Transformation For Growth

2014 Consultants &
System Integrators Interchange

Compete in the Era of SMART.

OpenStack with IBM

Leading the way to the Cloud

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IBM

Agenda

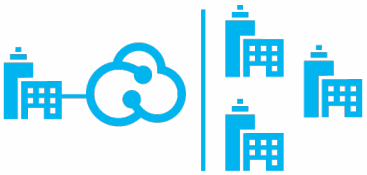
1. What are the key business drivers for Cloud?

1. How OpenStack fits into your cloud strategy?

1. How can IBM help you get started ?

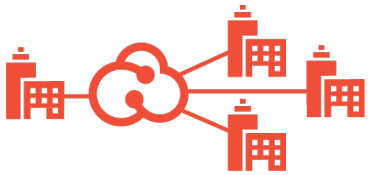
What are the key business drivers for Cloud?

Businesses are choosing a variety of cloud models To meet their unique needs and priorities



Private cloud

On or off premises cloud infrastructure operated solely for an organization and managed by the organization or a third party



Public cloud

Available to the general public or a large industry group and owned by an organization selling cloud services.

Hybrid IT

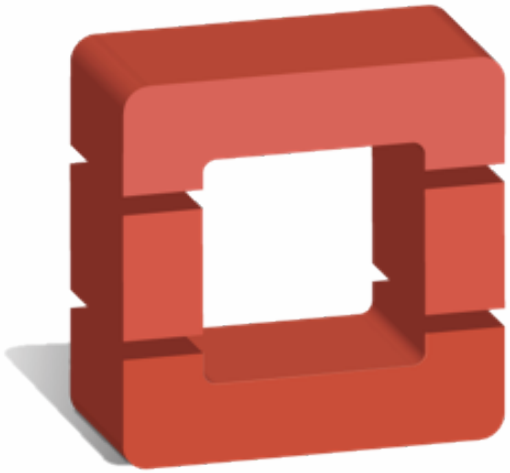
Traditional IT and clouds (public and/or private) that remain separate but are bound together by technology that enables data and application portability

Traditional IT

Appliances, pre-integrated systems and standard hardware, software and networking.

Top Requirements for choosing Cloud Infrastructure

1. Develop & Deploy cloud-aware applications
   - *Scale, HA, Load-Balance, Security, QoS, Speed, …*
2. Easy to migrate data and applications to public clouds when conditions are right
   - *Based on security policies, economics, and other key business criteria*
   - *Interoperability*
3. No longer locked in with major investment in one provider
4. Heterogenous platforms
5. Your requirements (Talk to IBM…)



openstack™

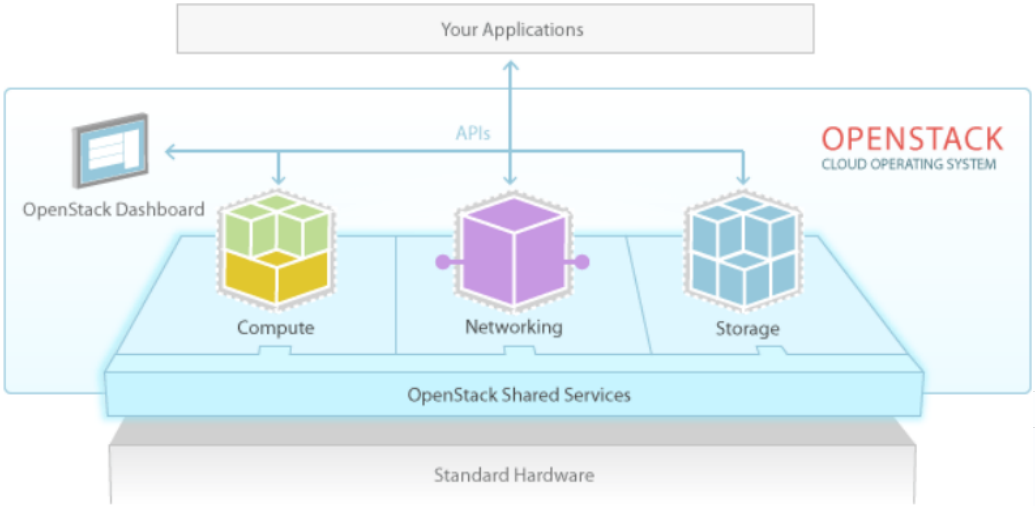
CLOUD SOFTWARE

THE NINTH OPENSTACK RELEASE
ICEHOUSE

Infrastructure as a Service (**IaaS**)

OpenStack Cloud Management Software

OpenStack is a global collaboration of developers & cloud computing technologists working to produce an ubiquitous Infrastructure as a Service (**IaaS**) open source cloud computing platform for public & private clouds.



Design Tenets…

- scalability and elasticity are main goals
- share nothing, distribute everything (asynchronous and horizontally scalable)
- any feature that limits our main goals must be optional
- accept eventual consistency and use it where appropriate

Platinum Sponsors

nebula, rackspace, redhat, suse, IBM, hp, at&t, ubuntu

Gold Sponsors

NetApp, cisco, YAHOO!, DreamHost, intel, DELL, MIRANTIS, MORPHLABS, vmware, NEC, Piston, cloudscaling

OpenStack High Level Architecture

Providing a ubiquitous IaaS management platform

Compete in the Era of SMART

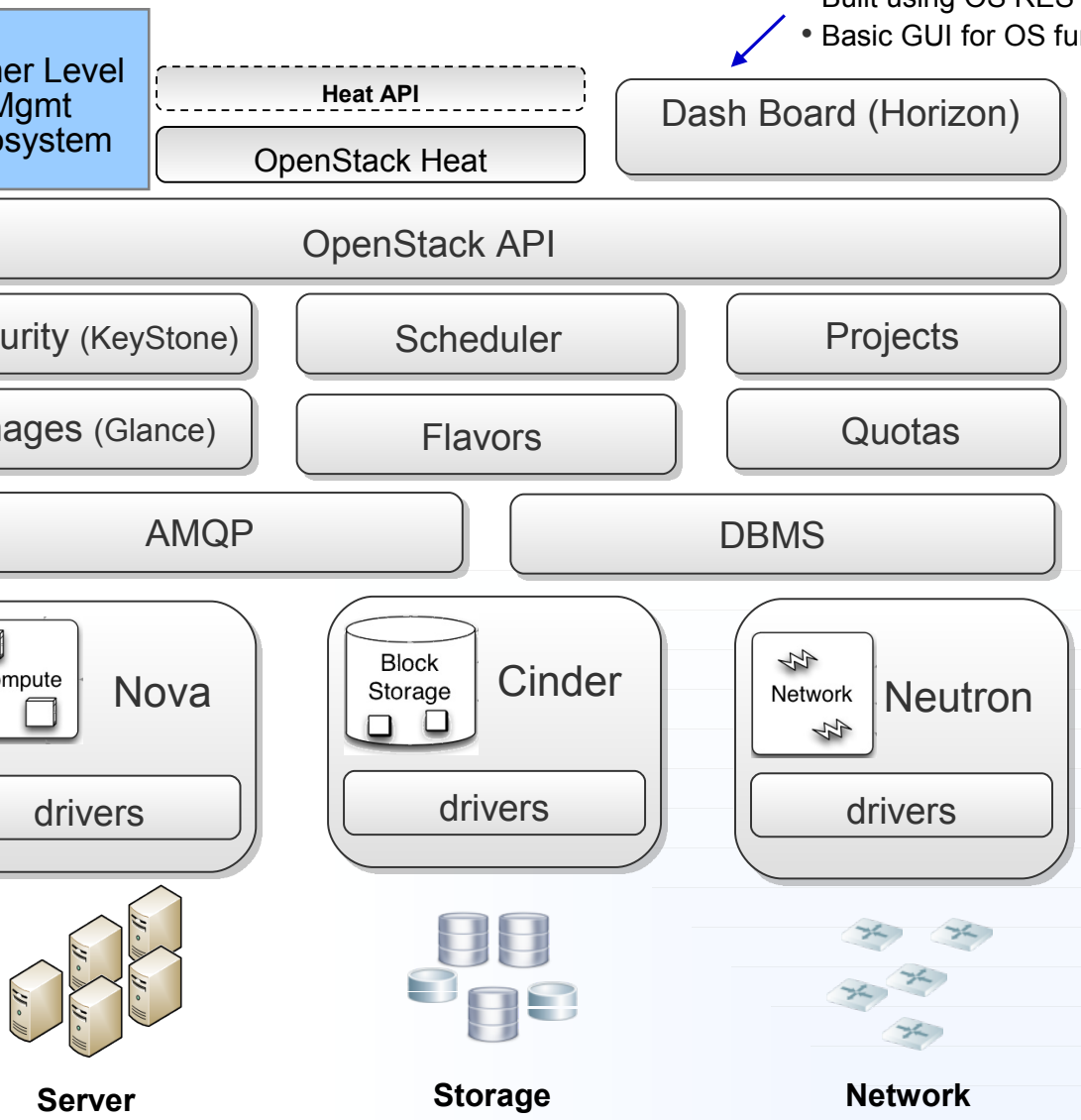
Simple Console
- Built using OS REST API
- Basic GUI for OS functions

Cloud Management APIs
- Focus on providing IaaS
- Broad Eco System

Management Services
- Image Management
- Virtual Machine Placement
- Account Management

Foundation (Middleware)
- AMQP Message Broker
- Database for Persistence

Virtualization Drivers
- Adapters to hypervisors
- Server, storage, network
- Vendor Led Drivers



openstack CLOUD SOFTWARE

How OpenStack fits into your cloud strategy?

But First, tell me what OpenStack can do for me?

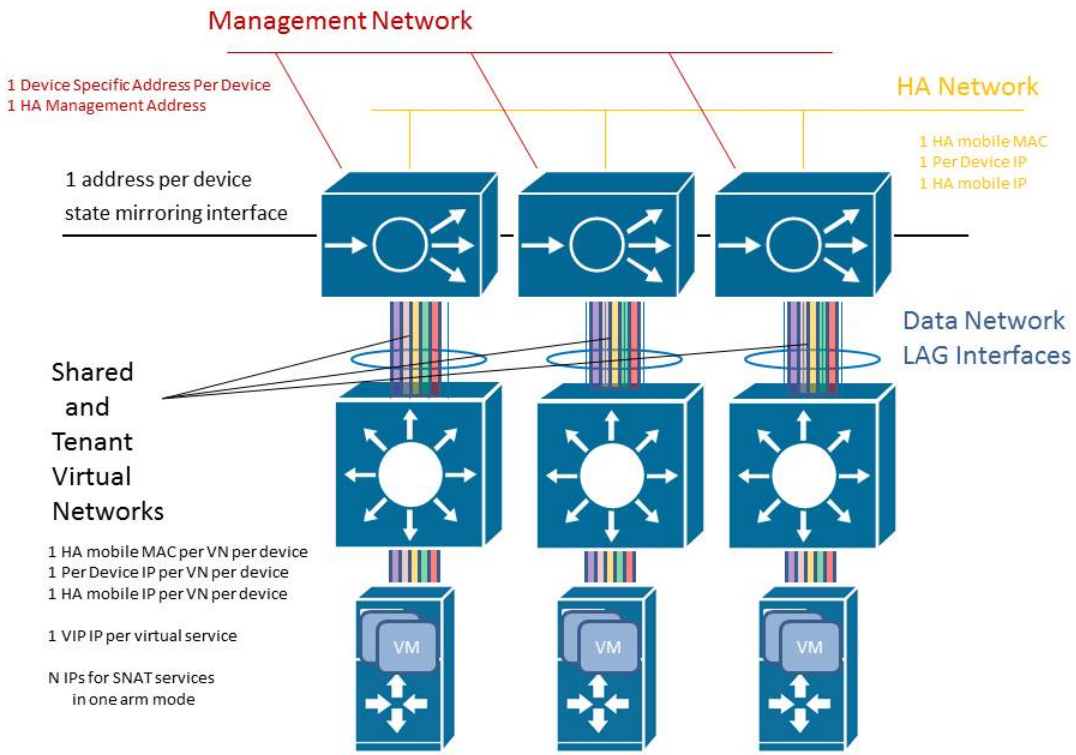
OpenStack Technical Value Proposition

Nova Compute Management
- VM Life Cycle (modify, migrate, destroy)
- Image Management
- Availability Zones, Regions
- Auto Scaling

Storage
- Local, NAS, SAN
- Block, Object
- Snapshot, backups

Networking
- Flat, VLAN, GRE
- Open vSwtich/SDN
- Load Balancing
- IPV6

OpenStack Storage: Object and Block storage for use with servers and applications



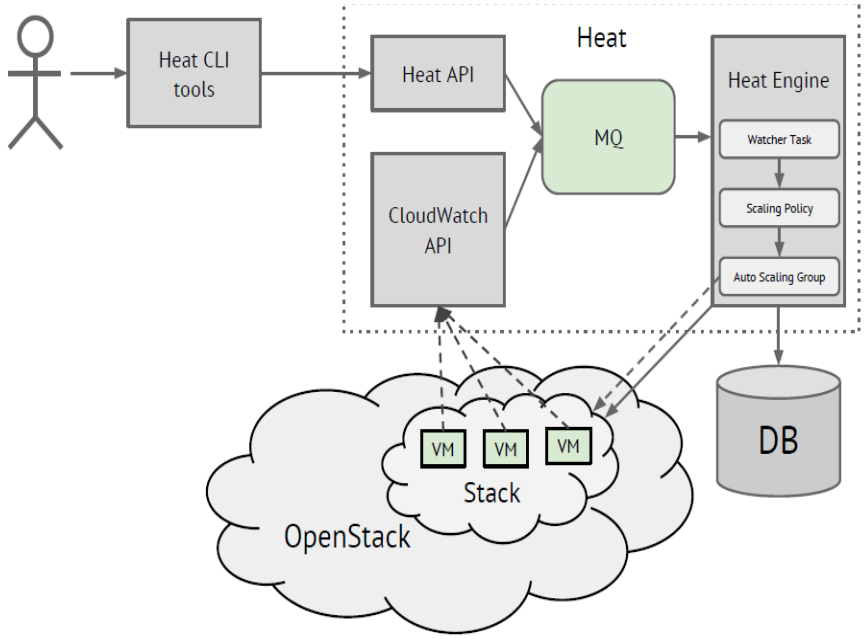
KeyStone Security
- Project/Tenants
- Users, RBAC
- Quotas
- Firewalls, Security Groups

Deploying your workloads with HEAT Orchestration

Orchestration service for OpenStack

- Uses templating mechanism
- Controls complex groups of cloud resources

Huge potential and multiple use cases



Basics:

- **Stack** - group of connected cloud resources (VM, volumes, networks, etc.)
- **Autoscaling**
- **HA** mechanism for the different levels (services running inside an instance, individual instances, stacks)
- **Nested** stacks

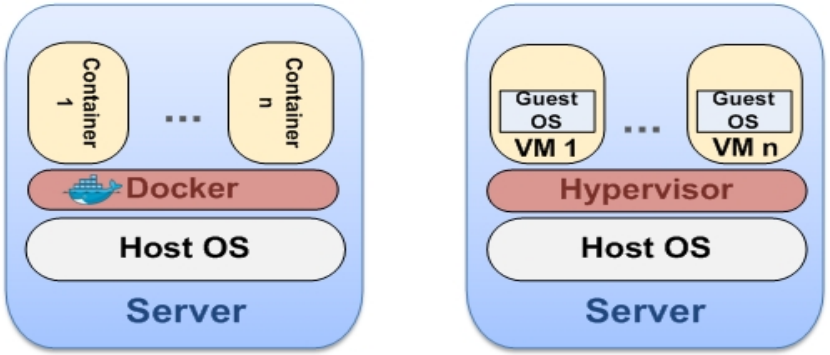
Stacks are created from **templates**

Templates are well integrated with Chef and Puppet

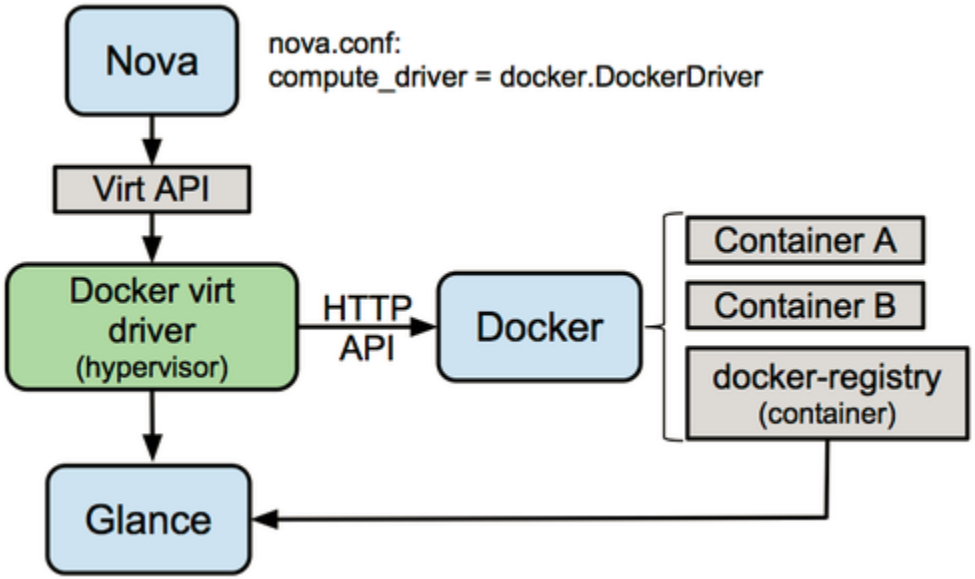
Heat Example

• Deploy a full stack of Web Server, Application Server and Database Service via single click

Docker (containers) with OpenStack



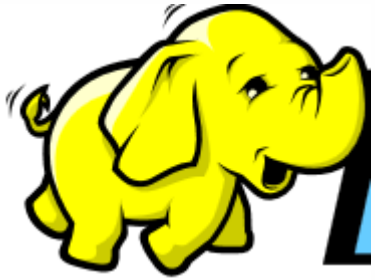
Docker vs Virtualization



Sahara Deploying Hadoop workloads on OpenStack

- Sahara open source project aims to provide users with simple means to provision a Hadoop cluster at OpenStack by specifying several parameters like Hadoop version, cluster topology, nodes hardware details and a few more.
- Key client use cases
  - fast provisioning of Hadoop clusters on OpenStack
  - utilization of unused compute power from general purpose OpenStack IaaS cloud
  - “Analytics as a Service” for ad-hoc or bursty analytic workloads

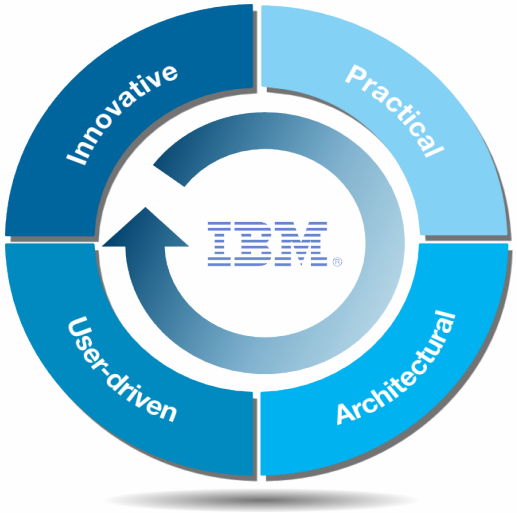
Deploy Hadoop cluster in minutes and scale out instantly on OpenStack control plane



How can we get started with OpenStack?

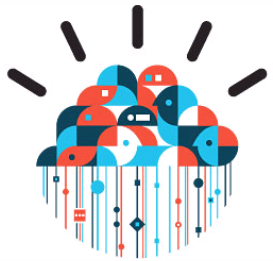
Why partner with IBM for OpenStack Cloud?

Organizations deploying Cloud have a choice to make

Open Source Only	Proprietary	Open "Plus"
		
'Some Assembly Required'	*Vendor Lock-in Assured*	*Enterprise-ready out of the box*

Introducing IBM Cloud Manager with OpenStack (ICM)

- **Easy to deploy, simple to use** cloud management software offering that is based on OpenStack with IBM enhancements
- **Self-service portal** for workload provisioning, virtual image management, and monitoring.
- **Innovative, cost-effective approach** that also includes **automation, metering, and security** for your virtualized environment.
- **Supports production-grade cloud operations & interoperability at scale** via enhanced foundation and full OpenStack API compatibility.
- **Open computing cloud alternative** to proprietary vendors, with **world-class support from IBM**
- **Support for multiple hardware platforms and hypervisors** (x86 KVM, PowerKVM, VMware, Hyper-V, PowerVM, Z/VM)



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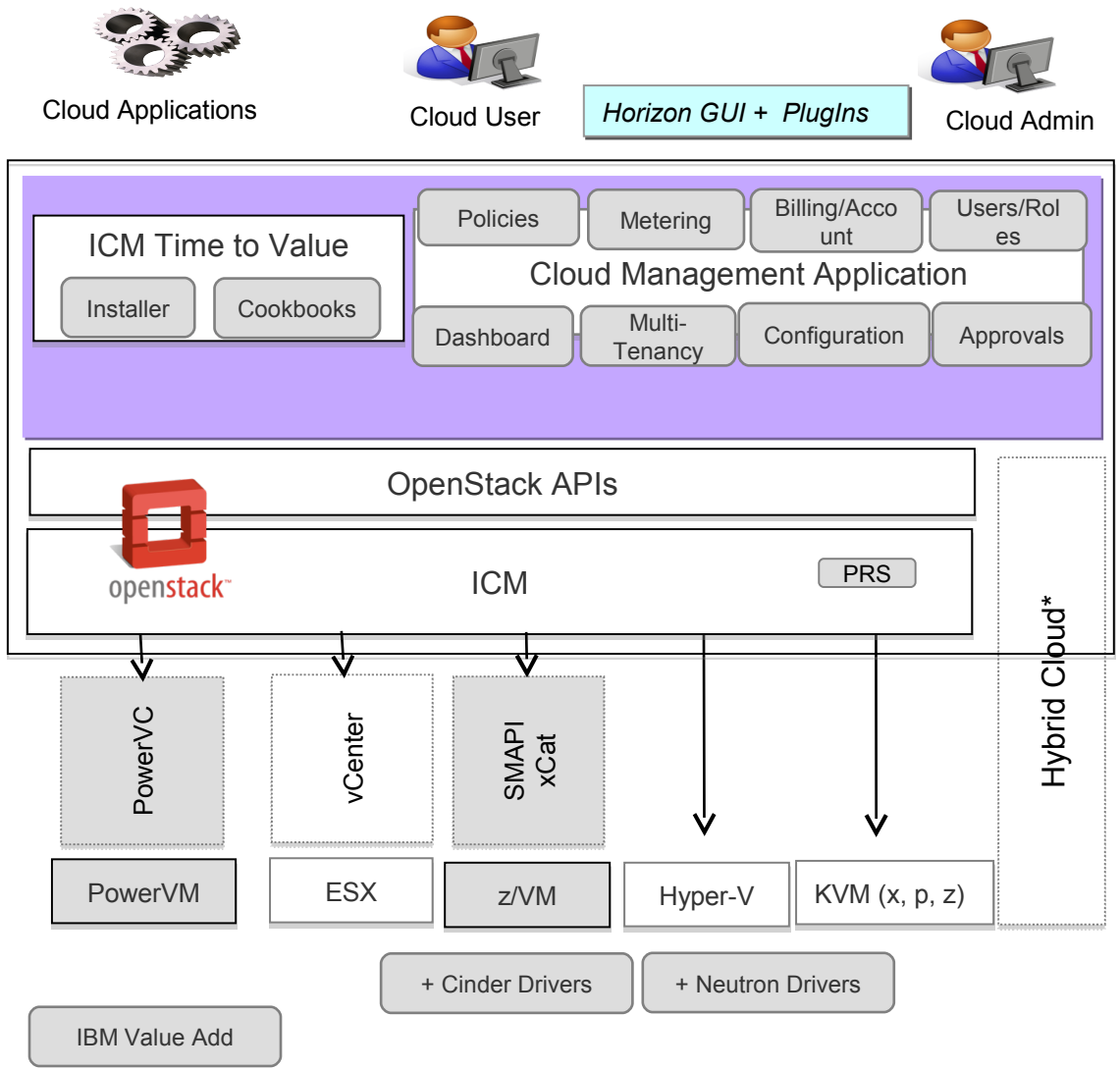
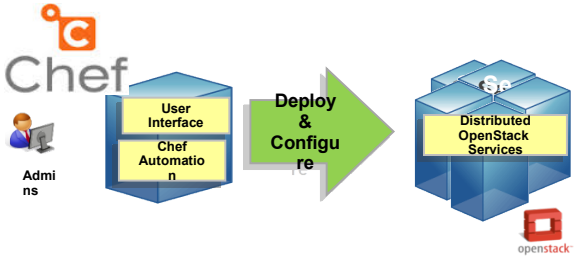
IBM Cloud Manager with OpenStack - Architecture



1. Transition from Appliance delivery model to installable product
   - 100% OpenStack API compatible (nova, cinder, neutron, glance, keystone, heat, ceilometer)
   - IBM APIs for value add features

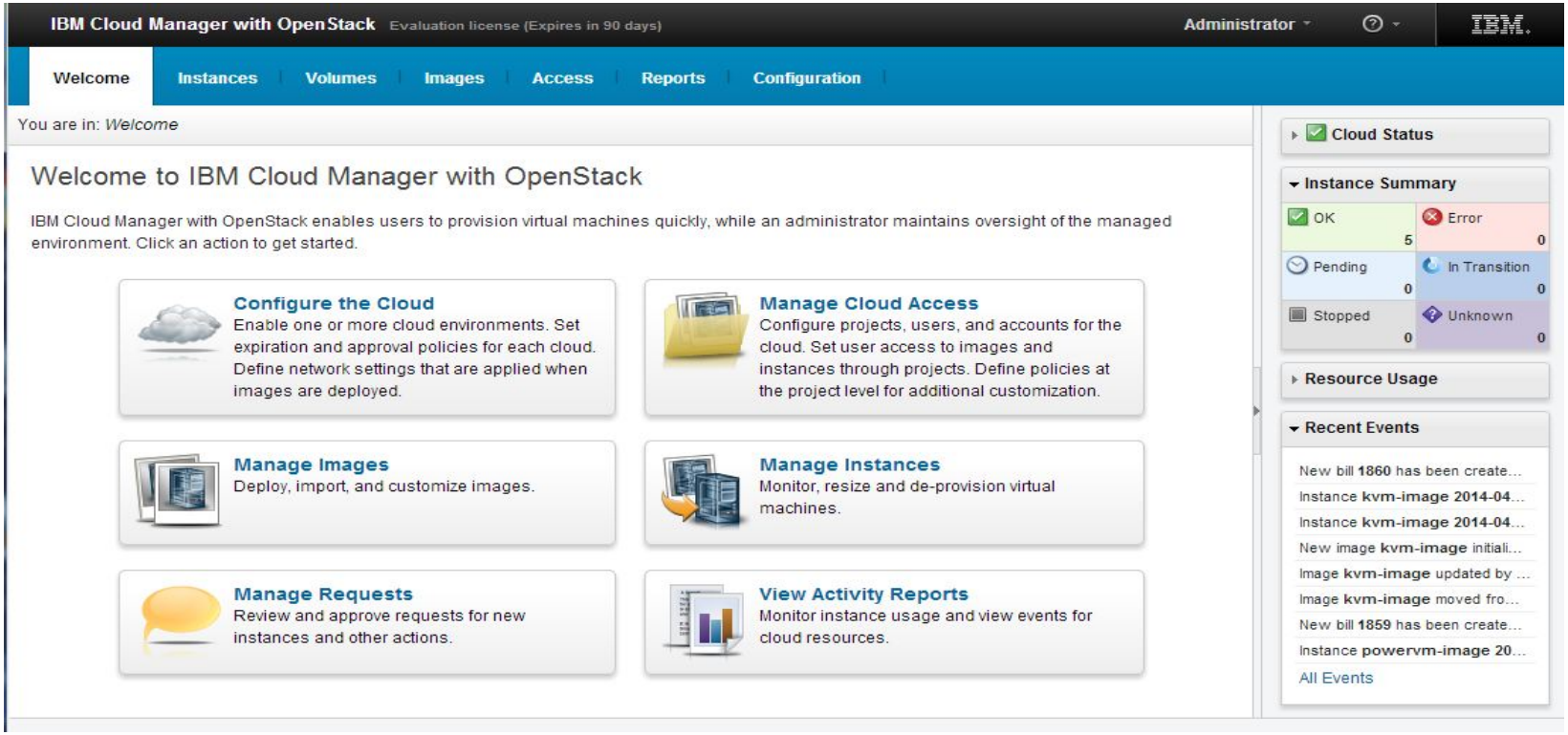


2. Horizon GUI with IBM Value Add
   - Horizon Admin tasks/extensions
   - User tasks & Self-service Portal
3. Automated OpenStack Deployment
   - Configuration via Chef & Cookbooks
4. Support OpenStack Image Ecosystem
   - Cloudinit Activation
   - Legacy compatibility (OVF)
5. Platform Resource Scheduler
6. IBM support and Service
7. Increased level of automation in roadmap*

*Statement of Direction

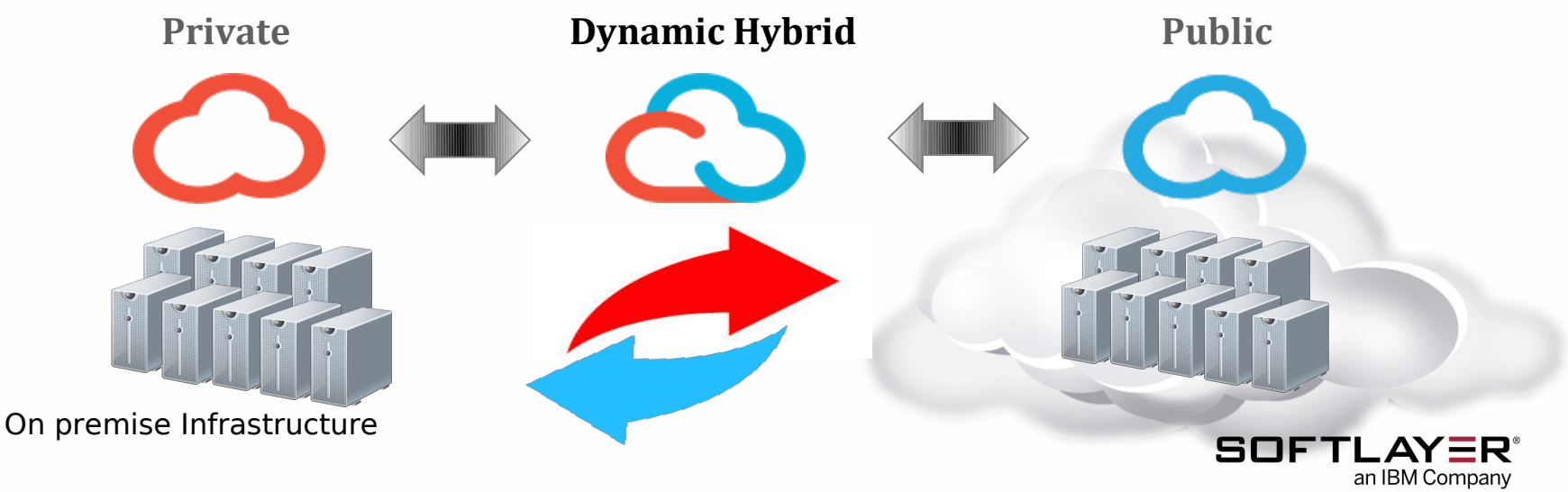
Time to Value (TTV) and Simplified Cloud Management Built Upon OpenStack

IBM Cloud Manager with OpenStack – Self Service Portal



- Easy to access, easy to use Self Service Request Catalog
- Hides underlying infrastructure from user, shifts focus to services delivered
- Enables the ability to provide standardized and lower cost services

IBM's comprehensive vision for Cloud



Simplified Management

Deliver a single, secure user interface built on OpenStack APIs, to manage public, hybrid & private deployments

IBM Cloud Manager with OpenStack, IBM Cloud Orchestrator, Platform Computing, OpenStack based dedicated Private Cloud on SoftLayer, Build your own Cloud on SoftLayer

Private Cloud ⟷ **Variable, dynamic capacity during peak demands**

Provide clients the flexibility to run applications on or off premise

Systems of Record ⟷ **Systems of Engagement**

Leverage BlueMix, OpenStack & Cloud Foundry to build services and capabilities aligned with workload focus

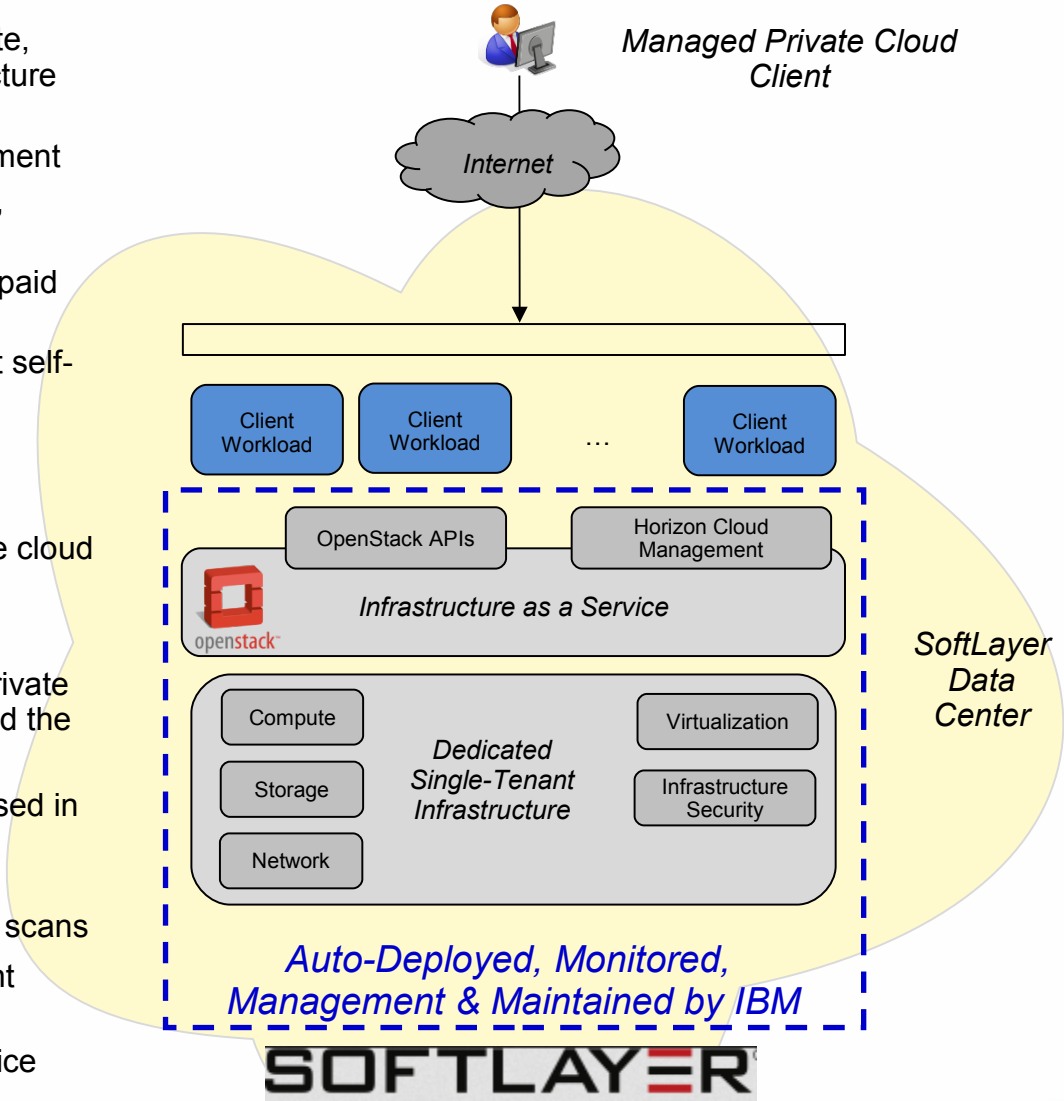
OpenStack Managed Private Cloud on SoftLayer

What is Managed Private Cloud?

- A single-tenant private cloud with dedicated compute, storage, networking, virtualization, security infrastructure
- OpenStack-based cloud infrastructure, including OpenStack APIs, KVM, and Horizon Cloud Management
- Private cloud is hosted on SoftLayer, and deployed, monitored, managed, and maintained by IBM
- Clients can purchase this offering in half-rack units paid for on a monthly subscription basis
- Access to highly-available OpenStack management self-service web portal (Horizon) & APIs

Client Value

- Simple, rapid acquisition and deployment of a private cloud
- Target in Q4 for a 99.95% SLA on OpenStack and managed infrastructure
- Reduced client administrative complexity cost of a private cloud since IBM manages OpenStack, hypervisor and the rest of the infrastructure below
- Open, no client lock-in private cloud environment based in OpenStack and Open Source virtualization
- Enterprise Security, including isolated infrastructure resource, VPN protection, infrastructure vulnerability scans
- Highly-available infrastructure stack to minimize client disruption
- Supported by IBM through 24x7 IBM Customer Service (Phone, Ticket).



OpenStack – the foundation for IBM Cloud Solutions

IBM Cloud Solutions

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IBM Cloud Orchestrator

IBM Cloud Manager with OpenStack

Thank You!