AGENDA

• **Highlights of OpenStack Summit: Hong Kong**
• Shifting Market
• OpenStack Overview
  • What is it?
  • Red Hat Enterprise Linux OpenStack Platform
• Red Hat Leadership and the Community
• Who's Using Red Hat Enterprise Linux OpenStack Platform?
• Resources
RED HAT HIGHLIGHTS

- Headline sponsor (1 of 4)
- Deployment & Management Focus
- Keynote Brian Stevens & Mark McLoughlin
- 14 sponsored sessions
- Press Releases/Announcements
  - “OpenStack Leadership & Enterprise-Class Innovation”
    - RHEL-OSP 4.0 Beta, OpenShift on OpenStack, OpenStack-M
  - “Enterprise-Grade Cloud Management”
    - CloudForms 3.0 GA announcement
  - Red Hat Cloud Infrastructure Partner Network Ecosystem momentum
RED HAT SPONSORED SESSIONS

- Red Hat OpenStack Certification and Training Programs (Sponsor demo theater)

- 13 Technical Sessions
  - Getting Started with OpenStack (panel)
  - OpenStack and GlusterFS Storage
  - OpenDaylight: An SDN Platform
  - OpenStack for Enterprise Developers
  - OpenStack Performance with KVM
  - Deploying and Upgrading OpenStack
  - OpenStack Queuing and Notification with project Marconi
  - OpenStack Neutron Deep Dive (panel)
  - OpenStack User Personas
  - Ceilometer + Heat = Alarming!
  - Putting the PaaS in OpenStack with Heat
  - UnifyingManagement
  - Big Data and OpenStack (panel)
OCT 2013: USER SURVEY RESULTS

Highlights...

- 822 User responses
  - 60% use OpenStack for on-premise private cloud
  - Cost savings is still the #1 business driver
  - PackStack #4 deployment tool
  - 62% of deployments are on KVM hypervisors

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WORKLOADS ARE EVOLVING

TRADITIONAL WORKLOADS

- Stateful VMs, application = VM
- Big VMs: vCPU, vRAM, storage inside VM
- Application SLA = SLA of VM
- SLA requires enterprise virtualization features to keep VMs highly available
- Lifecycle measured in years
- VMs scale up: add vCPU, vRAM, etc.
- Applications not designed to tolerate failure of VMs

CLOUD WORKLOADS

- Stateless VMs
- Small VMs: vCPU, vRAM, storage separate
- Application SLA <> SLA of any one VM
- SLA requires ability to create and destroy VMs where needed
- Lifecycle measured in hours to months
- Applications scale out: add more VMs
- Applications tolerate failure of VMs
BUSINESS PAINS DEMAND NEW MODELS

**PROPRIETARY ARCHITECTURES**

- High up-front costs, amortized ROI
- Enterprise agreements, inflexible terms
- Proprietary stacks with lock-in
- Single-vendor commitment
- High utilization of existing resources

**CLOUD ARCHITECTURES**

- Based on open source, low up front costs
- Pay-as-you-go, metering and chargeback
- Heterogeneous architecture
- Multiple vendors, best of breed
- Grow and shrink resources according to demand, SLA, cost
WHAT DO YOUR WORKLOADS LOOK LIKE?
# VIRTUAL MACHINE WORKLOAD TYPES

<table>
<thead>
<tr>
<th>TRADITIONAL (RHEV)</th>
<th>CLOUD (OpenStack)</th>
<th>MIXED/HYBRID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big stateful VM</td>
<td>Small stateless VMs</td>
<td>Combination of Traditional and Cloud VMs to provide application. Database may be hosted on traditional workloads, web front-end and logic layers on cloud workloads.</td>
</tr>
<tr>
<td>1 Application → 1 VM</td>
<td>1 Application → Many VMs</td>
<td></td>
</tr>
<tr>
<td>Lifecycle in years</td>
<td>Lifecycle hours to months</td>
<td></td>
</tr>
<tr>
<td>Scale up (VM gets bigger)</td>
<td>Scale out (add VMs)</td>
<td></td>
</tr>
<tr>
<td>Not designed to tolerate failure of VM, so you need features that keep VMs up</td>
<td>If a VM dies, application kills it and creates a new one, app stays up</td>
<td></td>
</tr>
<tr>
<td>Application SLA requires enterprise virtualization features (migration, HA, etc.) to keep applications available</td>
<td>Application SLA requires adding/removing VM instances to application cloud to maintain application availability</td>
<td></td>
</tr>
</tbody>
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WHAT IS OPENSTACK?
OPENSTACK
CLOUD INFRASTRUCTURE FOR CLOUD-ENABLED WORKLOADS

- Modular architecture
- Designed to easily scale out
- Based on (growing) set of core services
  - “Havana” now includes Heat and Ceilometer
OPENSTACK

- Needs to access x86 hardware resources
- Needs an operating environment, hypervisor, services
- Leverages existing code libraries for functionality
OPENSTACK

HORIZON
DASHBOARD

NOVA
COMPUTE
NODE

GLANCE
IMAGE
SERVICE

SWIFT
OBJECT
STORE

NEUTRON
NETWORKING

CINDER
VOLUME
SERVICE

KEYSTONE
IDENTITY
SERVICE

LINUX
RED HAT ENTERPRISE LINUX
OPENSTACK PLATFORM 3.0
OPTIMIZED FOR AND INTEGRATED WITH RED HAT ENTERPRISE LINUX
UPCOMING RELEASE...

- Announced Red Hat Enterprise Linux OpenStack Platform 4.0 beta...
  - Based on “Havana” release
  - Key new features & functions
    - Neutron – networking-as-a-service
    - Heat – Template-based orchestration
    - Ceilometer – Metering and monitoring
    - Foreman – Deployment and lifecycle management tool
    - Enhanced integration with Red Hat Storage Server 2.1
      - Provides services for Swift, Cinder, and Glance storage nodes
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RED HAT INVOLVEMENT IN OPENSTACK
RED HAT’S OPENSTACK LEADERSHIP

CORPORATE COMMITS BY COMPANY

ESSEX
(April 2012)

FOLSOM
(October 2012)

GRIZZLY
(April 2013)

HAVANA
(October 2013)

Source: Bitergia.com
RED HAT UPSTREAM FOCUS

Why do these statistics matter?

Proof that Red Hat has the skills and resources to:

- Support customers
- Drive new features
- Influence strategy and direction of project
- Enable partner collaboration

Highlights Red Hat leadership in the whole stack

- Linux, KVM, libvirt, SELinux security, cgroup resource containment, active directory integration, etc.

Summary – Red Hat's wide ranging participation, contrasts most others who are narrowly focused
HOW DO WE GET FROM COMMUNITY OPENSTACK TO RED HAT OPENSTACK?
HOW DO WE GET FROM COMMUNITY OPENSTACK TO RED HAT OPENSTACK?
## OPENSTACK PROGRESSION

### Openstack™
- Open source, community-developed (upstream) software
- Founded by Rackspace Hosting and NASA
- Managed by the OpenStack Foundation
- Vibrant group of developers collaborating on open source cloud infrastructure
- Software distributed under the Apache 2.0 license
- No certifications, no support

### RDO
- Latest OpenStack software, packaged in a managed open source community
- Facilitated by Red Hat
- Aimed at architects and developers who want to create, test, collaborate
- Freely available, not for sale
- Six-month release cadence mirroring community
- No certification, no support
- Installs on Red Hat and derivatives

### Red Hat®
- Enterprise-hardened OpenStack software
- Delivered with an enterprise life cycle
- Six-month release cadence offset from community releases to allow testing
- Aimed at long-term production deployments
- Certified hardware and software through the Red Hat OpenStack Cloud Infrastructure Partner Network
- Supported by Red Hat
- Installs on Red Hat Enterprise Linux only

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RED HAT LEADS THROUGH OPEN INNOVATION
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CUSTOMER SUCCESS...

- Large US telecommunications company
  - Building a content delivery network (CDN). Plan to grow to several thousands nodes

- Large US cable communications company
  - Updating legacy datacenter for greater scalability and agility

- Large APAC University
  - Building a large HPC grid for weather research
RESOURCES

• Learn more about RHEL OpenStack Platform
  • redhat.com/products/enterprise-linux/openstack-platform

• Be sure to attend additional sessions today

<table>
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<tr>
<th>SESSION</th>
<th>TIME</th>
<th>PRESENTER</th>
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</thead>
<tbody>
<tr>
<td>OpenStack technical Deep-dive 1 (Architecture)</td>
<td>14:00-14:40</td>
<td>Dan Radez</td>
</tr>
<tr>
<td>OpenStack + GlusterFS/ Red Hat Storage</td>
<td>14:55-15:35</td>
<td>John Mark Walker</td>
</tr>
<tr>
<td>OpenStack technical Deep-dive 2 (Implementation for production use case)</td>
<td>16:05-16:45</td>
<td>Dan Radez</td>
</tr>
<tr>
<td>OpenStack Management</td>
<td>17:00-17:40</td>
<td>Keith Basil</td>
</tr>
</tbody>
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TRADEMARK STATEMENTS

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