Add value to OpenStack with IBM Orchestration

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Agenda

1. IBM’s support of OpenStack

2. Cloud Computing Reference Architecture

3. Add value with IBM
   - Patterns
   - Orchestration
   - Content

4. Demo
IBM is Working to Accelerate OpenStack Foundation Success

Because an open interoperable Cloud is critical for flexible cloud deployment and customer success…

- IBM has 11 core contributors
- IBM is #2 in contributions
- IBMers have signed the CLA
- IBMers working on OpenStack – from formation of the Foundation to Code Quality & New Function

IBM’s ecosystem approach to an Open Cloud Architecture

LinkedData, OSLC TOSCA

Cloud Standards Customer Council (CSCC)

Cloud Computing Reference Architecture (CCRA)

Innovative
User-driven
Architectural
Practical
IBM invests significant time & IP in OpenStack – Delivering Value

OpenStack Compute
• Platform integration
• Provision and manage large networks of virtual machines
• High Availability enhancements
• Resource optimization
• **Live upgrade contributions**
• Enablement for P & Z Systems, DB2
• ESXi support (w/VMware)
• VM group enablement in scheduler
• CPU allocation for vCPUs
• Cross hypervisor testing and validation

OpenStack Networking
• Support for key emerging networking standards
• Create petabytes of secure, reliable storage using standard HW
• Quantum blueprints & migration from Nova
• FibreChannel support

OpenStack Storage
Create petabytes of secure, reliable storage using standard HW
• Block & object storage enablement for IBM capability
• Nova blueprints
• Cinder local storage & local instance clone
• Efficient clone image in Cinder SVC driver for cFlex
• Nova & Cinder storage blueprints
• Storwise/SVC driver update – support iSCSI CHAP auth
• Wsgi application interface enabling external web server
• Swift / Keystone interface for Keystone v3 API

OpenStack Shared Services
Libraries that provide image management, authentication & security across all OpenStack projects
• **Security & authentication enhancements**
• Image activation for OVF
• Guest level metric collection
• APIs: Enablement for key emerging standards
• **Membership services enhancements**
• Glance: multiple image locations

General OpenStack contributions
• **Globalization and crowd-sourced translation integration**
• Drive IBM value-add capability from SCP
• Community facing contributions – bug fixing, community building & promotion
• **QA enhancements**
Dev: IBM invests significant time & IP in OpenStack

Major IBM Contributions to Grizzly – April 2013

• **Live upgrade contributions:** Worked towards realizing live upgrade (n->n+1) including a number of blueprints relating to no-db-compute.

• **Security & authentication enhancements:** Collaborated to add support for domains and improved LDAP support in Keystone.

• **Membership services enhancements:** Continuing our efforts to share some of our Smart Cloud capability by integrating a new internal service (svcgroup) with two implementations, ZooKeeper and DB.

• **Globalization and crowd-sourced translation integration:** Collaborated with the Docs and Infrastructure teams to integrate support for crowd sourced translation capability into the CI process. Continued focus on ensuring.

• **QA enhancements:** Devoted significant focus to QA, increasing integration test coverage by 600%.

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IBM’s Relative Contributions to OpenStack

Commits to nova for Havana

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<th>Commits</th>
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<tr>
<td>IBM</td>
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<tr>
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<td>199</td>
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<td>Mirantis</td>
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Commits to keystone for Havana

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Cloud Computing Reference Architecture backed by proven best practices

Cloud Enabled Data Center
Cut IT expense, risk & complexity

Platform Services
Accelerate time-to-market with new workloads

Cloud Service Providers
Deliver innovative business Models

Building Software-as-a-Service
Gain immediate access to applications
Cloud Enabled Data Center

Advanced IaaS services integrated with ITIL processes

- Problem & Incident Management
- IT Asset Management
- License Management
- Change & Configuration Management
- Service Desk
- Release Management

Advanced IaaS Services

- Storage Provisioning & Automation Management
- Network Provisioning & Automation Management
- Services Orchestration
- Hybrid Cloud Integration
- Advanced security (identity and access, security information and events mgmt)

Cloud Governance

- Virtualised Infrastructure Monitoring
- Capacity Management and Planning
- Event Management
- Patch Management
- Endpoint Compliance & Management
- Backup & Restore

Simple IaaS Services (VMs)

- VM provisioning & On-boarding
- Cloud Management
- Role & Authentication Management
- VM Image Construction
- Image Management
- Usage metering, accounting & chargeback
Increasing Capability

Simple IaaS Services (VMs)

SmartCloud Provisioning

OpenStack

SmartCloud Control Desk

Advanced IaaS services integrated with ITIL processes

Problem & Incident Management
IT Asset Management
License Management
Change & Configuration Management
Service Desk
Release Management

Advanced IaaS Services

SmartCloud Orchestrator
Tivoli NetCool Configuration Manager
Cast Iron HCI Extensions

SmartCloud Monitoring
Tivoli NetCool Omnibus, Impact
SmartCloud Patch Management
Tivoli Storage Manager Suite for UR

Virtualisation Management

SmartCloud Virtual Storage Center
Tivoli NetCool Configuration Manager
Tivoli Identity Manager
Security Network Intrusion prevention
Virtual Server Protection for VMWare

SmartCloud Portfolio

Required components
Recommended components
Optional components

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Why do we need an Orchestrator?

- Customers are looking for end to end automation of cloud service delivery to achieve greater returns
- Provisioning plays a key role, but is just one of many steps that must be automated
- Each customer has unique requirements to integrate with existing data center processes and tools

Real customer example
SmartCloud Orchestrator: an open and scalable platform

- **IBM Advantage:** Automate the provisioning, configuration, and attachment to production of storage, network, management tools…seamlessly to users

- **IBM Advantage:** Promote every day’s improvements automatically…if it passes all your tests

- **IBM Advantage:** Gain control (back) of entire virtualization library

- **IBM Advantage:** Deploy whole applications, not just servers

- **IBM Advantage:** Choose whether or not you pay licensing for a hypervisor based on the business characteristics of your workload, not based on a vendor’s revenue strategy

- SmartCloud Enterprise
- VMware
- PowerVM
- Hyper-V
- Xen
- OpenStack compatible Cloud
- KVM
- z/VM
- OVM

**Infrastructure-as-a-Service (IaaS)**

**Orchestration**

**Image Management**

**Multi tier Application**

**Self-Service Catalogue**
What the business wants... What’s required...

- Monitoring
- Lifecycle Management
Patterns

- Deploy multiple VMs at once
- The VMs can be deployed with no interconnection
- The VMs can be deployed assuming after boot they will be connected (e.g. WAS cluster).
- Add-ons and packages scripts can be used to customize images (Out-of-the-box support for Chef scripts)
- Pre-canned images available as additional chargeable component.
- Not just for IBM software, can build for any pattern.
Managing workloads across the lifecycle requires orchestration.
Content

Microsoft (12)

- Internet Information Services
  - 6
  - 6.5
  - 7
  - 7.5

- Microsoft Biztalk
  - 2010

- Microsoft Dynamics (CRM)
  - 2011

- Microsoft Forefront Threat Management Gateway Client
  - 2010

- Microsoft SharePoint
  - 2010

- SQL Server
  - 2005
  - 2008 R1
  - 2008 R2
  - 2012

Omnifind (1)

Open Source (2)

Oracle (13)

Rational (2)

SAP Sybase (7)

SiteMinder (1)

StoreWize Bundles (3)

Sun (1)

TIBCO (10)

Description

This asset installs, configures and does base infrastructure testing of the SQL product set.

Version

- 2005
- 2008 R1
- 2008 R2
- 2012

Supported Operating Systems

- AIX
- Linux
- Solaris
- Windows
- Z/Linux
Demo

Search for “SmartCloud Orchestrator 2.2” on YouTube
Summary

- Fully automates the deployment and lifecycle management of cloud services across resources, workloads and services
- Built on a foundation of open standards – TOSCA, OpenStack, OSLC
- Accelerated deployments with reusable workload patterns and Chef recipes
- Unified management of heterogeneous environments
- Supports deployment of hybrid & public clouds
- Works with SmartCloud Continuous Delivery to provide extended DevOps platform

Reduce time-to-market to deliver new business services

Improve administrator productivity
Thank you!

For more information, please visit:
http://www.ibm.com/cloud

Let’s build a smarter planet.