RED HAT
FORUM
Europe, Middle East & Africa

Using OpenStack for Telco and NFV Oriented Solutions

Livnat Peer (@Livnat_Peer),
Senior Manager, Software Engineering
Red Hat

Nir Yechiel (@nyechiel),
Senior Technical Product Manager
Red Hat

Agenda

- Interested in NFV - where should I start?
- NFV Stack
- Making OpenStack NFV-ready
- From Upstream to Product
- Use Cases and Key Features
- Q&A

Slides are available here:

goo.gl/xyUR6U

“More than 60% of telecoms are already using or currently testing new use cases with OpenStack for NFV”

Source: Heavy Reading and OpenStack Foundation’s survey, August 2016
https://www.openstack.org/assets/pdf-downloads/OpenStack-survey-results-public-presentation.pdf

“86% of telecoms respondents consider OpenStack to be essential or important to their success”

Source: Heavy Reading and OpenStack Foundation’s survey, August 2016
https://www.openstack.org/assets/pdf-downloads/OpenStack-survey-results-public-presentation.pdf

NFV Stack

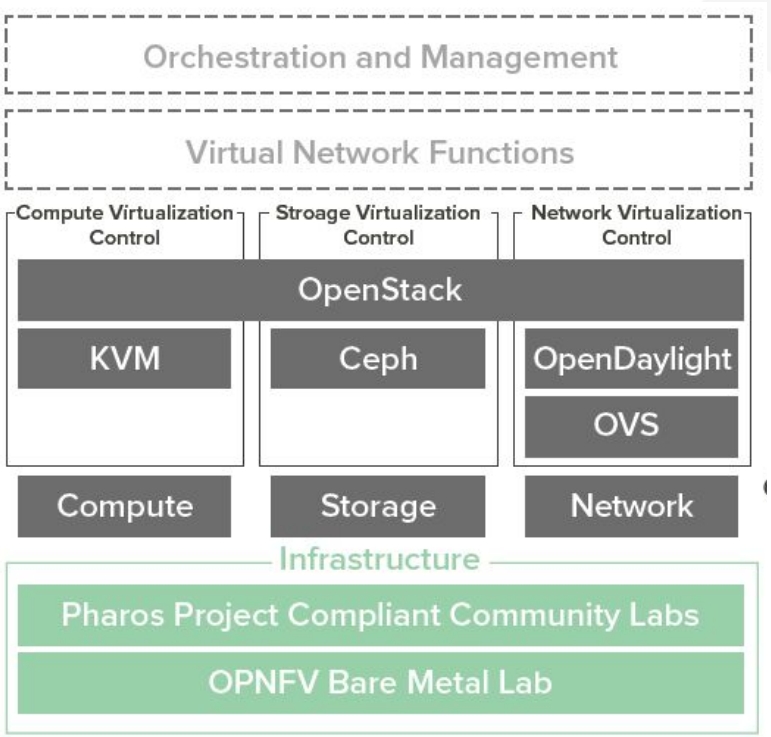
OpenDaylight
OpenStack
libvirt
DPDK
Open vSwitch
KVM
Linux

OPNFV

OPNFV is an open source project focused on accelerating NFV's evolution through an integrated, open platform

https://www.opnfv.org

OPNFV



https://www.opnfv.org/software

Do It Yourself - Do's and Don'ts

- Install in a lab ✓

Do It Yourself - Do's and Don'ts

- Install in a lab ✓
- Understand the architecture ✓

Do It Yourself - Do's and Don'ts

- Install in a lab ✓
- Understand the architecture ✓
- Analyze the gaps between what is available and what you need ✓

Do It Yourself - Do's and Don'ts

- Install in a lab ✓
- Understand the architecture ✓
- Analyze the gaps between what is available and what you need ✓
- Customize configuration ✓
  - Adjust it to suit your needs:
    - Specific hardware, networking topologies, use cases, etc.

Do It Yourself - Do's and Don'ts

- Install in a lab ✓
- Understand the architecture ✓
- Analyze the gaps between what is available and what you need ✓
- Customize configuration ✓
  - Adjust it to suit your needs:
    - Specific hardware, networking topologies, use cases, etc.
- Customize code ✗
  - Fork from master branch or work with proprietary code

Upstream First

- Red Hat is heavily focused on “upstream first” -
  - All patches are contributed to the community
  - Avoid Forks
  - Commit to backwards compatibility
  - Work in a sustainable and maintainable way with open source projects

Making OpenStack NFV-ready

Item	Score*	Overall Rank
Scalability of the controller(s)	103	1
Service chain modification	74	2
Securing OpenStack over the Internet	64	3
Backward compatibility between releases	35	4
Binding virtual NICs to VNFs	28	5

*Items ranked first are valued higher than the following ranks; the score is the sum of all weighted counts

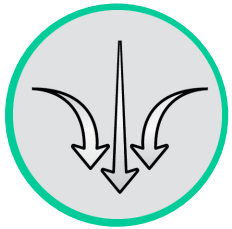
FROM UPSTREAM TO PRODUCT

OpenStack Product Strategy

Enterprise Ready

NFV Ready

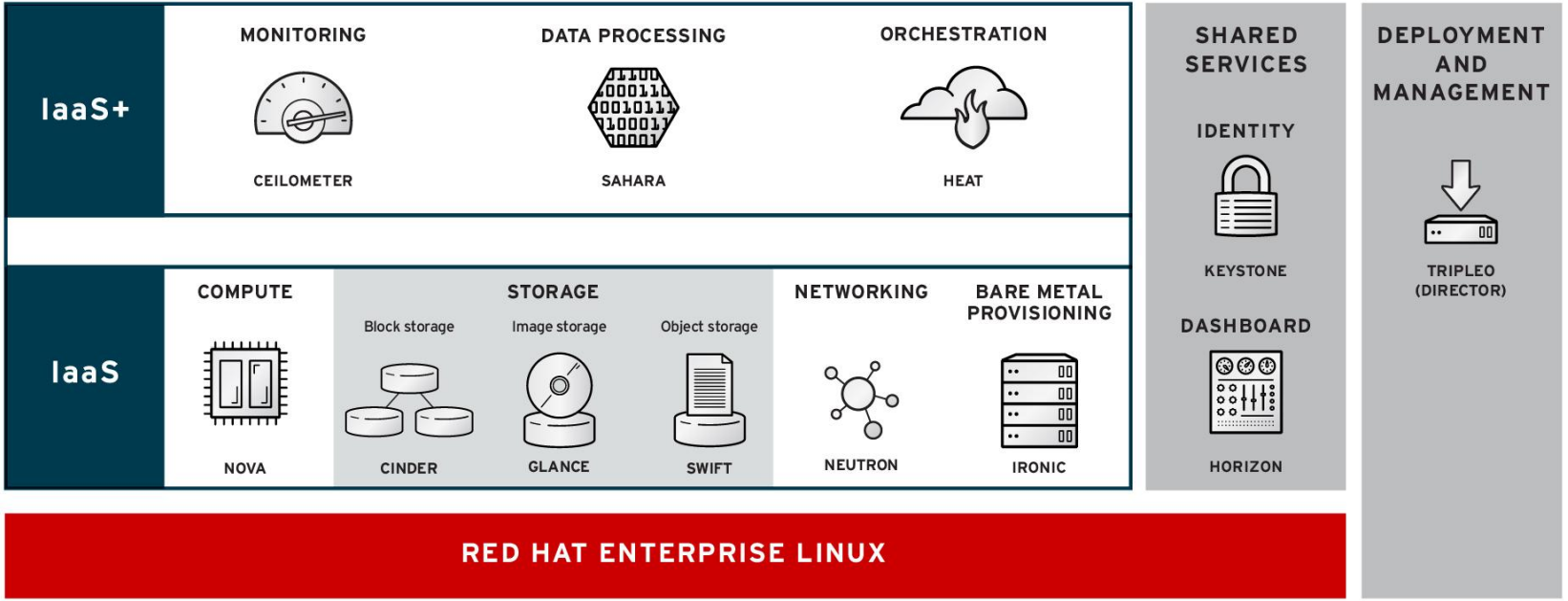
Optimized Portfolio



Certified Partner Ecosystem

RED HAT®
OPENSTACK®
PLATFORM

Red Hat OpenStack Platform



Red Hat NFV Approach

PARTICIPATE

Community focused on developing Carrier Grade NFV

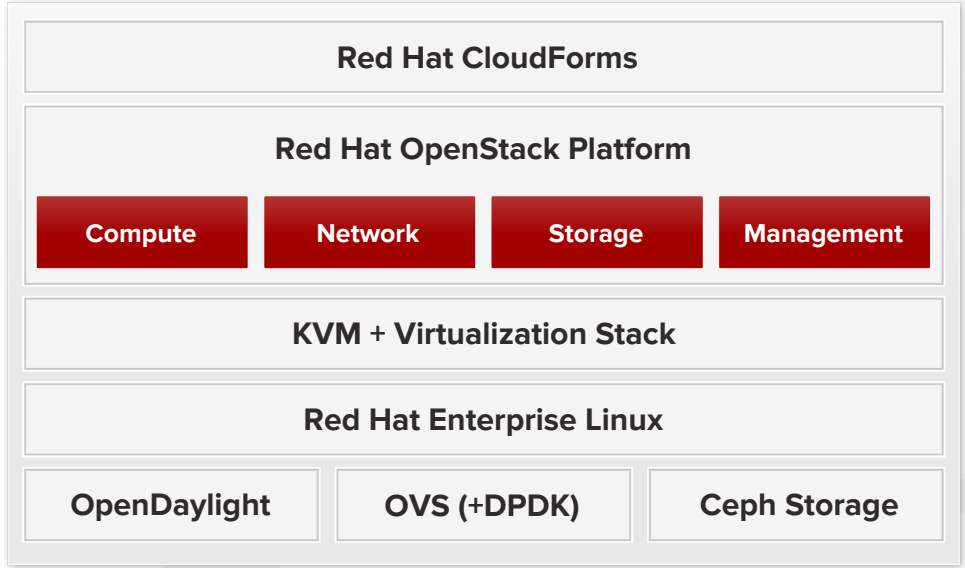
INTEGRATE

APEX: NFV Community Solution based on RDO

STABILIZE

Commercially supported product portfolio, fully compliant with OPNFV

Red Hat NFV Solution Coverage



#1
Open Source
Guest OS for VNF

#1
Open Source
VIM

#1
Open Source
NFVI

Largest Ecosystem of Certified Partners

OEMs, IHVs, ISVs

Channel Partners

System Integrators

Cloud Service Providers
Managed Service Providers

400+ members
since launch in April 2013

900+ certified solutions
in Partner Marketplace

4000+ RHEL certified
compute servers

USE CASES

Areas of Applications

- Virtual Customer Premises Equipment (vCPE)
  - Enterprise/Business or Residential
  - Example VNFs: firewall, load-balancer, WAN optimization
- Virtualized Evolved Packet Core (vEPC)
  - Control plane (e.g vMME)
  - Data plane user capacity (e.g vSGW/vPGW)
- Mobile Edge Computing (MEC)
  - Example VNFs: location services, data caching, Cloud RAN

Key OpenStack NFV Features

- Platform awareness
  - CPU Pinning
  - Huge Pages
  - NUMA-aware Scheduling
    - Memory binding
    - I/O device locality
- Enhanced packet processing
  - SR-IOV and PCI Passthrough
  - OVS-DPDK
  - vhost-user and virtio performance improvements

Key OpenStack NFV Features (cont.)

- RT-KVM
- Advanced network capabilities
  - Neutron Port Security
  - Neutron Quality of Service (QoS)
  - VLAN Aware VMs
- IPv6
  - Tenant networking
  - Deployment and management

Key OpenStack NFV Features (cont.)

- Support for rich deployment architectures
  - Composable Roles
  - Remote Compute nodes across WAN (Distributed NFV)
    - Extended networking for provisioning
    - Network latency
  - L3 leaf/spine Clos fabric
  - OpenStack Control Plane tuning and optimization
- Service resiliency
  - Headless operation
  - Service recovery

Learn More, Get Involved

- Get involved with OpenStack Community
  - https://www.openstack.org/community/
- OpenStack for Telco and NFV
  - https://www.openstack.org/telecoms-and-nfv/
- All about Red Hat OpenStack Platform - try, download, buy
  - https://www.redhat.com/en/technologies/linux-platforms/openstack-platform
- Red Hat solutions for NFV
  - https://www.redhat.com/en/technologies/industries/telecommunications/nfv-platform
- Red Hat Stack - the Red Hat OpenStack blog
  - https://redhatstackblog.redhat.com/

redhat.

THANK YOU!

plus.google.com/+RedHat

facebook.com/redhatinc

linkedin.com/company/red-hat

twitter.com/RedHatNews

youtube.com/user/RedHatVideos