Beyond Open Source
In the Cloud

GORDON HAFF
Cloud Evangelist
Twitter: @ghaff
29 August 2012
THE CLOUD VS. OPEN SOURCE?
# OPEN SOURCE STILL MATTERS BUT NOT JUST OPEN SOURCE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open source</td>
<td>- You choose your economics, not your vendor</td>
</tr>
<tr>
<td></td>
<td>- Avoid lock-in</td>
</tr>
<tr>
<td>Viable independent Community</td>
<td>- Not controlled or limited by one vendor</td>
</tr>
<tr>
<td>Open standards</td>
<td>- Open standards at every level of the stack</td>
</tr>
<tr>
<td></td>
<td>- Access to greater innovation</td>
</tr>
<tr>
<td>Freedom to use IP</td>
<td>- Able to be deployed without patent restrictions</td>
</tr>
<tr>
<td>Choice of infrastructure</td>
<td>- Deploy to any infrastructure you choose</td>
</tr>
<tr>
<td></td>
<td>- One that's right for you, not your vendor</td>
</tr>
<tr>
<td>Open APIs</td>
<td>- Extensible APIs for open interoperability</td>
</tr>
<tr>
<td>Portability</td>
<td>- Application portability across private and public clouds</td>
</tr>
</tbody>
</table>
OPEN SOURCE IS THE STARTING POINT

And much more...
Viable and independent community
PERCENTAGE CHANGES TO LINUX KERNEL 2007-2012

Source: Linux Foundation, March 2012
OPENSTACK DEVELOPERS

Developers by Employer

- Rackspace
- HP
- Red Hat
- Citrix
- Nebula
- Cisco Systems
- Canonical
- Piston Cloud
- Dreamhost
- SUSE

Data from Mark McLoughlin
Open standards

Flickr/CC by Tatt Yeo http://www.flickr.com/photos/kryptos5/3281740790/
I believe in open protocols and open APIs. That is what the web was built on and that is how we can best take it forward in the spirit it was given to us.

Fred Wilson, VC & Principal of Union Square Ventures
CLOUD EXAMPLES

Standards organizations
• Example: DMTF CIMI, OASIS TOSCA

Cross-platform compatibility
• Example: Apache Deltacloud

Use cases/defined requirements
• Example: Open Data Center Alliance

De facto standards (?)
Freedom to use IP

Flickr/CC by mnfoundations http://www.flickr.com/photos/28029479@N03/6892898252/
GORDON HAFF
Extensible, open API

APIS INCREASINGLY CENTRAL TO HOW APPLICATIONS DEVELOPED AND DEPLOYED

WHAT MATTERS

• Implementation independent of specification
• Adaptable to different use cases
• Use not restricted
Deployable on Infrastructure of choice

Flickr/CC by Bruce Lebowitz http://www.flickr.com/photos/28042007@N07/3737797863/
BUILD A HYBRID CLOUD
LEVERAGE EXISTING INVESTMENTS AND PUBLIC CLOUDS
COMPUTING IS NOT A HOMOGENEOUS UTILITY

- Business processes
- Different workloads
- Audit requirements
- SLAs
- Compliance
- Latency
- Bandwidth
- Security procedures
- Risk mitigation
- Legal exposure
- Legacy apps
- Staff skills
- Competitive differentiators
- Uptime needs
- Cost focus
- Industry partnerships
- Legal requirements
- Government mandates
Portable to other clouds
Portability Considerations

Cross-platform APIs
Layered software certifications
Consistent operation and application management across physical, virtual, private cloud, public clouds
Standard, open formats
Data transportability and reuse
HYBRID CLOUD MANAGEMENT
CONSISTENT RUNTIMES

The operating system must be counted on to make sure the right connections are made between IT resources and the applications. This requirement holds true in all IT environments, but is even more critical in hybrid cloud environments.
RED HAT OPEN HYBRID CLOUD

OPENSHIFT - PaaS
CLOUDFORMS - Hybrid Cloud Management
RED HAT STORAGE - Hybrid Cloud Storage

JBoss Middleware
RED HAT Enterprise Linux

Physical Systems
RHEV
Datacenter Virtualization Management
RHEV Hypervisor KVM

OpenStack
iaas
RHEV Hypervisor KVM

Third Party Middleware
Third Party Operating System

Certified Public Cloud Providers
THANK YOU!