



Why RedHat OpenStack Is Becoming The Reference NFVi solution for Telecom Service Provider

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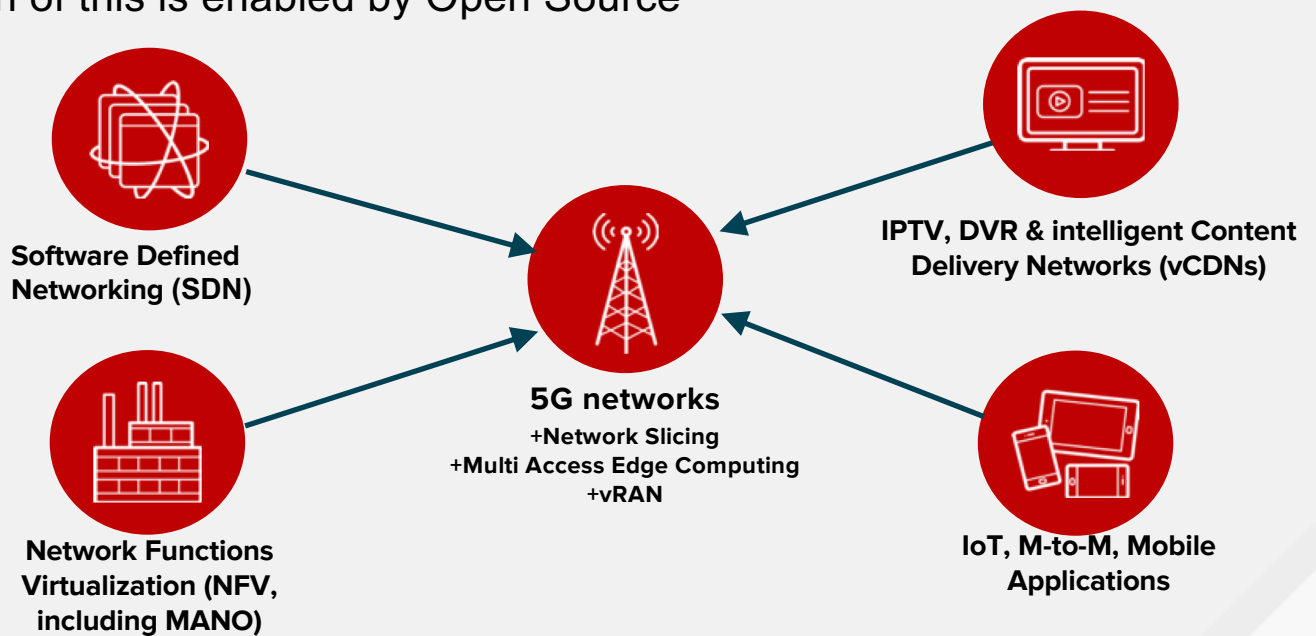
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- Lucent Technologies - Bell Labs OSS & BSS Expert (Belgium-KSA-Singapore)
- Consultant at Vodafone Belgium (Proximus) - Automation & Activation projects
- Consultant for CTG NGOSS project for VivaTel (Sofia)
- IBM-GBM Pre-sales in charge of the Telco Vertical (UAE)
- NSN OSS consultant (Belgium)
- EMC Senior Solution Architect telco vertical for NFVi & emerging technologies
- RedHat NFVi Adoption Manager EMEA TTO (*Telco Technologies Office*)

Telecom Industry is Investing

Much of this is enabled by Open Source



RED HAT DEVELOPMENT MODEL

From Community to Enterprise: Upstream First

STABILIZE

(supported products
platforms, and solutions)

INTEGRATE

(community platforms)

PARTICIPATE

INTEGRATE

(community platforms)

STABILIZE

(supported products
platforms, and solutions)



WHAT IS OPENSTACK ?



- An interoperability standard
- A development community
- A very active Open Source project
- Provides all of the building blocks to create an Infrastructure-as-a-Service cloud
- Governed by the vendor agnostic OpenStack Foundation

TO MAKE OPENSTACK NFV READY

ADDRESSING THE NEED FOR NETWORK FUNCTIONS VIRTUALIZATION



PERFORMANCE

Enhanced Platform Awareness (EPA) SR-IOV, OVS/DPDK, vCPU, NUMA pinning, Huge pages, RT-KVM ...



AVAILABILITY

High Availability
Fault Tolerant Design
Enterprise Hardened Code
Instance Availability



SECURITY

End-to-End
SELinux sVirt
Neutron Security Groups
Block Encryption
SSL/TLS on APIs



MANAGEABILITY

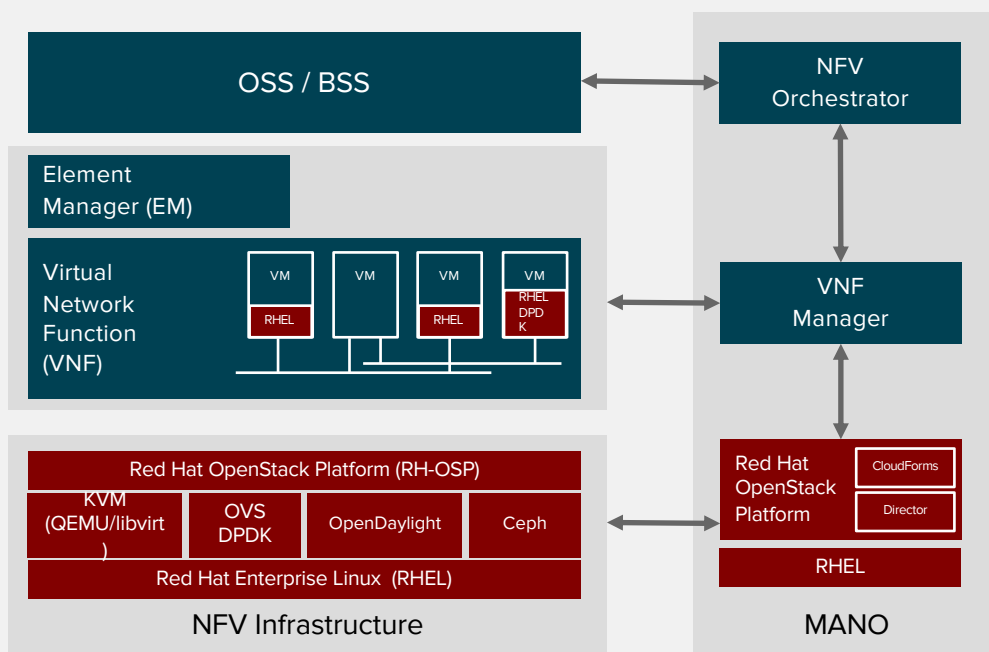
Logging
Performance Monitoring
Operational Visibility
Policy and Compliance



LIFECYCLE

OpenStack Lifecycle
Updates/Patches

RH-OSP in NFV Architecture



OPENSTACK SECURITY STRATEGY

GLOBAL COMPLIANCE DRIVEN RESOLUTION OF SECURITY REQUIREMENTS

Compliance Driven Approach

- The **global** nature of our OSP deployment places a diverse set of security requirements on our product.
- Our approach here has been to analyze the **top compliance initiatives** globally and then build a plan to address them in a cohesive and focused manner.

Top Technical Control Groups Addressed

- Infrastructure and Virtualization Security
- Encryption and Key Management
- Identity and Access Management
- Threat and Vulnerability Management

Compliance Driven Approach

Technical Security Controls Resolution

Solving for the "Big Three"

Focus is on: FedRAMP, ANSSI and ETSI

- The technical control groups are similar across the big three.
- Solving for these should get us 90% of everyone else.



RED HAT NFV PARTNER ECOSYSTEM

VIRTUAL NETWORK FUNCTIONS (VNFs)



SOFTWARE-DEFINED NETWORKING PLUGINS



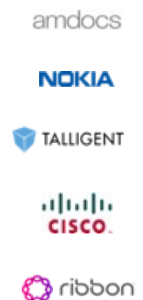
SOFTWARE-DEFINED STORAGE PLUGINS



HARDWARE



MANAGEMENT & ORCHESTRATION (MANO)

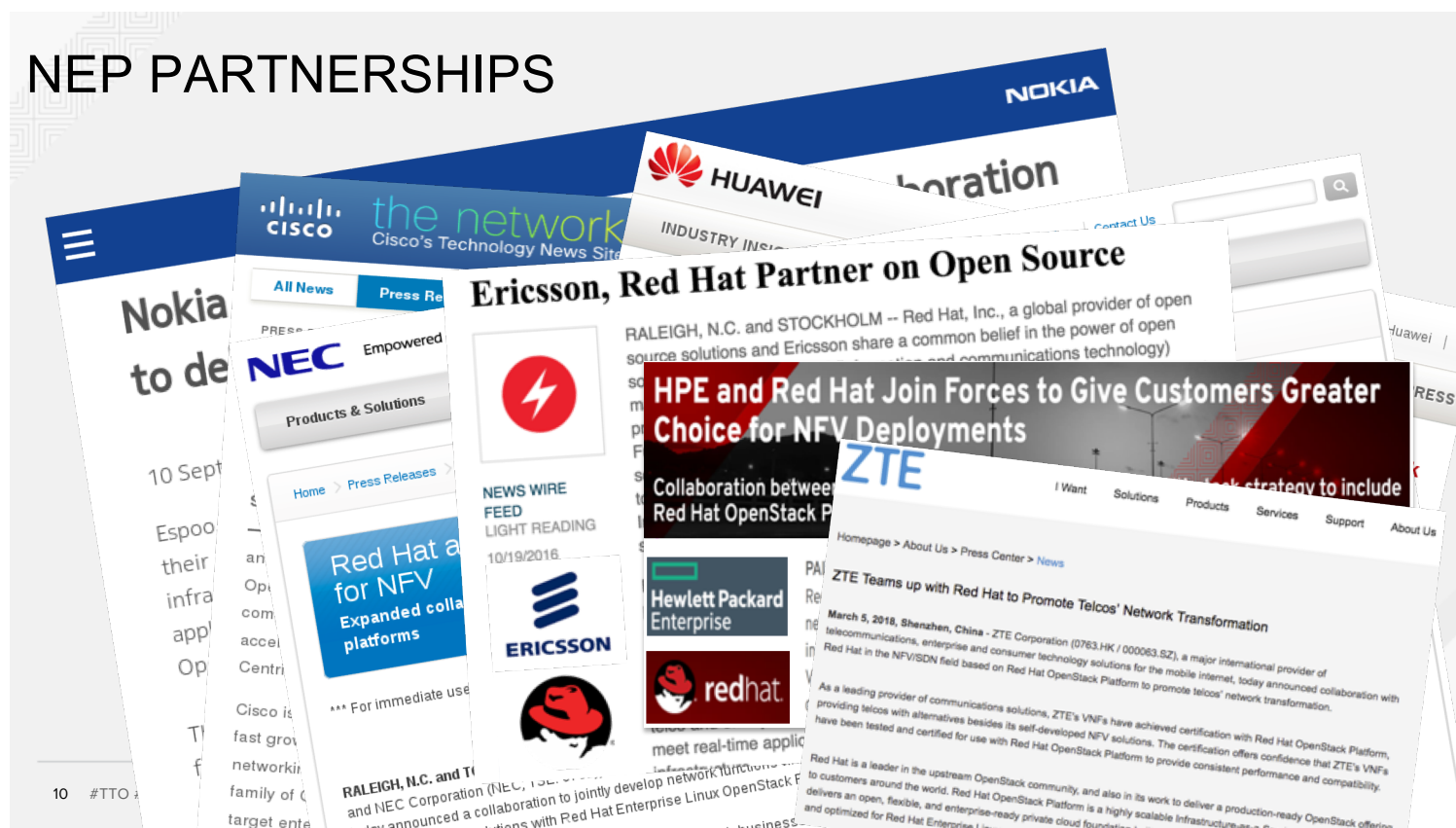


SERVICE ASSURANCE



Extending ecosystem and certifications with partners enables a broad choice of technology solutions

NEP PARTNERSHIPS



CONTAINERS - AN EVOLUTION IN APPLICATION DEPLOYMENT

- Enable efficiency and automation for microservices, but also support traditional applications
- Enable faster and more consistent deployments from Development to Production
- Enable application portability across 4 infrastructure footprints: Physical, Virtual, Private & Public Cloud





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