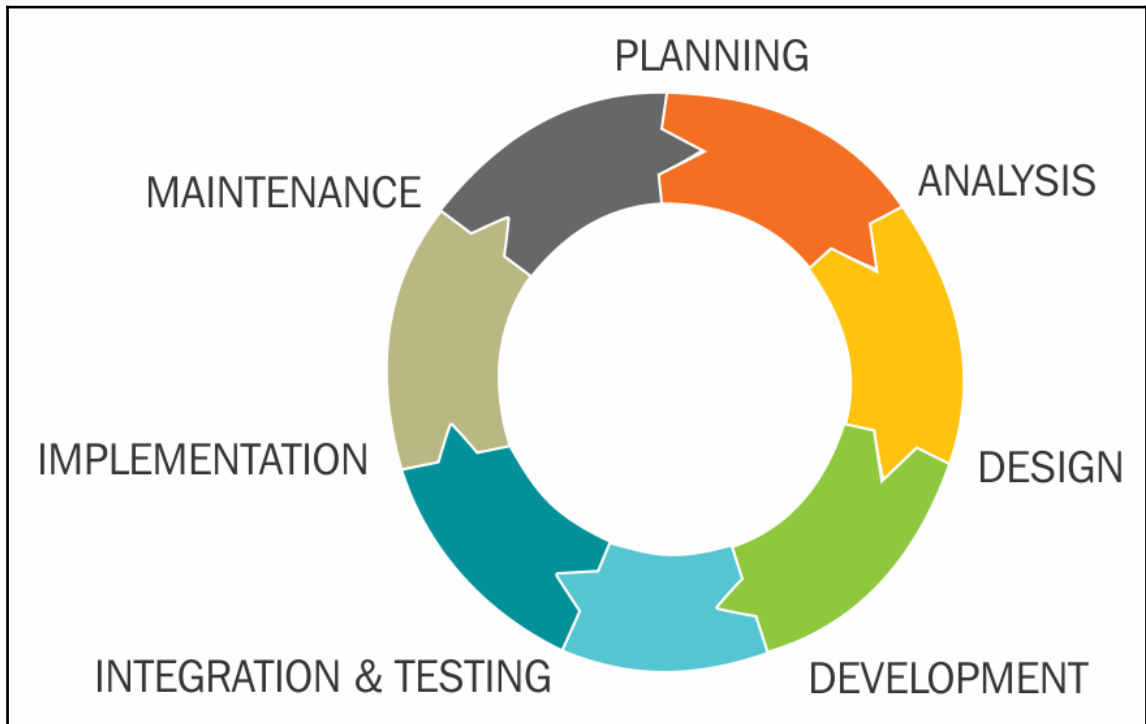
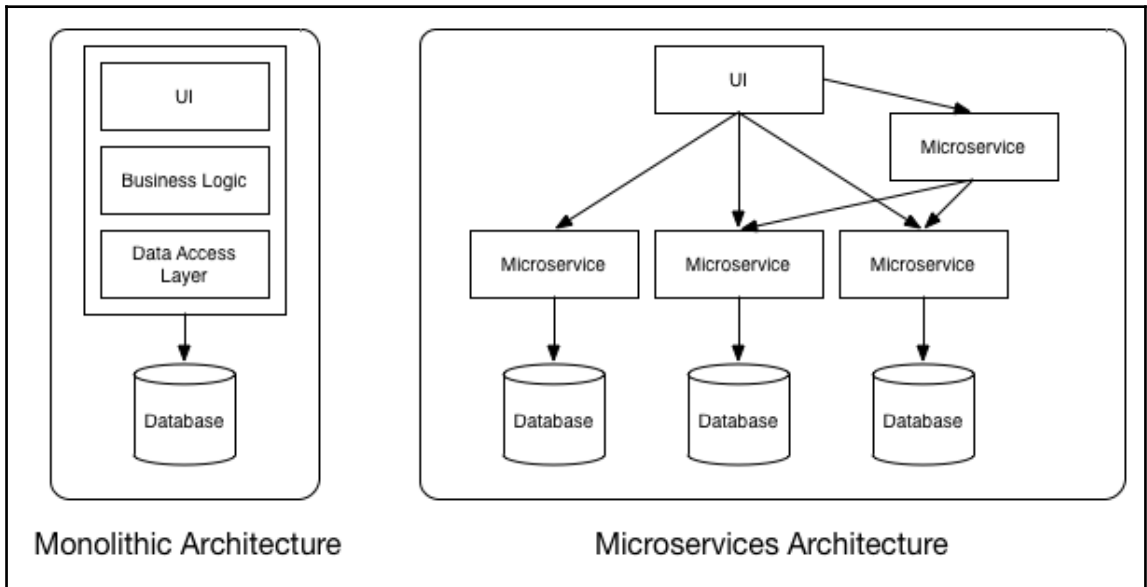
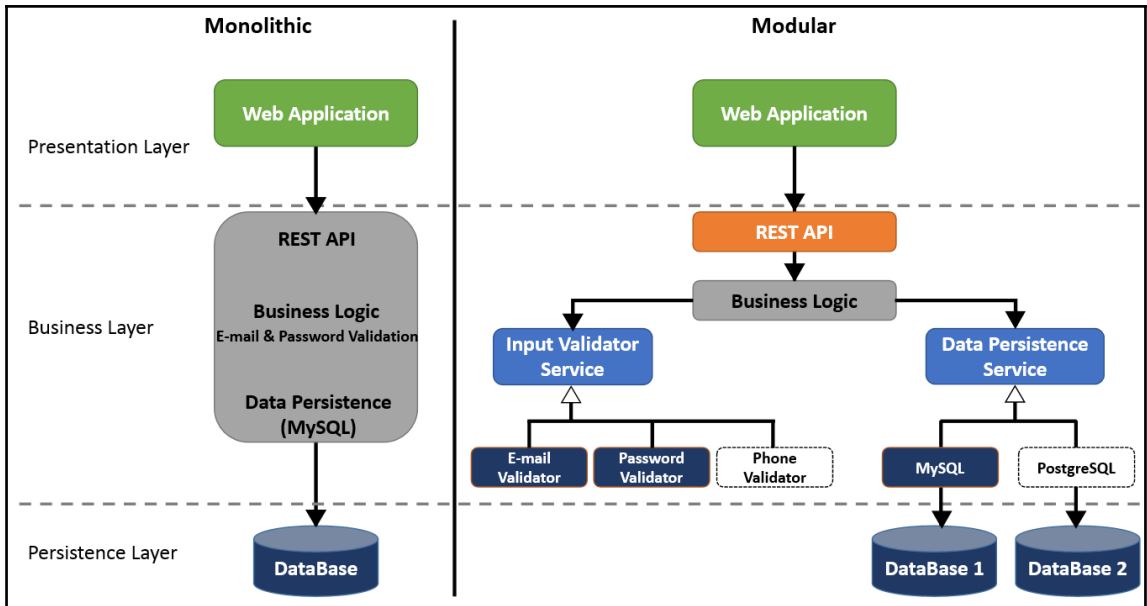
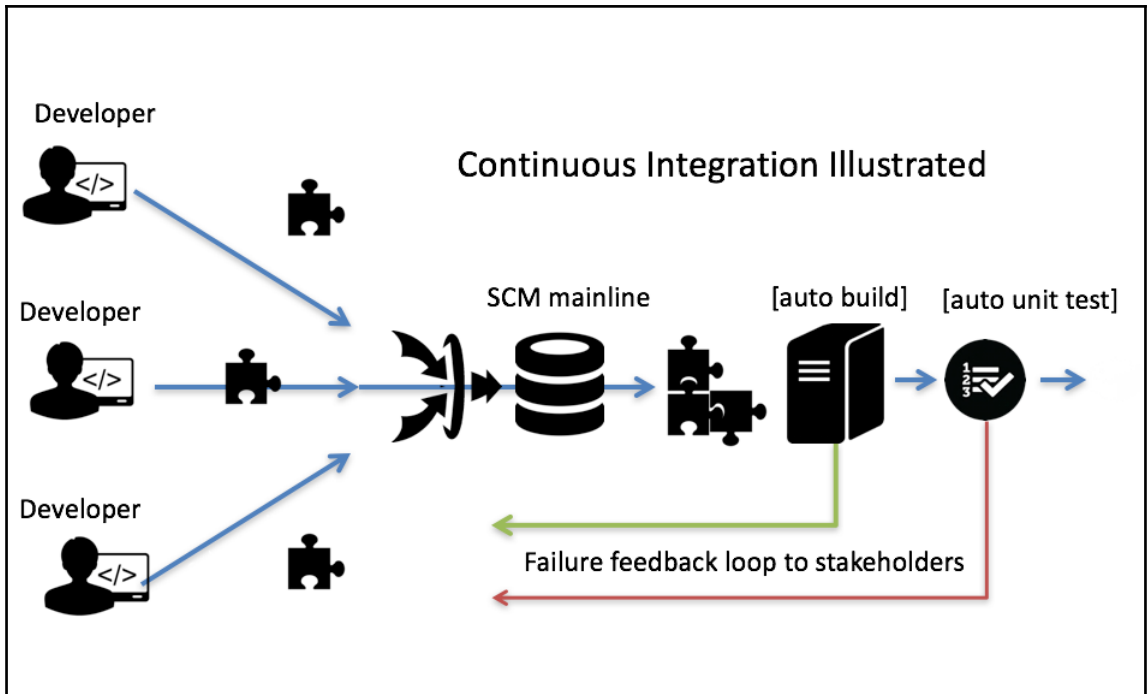
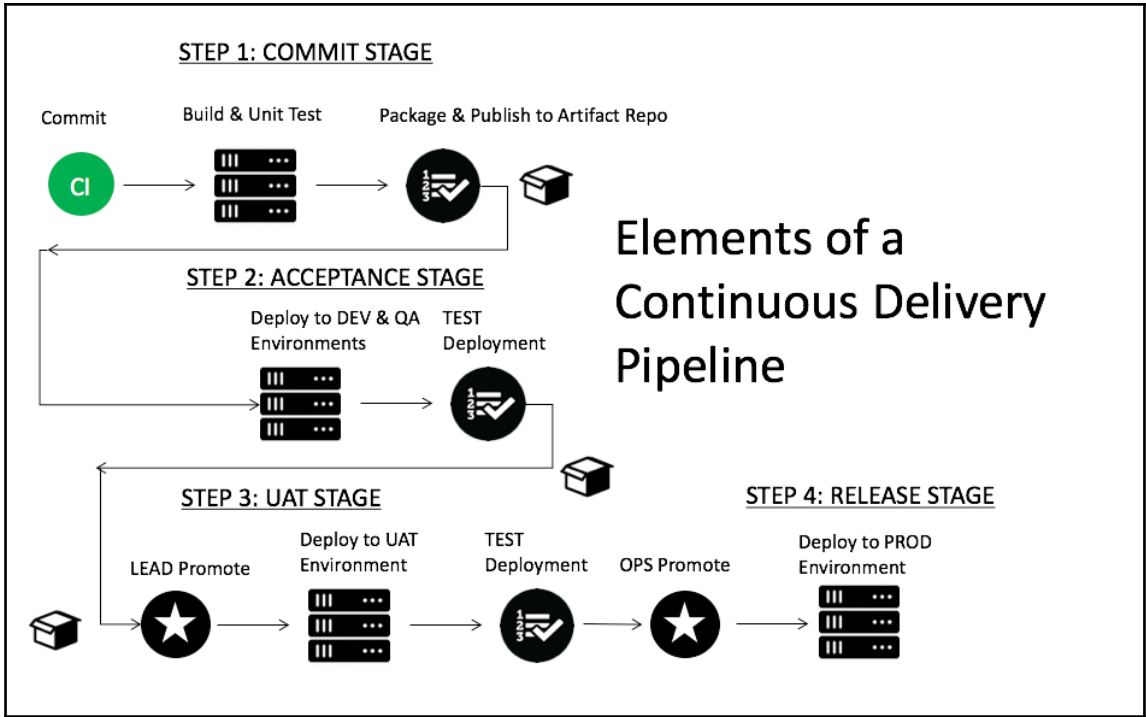


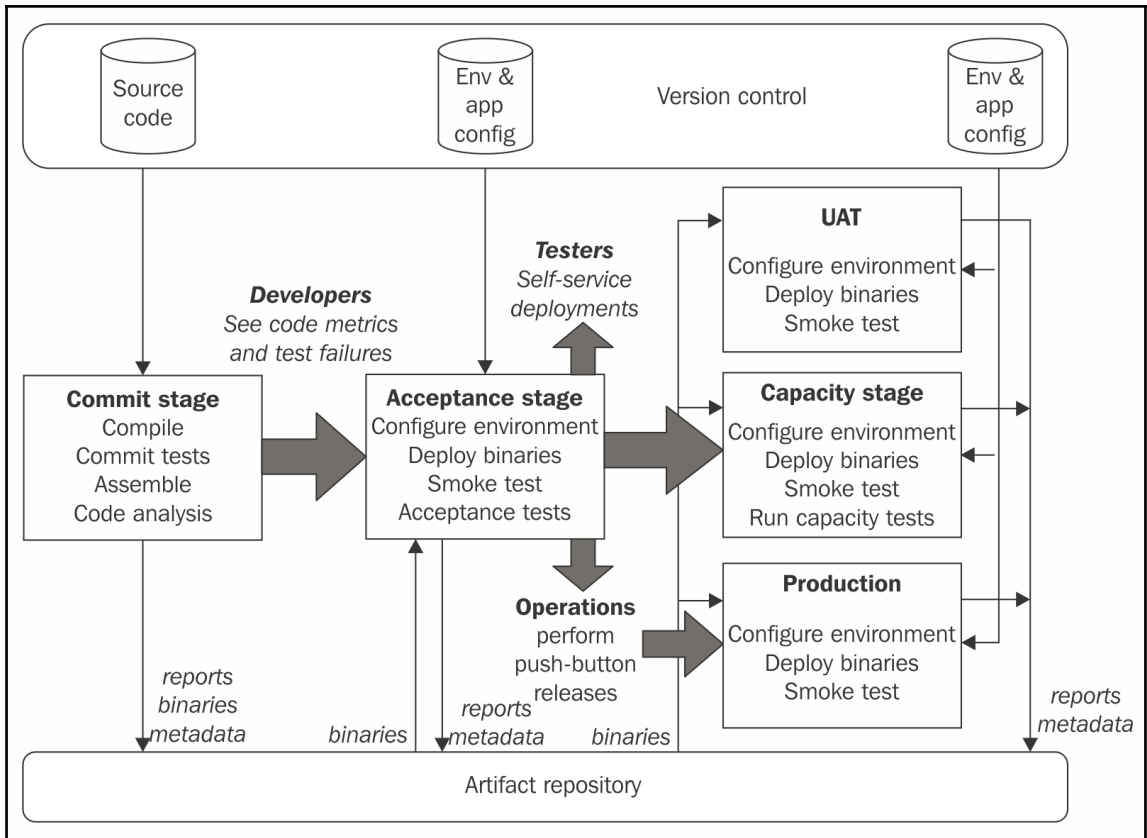
Chapter 1: DevOps Fundamentals

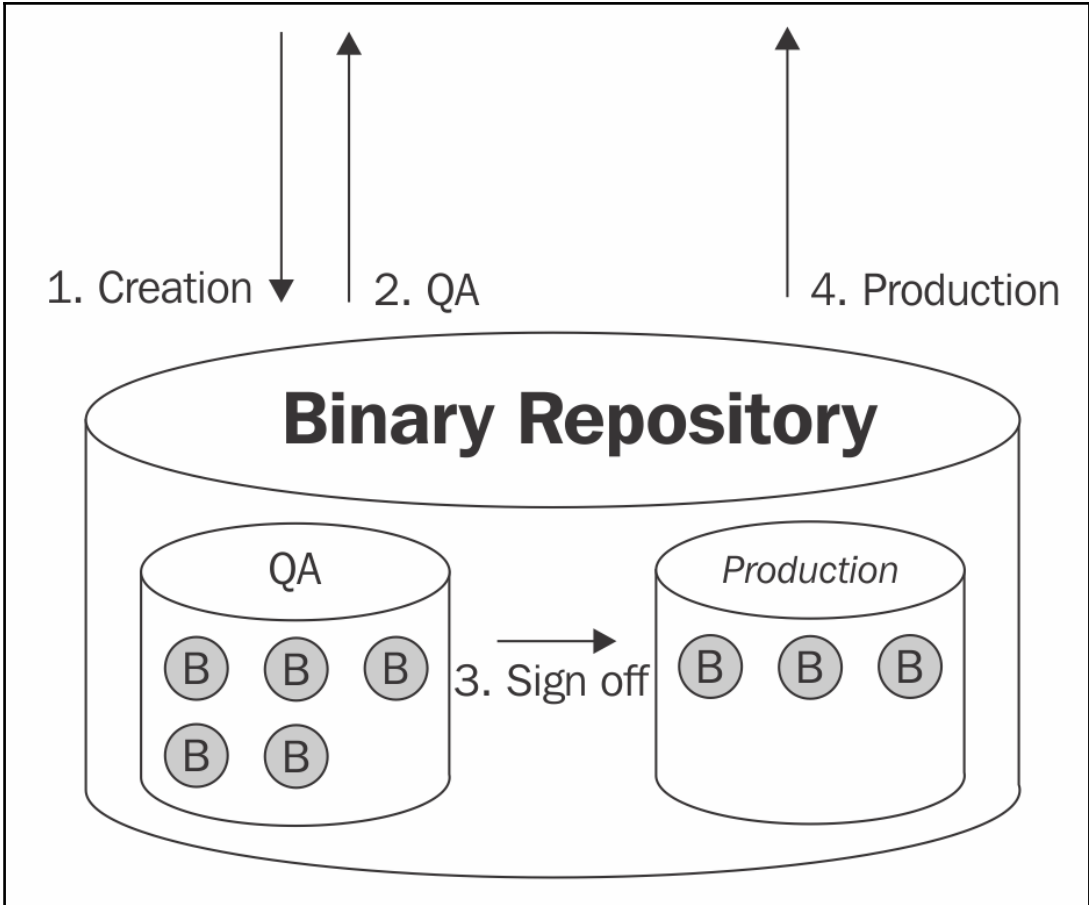




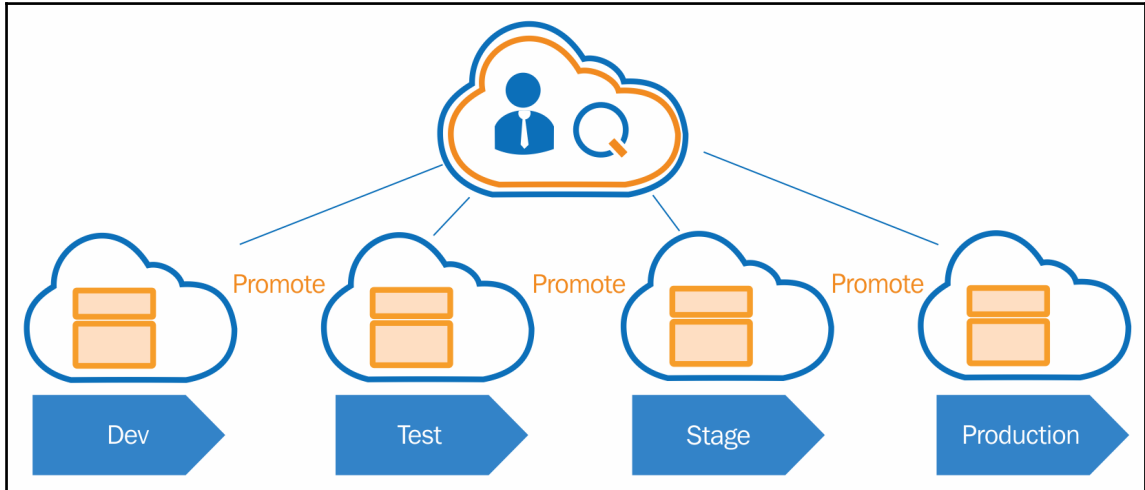
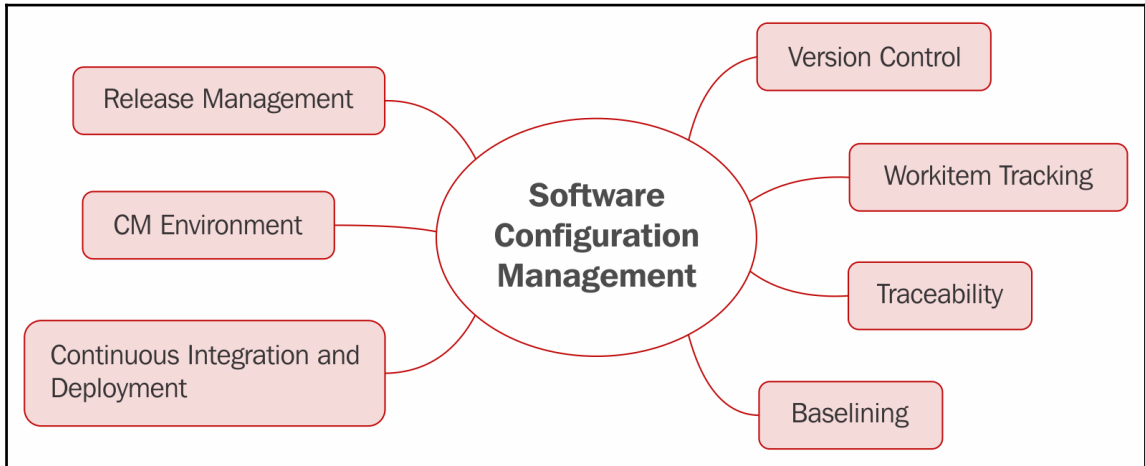




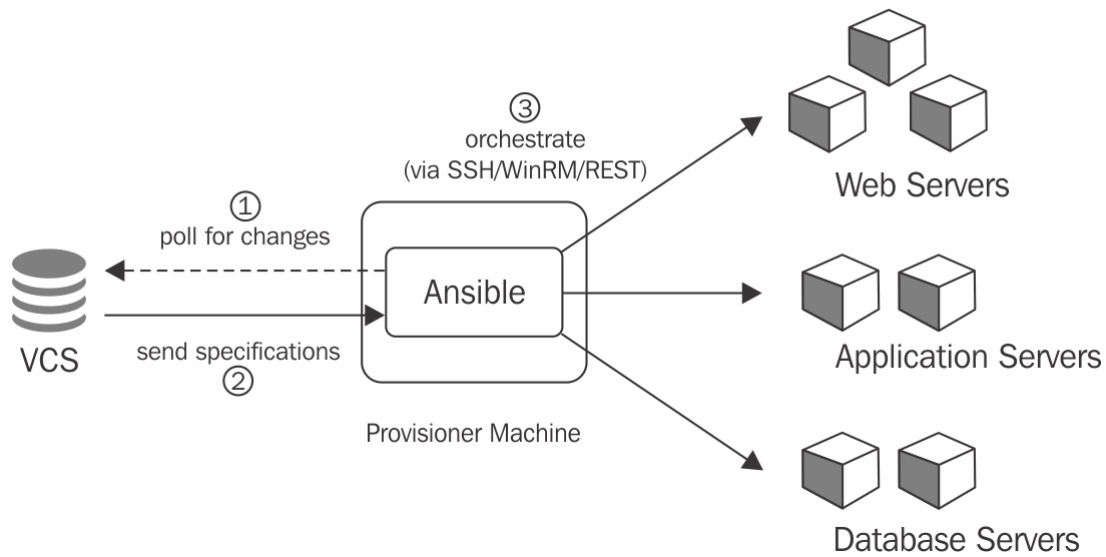


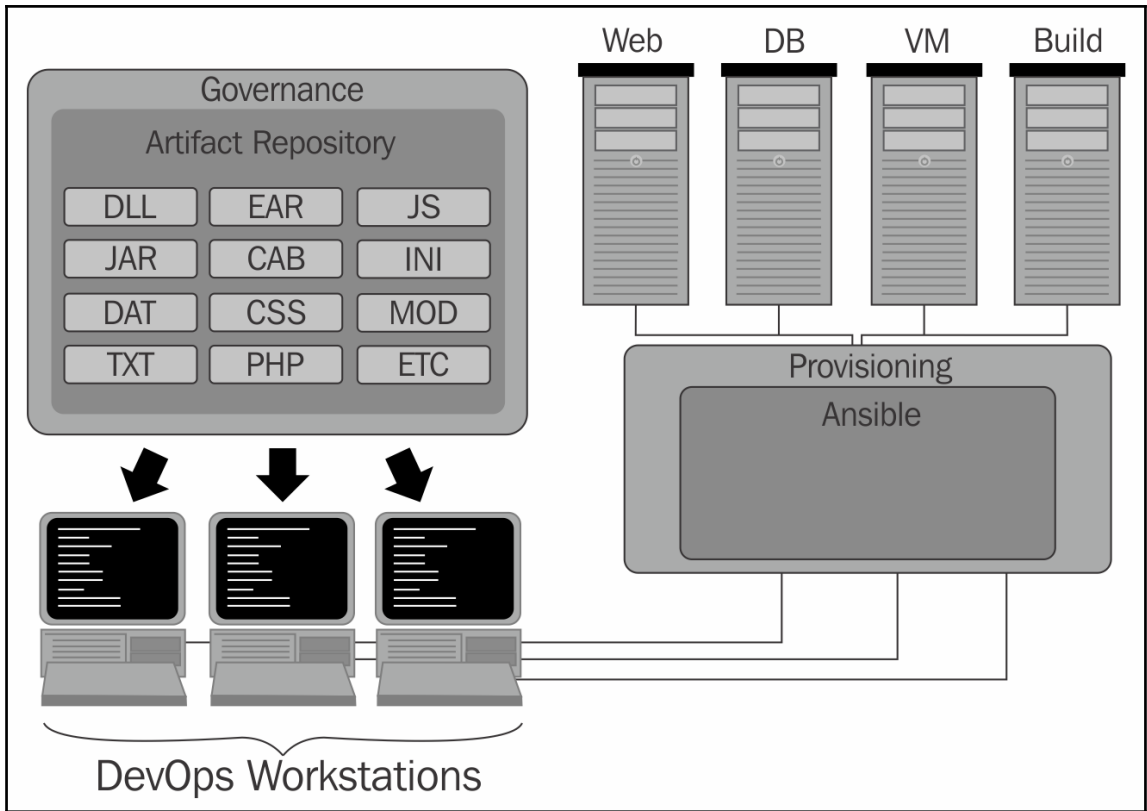


Chapter 2: Configuration Management Essentials

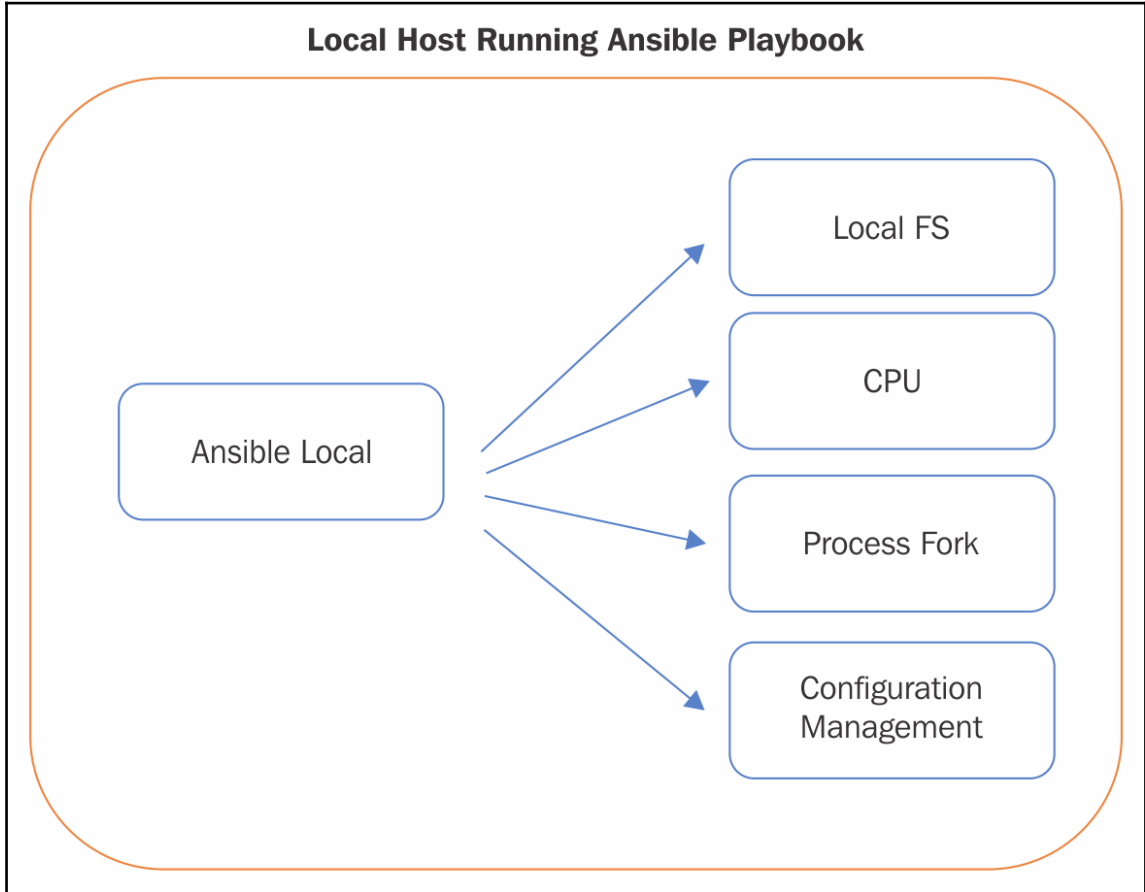


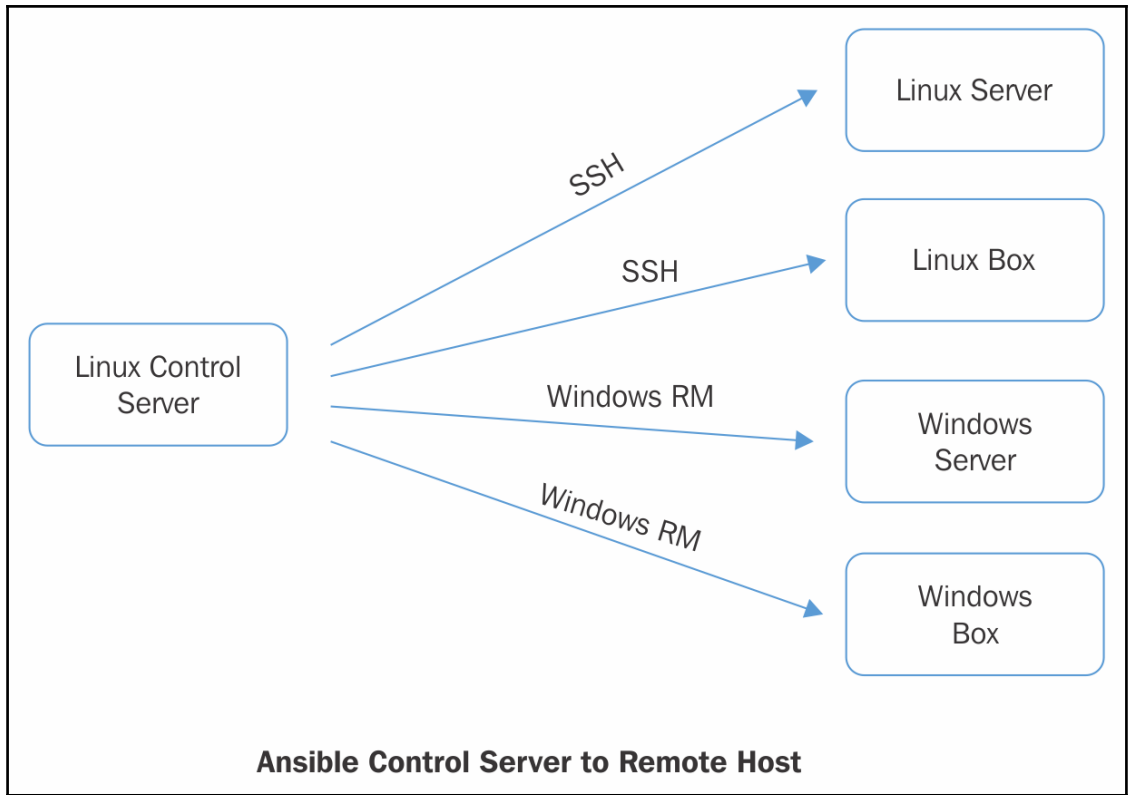
Ansible's Agentless Architecture

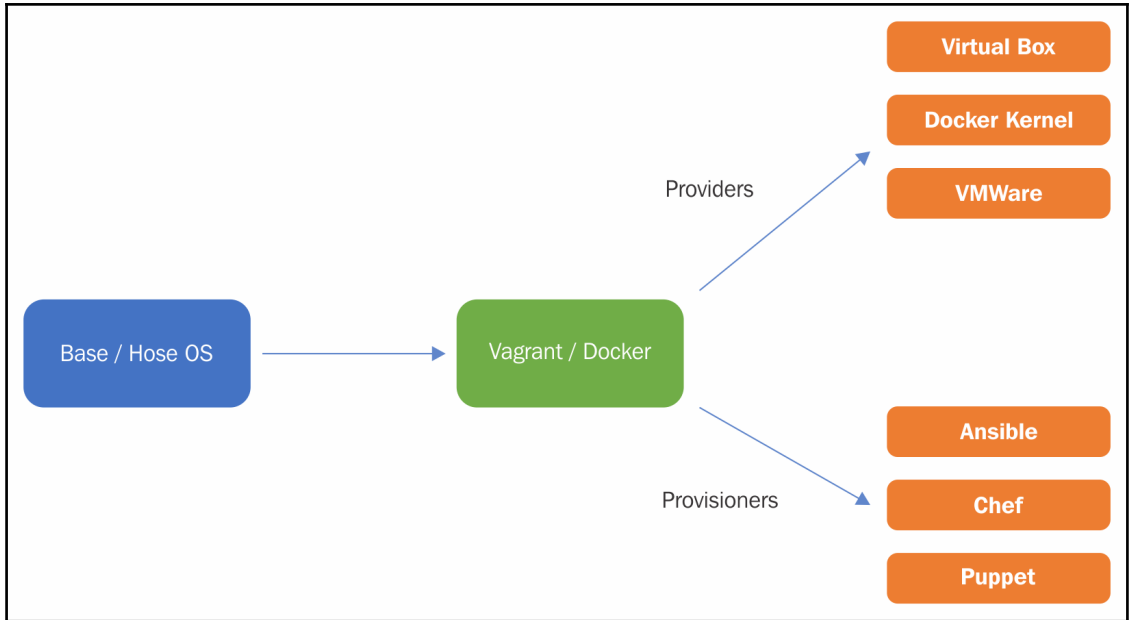




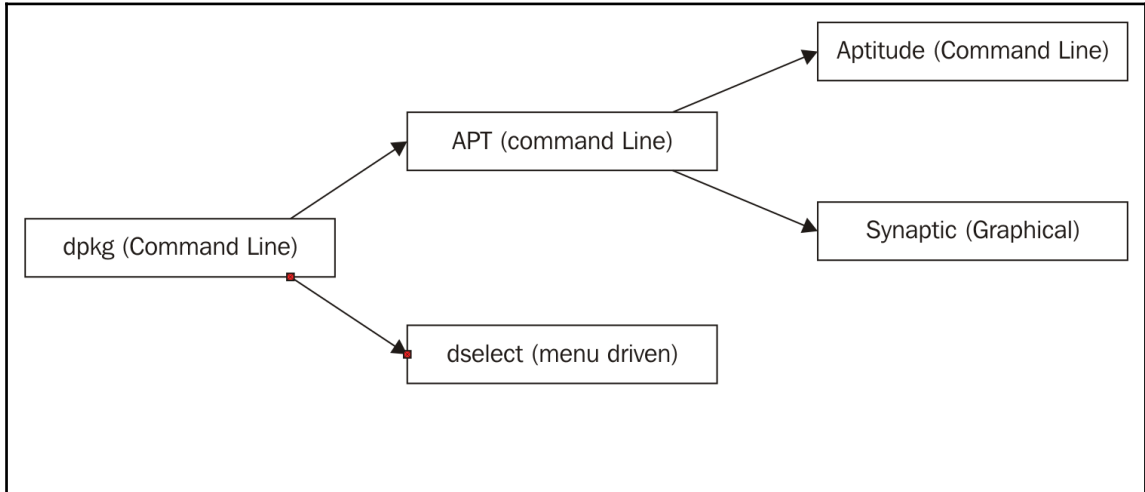
Chapter 3: Installing, Configuring, and Running Ansible



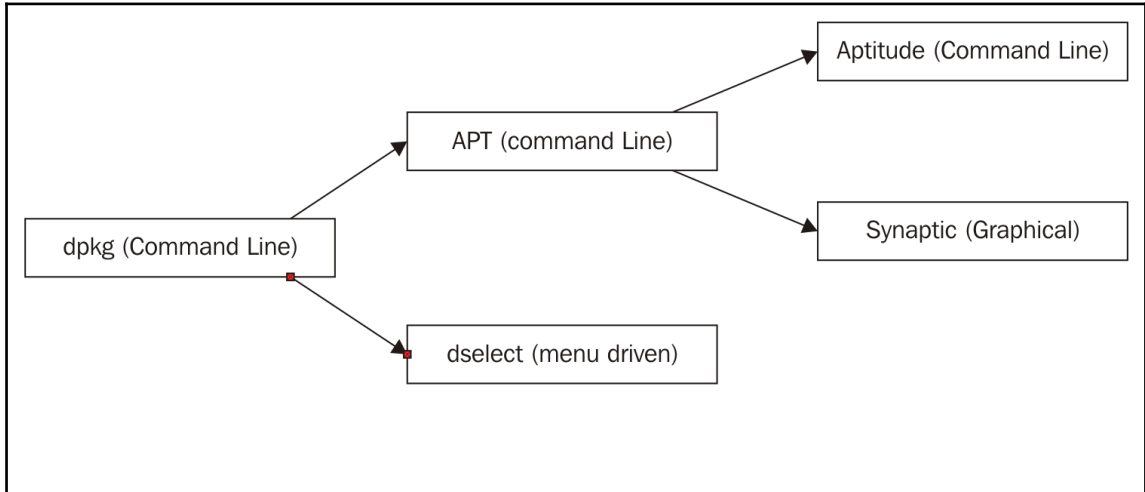




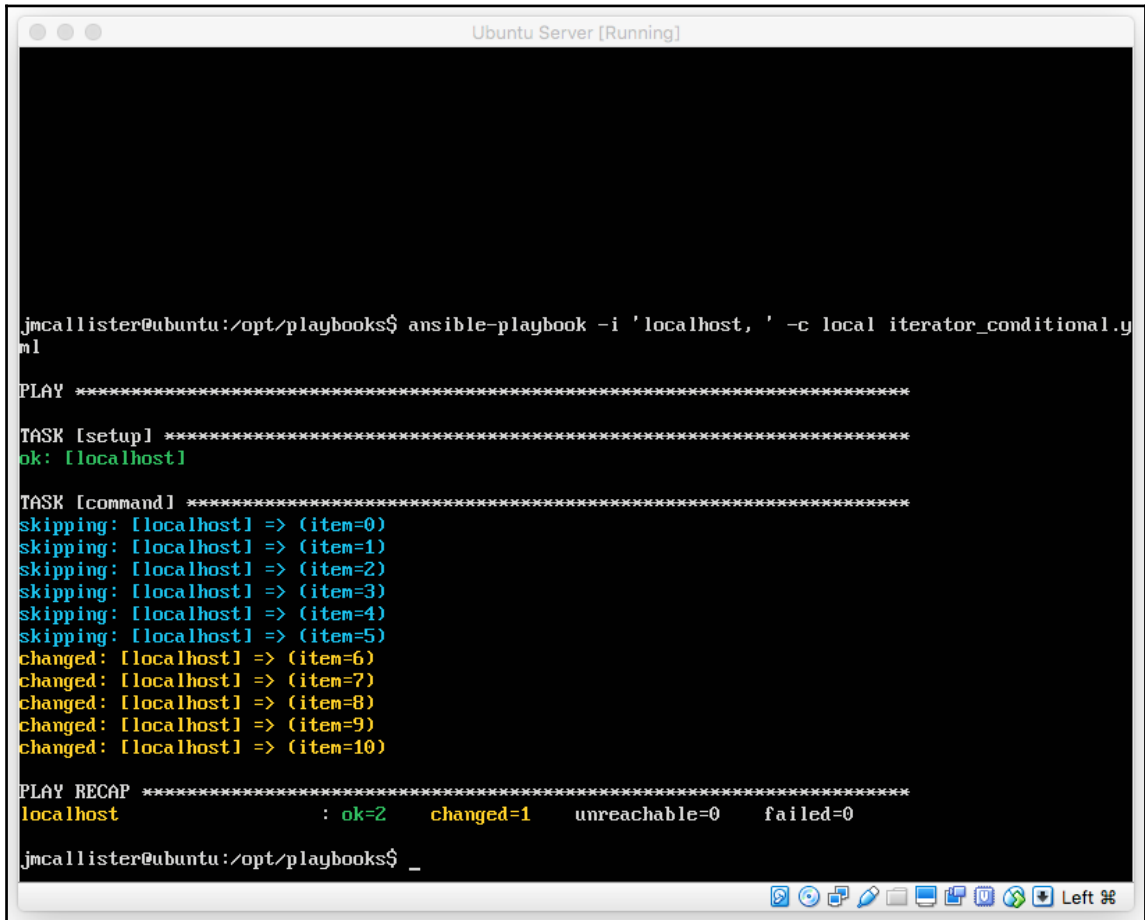
Chapter 4: Playbooks and Inventory Files



Chapter 5: Playbooks and Inventory Files



Chapter 6: Playbooks – Beyond the Fundamentals

A terminal window titled "Ubuntu Server [Running]" showing the execution of an Ansible playbook. The user runs the command "ansible-playbook -i 'localhost,' -c local iterator_conditional.yml". The output shows a "PLAY" section followed by a "TASK [setup]" which is successful. The "TASK [command]" section shows a loop of 11 items: items 0-5 are skipped, item 6 is changed, and items 7-10 are also changed. A "PLAY RECAP" section shows 2 OK, 1 changed, 0 unreachable, and 0 failed. The terminal window includes a standard Ubuntu desktop environment with a taskbar at the bottom.

```
jmcallister@ubuntu:/opt/playbooks$ ansible-playbook -i 'localhost,' -c local iterator_conditional.y
ml
PLAY *****
TASK [setup] *****
ok: [localhost]

TASK [command] *****
skipping: [localhost] => (item=0)
skipping: [localhost] => (item=1)
skipping: [localhost] => (item=2)
skipping: [localhost] => (item=3)
skipping: [localhost] => (item=4)
skipping: [localhost] => (item=5)
changed: [localhost] => (item=6)
changed: [localhost] => (item=7)
changed: [localhost] => (item=8)
changed: [localhost] => (item=9)
changed: [localhost] => (item=10)

PLAY RECAP *****
localhost          : ok=2    changed=1    unreachable=0    failed=0

jmcallister@ubuntu:/opt/playbooks$ _
```

```
Ubuntu Server [Running]
TASK [setup] *****
ok: [localhost]

TASK [Say Hello Using nested Loops] *****
ok: [localhost] => (item=[1, u'a']) => {
  "item": [
    1,
    "a"
  ],
  "msg": "The values in the arrays are 1 and a"
}
ok: [localhost] => (item=[1, u'b']) => {
  "item": [
    1,
    "b"
  ],
  "msg": "The values in the arrays are 1 and b"
}
ok: [localhost] => (item=[2, u'a']) => {
  "item": [
    2,
    "a"
  ],
  "msg": "The values in the arrays are 2 and a"
}
ok: [localhost] => (item=[2, u'b']) => {
  "item": [
    2,
    "b"
  ],
  "msg": "The values in the arrays are 2 and b"
}

PLAY RECAP *****
localhost          : ok=2    changed=0    unreachable=0    failed=0

root@ubuntu:/opt/playbooks# _
```

Key	Value
firstName	Bugs
lastName	Bunny
location	Earth

```
Ubuntu Server [Running]
TASK [setup] *****
ok: [localhost]

TASK [Say Hello to our Favorite Looney Tune Charachters] *****
ok: [localhost] => (item={'value': {'full_name': 'Daffy E Duck'}, 'key': 'daffy'}) => {
  "item": {
    "key": "daffy",
    "value": {
      "full_name": "Daffy E Duck"
    }
  },
  "msg": "Hello Toon: daffy your real name is Daffy E Duck"
}
ok: [localhost] => (item={'value': {'full_name': 'Bugs A Bunny'}, 'key': 'bugs'}) => {
  "item": {
    "key": "bugs",
    "value": {
      "full_name": "Bugs A Bunny"
    }
  },
  "msg": "Hello Toon: bugs your real name is Bugs A Bunny"
}
ok: [localhost] => (item={'value': {'full_name': 'Wiley E Coyote'}, 'key': 'wiley'}) => {
  "item": {
    "key": "wiley",
    "value": {
      "full_name": "Wiley E Coyote"
    }
  },
  "msg": "Hello Toon: wiley your real name is Wiley E Coyote"
}

PLAY RECAP *****
localhost                : ok=2    changed=0    unreachable=0    failed=0












root@ubuntu:/opt/playbooks# ansible-playbook -i 'localhost,' -c local iterator_keyvalue.yml
```

```
Ubuntu Server [Running]
root@ubuntu:/opt/playbooks# ansible-playbook -i 'localhost,' -c local iterator_with_files.yml
PLAY [Say hello to our favorite Looney Toons] *****
TASK [setup] *****
ok: [localhost]

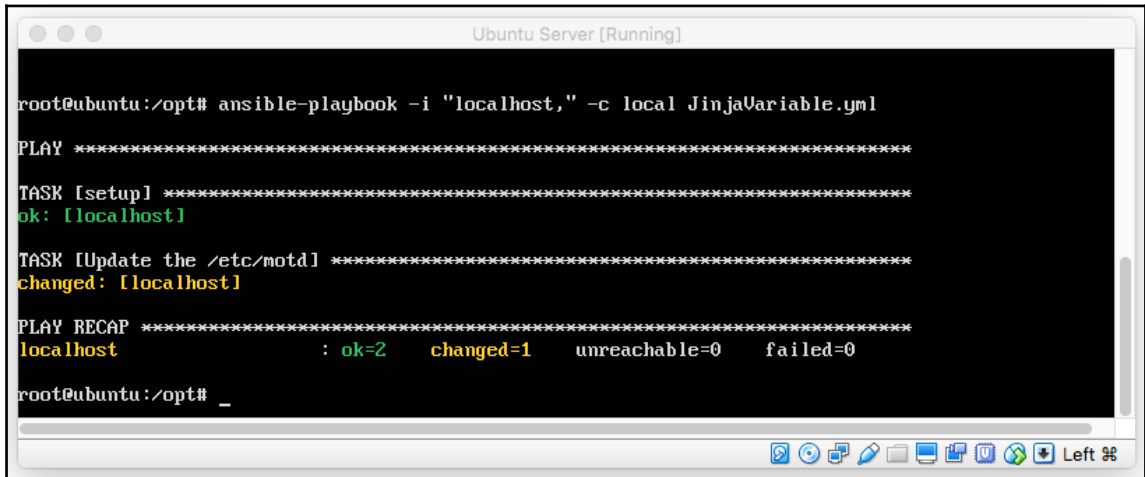
TASK [Say Hello to Our Favorite Looney Toons] *****
ok: [localhost] => (item=Hello There:) => {
  "item": "Hello There:",
  "msg": "Hello There:"
}
ok: [localhost] => (item=Bugs Bunnu
Donald Duck
Daffy Duck
Mickey Mouse
Wiley E. Coyote
Mini Mouse) => {
  "item": "Bugs Bunnu\nDonald Duck\nDaffy Duck\nMickey Mouse\nWiley E. Coyote\nMini Mouse",
  "msg": "Bugs Bunnu\nDonald Duck\nDaffy Duck\nMickey Mouse\nWiley E. Coyote\nMini Mouse"
}

PLAY RECAP *****
localhost : ok=2  changed=0  unreachable=0  failed=0

root@ubuntu:/opt/playbooks# _
```

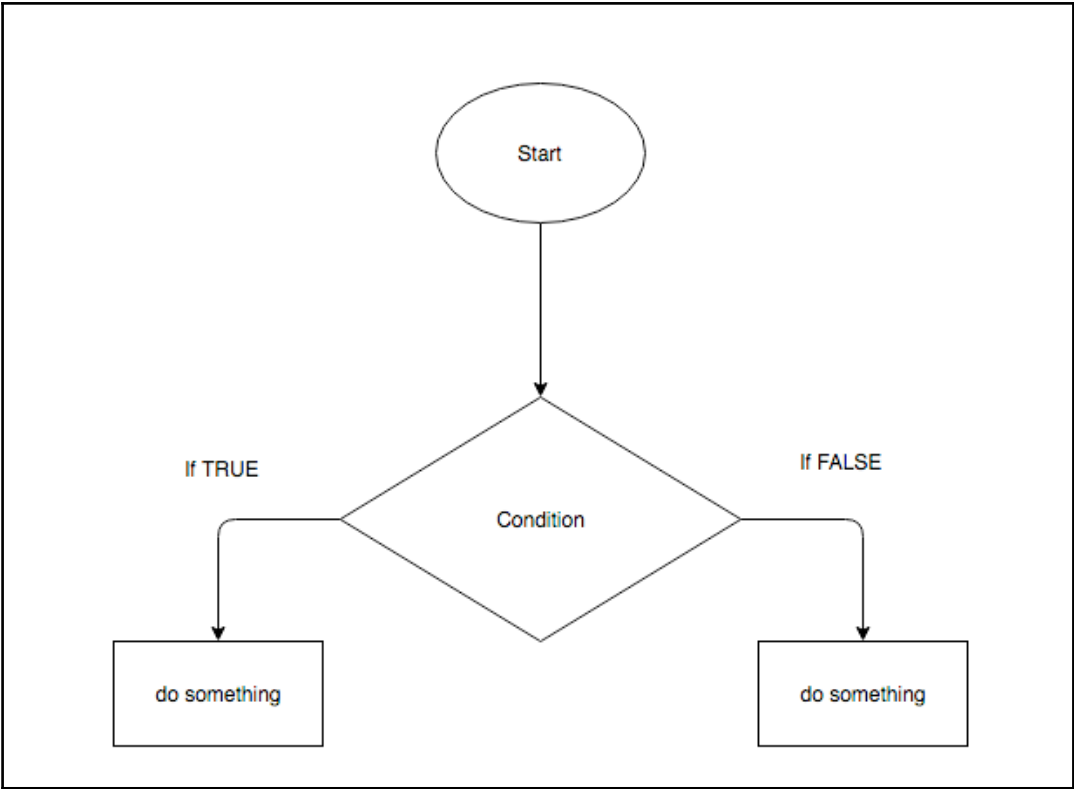
Name	^	Date Modified
 hosts		Today, 12:10 PM
 playbook.yml		Today, 12:09 PM
▼  roles		Today, 12:07 PM
▼  dbserver		Today, 12:09 PM
▼  tasks		Today, 12:10 PM
 main.yml		Today, 12:10 PM
▼  webserver		Today, 12:09 PM
▼  files		Today, 12:09 PM
 index.php		Today, 12:09 PM
▼  tasks		Today, 12:09 PM
 main.yml		Today, 12:09 PM

Chapter 7: Jinja in Ansible



A terminal window titled "Ubuntu Server [Running]" showing the execution of an Ansible playbook. The user runs the command `ansible-playbook -i "localhost," -c local JinjaVariable.yml`. The output shows two tasks: `[setup]` which is successful (`ok: [localhost]`), and `[Update the /etc/motd]` which is successful (`changed: [localhost]`). A `PLAY RECAP` section shows `localhost : ok=2 changed=1 unreachable=0 failed=0`. The prompt returns to `root@ubuntu:/opt#`. The terminal window has a standard Ubuntu desktop environment with a taskbar at the bottom.

```
root@ubuntu:/opt# ansible-playbook -i "localhost," -c local JinjaVariable.yml
PLAY *****
TASK [setup] *****
ok: [localhost]
TASK [Update the /etc/motd] *****
changed: [localhost]
PLAY RECAP *****
localhost : ok=2  changed=1  unreachable=0  failed=0
root@ubuntu:/opt# _
```



```
Ubuntu Server [Running]

root@ubuntu:/opt# ansible-playbook -i "localhost," -c local simpleplaybook.yml

PLAY [Hello World Playbook] *****

TASK [setup] *****
ok: [localhost]

TASK [debug] *****
ok: [localhost] => {
  "msg": " Hello "
}

PLAY RECAP *****
localhost                : ok=2    changed=0    unreachable=0    failed=0

root@ubuntu:/opt#
```

```
Ubuntu Server [Running]

root@ubuntu:/opt# ansible-playbook -i "localhost," -c local simpleplaybook.yml

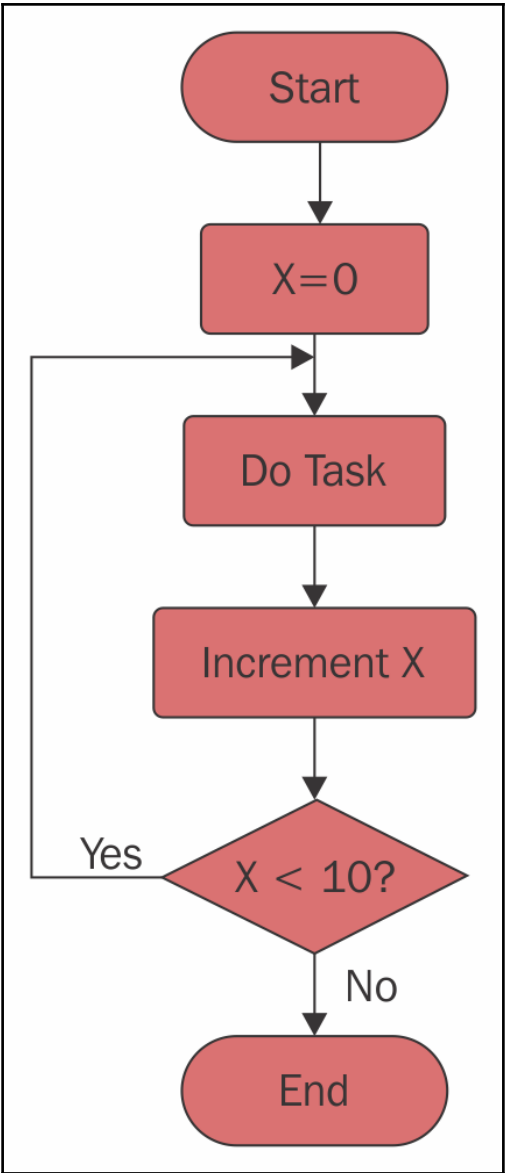
PLAY [Hello World Playbook] *****

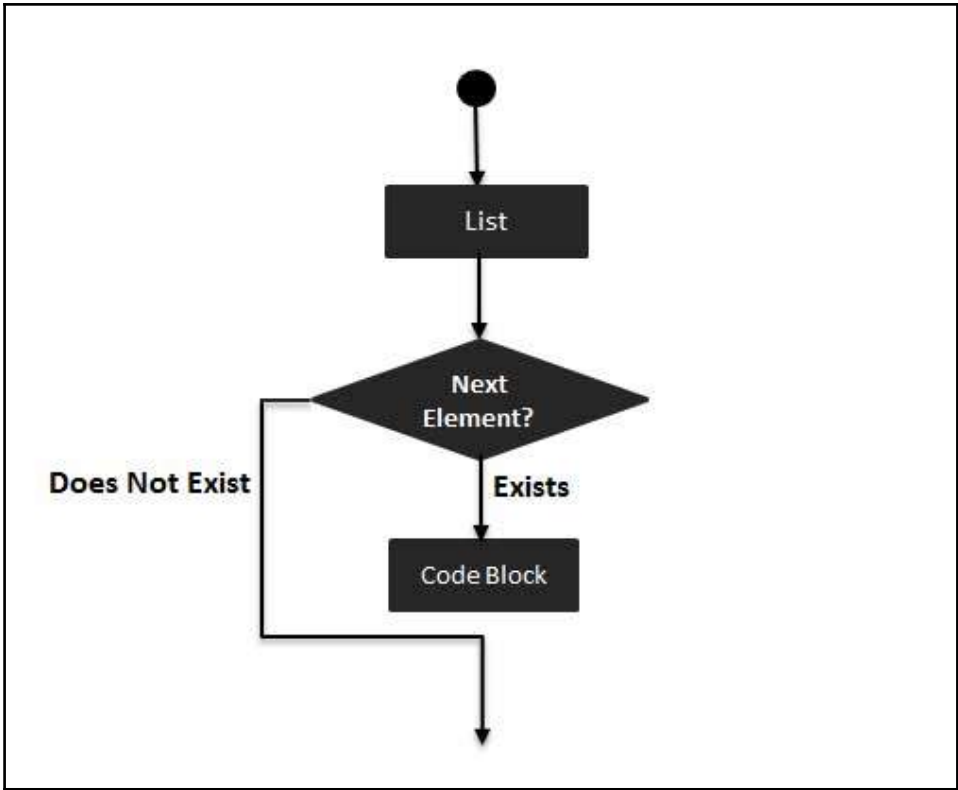
TASK [setup] *****
ok: [localhost]

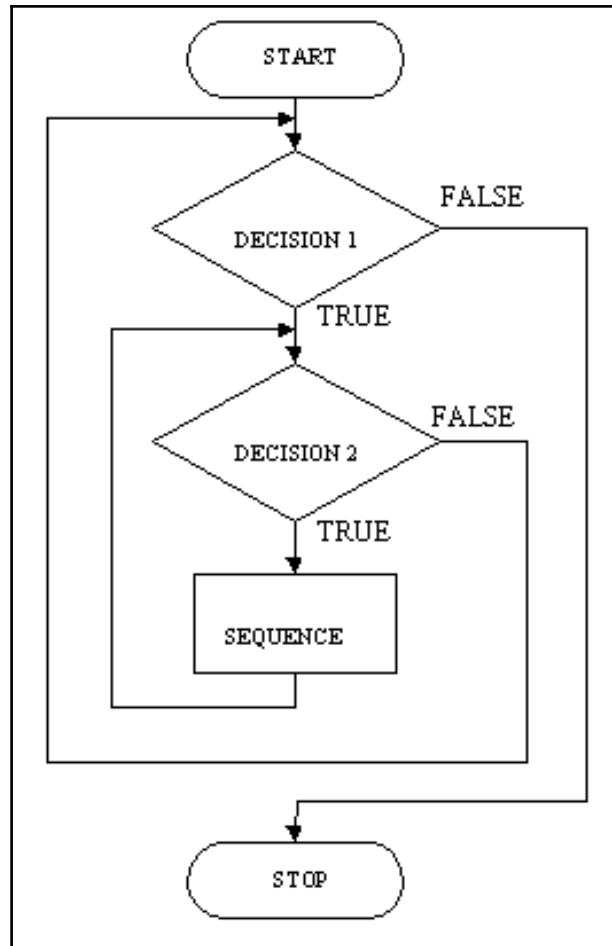
TASK [debug] *****
ok: [localhost] => {
  "msg": " GoodBye "
}

PLAY RECAP *****
localhost                : ok=2    changed=0    unreachable=0    failed=0

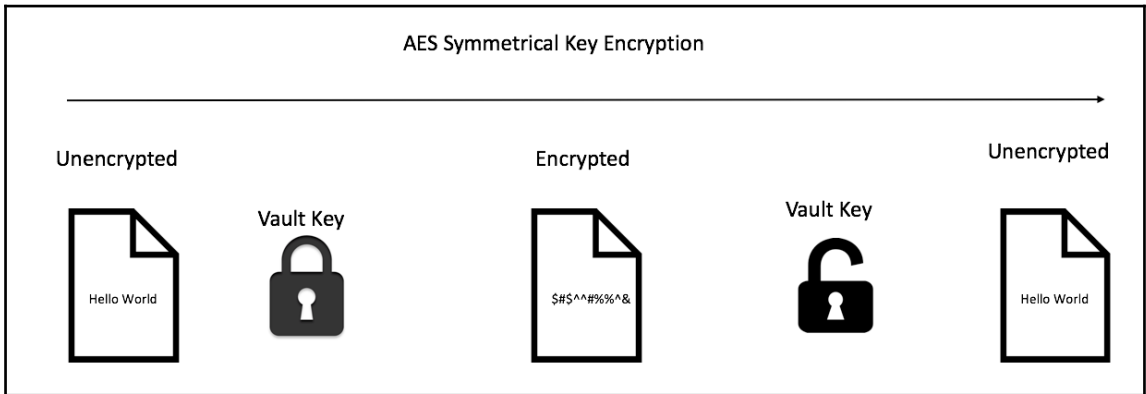
root@ubuntu:/opt# _
```







Chapter 8: Ansible Vault



```
root@ubuntu:/opt/chp7# cat vault.yml
$ANSIBLE_VAULT:1.1:AES256
34623461333032363361393534353132643935376463323731376363356664353464303632643139
3763366331343064383937396133306635323362643163360a393037396432623533623939353239
38653834333032643538616130646264383731323562366637623537333461333565303834363136
3739313465343637640a663339653736343564653437623230323532623932653434616364313038
64366238303265346632353139656466363965346330323035333538633161653337383261303066
61396463363262663535626331306233323533373235366434366263333231663938343736393661
383466373238633837653634366137663765
root@ubuntu:/opt/chp7#
```

```
root@ubuntu:/opt/chp7# cat vault.yml
$ANSIBLE_VAULT:1.1:AES256
34623461333032363361393534353132643935376463323731376363356664353464303632643139
3763366331343064383937396133306635323362643163360a393037396432623533623939353239
38653834333032643538616130646264383731323562366637623537333461333565303834363136
3739313465343637640a663339653736343564653437623230323532623932653434616364313038
64366238303265346632353139656466363965346330323035333538633161653337383261303066
61396463363262663535626331306233323533373235366434366263333231663938343736393661
383466373238633837653634366137663765
root@ubuntu:/opt/chp7#
```

```
Ubuntu Server [Running]
root@ubuntu:/opt/chp7# cat vault.yml
integer: 25
string: "Hello"
float: 25.0
boolean: Yes

root@ubuntu:/opt/chp7#
```

```
Ubuntu Server [Running]
root@ubuntu:/opt/chp7# ansible-vault rekey vault.yml
Vault password:
New Vault password:
Confirm New Vault password:
Rekey successful
root@ubuntu:/opt/chp7#
```

```
Ubuntu Server [Running]
root@ubuntu:/opt/chp7# tree
├── playbook.yml
├── roles
│   └── vaulttest
│       ├── tasks
│       │   └── main.yml
│       └── vars
│           └── sensitive_data.yml
4 directories, 3 files
root@ubuntu:/opt/chp7#
```

```
Ubuntu Server [Running]
root@ubuntu:/opt/chp7# ansible-playbook -i 'localhost,' -c local playbook.yml --ask-vault-pass
Vault password:

PLAY *****

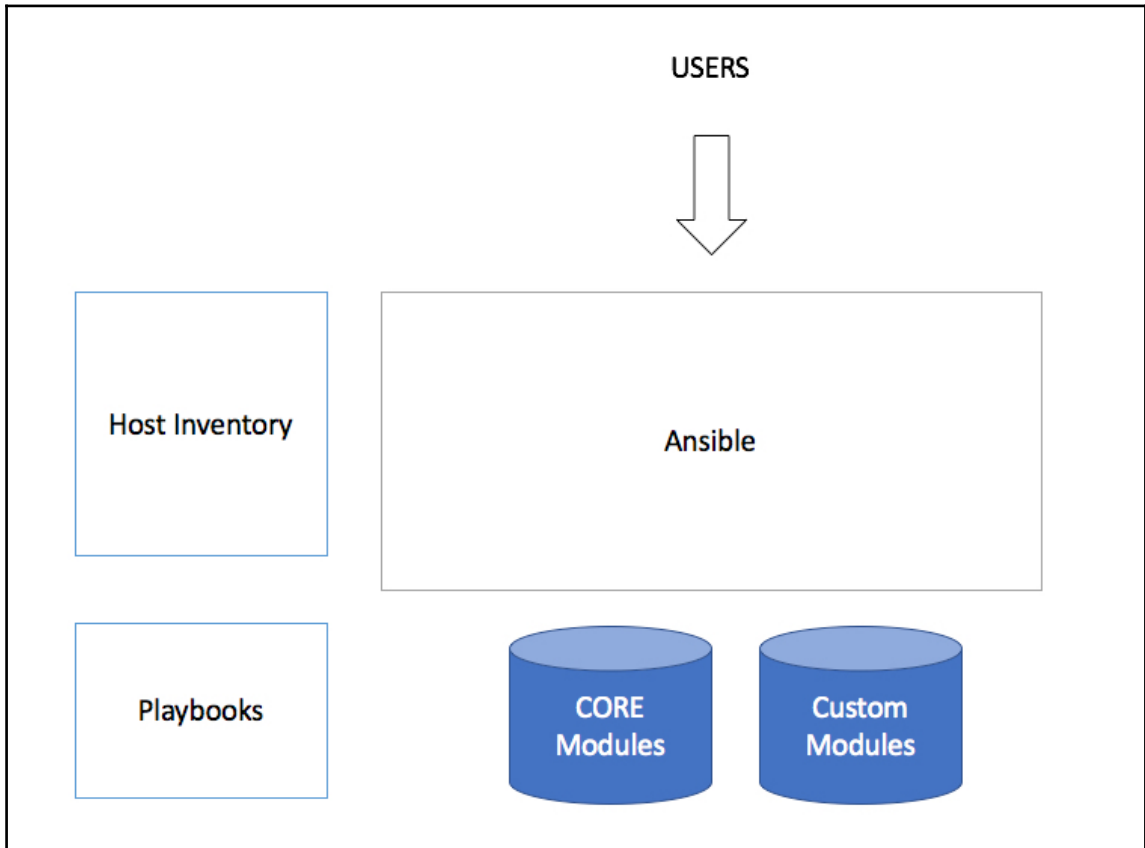
TASK [setup] *****
ok: [localhost]

TASK [vaulttest : include_vars] *****
ok: [localhost]

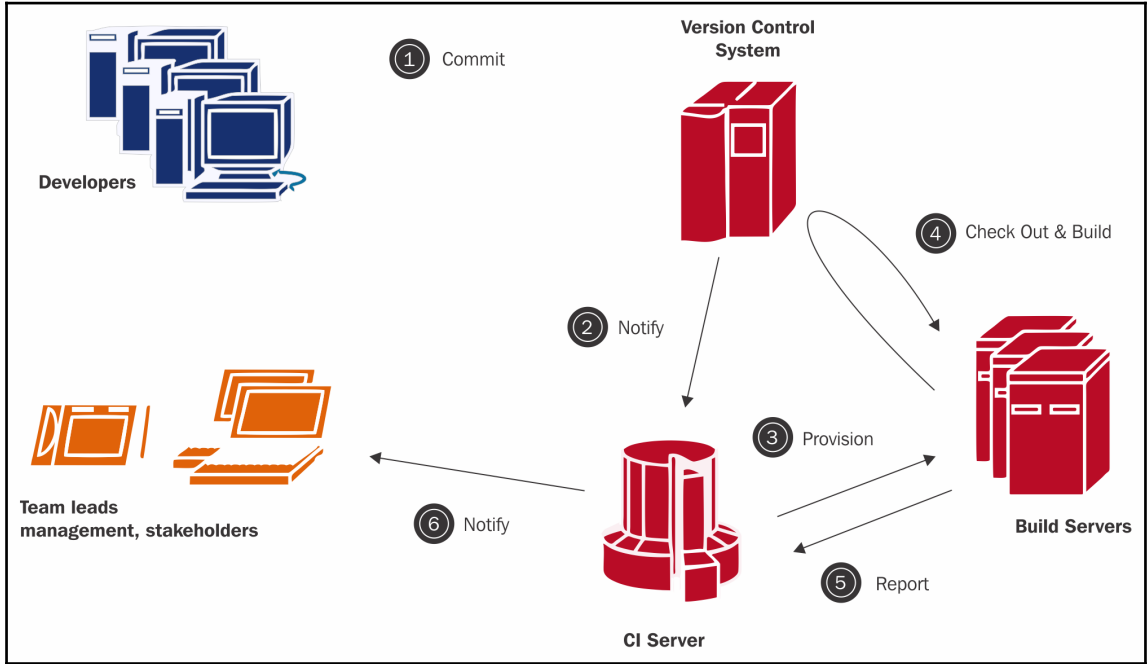
TASK [vaulttest : Copy sensitive data] *****
ok: [localhost]

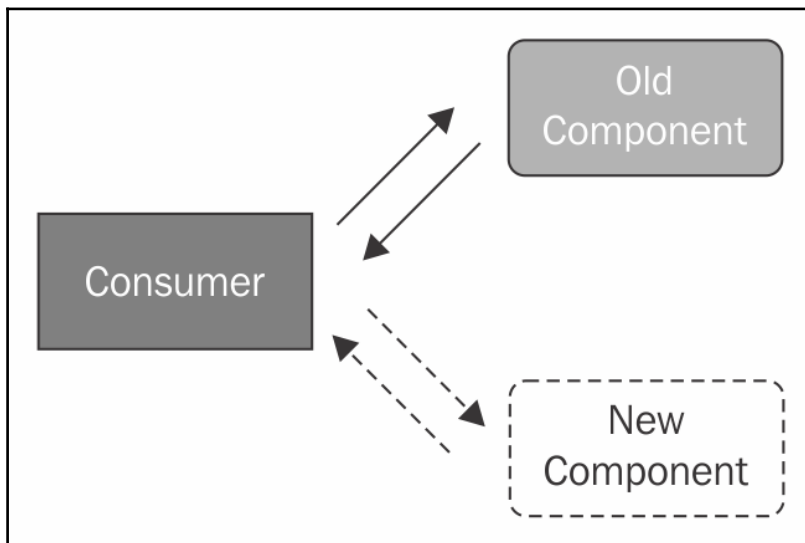
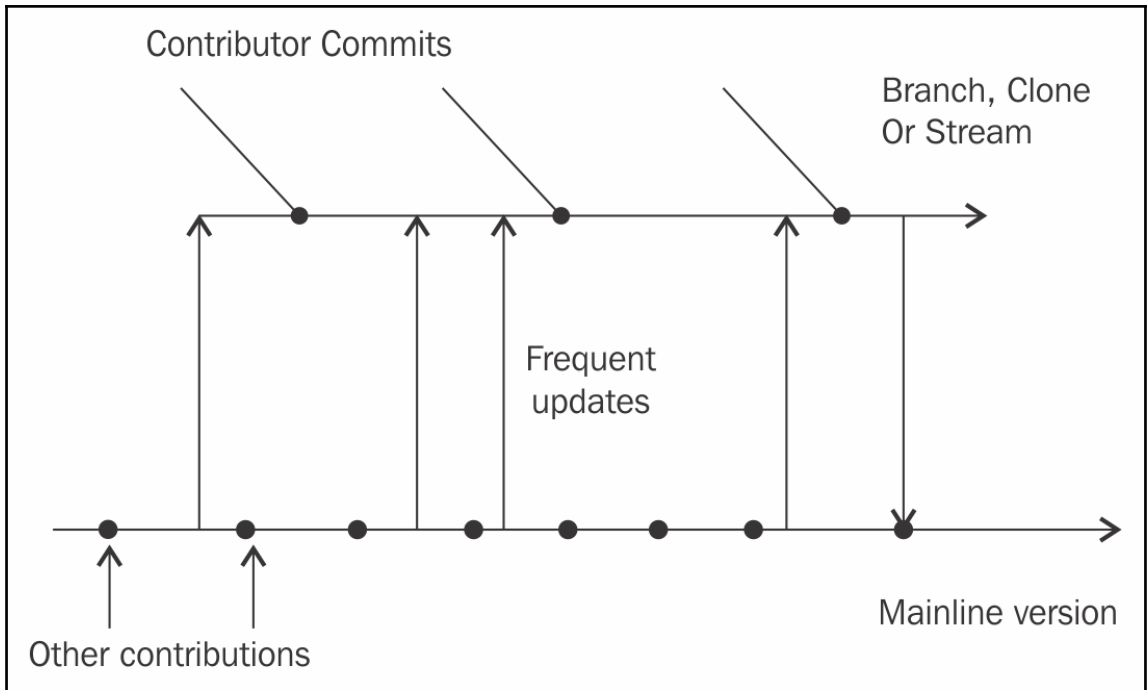
PLAY RECAP *****
localhost : ok=3    changed=0    unreachable=0    failed=0
```

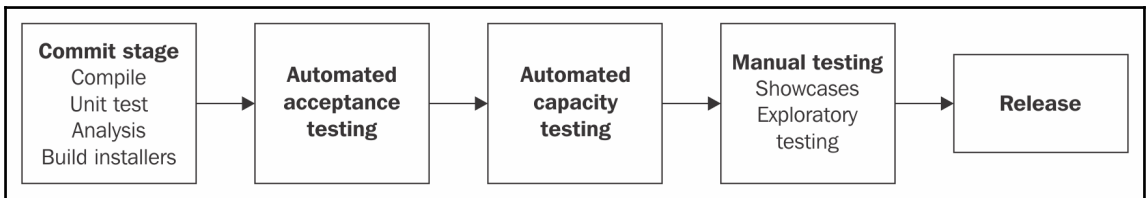
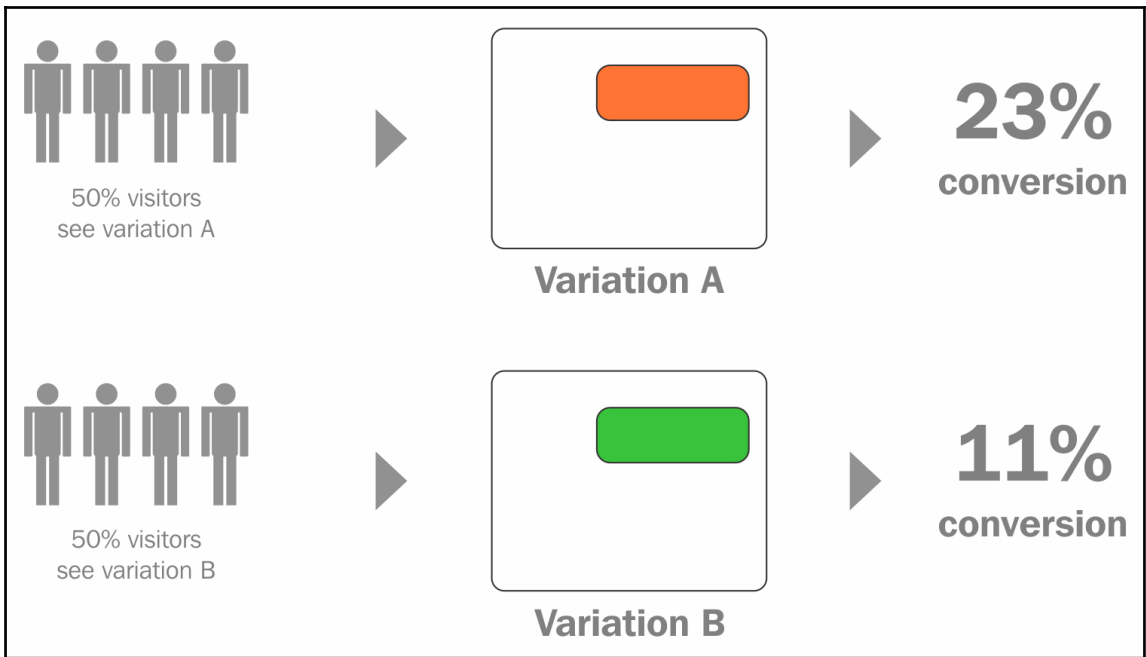
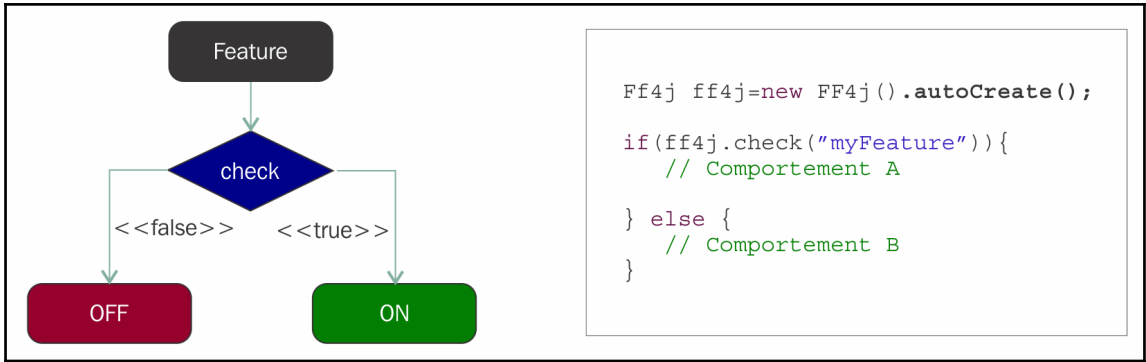
Chapter 9: Ansible Modules and Libraries

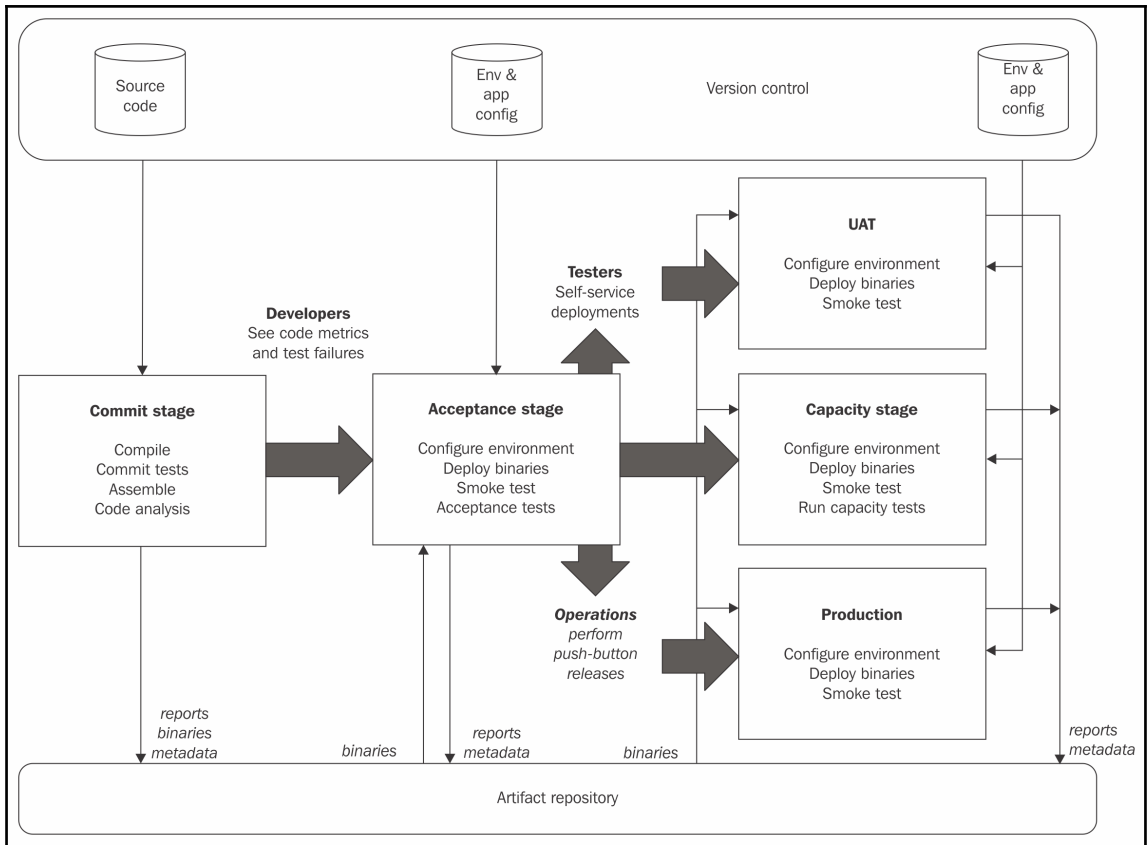


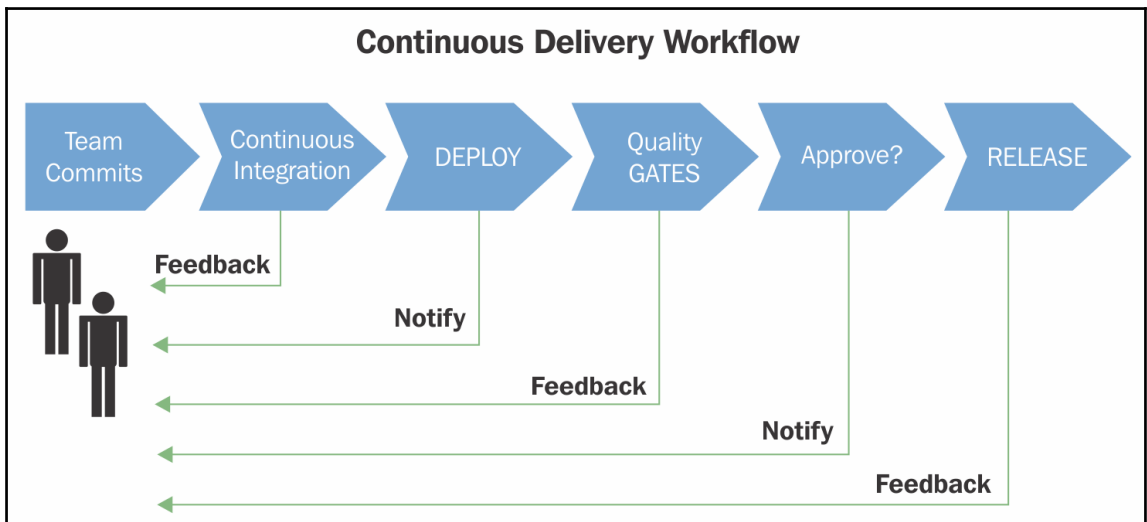
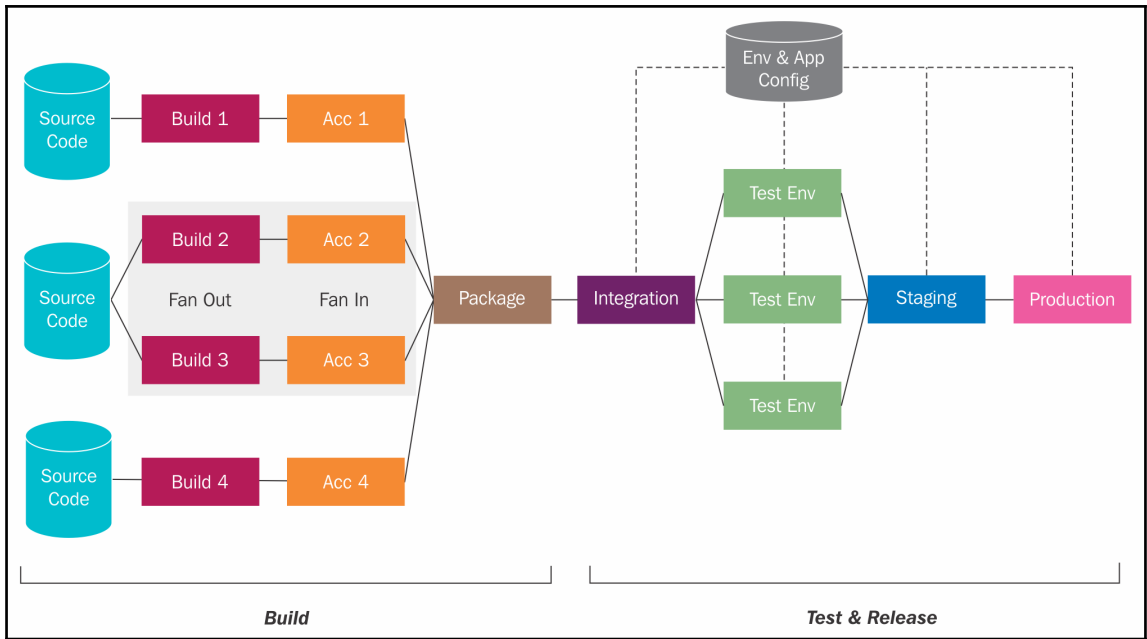
Chapter 10: Integrating Ansible with CI and CD Solutions

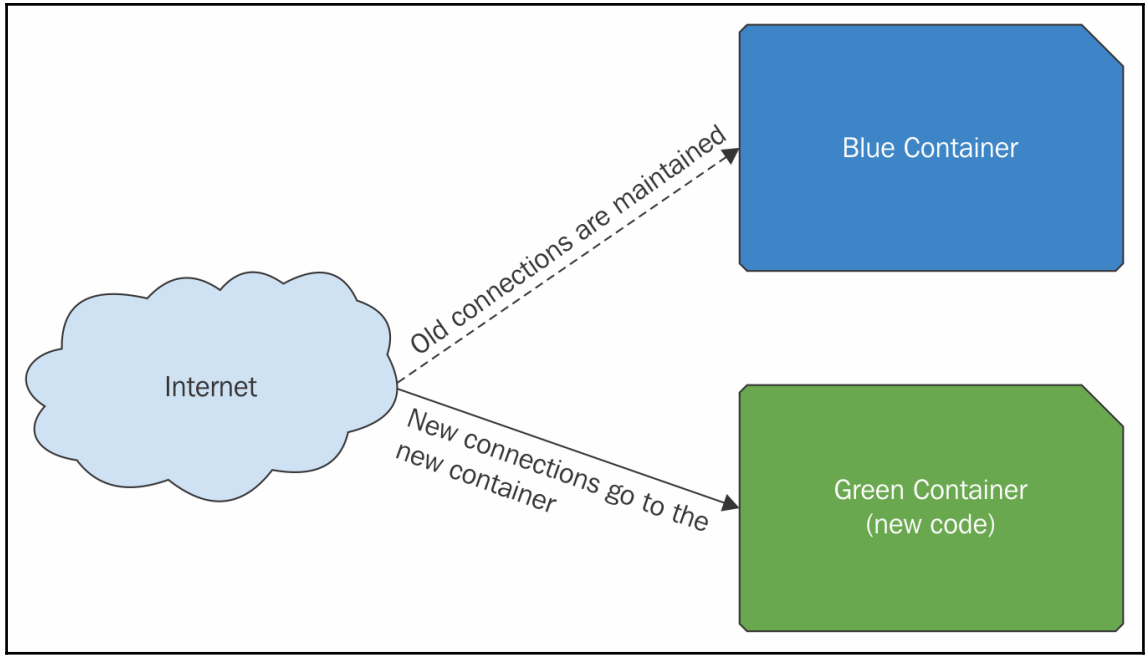


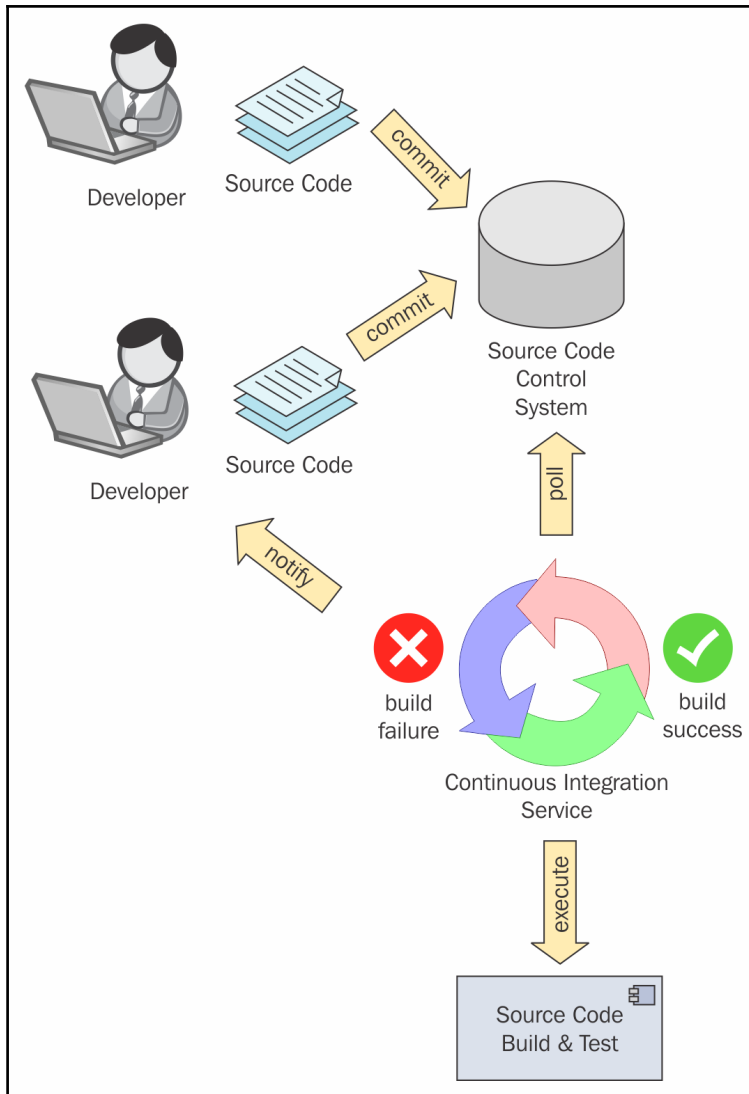


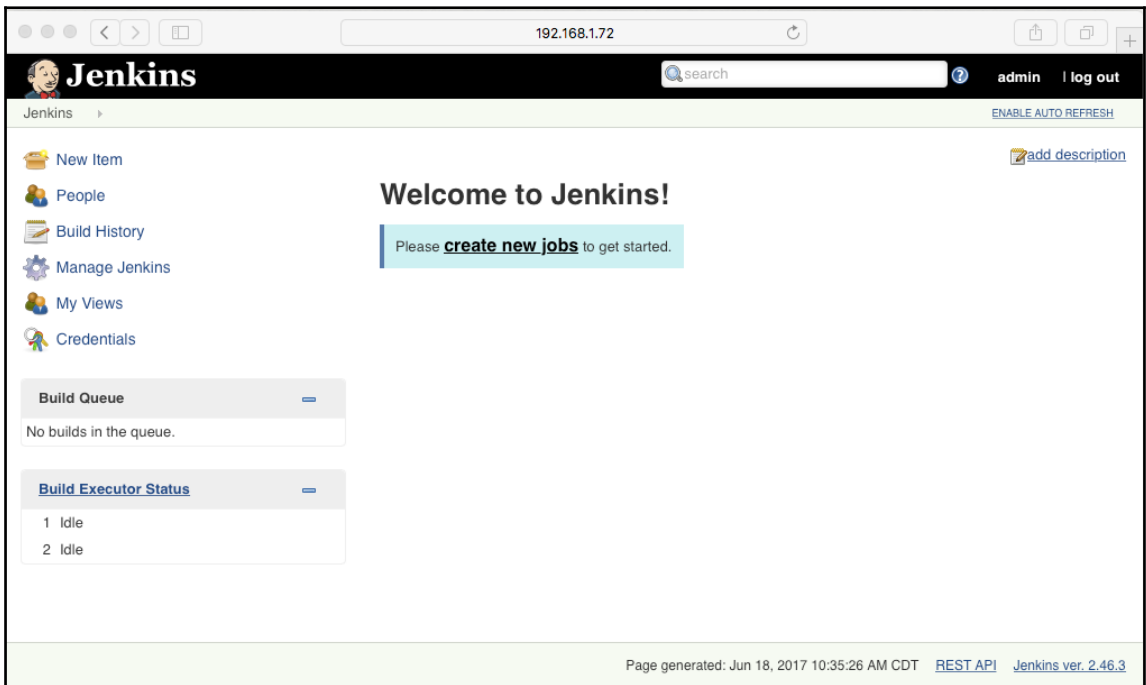
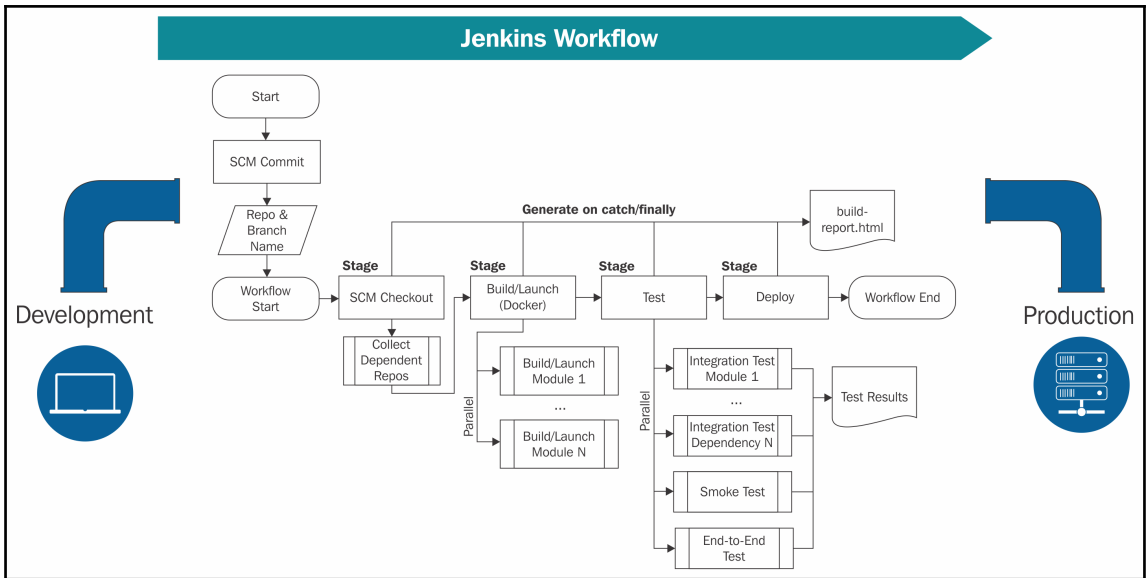












Jenkins 192.168.1.72 admin | log out

Jenkins > Plugin Manager

Back to Dashboard
Manage Jenkins
Update Center

Filter:

Updates Available Installed Advanced

Install ↓	Name	Version
.NET Development		
<input type="checkbox"/>	CCM Plug-in This plug-in generates the trend report for CCM, an open source static code analysis program.	3.1
<input type="checkbox"/>	change-assembly-version-plugin	1.5.1
<input type="checkbox"/>	FxCop Runner plugin	1.1
<input type="checkbox"/>	MSBuild Plugin	1.27
<input type="checkbox"/>	MSTest plugin Generates test reports for MSTest.	0.19
<input type="checkbox"/>	MSTestRunner plugin	1.3.0
<input type="checkbox"/>	NAnt Plugin	1.4.3
<input type="checkbox"/>	NCover plugin	0.2

Install without restart Download now and install after restart Update information obtained:

Jenkins 192.168.1.72 admin | log out

Jenkins > Plugin Manager

Back to Dashboard
Manage Jenkins
Update Center

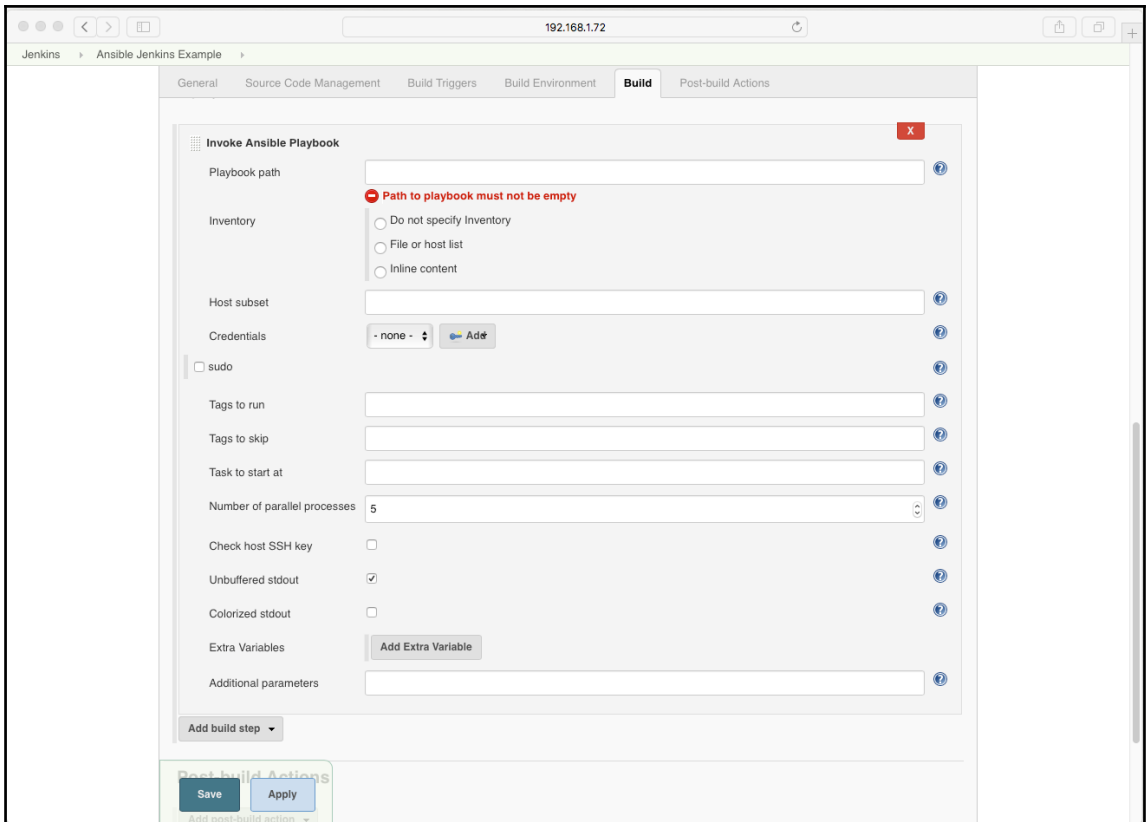
Filter: Ansible















Updates Available Installed Advanced

Install ↓	Name	Version
<input checked="" type="checkbox"/>	Ansible plugin Ansible support in Jenkins	0.6.2

Install without restart Download now and install after restart Update information obtained: 14 min ago Check now

Page generated: Jun 18, 2017 10:37:20 AM CDT REST API Jenkins ver. 2.46.3



-  Back to Project
-  Status
-  Changes
-  **Console Output**
-  View as plain text
-  Edit Build Information
-  Delete Build
-  Retrigger
-  Parameters
-  Polling Log
-  Git Build Data
-  No Tags
-  Previous Build
-  Next Build

 Console Output

```
Triggered by Gerrit: http://10.12.0.6:8090/43
Building in workspace /var/lib/jenkins/jobs/ansible-dhcp/workspace
> git rev-parse --is-inside-work-tree # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url ssh://jenkins@10.12.0.6:29418/ansible-dhcp # timeout=10
Fetching upstream changes from ssh://jenkins@10.12.0.6:29418/ansible-dhcp
> git --version # timeout=10
using GIT_SSH to set credentials
> git fetch --tags --progress ssh://jenkins@10.12.0.6:29418/ansible-dhcp +refs/heads/*:ref
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
> git rev-parse refs/remotes/origin/origin/master^{commit} # timeout=10
Checking out Revision 9d6afda3cb78c5359cf8925904303322ef661cb8 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 9d6afda3cb78c5359cf8925904303322ef661cb8
[workspace] $ /bin/sh -xe /tmp/hudson2321753144050642490.sh
+ export ANSIBLE_HOST_KEY_CHECKING=False
+ export ANSIBLE_FORCE_COLOR=True
+ cd /var/lib/jenkins/jobs/ansible-dhcp/workspace
+ ansible-playbook -i hosts dhcp.yml
```

```
PLAY [Update DHCP] *****
```

```
GATHERING FACTS *****
ok: [10.12.0.85]
```

```
TASK: [dhcp | include_vars {{ansible_os_family}}.yml] *****
ok: [10.12.0.85]
```

```
TASK: [dhcp | include_vars dhcpvars.yml] *****
ok: [10.12.0.85]
```

```
TASK: [dhcp | Deploy DHCP server for Debian Systems] *****
ok: [10.12.0.85]
```

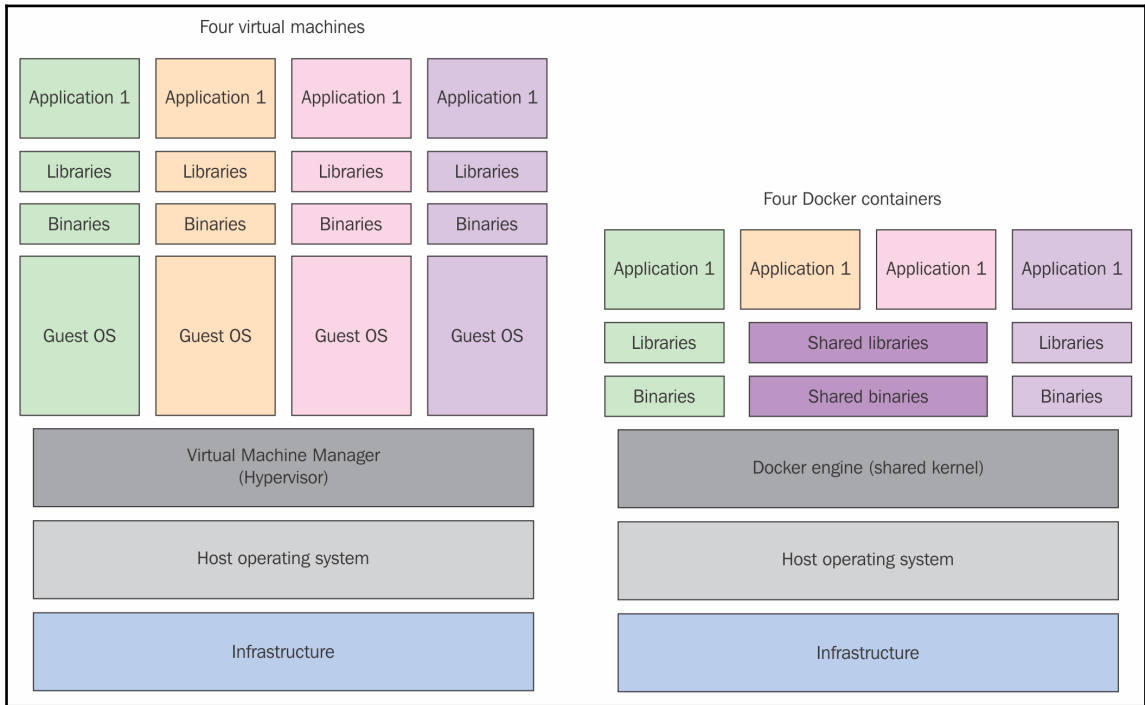
```
TASK: [dhcp | Main DHCP Config File] *****
changed: [10.12.0.85]
```

```
NOTIFIED: [dhcp | dhcp config update] *****
changed: [10.12.0.85]
```

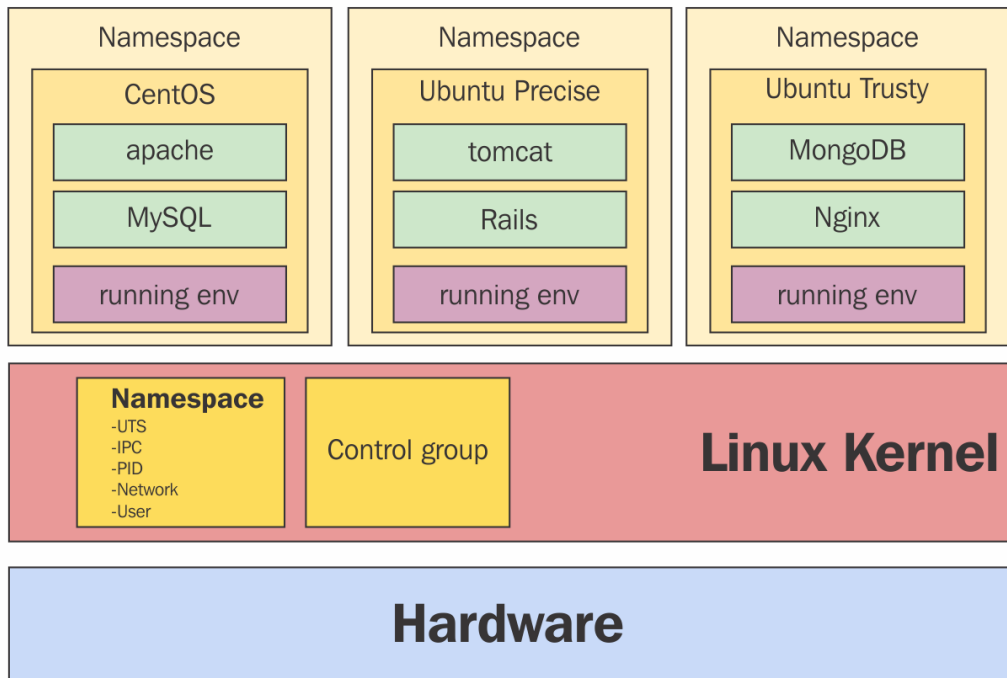
```
PLAY RECAP *****
10.12.0.85          : ok=6   changed=2   unreachable=0   failed=0
```

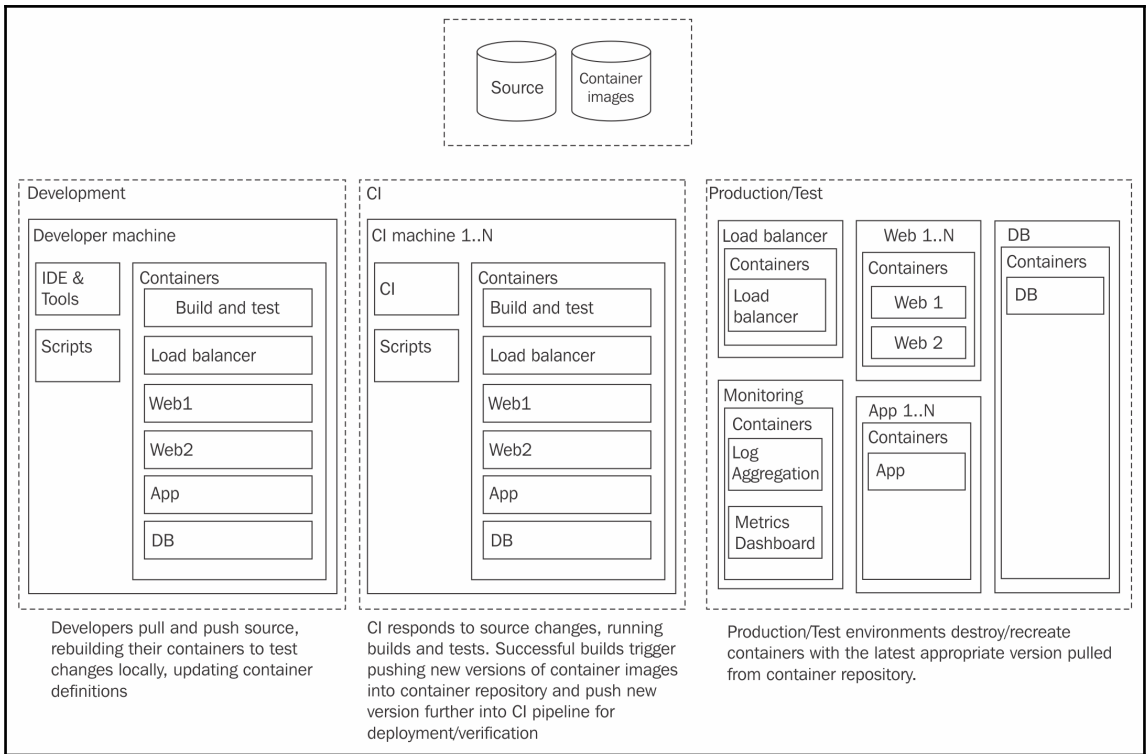
```
Finished: SUCCESS
```

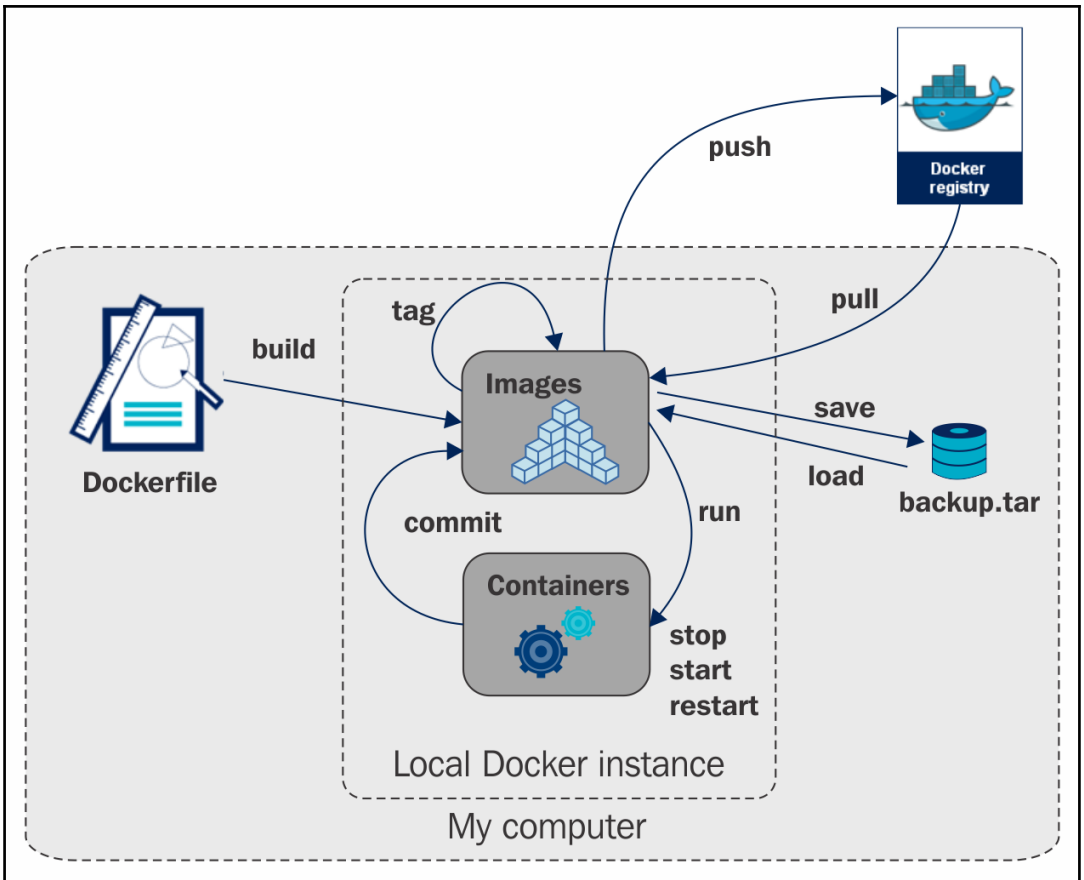
Chapter 11: Ansible and Docker



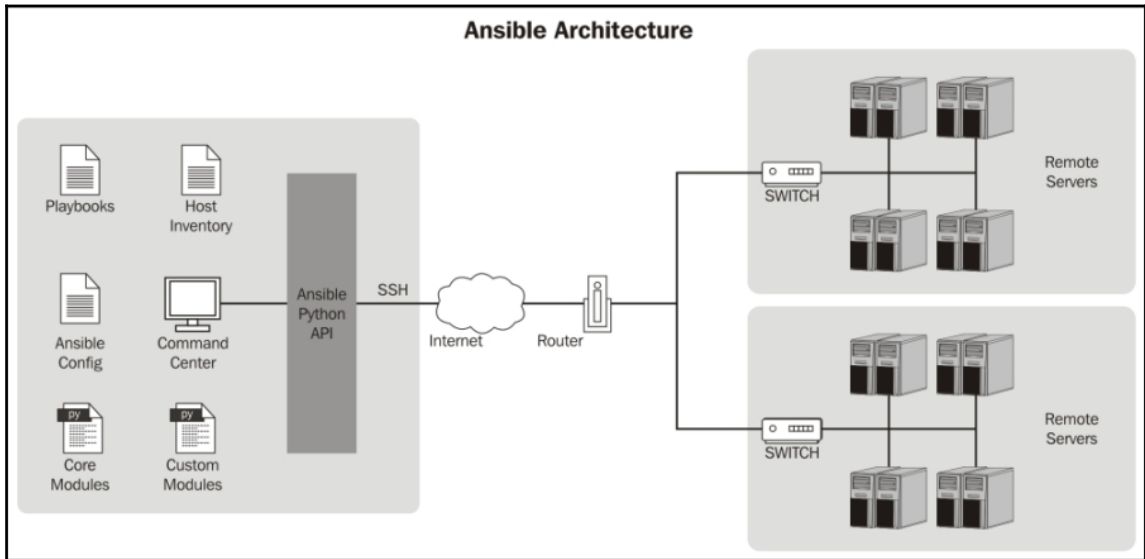
Linux Container - aka LXC







Chapter 12: Extending Ansible



```
Ubuntu Server [Running]
jmcallister@ubuntu:~$ sudo pip install git+https://github.com/sivel/ansible-testing.git#egg=ansible_t
_testing
[sudo] password for jmcallister:
The directory '/home/jmcallister/.cache/pip/http' or its parent directory is not owned by the current
user and the cache has been disabled. Please check the permissions and owner of that directory. If
executing pip with sudo, you may want sudo's -H flag.
The directory '/home/jmcallister/.cache/pip' or its parent directory is not owned by the current use
r and caching wheels has been disabled. check the permissions and owner of that directory. If execut
ing pip with sudo, you may want sudo's -H flag.
Collecting git+https://github.com/sivel/ansible-testing.git#egg=ansible_t_testing
  Cloning https://github.com/sivel/ansible-testing.git to /tmp/pip-EfzuKW-build
Requirement already satisfied (use --upgrade to upgrade): ansible in /usr/lib/python2.7/dist-package
s (from ansible-testing==0.0.1b0)
Collecting voluptuous==0.8.8 (from ansible-testing==0.0.1b0)
  Downloading voluptuous-0.8.8.tar.gz
Collecting mock (from ansible-testing==0.0.1b0)
  Downloading mock-2.0.0-py2.py3-none-any.whl (56kB)
  100% |#####| 61kB 13kB/s
Requirement already satisfied (use --upgrade to upgrade): setuptools>=0.6b1 in /usr/lib/python2.7/di
st-packages (from voluptuous==0.8.8->ansible-testing==0.0.1b0)
Requirement already satisfied (use --upgrade to upgrade): six>=1.9 in /usr/lib/python2.7/dist-packag
es (from mock->ansible-testing==0.0.1b0)
Collecting funcsigns>=1; python_version < "3.3" (from mock->ansible-testing==0.0.1b0)
  Downloading funcsigns-1.0.2-py2.py3-none-any.whl
Collecting pbr>=0.11 (from mock->ansible-testing==0.0.1b0)
  Downloading pbr-3.1.1-py2.py3-none-any.whl (99kB)
  100% |#####| 102kB 16kB/s
Installing collected packages: voluptuous, funcsigns, pbr, mock, ansible-testing
  Running setup.py install for voluptuous ... done
  Running setup.py install for ansible-testing ... done
Successfully installed ansible-testing-0.0.1b0 funcsigns-1.0.2 mock-2.0.0 pbr-3.1.1 voluptuous-0.8.8
You are using pip version 8.1.1, however version 9.0.1 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
jmcallister@ubuntu:~$ _
```

```
Ubuntu Server [Running]
jmcallister@ubuntu:~$ ansible-validate-modules
usage: ansible-validate-modules [-h] [-w] [--exclude EXCLUDE] [--arg-spec]
modules [modules ...]
ansible-validate-modules: error: too few arguments
jmcallister@ubuntu:~$
```

```
Ubuntu Server [Running]
jmcallister@ubuntu:/opt/ch11$ tree
.
├── library
│   ├── helloworld.py
│   └── myplaybook.yml
└──
1 directory, 2 files
jmcallister@ubuntu:/opt/ch11$ _
```

```
Ubuntu Server [Running]
jmcallister@ubuntu:/opt/ch11$ sudo git clone git://github.com/ansible/ansible.git
[sudo] password for jmcallister:
Cloning into 'ansible'...
remote: Counting objects: 270173, done.
remote: Compressing objects: 100% (55/55), done.
remote: Total 270173 (delta 32), reused 20 (delta 8), pack-reused 270109
Receiving objects: 100% (270173/270173), 77.68 MiB | 587.00 KiB/s, done.
Resolving deltas: 100% (172171/172171), done.
Checking connectivity... done.
jmcallister@ubuntu:/opt/ch11$ ls
ansible library myplaybook.yml
jmcallister@ubuntu:/opt/ch11$ source ansible/hacking/env-setup
running egg_info
creating lib/ansible.egg-info
error: could not create 'lib/ansible.egg-info': Permission denied

Setting up Ansible to run out of checkout...

PATH=/opt/ch11/ansible/bin:/opt/ch11/ansible/test/runner:/home/jmcallister/bin:/home/jmcallister/.local/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin
PYTHONPATH=/opt/ch11/ansible/lib:
MANPATH=/opt/ch11/ansible/docs/man:

Remember, you may wish to specify your host file with -i

Done!

jmcallister@ubuntu:/opt/ch11$
```



```
Ubuntu Server [Running]
jmcallsiter@ubuntu:/opt/ch11$ ansible/hacking/test-module -m ./library/helloworld.py
* including generated source, if any, saving to: /home/jmcallsiter/.ansible_module_generated
*****
RAW OUTPUT
{"Message": "Hello Ansible"}

*****
PARSED OUTPUT
{
  "Message": "Hello Ansible"
}
jmcallsiter@ubuntu:/opt/ch11$
```

```
Ubuntu Server [Running]
jmcallsiter@ubuntu:/opt/ch11$ ansible/hacking/test-module -m ./library/helloworld.py
* including generated source, if any, saving to: /home/jmcallsiter/.ansible_module_generated
*****
RAW OUTPUT
Traceback (most recent call last):
  File "/home/jmcallsiter/.ansible_module_generated", line 6, in <module>
    print(json.dumps({"Message": message}))
NameError: name 'message' is not defined

*****
INVALID OUTPUT FORMAT
Traceback (most recent call last):
  File "ansible/hacking/test-module", line 218, in runtest
    results = json.loads(out)
  File "/usr/lib/python2.7/json/__init__.py", line 339, in loads
    return _default_decoder.decode(s)
  File "/usr/lib/python2.7/json/decoder.py", line 364, in decode
    obj, end = self.raw_decode(s, idx=_w(s, 0).end())
  File "/usr/lib/python2.7/json/decoder.py", line 382, in raw_decode
    raise ValueError("No JSON object could be decoded")
ValueError: No JSON object could be decoded
jmcallsiter@ubuntu:/opt/ch11$ _
```

```
Ubuntu Server [Running]
jmcallister@ubuntu:/opt/ch11$ sudo ansible-playbook myplaybook.yml -i localhost -v
Using /etc/ansible/ansible.cfg as config file
[WARNING]: provided hosts list is empty, only localhost is available

PLAY [Hello World] *****

TASK [setup] *****
ok: [localhost]

TASK [Tell the Ansible Community Hello] *****
ok: [localhost] => {"Message": "hello", "changed": false}

PLAY RECAP *****
localhost                : ok=2    changed=0    unreachable=0    failed=0

jmcallister@ubuntu:/opt/ch11$
```