

cloud-init

Building clouds one Linux box at a time

Audience Survey

Know Nothing

*Only heard of it,
never used it*

Know Something

*User, wrote
cloud-config or
injected user-data*

Contributor

*Wrote code,
documentation, or
filed bug*

cloud instance initialization software

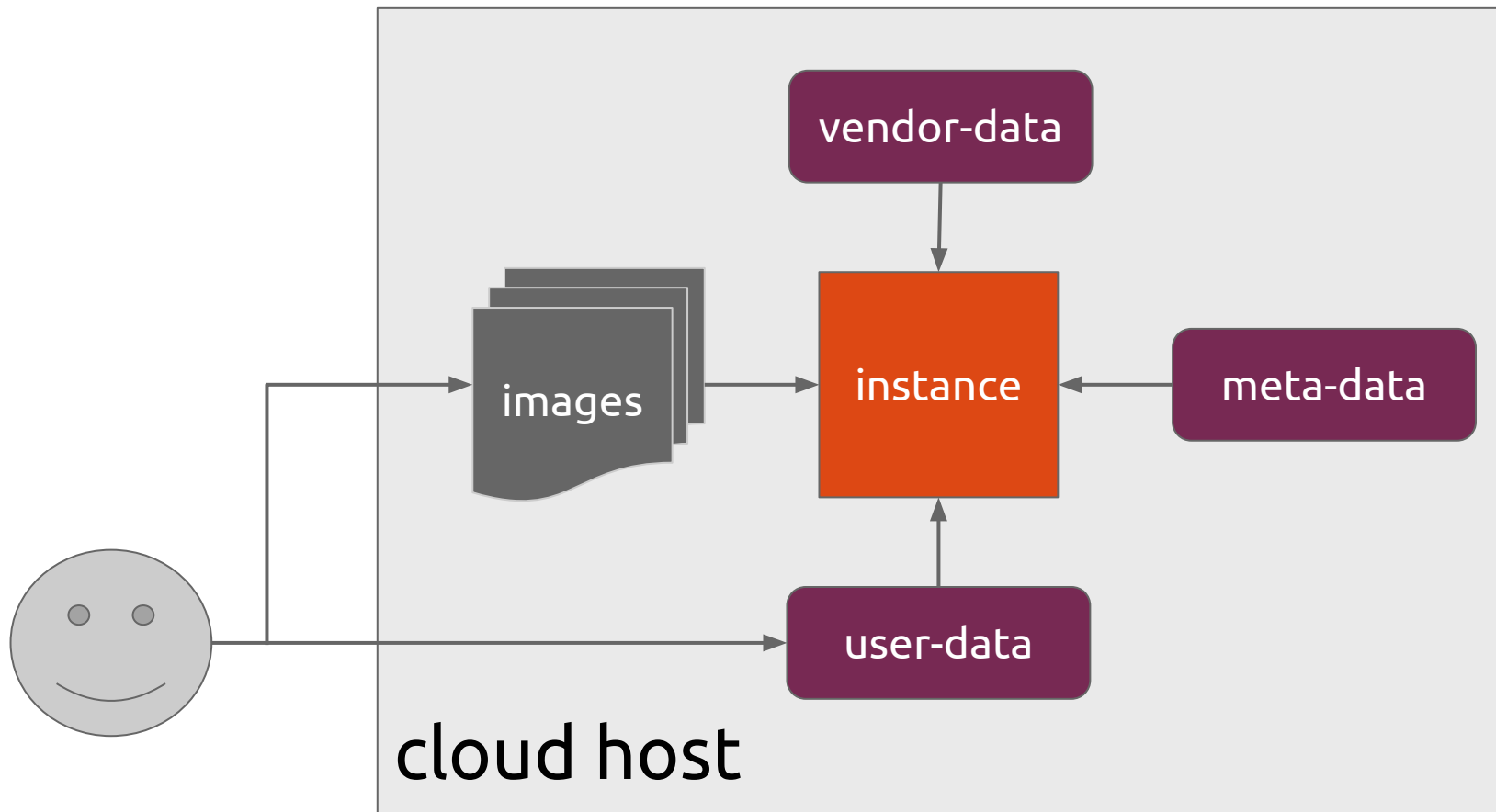
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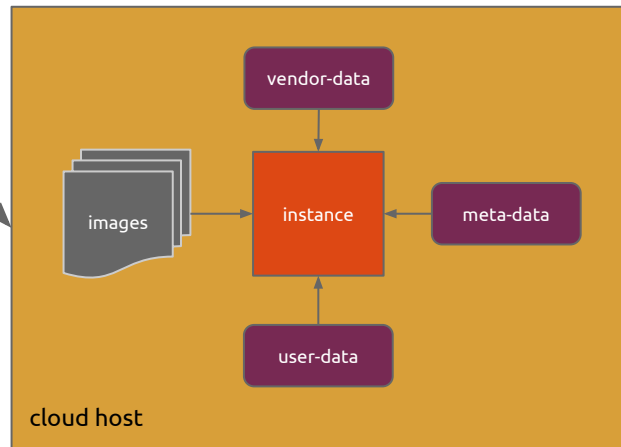
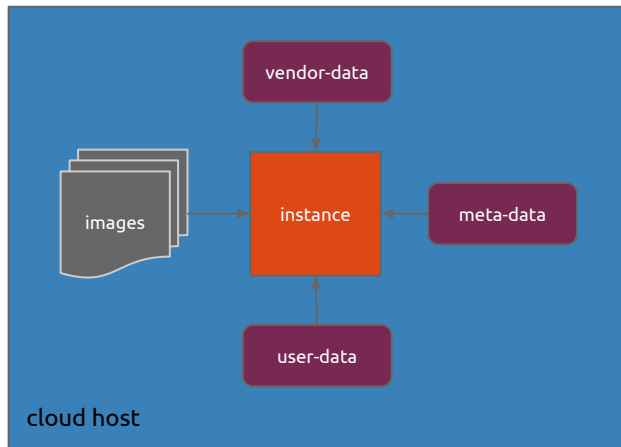
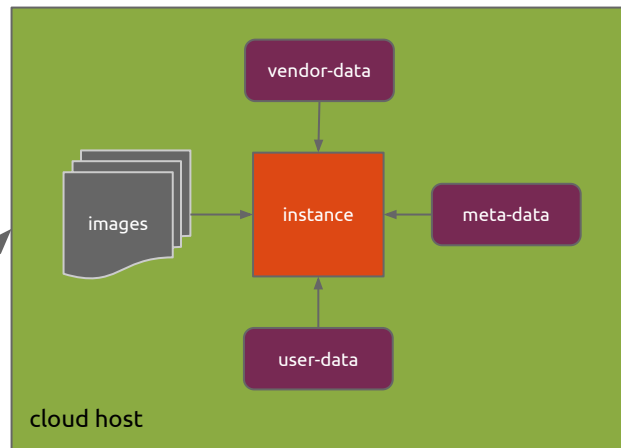
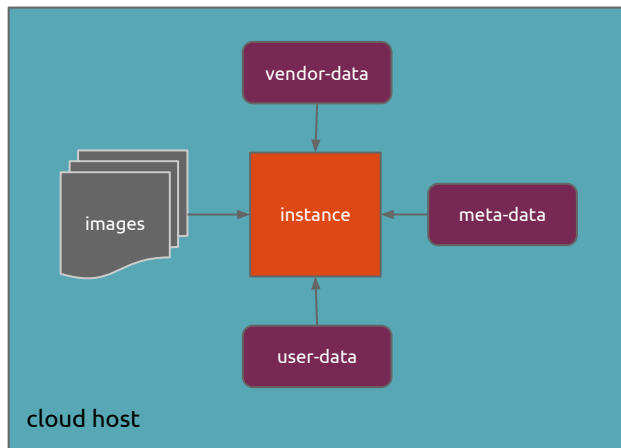
Cloud Images_requirements

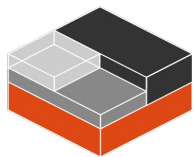
List of packages differentiating Debian Cloud Images from default Debian installation

common

- cloud-init







LXD

SOFTLAYER®

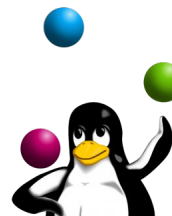
ORACLE®



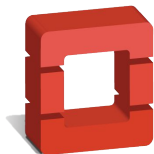
Microsoft Azure



Google Cloud Platform



KVM

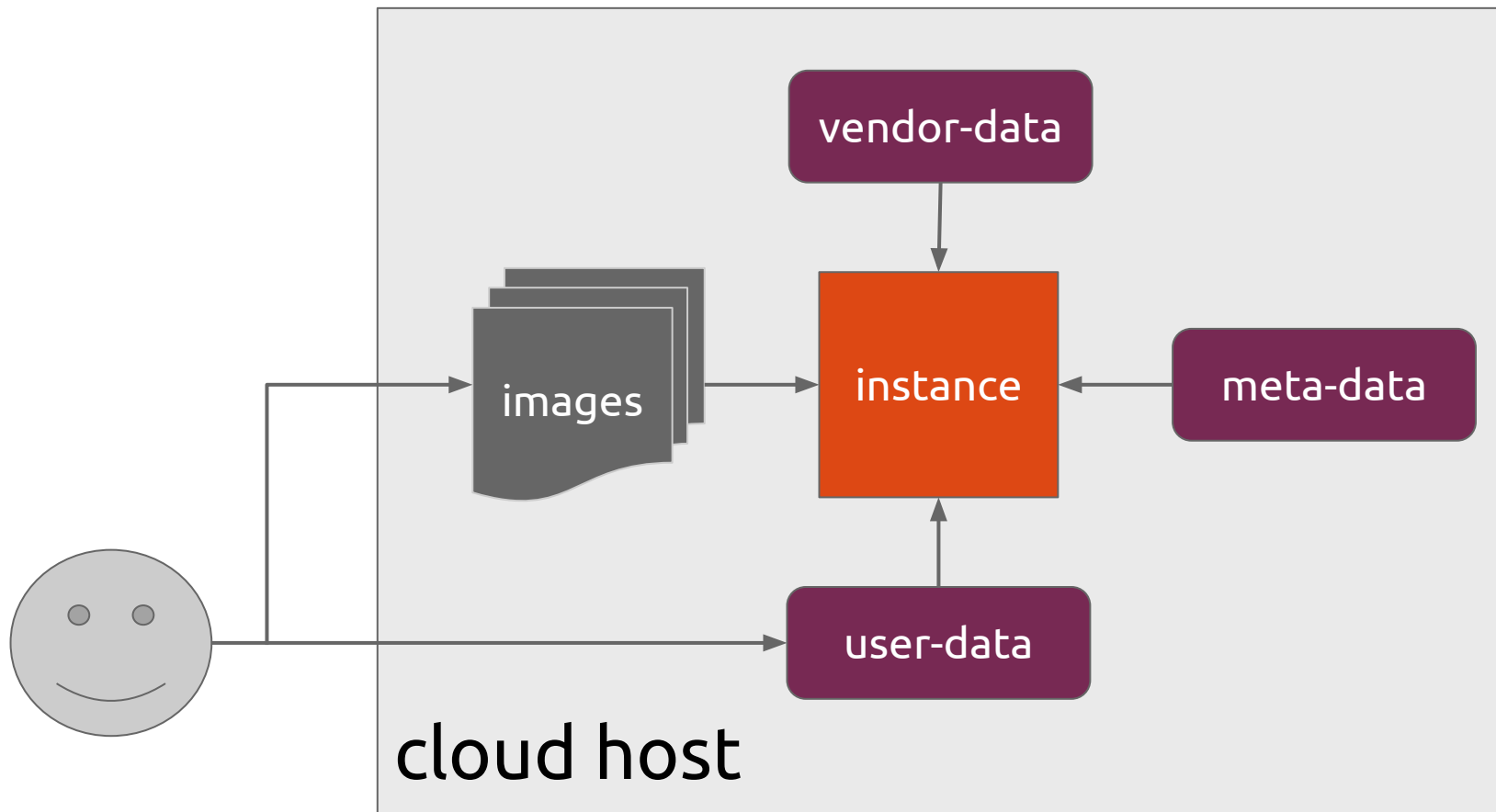


openstack™



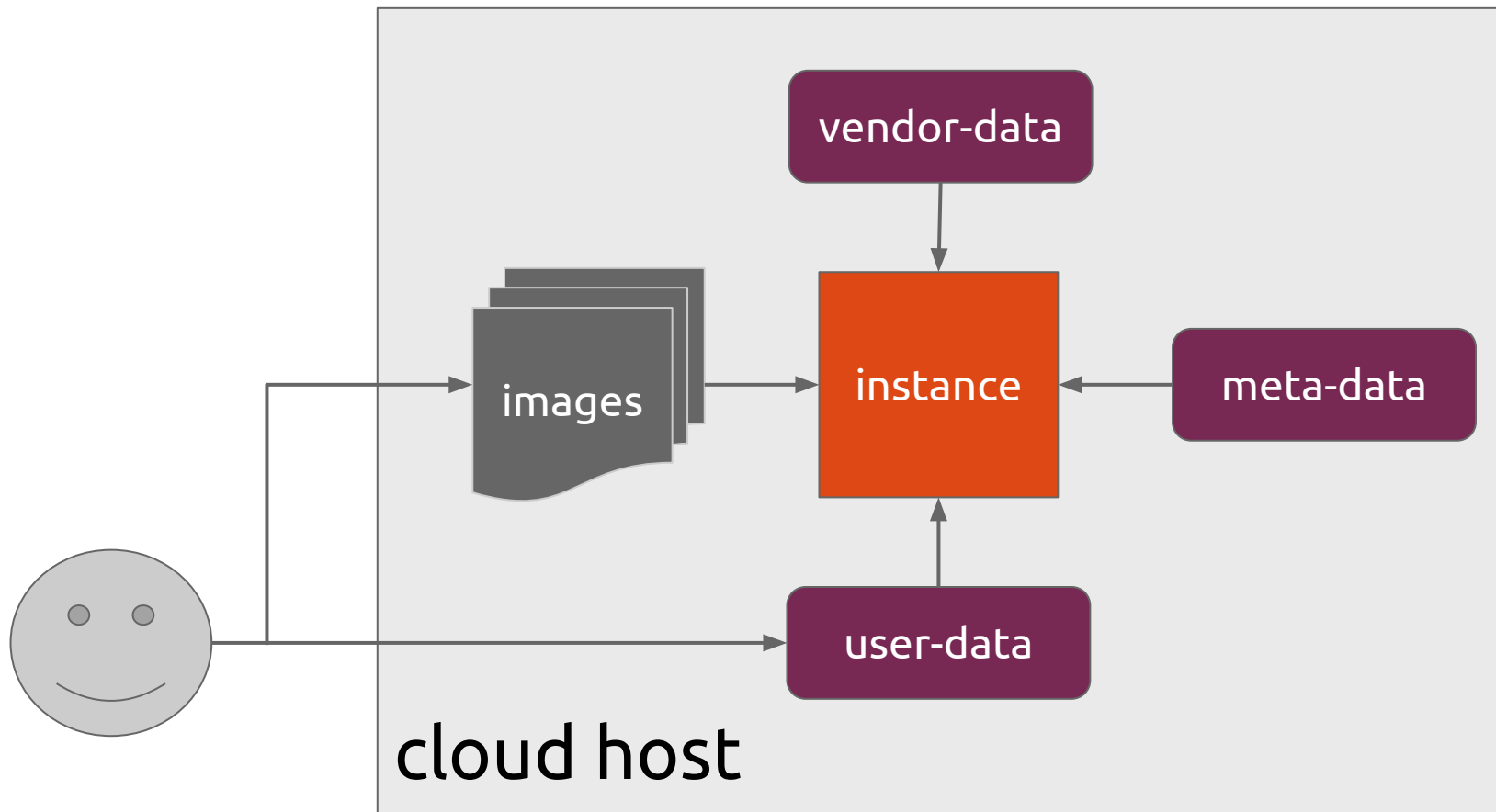
bigstep®






```
#cloud-config
timezone: America/Toronto
hostname: debconf17
ssh_import_id: gh:powersj
apt:
  sources:
    lxc:
      source: "ppa:ubuntu-lxc/stable"
packages:
  - htop
  - tree
package_update: true
package_upgrade: true
```

```
# Selection of example meta-data from AWS  
ami-id: ami-fd4aa494  
hostname:  
domU-12-31-38-07-19-44.compute-1.internal  
instance-id: i-87018aed  
instance-type: m1.large  
local-ipv4: 10.223.26.178  
placement: {availability-zone: us-east-1d}  
public-hostname:  
ec2-184-72-174-120.compute-1.amazonaws.com  
public-ipv4: 184.72.174.120  
security-groups: default
```



```
# Demo 1: An Example Using KVM
```

```
# Create nocloud disk
```

```
cloud-localds seed.img user-data meta-data
```

```
# Boot image with nocloud disk
```

```
qemu-system-x86_64 -enable-kvm -m 512 -nographic
```

```
-drive "file=stretch.qcow2,if=virtio"
```

```
-drive "file=seed.img,if=virtio,format=raw"
```

```
-device virtio-net-pci,netdev=net00
```

```
-netdev type=user,id=net00
```

```
# Demo 2: An Example Using LXC
```

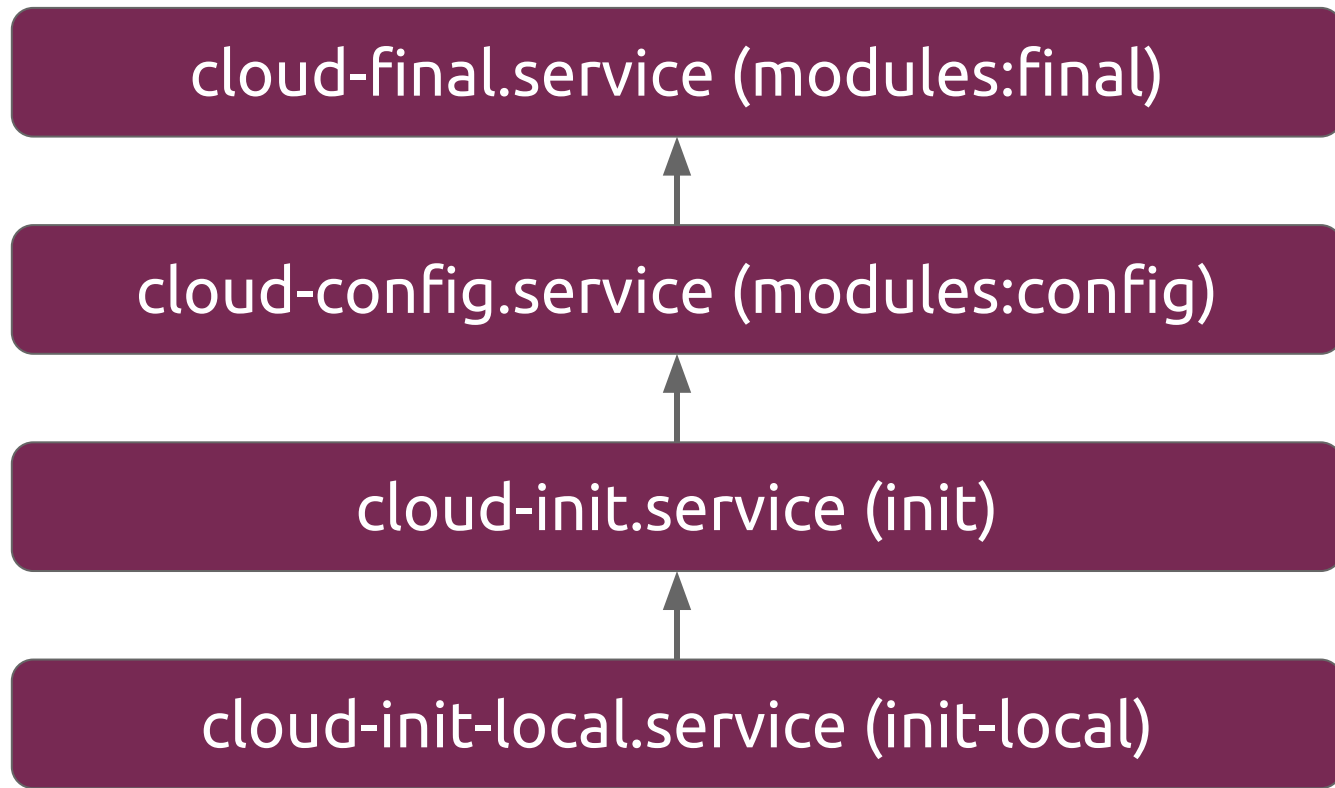
```
# Inject user-data via lxc
```

```
lxc config set stretch user.user-data - < userdata.cfg
```

```
lxc config show stretch
```

```
lxc start stretch
```

Boot Sequence



-- Boot Record 01 --

24.52400s (modules-config/config-apt-configure)
20.26100s (modules-config/config-ssh-import-id)
12.67400s (modules-final/config-package-update-upgrade-install)
00.39000s (modules-config/config-locale)
00.10000s (init-network/config-ssh)
00.06900s (modules-config/config-grub-dpkg)
00.04400s (init-network/config-users-groups)
00.01300s (init-local/search-NoCloud)
00.01000s (modules-final/config-keys-to-console)
00.00400s (init-network/consume-user-data)
00.00400s (init-network/config-growpart)
00.00300s (modules-final/config-final-message)
00.00300s (init-network/consume-vendor-data)
00.00200s (modules-final/config-ssh-authkey-fingerprints)
00.00200s (init-network/config-set_hostname)
00.00200s (init-network/config-resizefs)
00.00100s (modules-final/config-snappy)

Starting stage: init-local

|`->no cache found @00.00300s +00.00100s

|`->found local data from DataSourceNoCloud @00.03000s +00.01300s

Finished stage: (init-local) 00.14300 seconds

Starting stage: init-network

|`->restored from cache with run check: DataSourceNoCloud
[seed=/var/lib/cloud/seed/nocloud-net][dsmode=net] @03.18800s
+00.00100s

|`->reading and applying user-data @03.22000s +00.00400s

|`->reading and applying vendor-data @03.22400s +00.00300s

|`->config-migrator ran successfully @03.25100s +00.00000s

|`->config-ubuntu-init-switch ran successfully @03.25100s
+00.00100s

|`->config-seed_random ran successfully @03.25200s +00.00000s

|`->config-bootcmd ran successfully @03.25300s +00.00000s

|`->config-write-files ran successfully @03.25300s +00.00100s


```
# Search all datasources
```

```
2017-06-29 17:02:23,104 - __init__.py[DEBUG]: Looking for for data  
source in: ['NoCloud', 'ConfigDrive', 'OpenNebula', 'DigitalOcean',  
'Azure', 'AltCloud', 'OVF', 'MAAS', 'GCE', 'OpenStack', 'CloudSigma',  
'SmartOS', 'Bigstep', 'Ec2', 'CloudStack', 'None'], via packages ['',  
'cloudinit.sources'] that matches dependencies ['FILESYSTEM']
```

```
2017-06-29 17:02:23,150 - __init__.py[DEBUG]: Searching for local data  
source in: ['DataSourceNoCloud', 'DataSourceConfigDrive',  
'DataSourceOpenNebula', 'DataSourceDigitalOcean', 'DataSourceAzure',  
'DataSourceOVF', 'DataSourceCloudSigma', 'DataSourceSmartOS']
```

```
# Search only ID'ed
```

```
2017-06-30 15:05:09,809 - __init__.py[DEBUG]: Searching for network data  
source in: ['DataSourceGCE', 'DataSourceNone']
```

Integration Test Framework

Validate user-data with a variety of data sources and OSes

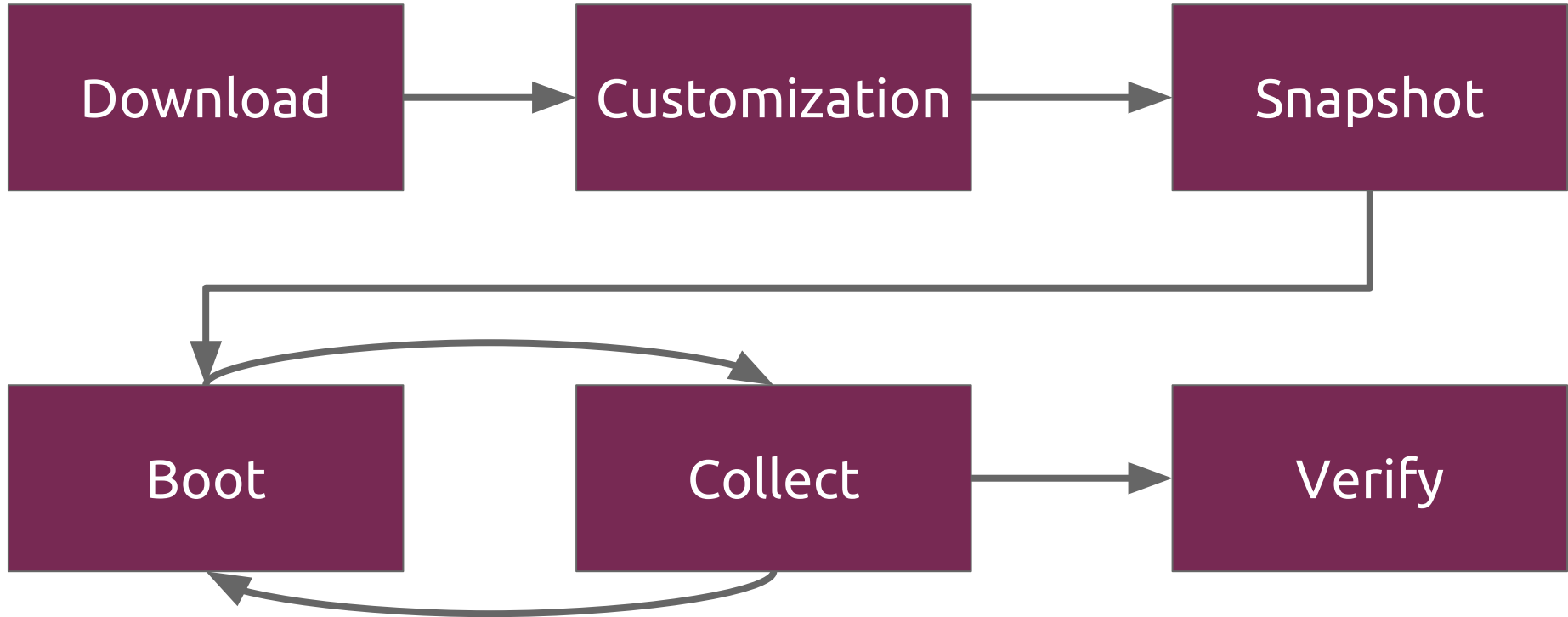
Cover variety of scenarios:

- Smoke & Nightly Testing: Run latest daily image
- Development: Run local tree
- SRU & Debugging: Run special built deb

LXD: Fast, 50% of cloud-config module coverage

KVM: Add network, storage, remaining 50% of cloud-config coverage

Integration Test Framework



Merge Requests and Releases

Automated, Better, Faster

Automated review now involves:

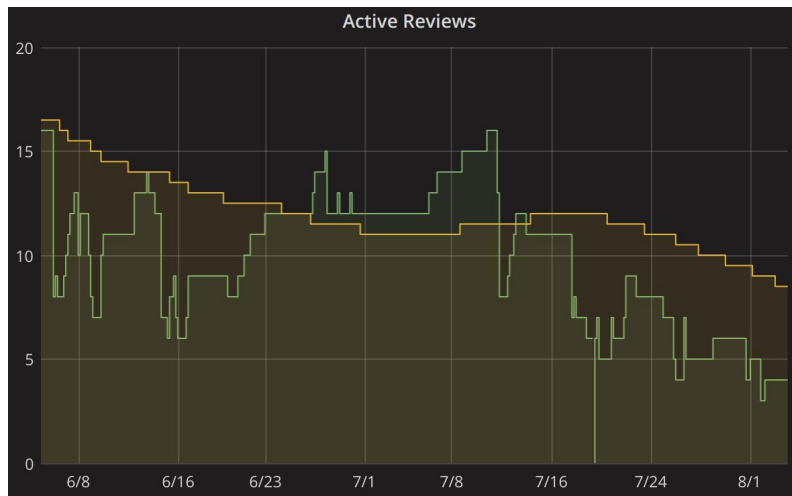
- Unittests via tox, includes linting
- Build of the package
- Basic LXD-backed integration tests

Manual review by member of the team

0.7.8: September 12, 2016

0.7.9: December 23, 2016

0.7.10: soon...





#cloud-init on freenode

<https://git.launchpad.net/cloud-init>

<https://cloudinit.readthedocs.io/>

<https://cloud-init.io/>



ubuntu

CANONICAL