



CONNECT 2016



Turn, unlock, activate

Network and cloud are the two keys to enterprise digitization

Cloud is the tool for reconstructing, evolving, and optimizing enterprise networks through digital transformation. But, enterprise networks must keep pace with service cloudification so enterprises can compete in the future.

By Liu Shaowei, President of Network R&D Dept., Huawei

The right network for the digital age

Huawei believes that a network should be *For the Cloud, By the Cloud*. This concept describes how

the two core elements of digital transformation, cloud and network, relate to each other for enterprises.

Cloud technology will simplify network operations and management, while network optimization will make the cloud faster and more agile.

Change is the only certainty

The two major changes to hit networks from past to present are a speed increase from gigabits to today's 100G and the unification of



that telcos, Internet companies, and enterprises expect today.

Virtualization is one way to address digital transformation and service cloudification as it meets the needs of upper-layer applications. But, virtualized networks cannot realize digital transformation alone. **SDN** is widely believed to be the solution for rapid service deployment, flexible resource allocation, and reducing OPEX by shifting O&M and policy management to the SDN controller.

Upcoming network changes

protocols into IP-based networks.

Like Huawei, telcos around the world know that cloud and network reconstruction and the digital transformation they enable are the future. The three Chinese carriers, AT&T, Deutsche Telekom, and Telefonica, for example, have all developed network reconstruction strategies.

The challenges involved in cloud transformation will disrupt traditional models and bring SDN/NFV to the fore. Network reconstruction and cloud transformation based on SDN/NFV will underpin enterprise services and play a central role in post-reconstructed networks. SDN/NFV is also the first step towards full digital transformation and the delivery of the flexible, secure, and stable networks

For the Cloud considers whether the cloud can be used to optimize enterprise networks and create cloud networks.

By the Cloud means provisioning and using networks on a needs basis to enable DIY services like e-commerce based on simpler network O&M and strong security.

To help enterprises transform, Huawei has launched five major network cloudification solutions: Cloud Campus, CloudVPN, IoT, Cloud Fabric, and Cloud Security.

Cloud Campus

Gartner reports that campus network OPEX accounts for more than 70 percent of overall network costs.

The main ways to reduce OPEX are to increase efficiency and accelerate service deployment, both of which cloud is good at.

In 2013, Huawei released an agile SDN-based campus solution that deploys controllers on campus. It then considered whether it was possible to deploy more services on the cloud and enable sharing through a management platform. Such a solution would save costs, deploy services more quickly, and eliminate the need for skilled technicians on-site.

Cloud Campus was born. As Huawei's first cloud management platform for large-scale campuses, network management is enabled by cloudifying various management components, including controllers, network management systems, VAS, and other tools that can be cloudified and placed on an open platform so more people can use them.

Cloud Campus can provision services in minutes and automate cloud management network-wide, reducing O&M labor costs by up to 80 percent. The solution also provides decision-making support for network optimization using big data analytics, and its open architecture enables secondary development based on the platform.

Using cloud tech to simplify network

management, Cloud Campus has the following features, advantages, and benefits: One, it's scalable and can be deployed in scenarios of various sizes; two, it supports 100 different devices, including Wi-Fi, routers, switches, and security products, with more planned for the 2017 release; three, as a cloud management platform, the solution provides full lifecycle management, covering everything from network planning, design, and deployment to network testing, O&M, and fault location and recovery.

Available for leasing or purchase, Cloud Campus cuts costs and simplifies campus network deployment, management, and operations.

CloudVPN

Enterprises also face a network OPEX bottleneck. For example, deploying VPN leased lines for large multinationals is expensive and takes at least a month, and more when deploying across regions or for multiple carriers. Moreover, system deployment is siloed, making deployment and O&M extremely difficult.

Huawei's CloudVPN is a true, component-rich E2E solution. For operators, it offers enterprise CPE, SD-WAN with multiple link choices, cloud data center solutions, VAS

management, service orchestration, management, and portals.

Huawei provides Internet-based leased lines that are cheaper than traditional leased lines and offer excellent accessibility. Businesses can leverage both types of leased lines in tandem, with non-core services running over the Internet leased line and services requiring high transmission performance, zero-packet loss, and low latency running over traditional leased lines.

CloudVPN lets users choose between Internet-based and traditional leased lines, with full user configurability, which cuts costs, bandwidth use, and deployment time.

A crucial component of CloudVPN is Agile Controller 3.0, which makes CloudVPN more powerful and supports unified control and flexible deployment scenarios.

Agile Controller 3.0 offers four distinct benefits:

One, the functions of Agile Controller 3.0 can be provisioned separately or in combination, providing tailored support for CloudVPN to cover more areas, for example, traditional data centers, campus networks, entire WANs, IoT, optical networks, branch offices, enterprises, and campuses. Some or all of its functions can be deployed

depending on requirements.

Two, Agile Controller 3.0 can be expanded to up to 128 clusters to support network expansion, with provision for backup nodes to take over services if a node becomes faulty, thus ensuring network security.

Three, it can manage 256,000 virtual switches in a virtual network.

Four, Agile Controller 3.0 is based on fully open ONOS and ODL architecture, so it's compatible with the ODL YANG open model and API architecture. Users and partners can thus do more and go further with SDN.

IoT: The great transformer

IoT is the future of IT. In 2015, Huawei released a cloud-based IoT solution that's been applied in many industries.

Need a lift?

On September 19, 2016, Huawei and Schindler Group launched an IoT connectivity project to develop smart IoT components for connecting elevators and escalators. With more than 1 billion people using Schindler's solutions every day, efficient management of its assets is critical, particularly for safety and reducing maintenance costs. For example, one elevator undergoes on average two days' downtime per

year for maintenance and, in China, several deaths from faulty escalators and elevators have been reported in recent years.

Huawei and Schindler's Internet of Elevators (IoE) solution will connect all the company's elevators. Big data analytics in the cloud will predict faults, with the aim of reducing downtime by 90 percent and slashing maintenance costs. Ultimately, Huawei hopes to open up the IoE platform to third parties via the cloud, for example, for advertising or for construction companies to offer services. The completed project will form a core element of Schindler's digital platform that will help it better monitor, analyze, and use the generated data.

Powering up

Huawei has also released an IoT solution for the electric power industry, which has been deployed in a number of countries, mainly to integrate power distribution and utilization.

Ikeja Electric, for example, is Nigeria's largest power distribution company. Its major pain points are collecting electric power fees, power theft, and high energy losses. Ikeja Electric decided to adopt Huawei's AMI solution for smart meter reading and higher energy efficiency.

The AMI solution includes smart

meters, concentrators (the Huawei AR530 IoT gateway), and power management systems. It applies Huawei's wide-band Hi-PLC carrier technology, which is more than 20 times faster than narrowband PLC and has a daily metering success rate of 100 percent. This allows for real-time bidirectional communication with meters, allowing full data collection and fee control for future smart power grids.

The solution has helped Ikeja Electric build an IT-powered operating platform that can deploy a pre-paid management system and prepayment cards plus various payment methods like counter machines and online payments. The solution also uses analytics to monitor power theft and load management. Visualized management makes monitoring by the operator extremely easy.

The solution has brought Ikeja Electric three major benefits: one, reducing power loss by 31 percent; two, cutting meter reading and payment collection time from three to four months to completion in real time; and, three, slashing labor costs by 90 percent by removing the need for door-to-door meter readers.

For the Cloud, By the Cloud

Digital transformation has transformed enterprises in

astonishing ways. Many other examples exist alongside Schindler and Ikeja Electric: In 2015, China's Didi Taxi completed 1.43 billion rides with 16 million connected vehicles, while in the telco world AT&T reduced service launch time by 95 percent.

For businesses, digital transformation links data and information to experience and knowledge. Companies need to build future-oriented networks and cloudify their architecture to get as close as possible to users, and provide the differentiated services and superior experience that can boost competitiveness.

Clouds and networks are the two sides of the coin that power enterprise digitization. Cloud technology can meet the demands on digitized networks for on-demand deployment, DIY services, simple management, and security and reliability.

Huawei's Agile Network Solution epitomizes the For the Cloud, By the Cloud concept. It cloudifies services for enterprises (For the Cloud) and supports network optimization and reconstruction through cloud technology (By the Cloud).

Huawei's five major network cloudification solutions form five keys to long-term partnerships and digital transformation for enterprises. 