Moving towards a business-driven All-Cloud Network

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Redefining business roadmaps

In the past, operators were tech-led, first building networks and then deploying services. Now, in the ultra-broadband era, simply improving services doesn't fully demonstrate network value, especially with the decline in traditional business models.

Broadband, video, and B2B are operators' main businesses, but trends in video, cloud, Internet+, and BYOD are seeing network traffic soar. They're facing issues with Gigabit fixed broadband acceleration, long construction periods, and low ROI. The long-term coexistence of diverse wireless standards, different types of services, and differentiated business models are increasing requirements on mobile broadband

With enterprises implementing digital transformation, the telecom industry is rich with opportunity. Operators are the enablers of digital transformation in a market with vast potential for development. But, they must switch from traditional tech-driven investment models to models driven by business value.

networks. Video has become a basic service for operators, but they aren't more competitive than wired cable operators or OTT providers. B2B is also an important revenue source for operators; however the enterprise and industry markets require that private line services should have many on-demand service capabilities, such as on-demand customization and immediate service provisioning, which greatly challenges existing networks.

Operators need to actively explore emerging business models. New technologies, such as cloud computing and IoT, enable them to enter the trillion-dollar market for digitally transforming vertical industries, but they need flexible and open networks that bear diverse services.

Agile, intelligent, efficient, open

More than 400 global operators have created US$10 trillion in network assets over the past two decades. Their biggest problems now are how to maximize network value, transition into a smart world, and enable networks to create a new trillion-dollar commercial roadmap. Huawei believes that future networks should be:

Agile: includes rapid new service integration and provisioning, plus Internet-based operations that slash new service TTM.

Intelligent: provides flexible scheduling for tens of thousands of services with automated business planning, provisioning, resource scheduling, and O&M.

Efficient: pools resources without independent networks for each service and industry, ending silos and maximizing resource sharing.

Open: creates a cross-industry, deeply integrated, and collaborative society where networks are fully open so partners can quickly innovate together.

Networks with high-speed broadband and low latency are vital for operators to explore business roadmaps and core assets to distinguish them from OTT providers.

Future networks won't just mean new technologies such as cloud computing, SDN, and NFV; they'll also bring in new business models and operating models. This is a core facet of Huawei's All-Cloud networks. Centering on application scenarios, Huawei dynamically integrates new tech and business requirements into a business-model driven approach that enables digital transformation.

The strategy

Huawei's strategy focuses on pipelines, with new opportunities from ICT convergence framed in an open, interconnected, and innovative ecosystem through Huawei All-Cloud products and solutions. Huawei hopes to be an active promoter and leader in the All-Cloud process, based on the following aims:

- Enabling operators to flexibly expand their business. With stronger network business and operation platforms, operators can meet traditional broadband, video, and enterprise campus private line requirements and business requirements for emerging vertical industries such

Transforming operations is more than just providing online customer services and online sales – it also needs to support process transformation with a focus on customer requirements.

as smart homes, IoT, smart cities, and Industry 4.0. New services can be rolled out in days instead of months.

- Enabling operators to have agile, efficient networks. Operators need to fully coordinate network resources for diverse business in the future, maximizing network resource use and reducing OPEX.

- Providing consumers with a Real-time, On-demand, All-online, DIY and Social (ROADS) digital experience, including service experience and an E2E purchase and usage experience.

When implementing business-driven transformation, operators focus on end user experience and services. Huawei can help operators maximize network value, improve revenues and efficiency, and boost business opportunties. Huawei uses the pipeline advantage to enter new fields for reshaping B2B business through cloud services.

Huawei believes All-Cloud transformation is the most effective technology for itself and vertical industries to go digital.

E2E solution suite

After five years of development, Huawei released its cloud solutions in 2017:

Wide Area Network (WAN): To upgrade traditional radio access, fixed access, metro, backbone, and optical networks to All-Cloud, Huawei's agile solutions include CloudRAN, CloudFAN, CloudMetro, CloudBackbone, and CloudOptiX. In July 2016, Huawei CloudRAN helped Telecom Italia build future-oriented agile networks, delivering an optimized mobile broadband network experience and slashing maintenance and site acquisition costs. In October 2016, Huawei and China Unicom Shanghai deployed network slicing technology for broadband access to provide multi-functional networks through CloudFAN, improving network usage. In January 2017, Huawei and China Unicom Guangdong released SD-UTN smart leased line services that provide flexible, customizable cloud-based leased line services by reconstructing existing IP RAN networks with cloud.

Enterprise B2B: Huawei released the CloudEPN solution to satisfy agile, interconnected, and one-stop ICT integrated service requirements for SMEs. The CloudEPN solution supports two deployment models: SD-WAN and CloudVPN. This can help operators reshape the E2E service experience and provide new enterprise private lines for enterprise customers. In September 2016, Telefonica announced that it would deploy the Huawei E2E CloudEPN solution for its global procurement framework, with a lab in Argentina dedicated to piloting commercial deployment. For the enterprise campus market, operators need to change the original box resale model to the cloud service model. To help operators enter this emerging trillion-dollar market, Huawei has rolled out its innovative CloudCampus solution, which provides cloud-based enterprise campus network planning and OAM services.

Digitizing verticals: Huawei provides the industrial IoT solution Edge Computing IoT

(EC-IoT) based on cloud architecture NB-IoT solution (Cellular IoT). The EC-IoT solution is based on SDN architecture and implements unified management and operations on numerous IoT gateways, enabling operators to enter the IoT domain. The solution has edge intelligence and processes IoT data in real time at network boundaries, achieving rapid response and local survival. In September 2016, Huawei collaborated with Schindler Elevators on a flexible and expandable EC-IoT Internet of Elevators solution for managing millions of elevators. The NB-IoT solution includes a smart device solution, eNodeB, IoT Packet Core, and an IoT connection management platform. The NB-IoT solution helps operators rapidly implement NB-IoT full network coverage, supports smart NB-IoT devices, and enables industrial openness. In December 2016, Huawei and Sweden Telia released the first commercial NB-IoT network. Telia completed cellular network upgrades and reconstruction, enabling it to access more vertical industry applications, integrate and improve its existing businesses, and create more cellular IoT connections.

Data center-centric network architecture: Huawei's CloudFabric solution helps operators build open, agile, and efficient cloud data centers with two core components: the CloudEngine data center switch and Agile Controller. In February 2017, Huawei CloudFabric helped China Unicom Henan deploy a commercial, distributed cloud data center that delivers localized cloud services with low latency, secure data isolation, and a unified management platform. The solution meets demands for cloud services from local governments, medical and educational institutions, and SMEs.

Core networks: Huawei's CloudCore and CloudEdge implement fully distributed and automated network software based on NFV, in a shift towards network functions cloudification (NFC). In February 2017, Telecom Argentina and Huawei released the first All-Cloud core networks in Latin America based on Huawei CloudCore and CloudEdge. In February 2017, China Mobile Hong Kong and Huawei commercialized an All-Cloud core network, which is more agile, flexible, and stronger, and thus better for operators to develop B2B, IoT, and 5G in the future. Huawei CloudCore and CloudEdge solutions won the Best Technology Enabler award at MWC 2017 for features like NFV architecture, commercial use, and cloud evolution.

By 2016, Huawei had collaborated with global customers to innovate and commercially develop All-Cloud networks, and conducted more than 500 commercial or trial applications of cloud-based networks in many scenarios, including operator WAN, data center networks, enterprise campus, and IoT.

Cloud needs openness

Collaboration is necessary for the maturity of cloud-based networks, and Huawei is a committed to building an open ecosystem, developing standards, and guiding trends. It's a platinum member and main contributor to the OPNFV community, a platinum member of OpenStack, a gold member of CloudFoundry, and a member of ONOS. It's one of the main contributors to technical standards for SDN/NFV.

Huawei supports the Edge Computing Consortium and, in December 2016, initiated the NFV-ITI alliance to help operators minimize integration and deployment costs, simplify multi-vendor collaboration processes, and implement rapid service rollout.

Huawei has established four OpenLabs, each with a different focus. The areas of focus are network evolution, NFV, SDN, and data centers. We are dedicated to constructing cloud infrastructure and developing and deploying cloud technology.