

## ZTE Shows Power in VoLTE and Cloud Network at IMS Stage 3.0

Achieving converged development of communication network and transforming to full service operation are always the target of telecom operators. IMS, as the technology bearing this target, can achieve Fixed Mobile Convergence, help operator provide abundant multimedia services, and also serve as the necessary condition of VoLTE commercial launch, proving consistent good mobile Internet experience.

“Since its birth, IMS assumes the communication persons’ ideal: Fixed Mobile Convergence, access independence, open service. Since 2004, such converged IMS communication infrastructure was defined in the 3GPP R5, ZTE began to insist on the R&D of IMS full-service end-to-end solutions” Mr. Tu Jiashun, ZTE CN vice president, said to COMMUNICATIONS WEEKLY (ccidcom).



Mr. Tu Jiashun, Core Network Vice President, ZTE

For more than ten years, ZTE has been promoting the global development of IMS, and carries network interoperability testing with China Mobile, China Unicom, as well as a number of major foreign carriers. In 2010, ZTE successfully demonstrated the industry's first VoLTE call based on the commercial LTE network. To date, the global installed capacity of ZTE's IMS network is more than 250 million. It has more than 210 commercial/trial contracts worldwide, including over 170 commercial contracts, 51 VoLTE commercial/test contracts, and 26 vIMS commercial/test contracts.

### Three stages of IMS

IMS, an IP multimedia subsystem, is originated in the IP-based mobile softswitch. In 2004, the 3GPP R5 gave out the preliminary infrastructure definition. After nearly five years of research and improvement, it was gradually accepted by global operators as the future converged communications network infrastructure.

As Mr. Tu Jiashun told the reporter, domestic IMS development can be divided into three stages. Stage 1, from 2005 to 2010, focused on IMS standard making and research. The symbol was the first IMS commercial tender in the country held by China Mobile in 2009.

In this stage, in close connection with the sustainable evolution of network, ZTE and China Mobile implemented a large number of innovative cooperation and experiments. In 2005, ZTE exclusively worked together with China Mobile MTT Forum to finish the key issue of IMS full-service solution. In 2006, ZTE and China Mobile cooperated in the IMS integrated information network project with exclusive partnership, and accumulated extensive experience in building IMS.

In 2007, ZTE implemented the access independence test with China Unicom, involving a variety of wireless and wired networks of China Unicom, and providing sufficient verifications for IMS Access Independence.

After these early experiments, IMS solution was gradually improved and started commercial deployment. In 2008, ZTE, exclusively cooperating with China Mobile, taking the lead to closely combine TD and IMS, successfully finished the TD&IMS full-service test in the legacy network, developed the industry's first customized TD-IMS mobile terminal and formed a series of converged service products for the TD terminal. In 2009-2010, China Mobile finished the commercial IMS bidding, and began the construction of a nationwide CM-IMS network. As an important participant, ZTE provided a perfect solution.

From 2010 to 2015, domestic IMS development stepped in the second stage, large-scale commercial deploy stage, mainly focusing on PSTN transformation and the multimedia application for group customers. Mr. Tu Jiashun said that, China Mobile, China Telecom and China Unicom respectively finished the commercial deployment of IMS in 2010, 2012 and 2014.

During this stage, ZTE was adequately developed in multi-type access and large-client technique of PSTN such as attendant console, call centers, multimedia conference, and multimedia desktop clients, especially ZTE's industry-leading PSTN migration solution was in large-scale deployment. It is worth mentioning that, ZTE won 10 northern provinces and more than 50% domestic share of China Unicom IMS Bidding.

"Limited by the bandwidth of 2G/3G network, IMS cannot maximize the advantages of IP-based communications," Mr. Tu Jiashun said, "so, during the second stage, operators only focused on researches of RCS and VoLTE."

However, from 2014, the situation began to change. In that year, the 4G network began scale deployment. High-speed mobile data channels stimulate people's massive multimedia service demands. The IMS-based VoLTE has become the common choice of the world's high-end operators. Thus, IMS enters the third stage, running to the final target of communication people.

## **Show power in full-service operation**

Overseas, Korea KT and SK launched commercial VoLTE in 2014, and then AT&T, NTT DoCoMo and KDDI also launched commercial VoLTE services. Locally, the three operators all actively push the commercial user of IMS VoLTE and RCS. Not so long ago, China Mobile announced the official launch of VoLTE services.

"The formal commercial use of VoLTE and cloud in domestic marks the important step of converged communication and NFV commercial operation in China" Tu Jiashun said.

Following this trend, ZTE launched the operational solution eVoLTE (enhanced VoLTE). It covers network KPI improvement, multi-service integration, NFV evolution, etc., and it can fully solve operators' various needs and problems during VoLTE network planning, deployment, operation and maintenance, and fully supports the ETSI standard NFV deployment.

Facing the dilemma of "no income growth with incremental," operators decide to break the existing network architecture and introduce SDN/NFV, achieving network software and hardware decoupling and accelerating network innovation.

"Behind the chimney architecture of traditional mobile communication network is dedicated hardware and dedicated software. In the case of rapid and unpredictable growth of connection number and connection type, the legacy architecture design is too complex, difficult to quickly upgrade and optimize." Tu Jiashun told the reporter.

For the trend of network evolving to open cloud application innovation platform, ZTE proposes a carrier-class PaaS platform solution, Cloud Works. Based on the IaaS platform, it provides excellent DevOps and constructs a cloud factory based on carrier-class component development, operation and service management, effectively helping operators achieve network full "cloud-lization," service innovation and management transformation in the 5G stage.

For carrier-class application requirements, ZTE core network virtualization solution provides multiple methods to optimize user plane performance, such as SR-IOV, DVS and SmartNIC, eliminating the negative impact on COTS hardware and virtualization interlayer, and meeting the needs of mobile network traffic surge. In addition, being integrated with cloud compute technology, it improves system reliability, so that resource usage efficiency and reliability can meet carrier-class reliability requirements.

Specific to the IMS domain, ZTE, in cooperation with China mainstream operators, spent two years to finish the research, test and construction of the world's largest IMS network. The initial construction capacity is 100 million subscribers. This vIMS network is an RCS and VoWiFi platform based on the LTE network, offering multimedia message, voice and video call, contract and other services. In company with VoLTE service platform, it forms the organic component of future LTE fusion communication platform.

“With the advancement of global LTE network construction, VoLTE investment of global operators continues to grow. A greater market waits ZTE to play, to help operators worldwide win victory in 4G HD Voice.” Tu Jiashun said.