RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM

OPEN CLOUD INFRASTRUCTURE BUILT ON RED HAT TECHNOLOGIES

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AGENDA

- Red Hat Enterprise Linux OpenStack Platform
  - Introduction & Overview
- OpenStack Core Services Overview
- New in Havana release
- New in Icehouse release
- Red Hat's Upstream Focus
  - RDO: Community OpenStack from Red Hat
- How OpenStack is released
- Red Hat Enterprise Linux OpenStack Platform brings Red Hat value to OpenStack
- What's next in OpenStack and Red Hat OpenStack
- Questions
I.T. CHALLENGES

BUSINESS CHALLENGES
- Faster time to market
- Elastic, scalable, high performance
- Flexibility without lock-in, pay as you go

I.T. OPERATIONS CHALLENGES
- Increase operation efficiency
- Maximize resource utilization
- Reliable, secure, compliant

DEVELOPER CHALLENGES
- Reduce time to provision and develop, improve productivity
- Test new features and update applications faster
- Improve availability of platforms and resources
WORKLOADS ARE EVOLVING

TRADITIONAL WORKLOADS

- Typically resides on a single large Virtual Machine
- Cannot tolerate any downtime
- Needs expensive high availability tools found in VMware vSphere
- Application scales up rather than out

CLOUD WORKLOADS

- Workload resides on multiple Virtual Machines
- Tolerates VM failure – if one fails, another quickly replaces it
- Fault tolerance often built into workload
- Application scales out rather than up
OPENSTACK
CLOUD INFRASTRUCTURE FOR CLOUD WORKLOADS

- Modular architecture, designed to easily scale out
- Based on (growing) set of core services
Modular architecture, designed to easily scale out
Based on (growing) set of core services
It is dependent on the underlying Linux...
RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM 4.0

OPTIMIZED FOR AND INTEGRATED WITH RED HAT ENTERPRISE LINUX
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OPENSTACK ARCHITECTURE

- Modular architecture
- Designed to easily scale out
- Based on (growing) set of core services
OpenStack Core Projects

OpenStack Identity (KEYSTONE)

- Identity Service
- Common authorization framework
- Manages users, tenants and roles
- Pluggable backends (SQL, PAM, LDAP, etc)
**OpenStack Compute (NOVA)**

- Core compute service comprised of
  - Compute Nodes – hypervisors that run virtual machines
    - Supports multiple hypervisors KVM, Xen, LXC, Hyper-V, and ESX
    - Distributed controllers that handle scheduling, API calls, etc
  - Native OpenStack API and Amazon EC2 compatible API
OpenStack Core Projects

OpenStack Image Service (GLANCE)

- Image service
- Stores and retrieves disk images (virtual machine templates)
- Supports Raw, QCOW, VMDK, VHD, ISO, OVF & AMI/AKI
- Backend storage: Filesystem, Swift, Amazon S3
OpenStack Object Storage (SWIFT)

- Object Storage service
- Modeled after Amazon's S3 service
- Provides simple service for storing and retrieving arbitrary data
- Native API and S3 compatible API
OpenStack Networking (formerly QUANTUM)

- Network Service
- Provides framework for Software Defined Network (SDN)
- Plugin architecture
  - Allows integration of hardware and software based network solutions
OpenStack Block Storage (CINDER)

- Block Storage (Volume) Service
- Provides block storage for virtual machines (persistent disks)
- Similar to Amazon EBS service
- Plugin architecture for vendor extensions
eg. NetApp driver for Cinder
OpenStack Orchestration (HEAT)

- Template-based deployment orchestrator
- Automates deployment of compute, storage, and networking resources
- Provides AWS CloudFormation implementation for OpenStack
- Deploys composite cloud applications to OpenStack
OpenStack Telemetry (CEILOMETER)

- Monitors, collects, and stores usage data for all OpenStack infrastructure
- Primary targets metering and monitoring with expandable framework
- Provides API access to usage data for OSS and BSS systems
OpenStack Core Projects

**OpenStack Dashboard (HORIZON)**

- Dashboard
- Provides simple self service UI for end-users
- Basic cloud administrator functions
  - Define users, tenants and quotas
  - No infrastructure management
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WHAT'S NEW IN HAVANA

- OpenStack Dashboard (Keystone)
  - Authorization and credential storage update
  - Pluggable external auth and token generation
  - More granular RBAC policy rules
  - Improved API features
  - New event notifications
  - Logs now using Oslo common service
WHAT'S NEW IN HAVANA

- **OpenStack Compute (Nova)**
  - Cells: scheduler, live migration, Cinder support
  - Libvirt (KVM) driver update
  - Quota update: editable and per-user definable
  - Scheduler update, including group affinity and performance improvements
  - Cinder encryption and volume swap
  - Improved Conductor and Scheduler performance
  - Oslo Common service infrastructure
  - Updated v3 API with new extensions [experimental]
    - v2 API remain as fully supported extensions
WHAT'S NEW IN HAVANA

- OpenStack Networking (Neutron)
  - Load Balancer (LBaaS)
  - VPN (VPNaaS) for site-to-site IPSec
  - Modular Layer 2 (Open vSwitch, Linux Bridge, and L2 agents)
    - Plugin supports local, flat, VLAN, GRE, and VXLAN network types
  - PXE boot options
  - Firewall (FWaaS) [experimental]
WHAT'S NEW IN HAVANA

- OpenStack Compute (Cinder)
  - Volume migration (Cinder to Cinder)
  - Local driver allows raw disks without LVM
  - Extend size of existing volume
  - Volume transfer between tenants
  - Auto-flatten snapshots
  - Ceph as backup volume target
  - Windows Storage Server driver
  - IBM Tivoli Storage Manager (TSM)
WHAT'S NEW IN HAVANA

- OpenStack Dashboard (Glance)
  - New registry API using RCP-over-HTTP
  - Back-end support for Sheepdog, Cinder, GridFS
  - Multiple image storage locations for improved backup/replication
  - Configurable container and disk formats
  - Storage quota to limit users
  - Membership policy enforcements
WHAT'S NEW IN HAVANA

- OpenStack Dashboard (Horizon)
  - Heat integration
  - Ceilometer integration
  - Identity (Keystone) API v3 support
  - Nova configuration integration (quotas, zones, resizing, etc)
  - Neutron configuration integration (VPN, FW, Security Groups, etc)
  - Configurable Glance image types
  - Self-service passwd changes
  - Security group rule templates
  - Improved topology and system visualizations
  - Trove integration (DBaaS) [experimental]
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WHAT'S NEW IN ICEHOUSE

- OpenStack Object Storage (Swift)
  - Discoverable capabilities: A Swift proxy server now by default (although it can be turned off) will respond to requests to /info. The response to these requests include information about the cluster and can be used by clients to determine which features are supported in the cluster. This means that one client will be able to communicate with multiple Swift clusters and take advantage of the features available in each cluster.
  - Generic way to persist system metadata: Swift now supports system-level metadata on accounts and containers. System metadata provides a means to store internal custom metadata with associated Swift resources in a safe and secure fashion without actually having to plumb custom metadata through the core swift servers. The new gatekeeper middleware prevents this system metadata from leaking into the request or being set by a client.
WHAT'S NEW IN ICEHOUSE

- OpenStack Object Storage (Swift)
  - Account-level ACLs and ACL format v2: Accounts now have a new privileged header to represent ACLs or any other form of account-level access control. The value of the header is a JSON dictionary string to be interpreted by the auth system. A reference implementation is given in TempAuth. Please see the full docs at http://swift.openstack.org/overview_auth.html
  - Object replication ssync (an rsync alternative): A Swift storage node can now be configured to use Swift primitives for replication transport instead of rsync.
  - Automatic retry on read failures: If a source times out on an object server read, try another one of them with a modified range. This means that drive failures during a client request will not be visible to the end-user client.
  - Work on upcoming storage policies
WHAT'S NEW IN ICEHOUSE

• OpenStack Image Service (Glance)
  
  • Add VMware Datastore as Storage Backend (See https://blueprints.launchpad.net/glance/+spec/vmware-datastore-storage-backend)
  
  • Adding image location selection strategy (See https://blueprints.launchpad.net/glance/+spec/image-location-selection-strategy)
  
  • A new filed 'virtual_size' is added for image (See https://blueprints.launchpad.net/glance/+spec/split-image-size)
  
  • API message localization (See http://docs.openstack.org/developer/glance/glanceapi.html#api-message-localization)
WHAT'S NEW IN ICEHOUSE

• OpenStack Image Service (Glance)
  • The calculation of storage quotas has been improved. Deleted images are now excluded from the count (https://bugs.launchpad.net/glance/+bug/1261738), which may affect your existing usage figures.
  • Glance has moved to using 0-based indices for location entries, to be in line with JSON-pointer RFC6901 (https://bugs.launchpad.net/glance/+bug/1282437)
WHAT'S NEW IN ICEHOUSE

• OpenStack Compute (Nova)
  • Upgrade Support (limited live upgrades)
  • Compute Drivers
    • Hyper-V
      • Added RDP console support.
    • KVM
      • Now supports providing modified kernel arguments to booting compute instances
      • Libvirt driver now supports using VirtIO SCSI (virtio-scsi) instead of VirtIO Block (virtio-blk)
      • Libvirt Compute driver now supports adding a Virtio RNG device to compute instances
      • Libvirt driver now allows the configuration of instances to use video driver other than the default (cirros).
WHAT'S NEW IN ICEHOUSE

• OpenStack Compute (Nova)
  • Compute Drivers (continued)
    • KVM
      • Watchdog support has been added to the Libvirt driver
      • High Precision Event Timer (HPET) is now disabled for instances created using the Libvirt driver
      • libvirt driver now supports waiting for an event from Neutron during instance boot for better reliability
    • VMware
      • VMware Compute drivers now support the virtual machine diagnostics call
      • VMware Compute drivers now support booting an instance from an ISO image
      • VMware Compute drivers now support the aging of cached images
WHAT'S NEW IN ICEHOUSE

OpenStack Compute (Nova)

- Compute Drivers (continued)
  - XenServer
    - XenServer specific configuration items have changed name, and moved to a [xenserver] section in nova.conf.
    - Initial support for PCI passthrough
    - Maintained group B status through the introduction of the XenServer CI
    - Improved support for ephemeral disks (including migration and resize up of multiple ephemeral disks)
    - Support for vcpu_pin_set, essential when you pin CPU resources to Dom0
    - Numerous performance and stability enhancements
WHAT'S NEW IN ICEHOUSE

• OpenStack Compute (Nova)
  
  • API
  
  • In OpenStack Compute, the OS-DCF:diskConfig API attribute is no longer supported in V3 of the nova API.
  
  • The Compute API currently supports both XML and JSON formats. Support for the XML format is now deprecated and will be retired in a future release.
  
  • The Compute API now exposes a mechanism for permanently removing decommissioned compute nodes. Previously these would continue to be listed even where the compute service had had been disabled and the system re-provisioned. This functionality is provided by the ExtendedServicesDelete API extension.
WHAT'S NEW IN ICEHOUSE

• OpenStack Compute (Nova)
  • API
    • Separated the V3 API admin_actions plugin into logically separate plugins so operators can enable subsets of the functionality currently present in the plugin.
    • The Compute service now uses the tenant identifier instead of the tenant name when authenticating with OpenStack Networking (Neutron). This improves support for the OpenStack Identity API v3 which allows non-unique tenant names.
    • The Compute API now exposes the hypervisor IP address, allowing it to be retrieved by administrators using the nova hypervisor-show command.
WHAT'S NEW IN ICEHOUSE

- OpenStack Compute (Nova)
  - Scheduler
    - The scheduler now includes an initial implementation of a caching scheduler driver. The caching scheduler uses the existing facilities for applying scheduler filters and weights but caches the list of available hosts. When a user request is passed to the caching scheduler it attempts to perform scheduling based on the list of cached hosts, with a view to improving scheduler performance.
WHAT'S NEW IN ICEHOUSE

- OpenStack Compute (Nova)
  - Scheduler
    - A new scheduler filter, AggregateImagePropertiesIsolation, has been introduced. The new filter schedules instances to hosts based on matching namespaced image properties with host aggregate properties. Hosts that do not belong to any host aggregate remain valid scheduling targets for instances based on all images. The new Compute service configuration keys aggregate_image_properties_isolation_namespace and aggregate_image_properties_isolation_separator are used to determine which image properties are examined by the filter.
WHAT'S NEW IN ICEHOUSE

- OpenStack Compute (Nova)
  - Scheduler
    - Weight normalization in OpenStack Compute: See:
    - https://review.openstack.org/#/c/27160/ Weights are normalized, so there is no need to inflate multipliers artificially. The maximum weight that a weigher will put for a node is 1.0 and the minimum is 0.0.
    - The scheduler now supports server groups. The following types are supported - anti-affinity and affinity filters. That is, a server that is deployed will be done according to a predefined policy.
WHAT'S NEW IN ICEHOUSE

- OpenStack Compute (Nova)
  - Other Features
    - Notifications are now generated upon the creation and deletion of keypairs.
    - Notifications are now generated when an Compute host is enabled, disabled, powered on, shut down, rebooted, put into maintenance mode and taken out of maintenance mode.
    - Compute services are now able to shutdown gracefully by disabling processing of new requests when a service shutdown is requested but allowing requests already in process to complete before terminating.
    - The Compute service determines what action to take when instances are found to be running that were previously marked deleted based on the value of the running_deleted_instance_action configuration key. A new shutdown value has been added. Using this new value allows administrators to optionally keep instances found in this state for diagnostics while still releasing the runtime resources.
WHAT'S NEW IN ICEHOUSE

OpenStack Compute (Nova)

Other Features

- File injection is now disabled by default in OpenStack Compute. Instead it is recommended that the ConfigDrive and metadata server facilities are used to modify guests at launch. To enable file injection modify the inject_key and inject_partition configuration keys in /etc/nova/nova.conf and restart the Compute services. The file injection mechanism is likely to be disabled in a future release.

- A number of changes have been made to the expected format /etc/nova/nova.conf configuration file with a view to ensuring that all configuration groups in the file use descriptive names. A number of driver specific flags, including those for the Libvirt driver, have also been moved to their own option groups.
WHAT'S NEW IN ICEHOUSE

• OpenStack Compute (Nova)
  • Other Features
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WHAT'S NEW IN ICEHOUSE

• OpenStack Dashboard (Horizon)
  • Language Support
    • Thanks to the I18nTeam Horizon is now available in Hindi, German and Serbian. Translations for Australian English, British English, Dutch, French, Japanese, Korean, Polish, Portuguese, Simplified and Traditional Chinese, Spanish and Russian have also been updated.
WHAT'S NEW IN ICEHOUSE

• OpenStack Dashboard (Horizon)
  • Nova
    • Live Migration Support
    • HyperV console support
    • Disk config option support
    • Improved support for managing host aggregates and availability zones.
    • Support for easily setting flavor extra specs
WHAT'S NEW IN ICEHOUSE

- OpenStack Dashboard (Horizon)
  - Cinder
    - Role based access support for Cinder views
    - v2 API support
    - Extend volume support
WHAT'S NEW IN ICEHOUSE

- OpenStack Dashboard (Horizon)
  - Neutron
    - Router Rules Support -- displays router rules on routers when returned by neutron
WHAT'S NEW IN ICEHOUSE

- OpenStack Dashboard (Horizon)
  - Swift
    - Support for creating public containers and providing links to those containers
    - Support explicit creation of pseudo directories
WHAT'S NEW IN ICEHOUSE

- OpenStack Dashboard (Horizon)
  - Heat
    - Ability to update an existing stack
    - Template validation
    - Support for adding an environment files
WHAT'S NEW IN ICEHOUSE

- OpenStack Dashboard (Horizon)
  - Ceilometer
    - Administrators can now view daily usage reports per project across services.
WHAT'S NEW IN ICEHOUSE

- OpenStack Identity (Keystone)
  - New v3 API features
    - `/v3/OS-FEDERATION/` allows Keystone to consume federated authentication via Shibboleth for multiple Identity Providers, and mapping federated attributes into OpenStack group-based role assignments (see documentation).
    - POST `/v3/users/{user_id}/password` allows API users to update their own passwords (see documentation).
    - GET `/v3/auth/token?nocatalog` allows API users to opt-out of receiving the service catalog when performing online token validation (see documentation).
WHAT'S NEW IN ICEHOUSE

• OpenStack Identity (Keystone)
  • New v3 API features
    • /v3/regions provides a public interface for describing multi-region deployments (see documentation).
    • /v3/OS-SIMPLECERT/ now publishes the certificates used for PKI token validation (see documentation).
    • /v3/OS-TRUST/trusts is now capable of providing limited-use delegation via the remaining_uses attribute of trusts.
WHAT'S NEW IN ICEHOUSE

• OpenStack Identity (Keystone)
  • The assignments backend (the source of authorization data) has now been completely separated from the identity backend (the source of authentication data). This means that you can now back your deployment's identity data to LDAP, and your authorization data to SQL, for example.
  • The token KVS driver is now capable of writing to persistent Key-Value stores such as Redis, Cassandra, or MongoDB.
  • Keystone's driver interfaces are now implemented as Abstract Base Classes (ABCs) to make it easier to track compatibility of custom driver implementations across releases.
  • Keystone's default etc/policy.json has been rewritten in an easier to read format.
  • Notifications are now emitted in response to create, update and delete events on roles, groups, and trusts.
WHAT'S NEW IN ICEHOUSE

• OpenStack Identity (Keystone)
  • Custom extensions and driver implementations may now subscribe to internal-only event notifications, including disable events (which are only exposed externally as part of update events).
  • Keystone now emits Cloud Audit Data Federation (CADF) event notifications in response to authentication events.
  • Additional plugins are provided to handle external authentication via REMOTE_USER with respect to single-domain versus multi-domain deployments.
  • policy.json can now perform enforcement on the target domain in a domain-aware operation using, for example, %(target.{entity}.domain_id)s.
  • The LDAP driver for the assignment backend now supports group-based role assignment operations.
WHAT'S NEW IN ICEHOUSE

• OpenStack Identity (Keystone)
  
  • Keystone now publishes token revocation events in addition to providing continued support for token revocation lists. Token revocation events are designed to consume much less overhead (when compared to token revocation lists) and will enable Keystone eliminate token persistence during the Juno release.

  • Deployers can now define arbitrary limits on the size of collections in API responses (for example, GET /v3/users might be configured to return only 100 users, rather than 10,000). Clients will be informed when truncation has occurred.

  • Lazy translation has been enabled to translating responses according to the requested Accept-Language header.

  • Keystone now emits i18n-ready log messages.

  • Collection filtering is now performed in the driver layer, where possible, for improved performance.
WHAT'S NEW IN ICEHOUSE

- OpenStack Network Service (Neutron)
  - New Drivers/Plugins
    - IBM SDN-VE
    - Nuage
    - OneConvergence
    - OpenDaylight
  - New Load Balancing as a Service Drivers
    - Embrane
    - NetScaler
    - Radware
  - New VPN Driver
    - Cisco CSR
WHAT'S NEW IN ICEHOUSE

- OpenStack Block Storage (Cinder)
  - Ability to change the type of an existing volume (retype)
  - Add volume metadata support to the Cinder Backup Object
  - Implement Multiple API workers
  - Add ability to delete Quota
WHAT'S NEW IN ICEHOUSE

- OpenStack Block Storage (Cinder)
  - Add ability to import/export backups in to Cinder
  - Added Fibre Channel Zone manager for automated FC zoning during volume attach/detach
  - Ability to update a volume type encryption
  - Ceilometer notifications on attach/detach
WHAT'S NEW IN ICEHOUSE

- OpenStack Orchestration (Heat)
  - HOT templates: The HOT template format is now supported as the recommended format for authoring heat templates.
  - OpenStack resources: There is now sufficient coverage of resource types to port any template to native OpenStack resources
  - Software configuration: New API and resources to allow software configuration to be performed using a variety of techniques and tools
WHAT'S NEW IN ICEHOUSE

• OpenStack Orchestration (Heat)
  • Non-admin users: It is now possible to launch any stack without requiring admin user credentials. See the upgrade notes on enabling this by configuring stack domain users.
  • Operator API: Cloud operators now have a dedicated admin API to perform operations on all stacks
  • Autoscaling resources: OS::Heat::AutoScalingGroup and OS::Heat::ScalingPolicy now allow the autoscaling of any arbitrary collection of resources
WHAT'S NEW IN ICEHOUSE

- OpenStack Orchestration (Heat)
  - Notifications: Heat now sends RPC notifications for events such as stack state changes and autoscaling triggers
  - Heat engine scaling: It is now possible to share orchestration load across multiple instances of heat-engine. Locking is coordinated by a pluggable distributed lock, with a SQL based default lock plugin.
WHAT'S NEW IN ICEHOUSE

- OpenStack Orchestration (Heat)
  - File inclusion with get_file: The intrinsic function get_file is used by python-heatclient and heat to allow files to be attached to stack create and update actions, which is useful for representing configuration files and nested stacks in separate files.
  - Cloud-init resources: The OS::Heat::CloudConfig and OS::Heat::MultipartMime
WHAT'S NEW IN ICEHOUSE

- OpenStack Orchestration (Heat)
  - Stack abandon and adopt: It is now possible to abandon a stack, which deletes the stack from Heat without deleting the actual OpenStack resources. The resulting abandon data can also be used to adopt a stack, which creates a new stack based on already existing OpenStack resources. Adopt should be considered an experimental feature for the Icehouse release of Heat.
  - Stack preview: The stack-preview action returns a list of resources which are expected to be created if a stack is created with the provided template
WHAT'S NEW IN ICEHOUSE

- OpenStack Database service (Trove)
  - User/Schema management
    - Users can do CRUD management on MYSQL Users and Schemas through the Trove API
  - Flavor / Cinder Volume resizes
    - Resize up/down the flavor that defines the Trove instance
    - Resize up the optional Cinder Volume size if the datastore requires a larger volume
WHAT'S NEW IN ICEHOUSE

- OpenStack Database service (Trove)
  - Multiple datastore support
    - Full feature support for MySQL and Percona
    - Experimental (not full feature) support for MongoDB, Redis, Cassandra, and Couchbase
- Configuration groups
  - Define a set of configuration options to attach to new or existing instances
WHAT'S NEW IN ICEHOUSE

- OpenStack Database service (Trove)
  - Backups and Restore
    - Executes native backup software on a datastore, and stream the output to a swift container
    - Full and incremental backups
  - Optional DNS support via designate
    - Flag to define whether to provision DNS for an instance
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RED HAT CONTRIBUTION TIMELINE

- **RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM 4** – December 2013
- **RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM 3** – July 2013
- **HAVANA** – October 2013
  - Red Hat #1 contributor
- **RDO** – March 2013
- **GRIZZLY** – April 2013
  - Red Hat #1 contributor
- **FOLSOM** – October 2012
  - Red Hat #2 contributor
- **AUSTIN** – October 2010
- **RED HAT JOINS OPENSTACK COMMUNITY** – July 2011
RED HAT UPSTREAM FOCUS

- Heavily engaged in community since 2011
  - Established leadership position in community
  - Both in terms of governance and technology
  - Including PTLs on Nova, Keystone, Oslo, Heat and Ceilometer
  - Creating and leading stable tree
- 2nd largest contributor to Folsom Release
- Largest contributor to Grizzly and Havana releases
  - Note: These statistics do not include external dependencies
    eg. libvirt, kvm, Linux components
Top Contributor to Havana Release

- Overall commits per company (aggregated)

RED HAT'S OPENSTACK LEADERSHIP  
WHY DO THESE STATISTICS MATTER?

- Proof that Red Hat has skills, resources to:
  - Support customers
  - Drive new features
  - Influence strategy and direction of project
  - Enable partner collaboration

- Wide ranging participation, contrasts with most others who are more narrowly focused

- Important to highlight our leadership in the whole stack
  - Linux, KVM, libvirt, etc

- RHEL-OSP is an enterprise-grade distribution with ecosystem, lifecycle, and support that customers expect from Red Hat
BUILDING A COMMUNITY

- RDO Project
  - Community distribution of OpenStack
  - Packaged/tested for *EL6 and derivatives
  - Freely available without registration
  - Easy to install

- Vanilla distribution – closely follows upstream
  - Upstream release cadence
  - 6 month lifecycle – limited updates based on upstream
OPENSTACK PROGRESSION

Bleeding edge upstream OpenStack source code

Bleeding edge upstream OpenStack packaged as RPMs

Enterprise hardened Red Hat OpenStack technology optimized for and integrated with Red Hat Enterprise Linux

Enterprise Linux distros (CentOS, RHEL, Fedora)

Red Hat Support
Red Hat ecosystem certifications
1+ year lifecycle

Unstable community Linux

Enterprise hardened Red Hat OpenStack technology optimized for and integrated with Red Hat Enterprise Linux

No certifications
Community support
Six month lifecycle

No certifications
Community support
Six month lifecycle

No certifications
Community support
Six month lifecycle
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OPENSTACK RELEASE CADENCE

Grizzly Stable Branch

Trunk
OPENSTACK RELEASE CADENCE

Grizzly.0
2013.4.0

Upstream Grizzly Release
- Source code only

Red Hat Community Release
- Binary Distribution
“Trunk” is now effectively the Havana development stream.

New features and bugfixes go into trunk.
OPENSTACK RELEASE CADENCE

Upstream releases “snapshots” in the stable branch as 'roll ups'

Community releases updated binaries based on these roll ups
OPENSTACK RELEASE CADENCE

Grizzly Stable branch maintained until Havana is released

After Havana release no updates to Grizzly
OPENSTACK RELEASE CADENCE

RHEL OpenStack Platform - Grizzly Tree
Takes bugfixes from Grizzly stable branch
Also select backports from Havana/Trunk
Release asynchronously – as needed
- Does not need to wait for upstream snapshot
OPENSTACK RELEASE CADENCE

RHEL OpenStack Platform - Grizzly Tree
- Takes bugfixes from Grizzly stable branch
- Also select backports from Havana/Trunk
- Release asynchronously – as needed
  - Does not need to wait for upstream snapshot

RHEL OpenStack Platform - Grizzly
- Continues to receive backports and fixes after Havana release
  - Initially for 1.5 year lifecycle
  - (Will extend as it matures)
OPENSTACK RELEASE CADENCE

- **Baseline drop**
- **Bug fix merges**
- **Select backports**

**Grizzly.0**
2013.4.0

**CR Grizzly.1**
**CR Grizzly.2**

**Grizzly Stable Branch**

**Havana.0**

- **Upstream Havana release**
  - Source code only

**RHEL OpenStack Platform Grizzly (3.1)**

**RDO Community Release**
- Binary Distribution

**Doc:** 144908

**Red Hat Enterprise Linux OpenStack Platform**
OPENSTACK RELEASE CADENCE

- **Upstream**
  - Source code Only
  - Releases every 6 month
  - 2 to 3 'snapshots' including bug fixes
  - No more fixes/snapshots after next release

- **RDO**
  - Follows upstream cadence
  - Delivers binaries
OPENSTACK RELEASE CADENCE

- Red Hat Enterprise Linux OpenStack Platform 4.0
  - 6 Month cadence
  - Roughly 2 to 3 months AFTER upstream
    - Time to stabilize, certify, backport etc.
  - Increased to 1.5 year lifecycle
    - e.g., Support for Havana ends after “K” release
  - Will continue to increase lifecycle over time
    - Based on upstream stability and resources
AGENDA

- Red Hat Enterprise Linux OpenStack Platform
  - Introduction & Overview
- OpenStack Core Services Overview
- What's New in Havana release
- What's New in Icehouse release
- Red Hat's Upstream Focus
  - RDO: Community OpenStack from Red Hat
- How OpenStack is released
- **Red Hat Enterprise Linux OpenStack Platform brings Red Hat value to OpenStack**
- What's next in OpenStack and Red Hat OpenStack
- Questions
WHY RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM

- All the benefits of community OpenStack and...
  - Enterprise hardened and integrated with Red Hat Enterprise Linux
  - Provides enterprise software lifecycle
    - Includes bug fixes, security errata, selected backports
  - World-class global support
  - Worlds largest OpenStack partner ecosystem
  - Full support and certifications for RHEL and Windows workloads
  - OpenStack training and certification
  - Integrated with trusted Red Hat stack
    - Red Hat Enterprise Linux
    - Red Hat CloudForms
    - Red Hat Enterprise Virtualization
    - Red Hat Storage
# RED HAT OPENSTACK CLOUD INFRASTRUCTURE PARTNER NETWORK CERTIFICATION LEVELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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| Premier            | • Fully Certified  
                     • Beyond basics  
                     • Enterprise Readiness  
                     • Reference Architectures |
| Advanced           | • Enhanced Logo Program  
                     • Technology Integration |
| Ready              | • Logo  
                     • Application Compatibility  
                     • "Built On" |
| Individual Competency | • Developer Competency  
                   • IT/Admin Competency |
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OPENSTACK: WHAT'S NEXT?

- Upstream focus is on core components
  - NOVA, Neutron, Heat, Ceilometer, etc
- Many companies are productizing on top of the Core
  - Adding features to make OpenStack consumable
    - e.g., Administration, Operations, provisioning, monitoring, etc
  - Typically these don't come back to the core project
- Enterprises want a complete product
  - Automate & manage deployment, configuration, etc
  - In many cases want traditional virtualization features too
Common customer concerns:

- No centralized management or installer
- Limited storage options
  - No fiber channel support, no storage migration, backup, DR, etc
- No (or limited) Live Migration
- No workload management (DRS)
- No High Availability
- No monitoring
- No reporting
- Limited configuration options
- Performance concerns
Continued focus on OpenStack core

Management tools for RHEL OpenStack Platform
  - Deliver in stages
    - Tooling for installation and configuration management (Based around Foreman)
    - Centralized Management Platform (based around TripleO & Tuskar)

Focus on delivering common infrastructure
  - Leverage OpenStack Services within RHEV
  - Allow customers to deploy a single platform
    - Deploy cloud and traditional workloads
    - Provide on-ramp to OpenStack
THREE WAYS TO GET OPENSTACK FROM RED HAT

1. 90-DAY EVALUATION
   - redhat.com/openstack/evaluation

2. PURCHASE SUPPORTED PRODUCT
   - redhat.com/openstack

3. CLOUD INFRASTRUCTURE

Learn more at: redhat.com/cloud
We’ve been **OPEN** all along.

It’s in our DNA.
It’s not lip service. Or cloud washing.
Open is what we do. And how we do it.
With every step forward, Red Hat opens another layer of the technology stack.

Cloud is the next step—the next open innovation.
THANK YOU
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