OCP Ready

and OCP Checkbox Overview

David Duffey

- Based in Austin, TX
- Started in Canonical in February 2011
- Leads Server Hardware Ecosystem and Server Certification Team
- Cloud
  - Amazon, AT&T, China Mobile, Deutsche Telekom, HP, Microsoft, Samsung
- Server & IHVs
  - HP, Dell, IBM (Lenovo), Cisco, SeaMicro, OCP
  - LSI, Emulex, Fusion-IO, Intel, AMD, NVidia, EMC
- Enterprise Support
  - Allied Irish Bank, Capgemini, eBay, Google, IBM, KDDI, LVM, Qualcomm, John Hopkins, French Government, etc.

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Agenda

- History
- OCP Ready
- OCP Checkbox
  - Developer Focus
  - Differences from upstream
- Demo
- What’s Next

C&I History - OCP Ready / Checkbox

- OCP Launch: Joint scale-out/low power/hyperscale presentation
- OCP v1 “Freedom” Certified on Ubuntu 10.04 LTS (Checkbox)
- August 2012 - OCP Certification Workshop @ Facebook
- January 2013 Annual Summit - Disposable Operating System
  - Ready/Certified - Lab Outreach
- May 2013 MIT First C&I Engineering Summit
  - Checkbox demo, Remote/Local Tests
- May 2013 OCP Japan - OCP in Launchpad
  - OCP v2 Windmill PPA (drivers & tools packaged)
- June 2013 - OCP Checkbox branch created in Launchpad
  - Checkbox Presentation and Video, Call for Developers
- August 2013 - OCP Taiwan ITRI OCP Checkbox demo
- Additional tests developed by GS, Fidelity, Facebook, AVL
- OCPv3 Roadrunner out-of-box enabled in 12.04.3 LTS (NIC, BMC)
- October 2013 - GS Summit - OCP Checkbox 0.9 on Live Boot
  - PXE image shortly thereafter
- November 2013- UTSA OCP Certification Lab demo and setup

OCP Ready & Certified

Program Definition

- Involved with helping define Certification program (Ready vs Certified)

Compliance Documentation

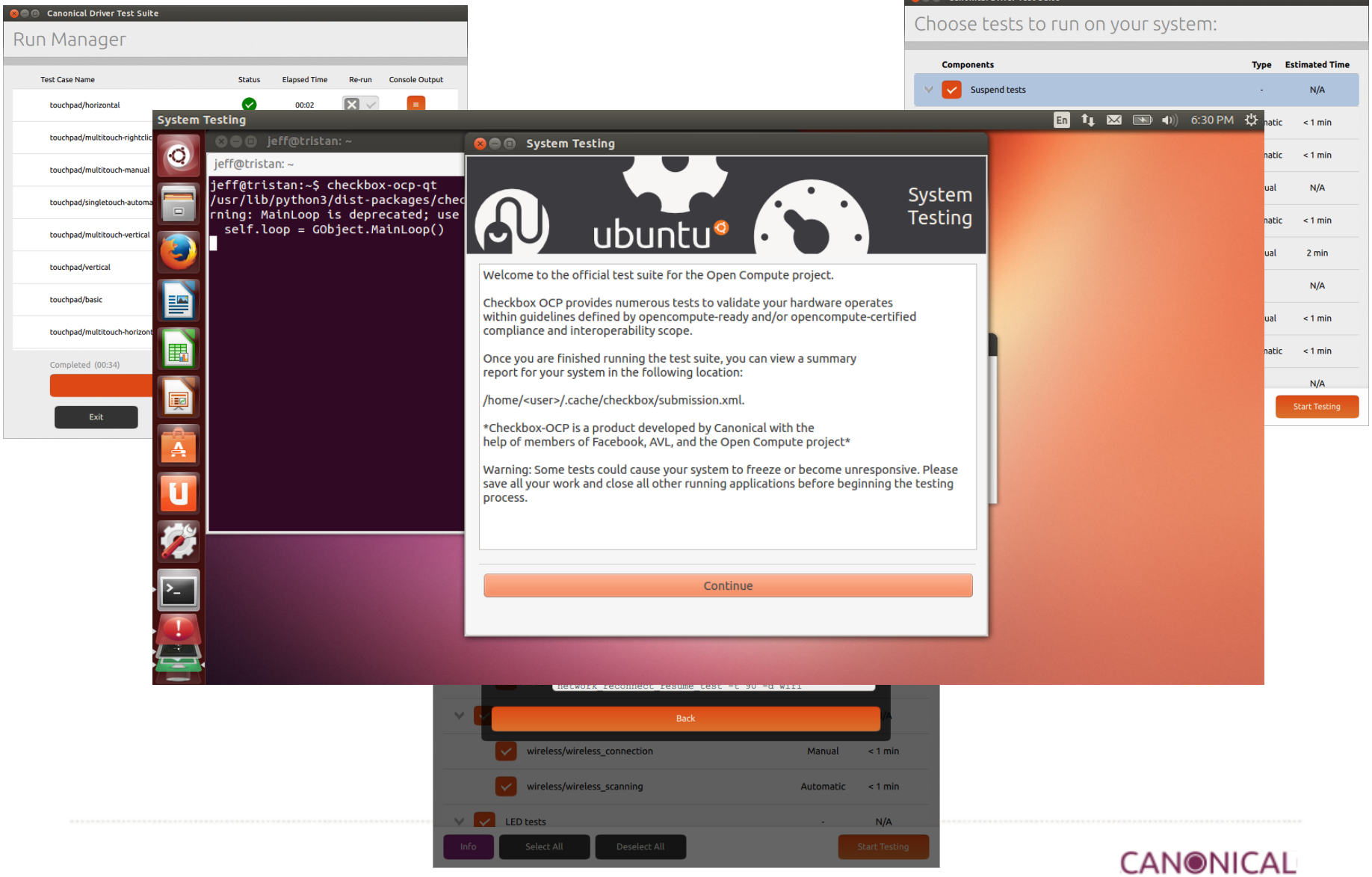
- Extensive self testing guide written including original test cases provided by Thao Nguyen, project lead for Open Compute C&I (now YF)
- Configuration equivalency determination guide

OCP Ready

Program Definition (vs Certified)

- A sub-set of OCP Certified testing
- Lower barrier of entry and requirements
- Tests run by the vendor (self-testing)
- Tests submitted to OCP for review
- Hardware does not need to be submitted
- More focus on specification and functionality
  - Less focus on interoperability
  - Focused on server motherboard specs (compute) first
- Trust put into the vendor / self-tester

Checkbox



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OCP Checkbox

Checkbox chosen as compliance test tool

- OCP community involved in writing Checkbox tests/patches
- Continued help/guidance on hardware validation tests.
- Development quick start guide to help get community involved in test development.
- OCP community involved in packaging to match current Disposable OS

OCP Developer Quick Start Video & Presentation

- http://youtu.be/uudjmYQmawc

Contents

Purpose

Development

Usage & Concepts

- Scripts
  - Creating a test (Guidelines and Best Practices)
- Jobs
  - What is a job?
  - Creating a job
    - Fields, and what do they mean?
    - Adding your new jobs file to checkbox
  - Need a config file for your job/test?
- Whitelists
  - What is a whitelist?
  - Creating a whitelist
    - Mandatory jobs
    - Adding a test to a whitelist
    - Building from source with your new whitelist

Contents (cont.)

Usage & Concepts (cont.)

- Results
  - Supported formats
  - Viewing test data

Video Demonstration

Contacts

Development

OCP in Launchpad:

Project: https://launchpad.net/opencompute

Code: https://code.launchpad.net/~opencompute-developers/opencompute/checkbox

Team: https://launchpad.net/~opencompute-developers

PPA: https://launchpad.net/~opencompute-developers/+archive/ocp-certification-tools-ppa

Additional (non-OCP) Checkbox Resources (docs, etc.):

Checkbox Wiki:wiki.ubuntu.com/Testing/Automation/Checkbox

Walkthrough: wiki.ubuntu.com/Testing/Automation/Checkbox/Walkthrough

Usage & Concepts: Jobs

What is a Job?

A job is a task or unit of work that is used to define many different things, including test suites and test cases. All jobs are composed of a list of **fields** that have a special meaning.

Example:

plugin: shell

name: ipmi/out_of_band/admin/check_power_on

requires: package.name == 'ipmitool'

user: root

environ: OC_IPMI_TARGET OC_IPMI_ADMIN OC_IPMI_ADMIN_PASSWORD

command: ipmitool -I lanplus -H $OC_IPMI_TARGET -U $OC_IPMI_ADMIN -P $OC_IPMI_ADMIN_PASSWORD chassis power status -C3 | grep -q "on"

description:

Retrieve Chassis Status information with Admin credentials

Usage & Concepts: Whitelists

What is a Whitelist?

A whitelist in checkbox is simply a list of tests specified to run together, in order, at time of execution.

Whitelists are defined in the data/whitelists directory of the checkbox source tree, and copied to /usr/share/checkbox/data/whitelists when checkbox has been installed.

Example: (opencompute-ready-remote.whitelist)

__ipmi__

ipmi/out_of_band/admin/chassis_info

ipmi/out_of_band/admin/power_off

ipmi/out_of_band/admin/power_on

ipmi/out_of_band/admin/chassis_self_test

ipmi/out_of_band/admin/dcmi_sensor_info

ipmi/out_of_band/admin/dcmi_temp_readings

ipmi/out_of_band/admin/detailed_sensor_readings

ipmi/out_of_band/admin/chassis_status

Results (cont)

Viewing test data

After checkbox is finished executing tests, the result data can be found in xml format in /home/<user>/.cache/checkbox/submission.xml

OCP Checkbox

Differences from “upstream”

- Removed C3 and Ubuntu Friendly submission modules
- Created two Ready whitelists (remote and local)
- Removed irrelevant tests (optical drives, etc.)
- Added OCP specific tests (drive, memory, stress, ipmi/dcmitool)

Benefits from upstream

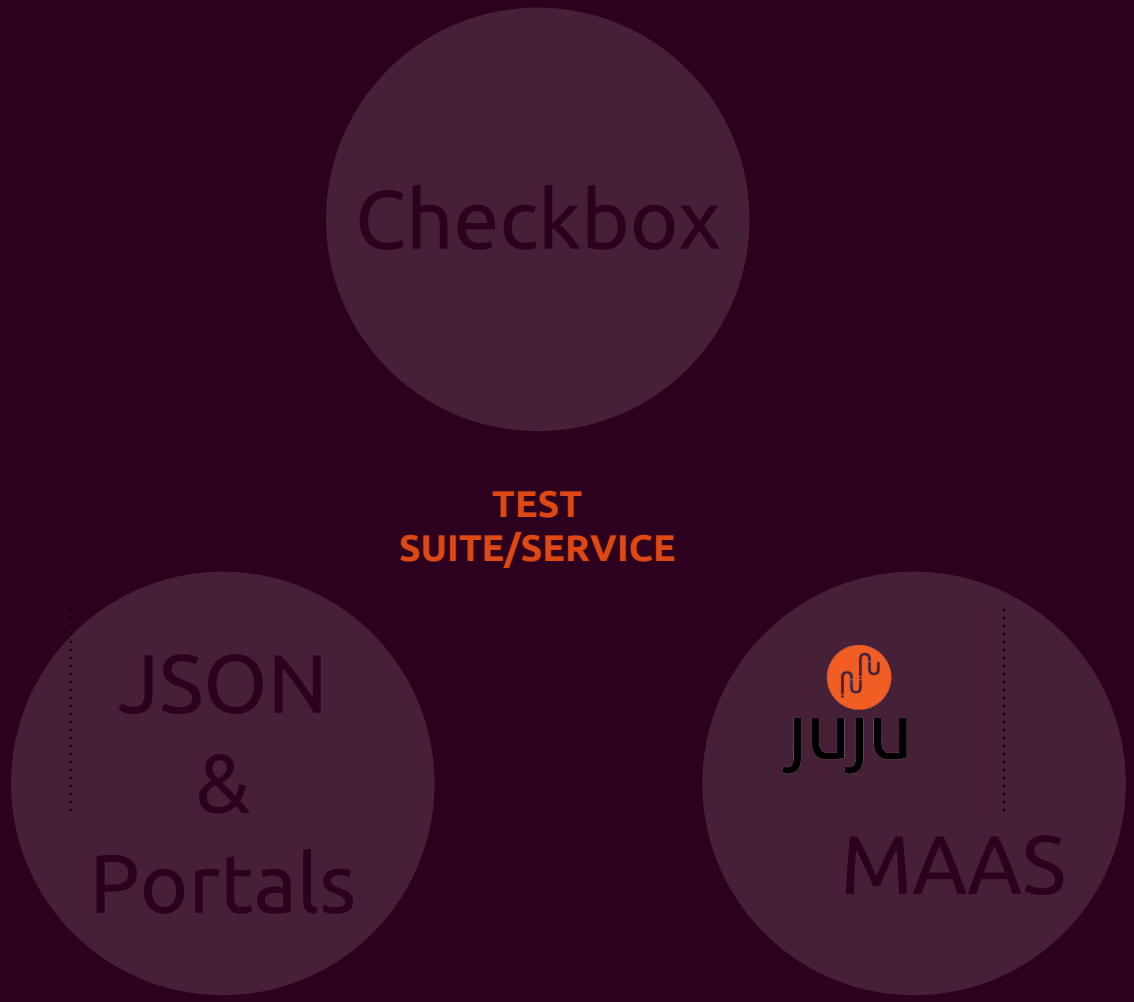
- Bug Fixes
- New outputs (JSON) - today’ish
- New tests developed all the time
- Automated inband and out-of-band testing (14.04 LTS)

OCP Launchpad

OCP uses Launchpad for bug tracking, PPAs, etc.

- Same popular platform used by OpenStack and Ubuntu
- Includes OCP Checkbox code repository
- Anyone can file bugs, answer questions, submit code, or create blueprints
- Includes PPA for OCP software including Checkbox, userspace tools like DCMItool, and kernel modules

Launchpad hosts code and bug tracking for OpenStack and Open Compute
https://launchpad.net/opencompute


Checkbox
TEST
SUITE/SERVICE
JSON
&
Portals
juju
MAAS
TEST
SUBMISSION
TEST
DEPLOYMENT

Contacts

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Canonical

Server Hardware Partnerships

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Software/Server Certification Engineering

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Demo!

Questions?

Backup Slides

-

What is CloudInit?

- Created by Canonical and adopted as fundamental infrastructure by major cloud players like Amazon and Rackspace
- Works with most Linux distributions and has even been ported to Windows
- All Ubuntu Certified Public Cloud Guests use CloudInit to pass data to Cloud instances
- Provides cross platform structured ways to pass data and common actions to an operating system including
  - Packages
  - Secure Keys
  - Users
  - Services
  - Commands

CloudInit & The Disposable OS

OCP Disposable Operating System (DOS)

- Designed to be OS agnostic platform for hardware maintenance and testing, proposed by OCP systems management group
- Adopted by OCP C&I team for platform for Ready and Certification testing
- CloudInit, created by Canonical, is the way data and commands are passed to the DOS
- The Disposable Operating System will come pre-packaged with CloudInit and OCP Checkbox

Focus : MAAS

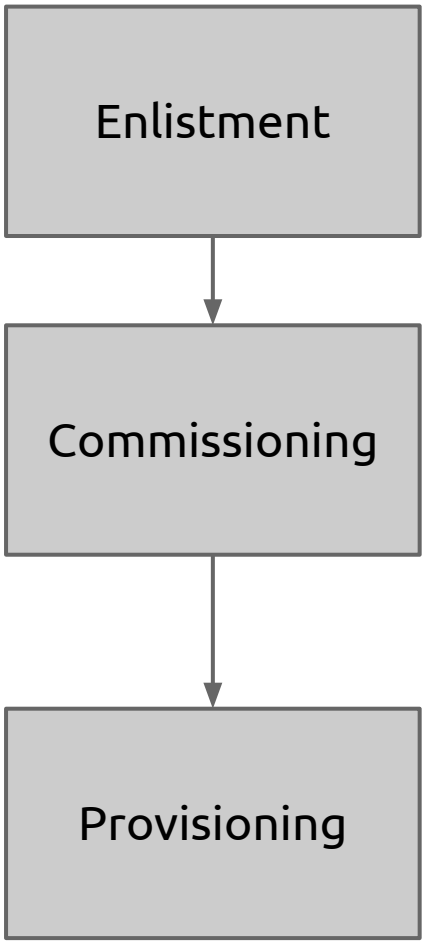
MAAS

1. Automated baremetal **provisioning**
2. **Dynamic re-purposing** of hardware
3. Intelligently match hardware to workload for **better efficiency**
4. Web based interface

Focus : Juju

1. **Deploy and manage** OpenStack
2. **Deploy and scale workloads** into OpenStack (and other) clouds
3. Powerful service orchestration
4. Rich web based GUI
5. Speed

Hardware Provisioning Workflow

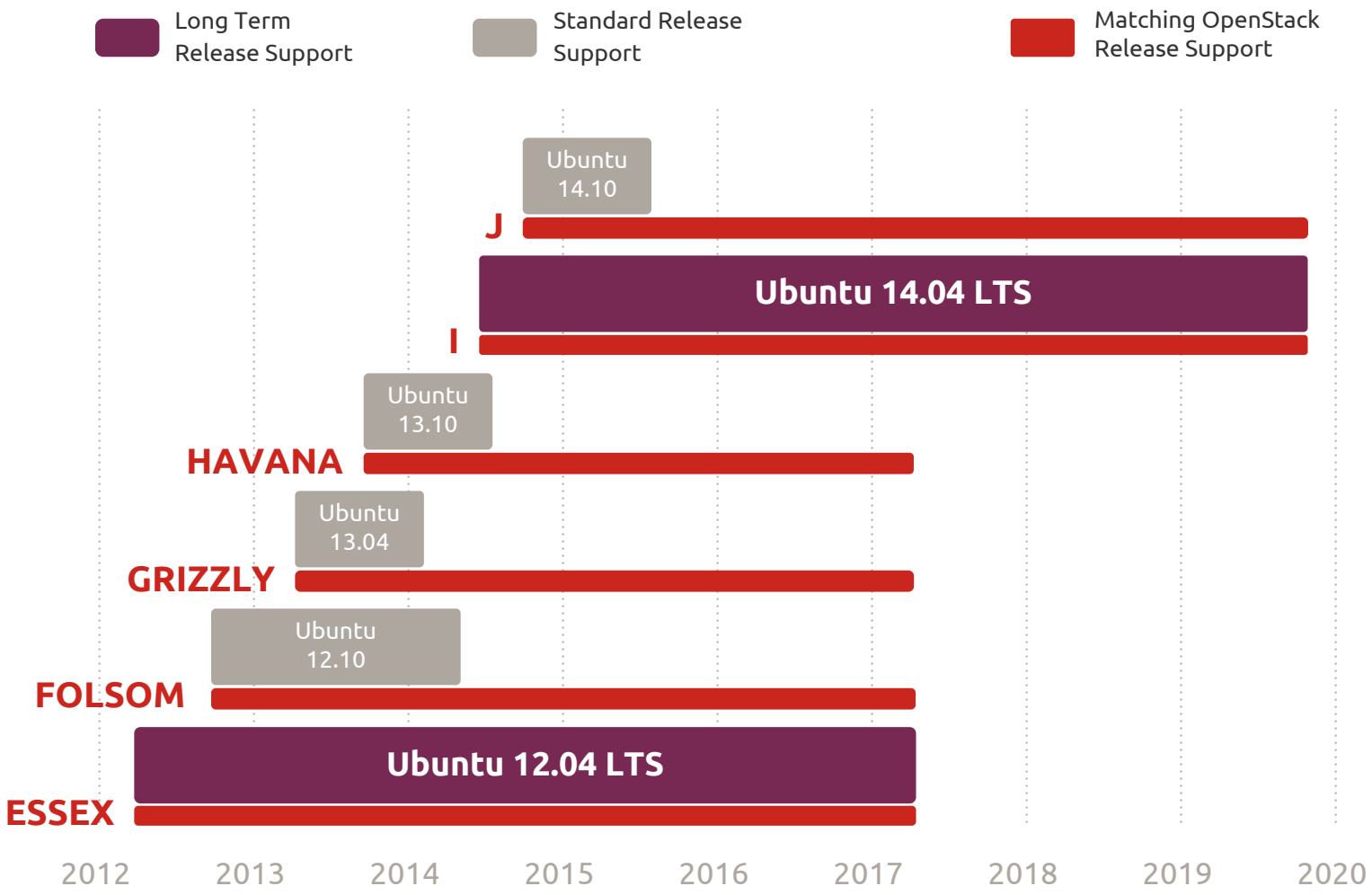


- DHCP boot in an ephemeral environment
- Register with cluster controller
- Adds temporary IPMI MAAS credentials to BMC

- Boot in a ephemeral environment
- Hardware inventoried
- Permanent IPMI MAAS credentials set in BMC
- Other user-commissioning actions (firmware configuration, smoke tests, etc.)

- Happens when a node is requested
- Installs requested Ubuntu version

OpenStack matches Ubuntu cadence



Newer releases are available on LTS