Openstack evolution

Did Unicorns ever exist? “Depends..”

FABRIZIO PEZZELLA
Telco Solution Architect
fpezzell@redhat.com
Red Hat Openstack 13 - Queens
LONG LIFE RELEASE

Red Hat OpenStack Platform 13 (Queens) is our second Long Life Release

- Choose to upgrade every 6 months and benefit from 1 year of support on that release
- Choose to upgrade every 3 years via long-life releases with an optional extended life-cycle support (ELS) totaling up to 5 years of support

<table>
<thead>
<tr>
<th>Release</th>
<th>Long Life</th>
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</tr>
</thead>
<tbody>
<tr>
<td>RHOSP 8 Liberty</td>
<td>RHOSP 9 Mitaka</td>
<td>RHOSP 10 Newton</td>
<td>RHOSP 11 Ocata</td>
</tr>
<tr>
<td>3 years (ends Apr 2019)</td>
<td>3 years (ends Aug 2019)</td>
<td>3 years (+2 years)*</td>
<td>1 year (out of support)</td>
</tr>
<tr>
<td>RHOSP 12 Pike</td>
<td>RHOSP 13 Queens</td>
<td>RHOSP 14 Rocky</td>
<td>RHOSP 15 Stein</td>
</tr>
<tr>
<td>1 year (ends late 2018)</td>
<td>3 years (+2 years)*</td>
<td>1 year (ends late 2019)</td>
<td>1 year (ends 2020)</td>
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<tr>
<td>RHOSP 16 T...</td>
<td></td>
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* With Optional Extended Lifecycle Support (ELS)
# Introducing Red Hat OpenStack Platform 13

## Lifecycle Management
- The second Long Life Release
- Upgrade through many releases at once
- Managed OS upgrades

## Storage & HCI
- Choose to upgrade now or later
- Unified storage, data protection and HCI
- File storage joins block and object
- Data protection, Encryption
- Hyper-converged Infra for Cloud

## Security
- Enhanced security to help meet compliance
- Best security practices
- Programmatic secrets management
- More encrypted endpoints
- Supports industry certifications

## Networking
- Accommodate the most demanding requirements
- Open source SDN controller
- Enterprise LBaaS
- Reliable, robust, virtual and high performance networking
- More ways to meet deterministic computing requirements
- Open source Software Defined Networking

## NFV
- Speed and flexibility for high performance environments
- More encrypted endpoints
- Supports industry certifications
- More ways to meet deterministic computing requirements
- Open source Software Defined Networking

## Containers
- Flexibility to deploy and integrate
- OpenShift on OpenStack support
- Unified Openstack and Container Networking
- Consistent control over all services

## Operations
- Enhanced tools to accomplish more tasks
- Enhanced tools to accomplish more tasks
- Unified Openstack and Container Networking
- Consistent control over all services

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# Red Hat OpenStack Platform 13

## Introducing Red Hat OpenStack Platform 13

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The second Long Life Release
Upgrade through many releases at once
Managed OS upgrades

File storage joins block and object
Data protection, Encryption
Hyper-converged Infra for Cloud

Best security practices
Programmatic secrets management
More encrypted endpoints
Supports industry certifications

Open source SDN controller
Enterprise LBaaS
Reliable, robust, virtual and high performance networking
More ways to meet deterministic computing requirements
Open source Software Defined Networking

OpenShift on OpenStack support
Integrated networking - Kuryr
Simpler installation
Unified Openstack and Container Networking
Consistent control over all services

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#RedHatOSD
FAST FORWARD UPGRADES
Facilitates accelerated upgrades between long life releases

Minimum of 3-year support + optional 2-year support extension through extended life-cycle support

Accelerated upgrade process and in-place upgrade without additional hardware
CEPH UNIFIED STORAGE

File Storage Support Added With CephFS and Manila

- S3-like Container registries
- VM Devices
- Database
- Image store backing
- Monitoring and management
- High I/O

Shared file systems
- Structured files
- Data Analytics

**OBJECT (Swift)**
- RADOS GATEWAY
- Ceph

**BLOCK (Cinder)**
- RADOS BLOCK DEVICES
- Ceph

**FILE (Manila)**
- NFS-Ganesha
- CephFS
- Ceph

Comprehensive Block, Object, and File storage solutions from Red Hat
ENHANCED DATA SECURITY WITH CEPH STORAGE ENCRYPTION

**Encrypted volumes and images**

<table>
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<th>Secure Virtual Machine Filesystems</th>
<th>Secure Virtual Machine Catalog Images</th>
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<td>Glance Image Signing</td>
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- **Cinder Volume Encryption**
  - Allows LUKS-encrypted cinder volumes to be created and used in RBD/Cinder deployments. Keys are managed securely in the Key management service, creating an automated solution from top to bottom.

- **Glance Image Signing**
  - Ensures that an image uploaded into Glance has not been changed or modified. Uses the Key management service to easily verify image signatures and security automatically.

+ Programmatic Key Management (Barbican)
More and more internal endpoints are now encrypted with TLS:

- Block storage (cinder)
- Secrets API (barbican)
- Metrics (redis)
- SDN (OpenDaylight)
- Remote consoles (VNC)

**COMPLIANCE**

- FedRAMP
- ANSSI
- ETSI

**SECURITY GUIDE**

ENHANCED SECURITY WITH PROGRAMMATIC SECRETS MANAGEMENT

Introducing Barbican

Barbican provides an API for accessing your secrets storage such as HSM's and other data vaults.
ENHANCED LAYER 2 & LAYER 3 NETWORKING SUPPORT

Open Virtual Network (OVN)

- Distributed database-driven solution
- Agentless
- Inclusion of security groups, routers, L2/L3
- Cross-product (RHEL, RHV, OCP)

**NOTE:** OVN must be called specifically at deploy time.
Upgrade tooling for ML2 to OVS is coming in a future release.
Octavia uses OpenStack services to provide load balancing via virtual machines with deep integration into OpenStack.
Predictable Low-Latency for Real Time Computing & Analytics

Faster response times

DIRECTOR +
TUNING +
RED HAT EXPERTISE

RED HAT® OPENSTACK® PLATFORM

REAL TIME OVERCLOUD IMAGE
REAL TIME KVM KERNEL ENHANCEMENTS

KVM

RED HAT® ENTERPRISE LINUX®

REAL TIME ENABLED KERNEL

#RedHatOSD
AN OPEN SOURCE INTEGRATED SDN CONTROLLER
Bringing an integrated SDN lifecycle to Red Hat OpenStack Platform.
Kuryr with OCP 3.11 is in Technology Preview
VIRTUALIZED MANAGEMENT INFRASTRUCTURE

Use Red Hat Virtualization to save time and money

YES!
You can now use the features already in Red Hat Virtualization for Red Hat OpenStack Platform services.*

* Does not provide RHV as a hypervisor for OSP workloads.
RHOSP 13 - Queens Key take away

- Long term release (3+2 years) based on Openstack Queens release
- Fast forward upgrade from 10 -> 13
- Cinder volume encryption
- Manila in combination with CephFS
- Barbican
- OVN fully support
- Real Time KVM
- Opendaylight
GRAZIE PER L’ATTENZIONE

FABRIZIO PEZZELLA
Telco Solution Architect
fpezzell@redhat.com
Nuova infrastruttura a supporto delle applicazioni a microservizi

Milano, 30 Ottobre 2018
Amedeo Salvati @amedeosalvati
IT Service Management & Infrastructures
Nexi Cloud - Software Defined Data Center
Architettura basata su Point of Delivery (POD)

**Benefici**

**Unità atomica infrastrutturale**
- Predicibilità
- Semplifica la scalabilità dei servizi
- POD di differenti tier
- PCI-DSS Compliant

**Deployment completamente automatizzato**
- Infrastructure as Code
- Riduzione errore umano
- Migliori SLA e riduzione downtime
- Possibilità di implementare Blue Green Deployment

![Diagram of POD architecture with components such as Red Hat OpenStack, Red Hat Virtualization, 3 Controller, 5 Hosts, and 8 Compute nodes.]](image-url)
Flusso di creazione dei servizi

1. **SELF SERVICE PORTAL**
   - Self Service Portal
   - Ambienti richiesti attraverso un catalogo servizi predefinito pubblicato su CloudForms

2. **INFRASTRUCTURE PROVISIONING**
   - Orchestrazione Heat
     - Gruppi di istanze per ruolo
   - Standardizzazione IaaS+
     - Security Group, Reti
     - Tipologie di istanze
   - Introduzione metadati
     - Tagging degli ambienti

3. **SOFTWARE STACK INSTALLATION**
   - Ansible Tower Workflows
     - Ansible Playbook installa ambienti in base ai metadati
   - Versioning
     - Playbook mantenuti su repository Git e deliverati tramite git TAG

4. **PROMOZIONE STAGING / PRODUZIONE**
   - Processo PCI compliant di promozione
     - Redeploy completo dello Stack in modo automatizzato
Ansible Tower - Workflow
Risultati e benefici ottenuti

• Reazione rapida ad eventuali failure
• Standardizzazione e automazione al 100% dei rilasci applicativi
• Riduzione dei rischi attraverso Blue / Green deployment
• Scaling out / in delle applicazioni