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China Mobile Zhejiang embraces full-service operation

After gathering solid market research and meticulously planning service, China Mobile Zhejiang has optimized its networks and O&M systems to beat the competition with innovative full-service operation.

By Hu Huangang, from China Mobile
Focus on full-service operation

Full-service operation is the third development wave in the telecom industry after mobile and broadband services.

The biggest advantage of implementing full-service operation for China Mobile Zhejiang is to develop and extend service areas. Although dominant in the individual mobile service market, we are relatively inexperienced in construction and operation of fixed networks. The lack of last mile fixed access for government, enterprise and household customers created an urgent need to unclog the fixed network bottleneck and accelerate the convergence of fixed and mobile networks and services.

With a decided technical edge, we have innovatively blueprinted and tailored our practices for full-service operation. Based on customer requirements and fixed-mobile convergence, we are positioned to help government and enterprise customers slash communication costs, improve efficiency, while enhancing their corporate images.

In 2008, we took a critical step towards the transformation to full-service operation with the successful deployment of the first domestic IMS commercial network.

After a year’s worth of continuous input and commercial application, we forged an efficient network for IMS and GPON-based full-service differentiated operations, putting us on the cutting edge in China, the world’s most populous telecom market.

Market research and service planning

China Mobile Zhejiang prioritizes government and enterprise customers, followed by household and individual customers for full service operation. To enhance competition and tailor better services, we first research enterprise customer needs and expectations, together with their service scenarios and application bottlenecks. We conducted research on more than 60 enterprises in the province, gaining valuable network knowledge and are now promoting full-service products.

Research shows that for fixed voice services, enterprise customers first typically focus on keeping their original phone numbers and then on reducing tariffs. With broadband services, their primary concern is the broadband brand followed by cost considerations. Video conferencing, video monitoring and mobile office applications are also commonly required by these enterprises.

Our strategy for full-service operation puts the primary focus on government and enterprise customers, while taking into account the requirements for households and individuals. The convergent services have three aspects:

First, to provide innovative services that meet personalized customer requirements, such as dual-number mobile service, convergent VPN, flexible roaming and one number link you (ONLY) service.

Second, services are bundled to meet new needs. For example, combining the corporate ring tones to the ONLY service so that employees can work while roaming.

Third, high-end services are re-designed for low-end customers.

Services are developed at two stages. At the first stage, enterprise customers using various access modes and terminals are provided with basic voice services and value-added services based on the IMS platform. This realizes convergent corporate access, enhances customer loyalty and helps to avert a price war.

Enterprise customers are provided with convergent services such as a corporate communications assistant and video telephony through the GPON. Besides meeting the basic communications needs of enterprise customers, the IMS also is advantageous in terms of openness, fast service rollout, and unified access.

The second stage is to provide enterprises with video-based high-bandwidth service and corporate applications like an enterprise address book to enhance ARPU. Services like standard-definition/high-definition video conferencing and mobile video monitoring are the two basic services that we focus on.

The introduction of various preferential full-service packages has definitely helped us expand customer base quickly and enterprises enhance communications.

Promoting network construction and upgrades

Full-service network construction is a complex project that involves all network aspects. IMS is the key to full-service operation. We needed to construct and upgrade relevant operation support systems and service platforms, interconnect the IMS platform and existing networks, as well as plan and deploy the GPON.

We also optimized bearer network and data networks inside the enterprises to ensure network quality and QoS.

Unified NMS and service provisioning

To simplify and ease network O&M, China Mobile Zhejiang adopts a unified core network management system (NMS), M2000, to manage IMS and the legacy mobile core network. The M2000 can also be upgraded to realize unified core network management and protect investment.
Moreover, we deploy the service provider gateway (SPG) as a unified gateway for the IMS, which integrates the subscription interfaces of each network element. The SPG provides a single SOAP interface to interconnect with the business and operation support system (BOSS), giving the BOSS integrated subscription commands.

**Convergent platform at the core**

After deploying the IMS at the core layer, we enrich services through unified access of fixed and mobile services, such as GPON, PBX, HGW, SIP terminals, mobile phones, wireless fixed phones and data cards. These methods enable both mobile and fixed-line customers to enjoy a unified service experience.

In the future, the IMS-based core network can be smoothly evolved into FMC. Between the IMS core network and the application server (AS), an SIP-based IMS service control (ISC) interface is applied to separate services from call control. In this case, we only need to add ASs to deploy new services, without changing the IMS core network and the end result is enhanced full-service operation capability.

**Multi-service QoS at the bearer layer**

The service quality and user experience are closely related to the bearer network. In addition to data services, CMnet, the bearer network for China Mobile Zhejiang, needs to bear the real-time voice and video services for enterprise customers during full-service operations. We decided to optimize the CMnet to meet the QoS requirements of enterprise customers, especially real-time services.

We use the CMnet to bear the signaling flows and media streams for high speed Internet access, VoIP and video conferencing services. However, the VoIP and video conferencing services access to the IMS core network through the session border controller (SBC) and ensure the QoS of real-time services.

Customers with GPON access will see a rapid growth when IMS-based convergent services mature. To meet the future growth of service subscription and O&M needs, we have reconfigured and optimized the GPON networking, IP address and VLAN.

**Flexible networking at the access layer**

To meet future FMC evolution requirements for enterprise customers on a GPON, the legacy networking is kept intact at the customer side. All voice customers are registered on the IMS, without being transferred by softswitches or IP front end processors.

We have plans to set up 11 access gateways to bridge the legacy PBX customers and interconnect PBX and IMS. Enterprise customers can also flexibly access the IMS network through the new IP PBX.

Because enterprise Intranets vary and have different QoS guarantees, we tailored voice solutions to fit individual networking needs. Based on the scale and network management capability of each enterprise, we divide our customer groups into Intranet and non-Intranet clients.

Government office and large enterprises usually have Intranets and sophisticated IT systems. QoS and voice services bandwidth can be ensured through internal networks. Enterprise data services can interconnect with SIP terminals, IAD/AG, and video conferencing terminals. Small and medium enterprises without an Intranet can hardly provide effective QoS guarantees, but voice services can be enhanced through the imbedded AG module in an ONU.

By fully considering specific enterprise requirements, we can then provide customers with quality-enhanced services, including high speed Internet, video conferencing and VoIP.

**Customer-centric network O&M**

System changes for full-service operation pose higher requirements for network maintenance, including flexible service provisioning, quick market response, level-based service assurance and network security. Convergence of fixed and mobile networks brings richer services, yet more complex service logic.

China Mobile Zhejiang is shifting its focus from individuals to customers from government, enterprises, and families. A single product and service can no longer meet customer requirements as integrated solutions and one-stop services are now expected. To come out on top in a full-service operation environment, we optimize the O&M structure to meet expanding network, service and customer needs.

We recognize that our strength lies in centralized O&M capability, the professional O&M team and strong outsourcing management capability, while we are weaker in the area of integrated access O&M both in terms of capability and number of engineers.

Drawing from the experience of overseas partners, we have developed some new O&M models.

First, optimize the network department structure and set up a customer-oriented department to open communications with customers. Second, streamline the complex management process and define specific workflows for fixed voice and Internet service respectively to enable fast customer response. Third, maintain the existing managed service and evolve it in line with the global trends.

The O&M optimization of our full service network includes the organizational structures, O&M flows and modes. O&M flows are further divided into specific flows covering service processing, engineering, handling complaints and daily maintenance. Take service processing as an example. We add project design and auditing, plus project engineering to more efficiently process customer applications.

Compared with the original methods of handling customer complains, our new method adds fault analysis and maintenance functions. This can help detect faults in customer networks, facilitate cooperation between departments and respond quickly to emergencies, big and small.

Fine management helps us not only in terms of customers, products and networks, but also to promote O&M efforts, optimize network resources, streamline maintenance, and enhance service support. With an evolving O&M concept, China Mobile Zhejiang has shifted from technology-centric to product/service-centric and most importantly, to customer-centric.

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