

# All Cloud starts at the core

For operators, full cloudification should start with hardware, before completing network cloudification in phases and then finally transforming service and operation systems. Because core networks process real-time applications, cloudifying core networks is the logical first step.

By Deng Ao

**T**he latest *Heavy Reading* survey shows that some 96 percent of operators plan to cloudify their networks.

Huawei's All Cloud strategy aims to help operators build agile, intelligent telecom networks through the

cloudification of devices, networks, services, and operations using NFV, SDN, and cloud computing technologies.

These agile, intelligent networks will enable global scheduling, elastic

scalability, flexible architecture, fully open capabilities, and fully automated O&M. Operators will be able to achieve full cloudification and provide a ROADS user experience: Real-time, On-demand, All-online, DIY, and Social. However, operators face



complex network architecture and huge legacy networks. So, on this journey of a thousand miles, where should operators take their first step?

## The start

For operators, the process of full cloudification and a ROADS experience should start with hardware and applications, areas where operators are strong. Then, network cloudification should be completed in phases using agile SDN networks to connect different kinds of applications in the cloud. With this upgraded infrastructure in place, operators should then transform their service and operation systems to boost service innovation, development, and deployment, and also O&M.

Operators are strong in real-time applications, including voice and video, and they have an advantage as long as there's a requirement for real-time services. And because the core network is the processing center of real-time voice/video applications, cloudifying core networks is the best first step.

The Current Analysis Q4 2015 carrier survey reports that of the eight main first-step cloudification scenarios, 50 percent involved cloudifying core network services and 87 percent of operators were considering 4G HD VoLTE and VoWi-Fi for the next 12 months based on cloudified IMS and EPC.

## An agile cloud core

NFV will change infrastructure and deployment methods, which in turn will affect service SLA and network O&M. In their *2013 Network Functions Virtualization – Introductory White Paper*, ETSI NFV Industry Specification Group described nine major challenges facing telecom network cloudification, including performance, reliability, and automation.

To provide carrier-grade SLA for real-time voice and video communication services on cloudified core networks, these issues must be solved.

### Ultimate experiences for real-time services in any scenario

Unlike traditional core networks, cloudified core networks must provide carrier-grade service SLA on low-spec, general hardware and also meet the requirements of IoV, industrial control, other low-latency future services, and high-traffic services like AR/VR and 4K video, which have even higher demands on latency and traffic.

### Agile service customization and new service innovation capabilities

As the telecoms industry expands from people-to-people

communication services to large-scale IoT and vertical industry services, a wide variety of service application scenarios will emerge that have very different requirements on networks. The key demands of future services on cloud core networks will be to support on-demand service customization with limited investment and network resources; enable the seamless integration of operator network capabilities such as voice, QoS control, location data, and third-party services; and accelerate service innovation.

### Achieving intelligent and automated O&M

The ICT era has seen the rapid emergence of personalized services, and now there are too many to handle manually. Service awareness-based network automation and intelligent O&M are therefore new industry trends.

## Huawei Cloud Core Network

Huawei offers a full series of cloudified core network products, including CloudIMS, CloudEPC, CloudSDM, CloudDRA, CloudPCRF, and CloudSBC, and the new component MANO (Management and Orchestration).

The four key features of Huawei Cloud Core Network are:

**Open, fully optimized network**

**construction:** Huawei Cloud Core Network features open architecture, with all three layers completely decoupled for integrated deployment with general hardware, the cloud operations systems of multiple vendors, and third-party virtual network functions (VNF). Operators can leverage the solution's open architecture for on-demand selection, partnerships with third parties, and flexible deployment, and to minimize network construction costs.

**Distributed, cloudified software architecture for carrier-grade capabilities:**

In addition to software and hardware decoupling, Huawei Cloud Core Network improves resource utilization and service elasticity through leading distributed, cloudified software architecture, ensuring carrier-grade capabilities that are independent of hardware infrastructure. At the same time, the control and user planes can be separated, supporting the flexible, on-demand deployment of network functions. Control plane functions are deployed centrally, simplifying the network, while user plane functions can be deployed at the edge of the network, closer to the user, for the best service experience.

**Service awareness-based intelligent O&M for the best service experience:**

With various innovative technologies, Huawei Cloud Core Network supports health monitoring and fault self-healing based on service KPIs, smart and differentiated service chain orchestration, service awareness-based dynamic application deployment, and a

series of smart tool platforms like performance evaluation and E2E fault identification/location tools. These features enable on-demand resource orchestration, on-demand dynamic deployment of services from the center to the edge, rapid fault recovery, and self-healing. O&M is thus smart and oriented to service experience.

**Atomic-level network capabilities for one-stop opening and orchestration to promote service innovation:**

By flexibly orchestrating atomic-level network capabilities, differentiated network capabilities can be quickly assembled on a physical cloud core network, meeting the experience demands of different industries and services. A one-stop network capability opening platform can open communications capabilities such as voice, video, QoS, computing, storage, and network resources. For new service innovation, Huawei Cloud Core Network provides an integrated environment and management platform covering the entire service lifecycle, including development, testing, launch, and operations. This supports immediate service development and provisioning, and promotes service innovation.

As of Q4 2016, Huawei Cloud Core Network has been deployed in over 130 commercial networks, including networks operated by Deutsche Telekom, Vodafone, Ooredoo, and China Mobile, all of whom have formed strategic deployment partnerships with Huawei.

Huawei Cloud Core Network and its partners are poised to ramp up business value for customers with innovative services and drive All Cloud transformation. 