State of Ubuntu, OpenStack, and OFED testing and development

Presentation by
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Canonical

- 600+ Employees
- Assurance and support
- Professional services
- IHV and ISV Certification
- Integrated Solutions

Ubuntu

- #1 Linux OS on Cloud and Desktop
- Freely available
- With updates
- No subscriptions
## Technical Partner Program

<table>
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<th><strong>Major features</strong></th>
<th>Assigned partner manager</th>
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<td>Technical assistance</td>
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<td>Regular mutual roadmap reviews</td>
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<td>2-way support escalation path</td>
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<table>
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<th><strong>Benefits</strong></th>
<th>Access to Canonical's roadmaps</th>
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<td>Partner customers gain assurance</td>
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<td>Preferred component vendor</td>
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<td>Joint marketing</td>
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**canonical**
Agenda

- Ubuntu release cycle and maintenance
- Cloud, OpenStack and Ubuntu
- Current OFED support on Ubuntu - user space
Ubuntu release cycle and maintenance
## Ubuntu overview

| Time-based release                      | '12.10' - 2012 October.  
|                                        | '13.04' - 2013 April.  |
| Predictable                            |                         |
|                                        |                         |
| **Regular release**                    | For developers.         |
| Every 6 months                         | Support cycle reduced to 9 months starting 13.04.  |
|                                        |                         |
| **Long Term Support (LTS) release**    | For production.         |
| Every 2 years                          | 5-year support.         |
|                                        | Support new hardware via point release.  |
|                                        |                         |
| 'Rolling Release' (TBD)                | Implementation details still being worked out.  |
| Daily                                  |                         |
Kernel in Ubuntu

Upstream Linux Kernel

Regular Ubuntu Release

Ubuntu LTS Release

Ubuntu 14.04 LTS - April 2014
Ubuntu 13.10 - October 2013
Ubuntu 13.04 - April 2013
Ubuntu 12.10
Ubuntu 12.04 LTS - April 2013
Ubuntu 12.04 LTS
Ubuntu 11.10
Ubuntu 11.04 - October 2013
Ubuntu 11.04
Online on 14-16 May 2013 from 2pm-8pm UTC

Register to attend

**Ubuntu Developer Summit Principles**

**Collaboration**
UDS brings together a diverse range of participants and provides the perfect environment for mutual collaboration and best practice.

**Ideas**
UDS is a hotbed of ideas. It's where we get together to find creative solutions to common problems. The result? A better Ubuntu for everyone.

**Planning**
Solutions are documented, specifications are written, and work items are assigned across all those participating in solutions.

**Discussion**
The bulk of UDS is discussion sessions. We explore problems and develop solutions together, pooling our collective experience.
Cloud, OpenStack and Ubuntu
#1 Linux distribution for WWW

- #1 commercially supported Linux distribution for the modern web
- Surpassed RHEL in 2011
- RPM based distributions are now the minority
- Ubuntu server ever more dominant in cloud infrastructure (OpenStack, etc.)
- Even stronger positioning in public cloud guests (EC2, Rackspace, etc.)
Server fully certified
Ubuntu is #1 Public Cloud Guest
Businesses that will be relevant in 2020 will be those who can cost effectively harness data and compute to:

- Bring new services to market rapidly
- Interact with customers via any device
- Use shared resources to cater for peaks
- Use data to create greater value products and services
Cloud Motives

- Agility
- Automation
- Scale
- Improved Utilization

Increase capability
Reduce cost
What is OpenStack

Mission: To produce an ubiquitous Open Source Cloud Computing Platform that will meet the needs of public and private cloud providers regardless of size, by being simple to implement and massively scalable.

Who is behind OpenStack

**Board members**
- 24
- Canonical, Rackspace, Cisco, AT&T, IBM, Dell, HP, Nebula, Piston, Yahoo & others

**Technical leads**
- 13
- Nebula, HP, Rackspace, AT&T, VMware & others

**Individual members**
- 5,600
- From 87 countries.
- 850 organizations.
#1

- Fast
- Easy
- Standard
- Stable

Reference OS for OpenStack deployment

*OpenStack 'Bexar' is default IAAS in Ubuntu since 2010*
Openstack matches Ubuntu cadence

- Ubuntu 11.04
- Ubuntu 11.10
- Ubuntu 12.04 LTS
- Ubuntu 12.10
- Ubuntu 13.04
- Ubuntu 13.10
- Ubuntu 14.04 LTS

Openstack Releases:
- "Cactus"
- "Diablo"
- "Essex"
- "Folsom"
- "Grizzly"
- "Havana"

Ubuntu Releases:
- "Cactus" (Ubuntu 11.04)
- "Diablo" (Ubuntu 11.10)
- "Essex" (Ubuntu 12.04 LTS)
- "Folsom" (Ubuntu 12.10)
- "Grizzly" (Ubuntu 13.04)
- "Havana" (Ubuntu 13.10)
- Ubuntu 14.04 LTS (April 2014)

Regular Ubuntu Releases:
- Ubuntu 11.04
- Ubuntu 11.10
- Ubuntu 12.04 LTS
- Ubuntu 12.10
- Ubuntu 13.04
- Ubuntu 13.10

Ubuntu LTS Releases:
- Ubuntu 11.10
- Ubuntu 12.04 LTS
- Ubuntu 13.10
- Ubuntu 14.04 LTS

Canonical
Long-Term Support on LTS

Supported upgrade paths for Openstack on Ubuntu

12.04 LTS

14.04 LTS

16.04 LTS
54% chose Ubuntu to host Ceph clusters

On the server-side, Ubuntu is king. Over half of those polled said they were currently running, or planning to run, their clusters on Ubuntu.

We worked hard early last year to make sure that the Ceph experience on Ubuntu was great, and similar efforts are currently being put into the other major distributions.

Ubuntu and Debian combined (the apt-get cabal!) account for all but two of the production clusters reflected in this Census.

http://ceph.com/community/results-from-ceph-census
Current OFED support on Ubuntu (userspace)
## OFED 3.5 and Ubuntu

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<tr>
<th>OFED 3.5 Components</th>
<th>Ubuntu</th>
<th>11.10</th>
<th>12.04</th>
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<tbody>
<tr>
<td>OpenSM (opensm 3.3.15-1)</td>
<td>3.3.15-2 raring</td>
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<td>IB diags (infiniband-diags 1.6.1-1)</td>
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<td>IB MAD (libibmad 1.3.9-1)</td>
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<td>IB User MAD (libibumad 1.3.8-1)</td>
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<td>IB communication manager (libibcm 1.0.5-1)</td>
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<td>IB CM assistant (ibacm 1.0.7-1)</td>
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<td>IB fabric simulator (ibsim 0.5-0.1.g327c3d8)</td>
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<td>IB network and path diagnostics (ibutils 1.5.7-0.1.g05a9d1a)</td>
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<td>RDMA verbs (libibverbs 1.1.6-1)</td>
<td>1.1.6-1 quantal, raring</td>
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<td>RDMA connection manager (librdmacm 1.0.16-1)</td>
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<td>DAPL 2.0 (dapl 2.0.36-1)</td>
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<td>IB performance test (perftest 2.0.0.27. g2edd80a)</td>
<td>1.2-OFED-1.4.2-2 l, o, p, q, r</td>
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<td>Socket and RDMA performance (qperf 0.4.9)</td>
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<td>SRP/IB tools (srptools 0.0.4-0.1.gce1f64c)</td>
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<td>Open MPI (openmi 1.4.3-1)</td>
<td>1.4.5-1 q, r</td>
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<td>Open iSCSI (open-iscsi-generic 2.0-869.2)</td>
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<td>SCSI target (tgt-generic 0.1-20080828)</td>
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<td>SDP (libsdp 1.1.108-0.17.ga6958ef)</td>
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<tr>
<td>netstat for SDP (sdpnetstat 1.60-0.3. gb6e7425)</td>
<td>1.60-1</td>
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<td>QLogic Truescale PSM (infinipath-psm 3.1-364.1140)</td>
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<td>Chelsio T3 RNIC (libcxgb3 1.3.1-1)</td>
<td>1.3.1-1 quantal, raring</td>
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<td>Chelsio T4 RNIC (libcxgb4 1.2.0-1)</td>
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<td>IBM HCA (libehca 1.2.2-0.1.g69e1a88)</td>
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<td>QLogic HCA (libpathverbs 1.2-1)</td>
<td>1.2-1 precise, quantal, raring</td>
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<tr>
<td>Mellanox ConnectX HCA (libmlx4 1.0.4-1)</td>
<td>1.0.4-1 quantal, raring</td>
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<tr>
<td>Mellanox HCA (libmthca 1.0.5-0.1.gbe5eef3)</td>
<td>1.0.6-1 oneiric, p, q, r</td>
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<td>Intel NetEffect Eth (libnes 1.1.3-1)</td>
<td>1.1.3-1 quantal, raring</td>
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<tr>
<td>Mellanox firmware tool (mstflint 1.4-1.23.g5c2032a)</td>
<td>1.4-OFED-1.4.2-1 o, p, q, r</td>
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<td>QLogic VNIC tools (qlvnictool 0.0.1-0.1.ge27eef7)</td>
<td>0.0.1-3 raring</td>
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OFED 3.5 and Ubuntu - Summary

What is missing ...

- Fabric management tools: ibacm, ib-bonding
- Hardware specific user space library: infinipath-psm (QLogic Truescale), libcxgb4 (Chelsio T4), and libehca (IBM)
- Utility qperf

What is not the latest ...

- dapl
- libibcm
- mstflint
- perftest
- rds-tools
-libsdp
Resources and non-OFED related development

- Ubuntu in UNH/IOL
  - 4 Ubuntu systems available for OFA members
    - ganymede.ofa, 12.10, Mellanox ConnectX-3
    - leda.ofa, 12.04.1, Mellanox ConnectX-3
    - elara.ofa, 12.10, Mellanox ConnectX-2
    - io.ofa, 12.04.1, Mellanox ConnectX-2

- Non-OFED related development
  - DHCP over IB: isc-dhcp-[client/server] >=4.2.4-5ubuntu1
  - udev rules
  - networking interface renaming
  - network manager integration
  - SR-IOV/KVM
Questions?

Thank you