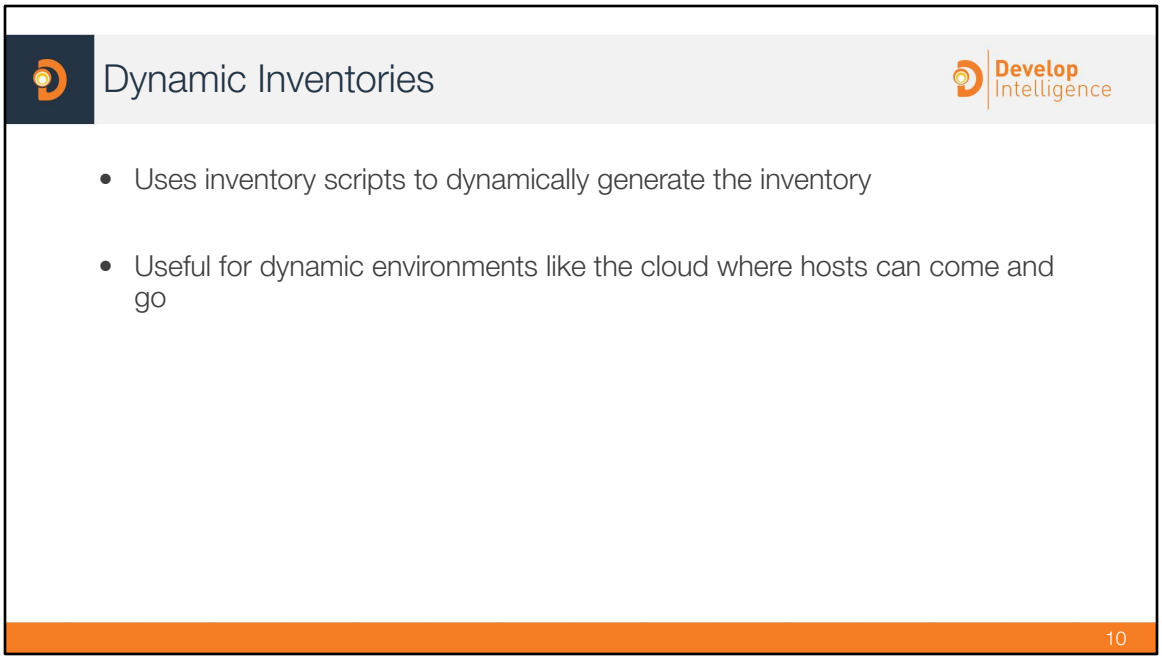

https://docs.ansible.com/ansible/latest/user_guide/intro_dynamic_inventory.html

Scripts can be passed to the ansible commands in place of a static inventory file. These scripts simply output an inventory definition but they may gather their information by calling external systems.

Ad Hoc commands

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- Run arbitrary commands against your inventory

```
# Check host connections and if ready to be managed by ansible
ansible all -m ping

# Run the uptime command on all hosts in the 'web' group
ansible web -m command -a "uptime"

# Install git on all hosts
ansible all -m yum -a "name=git state=present" -b

# Uninstall git
ansible all -m yum -a "name=git state=absent" -b
```

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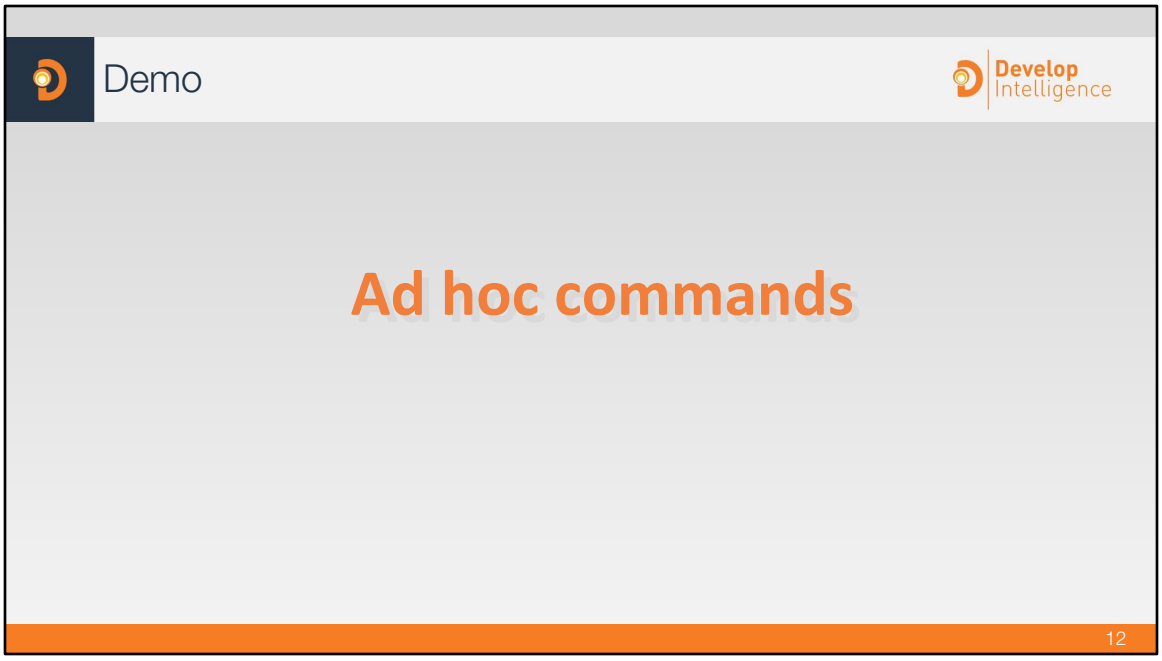
For one-off tasks, such as copying a file to all your hosts or analyzing logs, ansible can make it really easy to do this in parallel for 10's or 100's of hosts.


Demo
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Ad hoc commands
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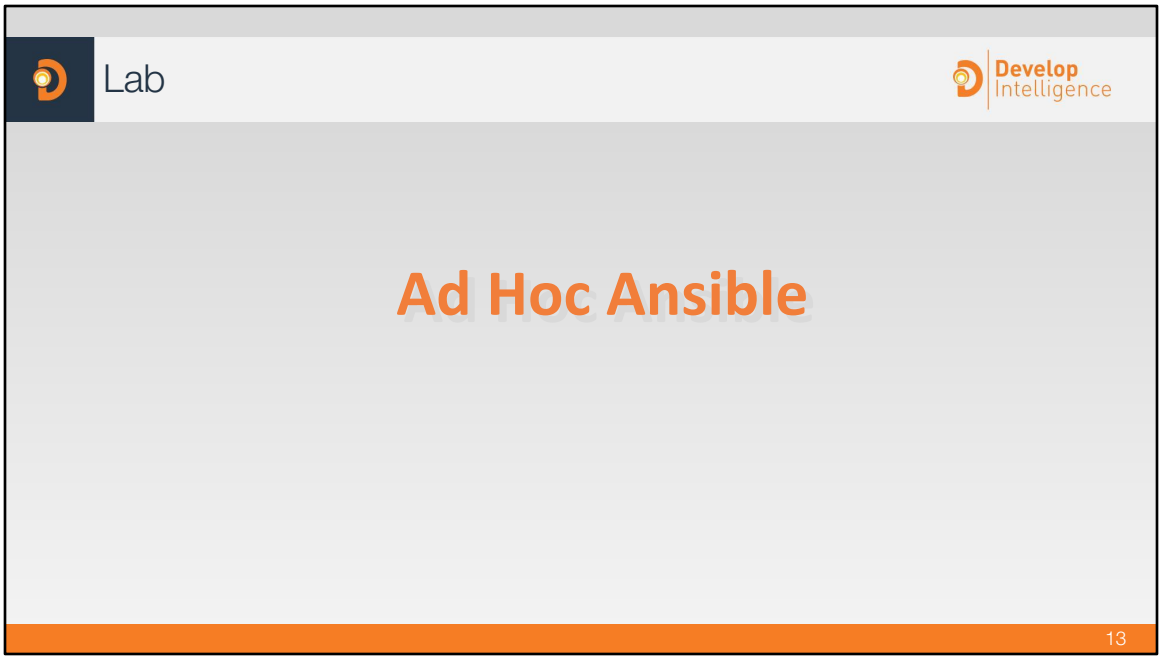
Lab
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Ad Hoc Ansible
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Additional Resources

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- Ansible Documentation
  docs.ansible.com