TRANSFORM YOUR BUSINESS MODEL WITH NFV

Translate network events into real-world revenue with network functions virtualization

TECHNOLOGY OVERVIEW

73%

of telecommunications financial executives expect emerging new technologies, devices, and services to have a positive impact on their business over the next year.[1]

NFV promises increased agility, greater scalability, and lower costs so you can capitalize on new service opportunities to gain a competitive advantage.

Red Hat, Intel, Procera Networks, Openet, Amartus, and Cobham present a readily deployable, reliable, robust, BSS-enabled NFV solution that lets you monetize your virtual network infrastructure and transform your business model for the future.

INTRODUCTION

For today's communications providers, network functions virtualization (NFV) promises increased agility, greater scalability, and lower costs than legacy, hardware-centric network architectures. However, while many technology companies are developing components for NFV architectures, a full NFV implementation that integrates virtualized services with operational and business support systems (OSS/BSS) had not been deployed in real-world situations.

Now, industry leaders Red Hat, Intel, Procera Neworks, Openet, Amartus, and Cobham present a readily deployable NFV implementation for monetizing virtualized mobile networks. Based on open standards, the orchestrated and distributed policy management and charging control solution combines the leading components for each layer of the virtualization stack. Streamlined operations and improved agility let you launch new services faster and with less cost. Plus, integration with revenue handling systems translates network events into real-world profits and gives you the ability to transform your business model to gain a competitive advantage.

SOLUTION OVERVIEW

The Red Hat®, Intel, Procera Networks, Openet, Amartus, and Cobham NFV solution demonstrates the benefits of NFV in a real-world mobile network deployment with distributed multidomain policy management and charging control. Through end-to-end functionality and integration with your OSS/BSS, the solution controls access to network services and generates charging events so you can monetize your virtual service infrastructure.

Built on open standards, the solution is 3rd Generation Partnership Project (3GPP) compliant and interoperable with a broad ecosystem of complementary technologies. Elastic scalability with predictive trending automatically allocates resources according to subscriber demand, improving resource utilization and delivering performance equal to physical network infrastructures. Runtime programmability at the orchestration level lets you add and manage new services in real time without disrupting network operations. Full, automated service life cycle management– including on-boarding, upgrading, updating, and patching–speeds and streamlines operations and increases service reliability and availability. Finally, the carrier-grade solution gives you a reusable and expandable foundation for NFV, allowing you to add other virtual network functions (VNFs) according to business needs.

INDUSTRY-LEADING COMPONENTS

Built through collaboration by industry innovators, the BSS-enabled NFV solution combines market-leading components for each layer of the NFV architecture, as shown in Figure 1.

Red Hat

Red Hat, the expert in making open technologies safe, secure, and consumable for business-critical use, supplies the virtualization and cloud platform for the NFV solution. Red Hat Enterprise Linux®, including the high-performance Kernel-based Virtual Machine (KVM) hypervisor, forms a stable, secure, reliable operating system foundation. Commercially hardened and fully supported, Red Hat Enterprise Linux OpenStack® Platform ties the underlying foundation of the NFV environment to the virtual network function (VNF) and orchestration layers.

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1 KPMG, "2014 Media and Telecommunications Industry Outlook Survey," December 2014.

COMPONENTS OF THE BSS-ENABLED NFV SOLUTION

☐ Intel Xeon processors

☐ 10GbE Intel Ethernet controllers

☐ Red Hat Enterprise Linux

☐ Red Hat Enterprise Linux OpenStack Platform

☐ Procera PacketLogic/V

☐ Openet Policy Manager

☐ Openet Evolved Charging

☐ Openet Analytics Engine

☐ Amartus Chameleon SDS

☐ Cobham TeraVM

Intel

With more than 10 years serving the communications and networking industries, Intel provides the hardware core of the solution. Intel® Xeon® processors deliver the extreme performance and advanced power management features needed for effective NFV implementation. 10 gigabit Intel Ethernet controllers provide high-speed network connections throughout the NFV environment. And processor integration with the Data Plane Development Kit (DPDK), an open source project developed heavily by Intel, improves packet processing performance by up to tenfold.

Procera Networks

A leader in subscriber experience solutions for communications providers, Procera Networks delivers policy and charging enforcement functionality (PCEF) and network and subscriber analytics VNFs for the solution. Using deep packet inspection (DPI) technology, Procera PacketLogic/V measures subscriber experience for relevant consumer applications and enforces network policies.

Openet

Openet, a longtime leader and expert in real-time BSS for service providers, provides the policy control, charging system, and analytics VNFs for the solution. Openet Policy Manager, a standards-based, next-generation network policy management tool, integrates with OSS and BSS and controls network resources with real-time policies based on service, subscriber, and usage. Openet Evolved Charging is an online charging system (OCS) that delivers next-generation monetization capabilities for new and existing services. Openet Analytics Engine predictively analyzes network traffic to dynamically and elastically scale resources in line with demand.

Amartus

A leading developer of runtime programmable NFV, software-defined networking (SDN), cloud, and wide area network (WAN) service orchestration and management platforms, Amartus supplies NFV orchestration for the solution. Amartus Chameleon SDS provides multivendor and multitechnology service delivery automation and orchestration. Runtime programmability lets you design, orchestrate, and manage any type of service and technology in real time without system
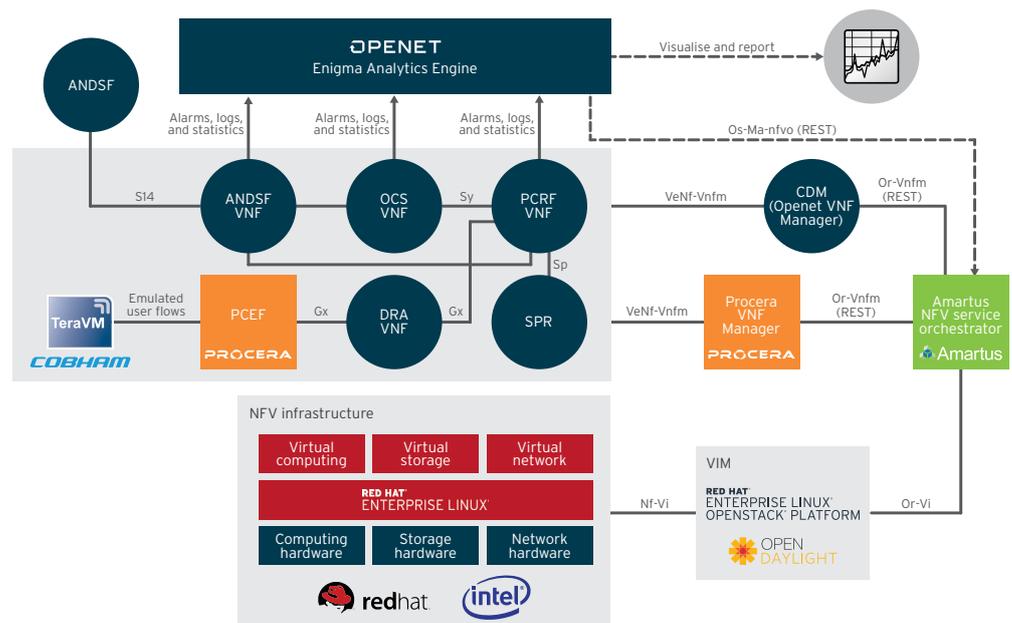

Figure 1. The open, integrated architecture of the BSS-enabled NFV solution translates network events into revenue.

downtime. Full service life cycle automation streamlines operations. Chameleon SDS also unifies your virtual and physical service infrastructures, protecting your existing investments while allowing you to take advantage of new innovations.

Cobham

Cobham, a global leader in provisioning advanced wireless coverage and mobile communications systems, delivers virtualized IP test and measurement capabilities that prove the functionality, reliability, and robustness of NFV solution. Cobham's TeraVM emulates real subscriber flows at scale. These traffic flows are consumed by the charging and policy functions, demonstrating the operational readiness and accuracy of the solution.

A BSS-enabled NFV environment allows you to transform your business model so you can improve subscriber satisfaction, differentiate your service offerings, and increase revenues. The following are some of the benefits of deploying an NFV infrastructure based on the Red Hat, Intel, Procera Networks, Openet, Amartus, and Cobham solution.

SIMPLIFY AND SPEED DEPLOYMENT

NFV implementations consist of many layers of hardware and software and can take a lot of time and resources to design and deploy. Based on industry-leading components, this NFV solution is fully integrated and orchestrated, so you don't have to research, choose, test, and integrate the pieces yourself. This saves times and simplifies deployment, letting you take advantage of the benefits of NFV faster. And this reusable solution gives you an extendable NFV foundation, so you can expand over time and add additional VNFs as needed for your business.

DRASTICALLY IMPROVE SERVICE AGILITY

Custom, hardware-centric network infrastructures can be slow, expensive, and resource-intensive to build and scale. This NFV solution delivers increased infrastructure, network, and business agility, so you can respond to new opportunities and changes in the market faster. Dynamic scalability, elasticity, and programmability let you expand your network and add new service offerings quickly without disrupting network operations. The open standards-based architecture improves interoperability internally and with complementary technologies, reducing vendor lock-in and allowing you to choose the right components to meet your unique needs at any point in time.

ACCELERATE TIME TO MARKET FOR NEW SERVICES

Time to market is critical in the crowded, ultra-competitive communications market. This NFV solution lets you launch new services faster, including those that may have been cost-prohibitive with a hardware-centric network infrastructure. Runtime programmability lets you add new services to your environment in real time. Plus, automated service life cycles streamline and simplify operations so you can launch faster—with less expense—to compete with over-the-top (OTT) providers.

INCREASE SERVICE AVAILABILITY

With multiple offerings on the market for nearly every communications service, availability is critical to success for service providers. This reliable, carrier-grade, NFV solution lets you increase service availability to improve subscriber satisfaction. Preintegrated and tested components ensure interoperability and reliability. Predictive trending and reflexive scaling allow your NFV environment to efficiently meet peaks in demand—without manual intervention. Runtime programmability lets you add new services without impacting the availability of existing services. The distributed architecture automatically responds to and recovers from node failures. All of this adds up to higher service availability and a better subscriber experience.

Red Hat, Intel Procera Networks, Openet, Amartus, and Cobham deliver a fully integrated, real-world NFV implementation that lets you monetize your virtual network and transform your business model to gain a competitive advantage.

LOWER TOTAL COST OF OWNERSHIP

Hardware-centric network infrastructure can also be expensive to maintain and expand. This NFV solution drastically reduces total cost of ownership (TCO) compared to legacy infrastructures. Cost-effective, commonly available hardware reduces capital expenses (CapEx). The unified architecture eliminates network function silos to enhance scalability and improve resource utilization, further lowering CapEx. Streamlined operations and service life cycle automation cut operational expenses (OpEx). Preintegration also reduces the initial OpEx needed to build the NFV environment in-house. Finally, subscription pricing for many of the components shifts CapEx to OpEx. The result is drastically lower TCO.

CONCLUSION

NFV gives communications providers a way to simplify their network architecture and transform their business models to differentiate their services and gain a competitive advantage in a crowded market. Industry leaders Red Hat, Intel, Procera Networks, Openet, Amartus, and Cobham offer the first BSS-enabled NFV implementation that turns your virtual network into real-world revenue. With real-time orchestration, fast deployment, improved agility, and increased service availability, you can accelerate time to market for innovative, new services while reducing costs. Contact your Red Hat sales representative to find out more about this solution and how it can help you transform your business.
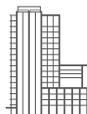
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