

SOLUTION BRIEF

Communications Service Providers
Business Support System (BSS)



Virtual BSS Helps Mobile Network Operators Monetize New Services

A proof of concept by Intel and Redknee* for a Latin American MNO demonstrates impact of virtualized BSS in new service deployments by enterprise partners.



Introduction

With network functions virtualization (NFV) and software defined networking (SDN), leading-edge mobile network operators (MNOs) are building a network infrastructure that is optimized for rapid new service deployment. As the digital economy continues to accelerate, there are numerous opportunities for MNOs to capitalize on mobile users' hunger for new and different mobile experiences across different devices.¹

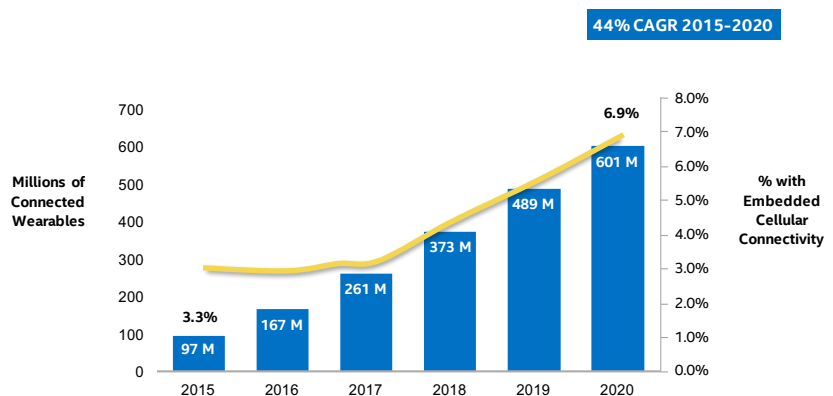


REDKNEE
Looking Beyond

These new value-creation opportunities include new smartphone-focused services—both for consumer and business applications—including streaming video, mobile wallets, unified communications, and mobile PBX among others.

The Internet of Things (IoT) services also show tremendous promise. IoT will have a profound impact on MNOs, driving new ways to expand value beyond traditional mobile phone usage. New revenues and opportunities for innovative business models will be driven by the growing number of Internet-connected devices, ranging from home security systems and connected appliances to personal wearable devices, that depend on cellular networks for Internet access.

Figure 1 shows the increasing percentage of IoT devices that will leverage cellular phone connectivity.²



Source: Cisco VNI Mobile, 2016

Figure 1. Global Connected Wearable Devices

While it is clear that IoT and wearables are disrupting the communications industry, the adoption results have been mixed. Picking winning services that will appeal to fickle consumers is a significant challenge. NFV/SDN networks make it possible to

reduce some of the risk because virtual network functions (VNFs) allow services to be deployed in a cost-effective way, then rapidly scaled for services that catch fire.

Virtualizing the business support system (BSS) is a key component of the new service deployment infrastructure because MNOs rely on BSS to track and bill customers for an ever-growing range of new services. Legacy BSS systems, however, are inflexible, fixed systems that don't scale or range across network types. Replacing these legacy systems with BSS VNFs will reduce capital and operating expenditures, and make way for agile and flexible monetization systems that keep pace with rapid new service expansion.

In its quest to capitalize on market innovations, a Latin American MNO asked Redknee* and Intel to participate in a multivendor NFV-focused proof of concept (POC) to test how virtualizing BSS would enable them to create a more cost-effective, agile environment to support and expand its telecom business with multiple partner enterprises.

Challenge

The MNO was expanding its enterprise partnerships to address new digital markets that go beyond traditional telco services. The client's challenge was to add these enterprise partners without overextending its infrastructure by investing in services that wouldn't keep pace with return on investment (ROI) expectations. An example of business expansion would be deploying a mobile virtual network enabler (MVNE) to rapidly on-board mobile virtual network operators (MVNOs) and additional brands.

To support this business expansion, the client needed to develop an agile and scalable mobile network architecture that would balance network demands while maintaining carrier-grade quality of service (QoS), as well as scalable BSS and monetization schemes.

Furthermore, because it is difficult to predict adoption of new applications and models, it was essential that services could be added, and scaled flexibly, without being locked into the expensive investment of hardware-specific solutions.

The operator engaged Intel to advise on the formation of a multivendor POC that would create a state-of-the-art, standards-based NFV BSS system that could span across three separate NFV platforms. The POC had the following objectives:

- Verify interoperability between the virtual network functions across the three NFV platforms
- Verify that installation, availability, and performance met the highest standards
- Verify horizontal and vertical scalability

Results

The POC was designed with a multivendor, NFV-based approach with all VNF systems running on servers based on Intel® Xeon® processors E5-2600 v3 in an OpenStack* environment and including Redknee Unified Charging and Enhanced Packet Core (EPC) systems.

The Intel processor-based servers were selected because they support efficient virtualization, smart resource allocation, and enhanced protection of systems and data.

Redknee Unified Charging includes the following features:

Convergent Charging and Rating

- Real-time monetization
- Real-time subscriber profile repository
- Customer hierarchies
- Hadoop*-based event history database

Extensive Network Wide Scalability

- Low footprint Intel® architecture blades

All Real-Time

- Balance control
- Loyalty rules
- Campaign execution
- Payments
- Subscriptions
- Reporting

Telco Grade

- All access types including 4G/LTE
- High availability
- Service can be upgraded while still running

For the Online Charging System (OCS), Redknee Unified Charging was selected. The solution is VNF ready and supports personalized service offers, differentiated cost control, real-time notifications, instant activation of services, and real-time campaign execution. Value-based pricing models for prepaid, postpaid, and hybrid scenarios help to further increase monetization opportunities.

The project has resulted in a fully redundant, highly available, carrier-grade system that provides the operator with converged charging that easily and quickly scales to meet the needs of the enterprise partners. Specifically, Redknee Unified Charging runs on various NFV platforms. Further, Redknee Unified Charging enables automated, self-optimizing features such as self-healing and auto-scaling, in turn allowing MNOs to further leverage the benefits of automation and deliver better network performance and resource allocation.

Conclusion

BSS is a critical component of ensuring successful new service launches, and virtualizing the BSS makes it more flexible and scalable for MNOs that want to fully leverage their NFV/SDN environments for rapid new service deployments. Redknee, working with Intel, has proven that scalable BSS can deliver essential monetization functionality in a multivendor environment.

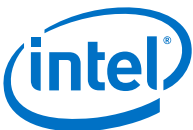
About Redknee

Redknee monetizes today's digital world with its portfolio of mission-critical monetization and subscriber management solutions and services that allow communications service providers, utility companies, automotive and enterprise

businesses of all types to charge for things in new and innovative ways. Our real-time billing, charging, policy and customer care offerings provide the agility and scalability to drive a unique user experience, increase profitability and support any new product or business model. Redknee's low-risk, flexible solutions power more than 250 businesses across the globe. For more information, visit www.redknee.com.

About Intel

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¹ Source: GSMA Intelligence "The Mobile Economy" 2016 report

² Cisco 2016 Mobile VNI Report: <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html>

³ Conflict-free" refers to products, suppliers, supply chains, smelters, and refiners that, based on our due diligence, do not contain or source tantalum, tin, tungsten or gold (referred to as "conflict minerals" by the U.S. Securities and Exchange Commission) that directly or indirectly finance or benefit armed groups in the Democratic Republic of the Congo or adjoining countries.

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