

# Enabling Superior Network Experience and Building a Sustainable Mobile Communications Industry

–Speech by Eric Xu at Global MBB Forum 2014



Good morning, ladies and gentlemen!

Welcome to Shanghai. On behalf of Huawei, I'd like to thank you for attending the Global MBB Forum 2014! Over the coming two days, we will outline a developmental framework for the MBB industry and discuss how to create a brighter future for MBB. I also wish you a pleasant stay in Shanghai!

From the forum last year in London to this year's forum in Shanghai, we have promoted a common vision – to propel the MBB industry forward. Today, I'd like to take this opportunity to share my views on future MBB trends and evolutions.

## **1. A superior experience is the defining factor for MBB networks.**

Needless to say, voice communication enables people to connect. Operators charge subscribers based on the duration and distance of voice calls. However, when network interference garbles the voice of the other party, we have to ask them to repeat what they've just said. Subscribers, of course, have to pay for that extra time. Regardless of call quality, we have to pay the same amount based on duration and distance, and sometimes end up paying more for a poor experience.

Data networks, however, have changed all this. As networks move to IP and broadband, applications can be totally separated from the underlying network. Content providers, especially video content providers, can then stream content to consumers at a data rate that suits specific network performance and consumer devices. For example, when the network is performing well, a 1080P video source may provide the optimal viewing experience; otherwise, a 720P or even a 360P video source may be better for smooth streaming.

Statistics on *The Amazing Spider-Man 2* – once the most popular movie on YouTube – show that consumers' viewing experiences and operators' operating results vary greatly with network conditions. If the network was good, the content site streamed the 1080P video, and the traffic generated from viewing the 2-hour and 21-minute movie was 6.37G; if the network was poor, YouTube streamed the 720P video with 2.3G traffic; or – if the network was really bad – they'd even stream a 360P video with 0.58G traffic.

This example shows that even when the same consumer purchases the same movie, both the user experience and traffic generated vary greatly with network performance. Also, the operating results of data traffic can vary considerably. For the same content consumption, a good network experience means high revenue, while a poor network experience drives revenue down. As such, the growing popularity of the mobile Internet and the huge jump in mobile data traffic coupled with traffic monetization

mean that MBB network experience is crucial for operators. This is because MBB can enable operators to create new revenue streams or increase revenue. I believe a superior experience is the defining factor for MBB networks.

In the future, operators must position this as their top priority: How can they continuously improve network experience? As MBB networks are dynamic, a better network experience cannot be achieved single-handedly – it requires the joint efforts of operators, equipment vendors, and partners. Therefore, choosing strong equipment vendors and cooperating long-term with partners are strategically important for operators.

## **2. Build future-oriented networks to help operators handle explosive traffic growth and continue to serve legacy and roaming subscribers.**

Mobile broadband networks face many complex challenges such as multiple frequency bands, multiple network standards, and ongoing technological evolution. For example, operators use frequency bands at 800 MHz, 900 MHz, 1.8 GHz, 2.1 GHz, and 2.6 GHz. They also simultaneously operate networks with different standards, including GSM, 3G, and LTE.

So, what type of networks do mobile operators need? I think two features are paramount. First, the network must maximize spectral efficiency to accommodate subscribers' growing demands for the mobile Internet. Second, it must serve legacy subscribers and roaming subscribers coming from abroad – a capability that saves operators huge costs in migrating subscribers. Building a network with these two features is the priority of all mobile operators.

An ideal future-oriented network should be an LTE network that supports all frequency bands and is built on a thin GSM/UMTS network at 900 MHz. The thin GSM/UMTS network would serve three types of subscribers: those whose mobile



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phones support older-generation network standards, those who use basic data services, and roaming subscribers who use voice and basic data services. The remaining frequency bands, including operating bands for TDD and FDD, will all be used for LTE services through TDD and FDD convergence.

Operators with abundant 900 MHz spectrum resources can take some or even most of these resources to support an LTE network, making GSM and UMTS the two features of GSM/UMTS/LTE 900 services. In the future, as user demand for GSM and UMTS gradually declines, these operators can shift even more of their 900 MHz spectrum resources to LTE applications.

For operators with few 900 MHz spectrum resources, we will provide technological innovations that help them explore the full potential of their spectrum resources by maximizing spectral efficiency. For example, operators will be able to use 3.8 MHz on its own to offer U900 coverage, and enhance GSM spectral efficiency with Half Rate (HR) or even Quarter Rate (QR) technology.

CDMA operators like China Telecom can use one or two carriers at 800 MHz to build a thin CDMA 1X/00 network, while leveraging the remaining 800 MHz spectrum resources and all other bands to support LTE services.

When all things are considered, we will build an outstanding mobile broadband network that delivers a superior user experience, meets a wide variety of subscriber needs, and enables operators to monetize data traffic and maximize spectral efficiency. An MBB network like this will help operators respond to subscribers' growing demands for the mobile Internet, while also serving all legacy and roaming subscribers. As this happens, Huawei will continuously invest in LTE evolution to deliver a Gbps experience over the mobile Internet, enabling consumers to enjoy 1 Gbps access. In the process, we will enhance network experience together with operators, jointly boosting revenue and achieving mutual success.

**3. Alongside industry players, Huawei is committed to making ground-breaking advancements in 5G to offer higher spectral efficiency, faster access speeds, lower network latency, and massive connections.**

While LTE deployment is in full swing, 5G has become the new buzzword in the industry and is a key theme of today's forum. From the industry standpoint, 5G is still at the research and innovation stage, which was where LTE was back in 2004. As such, the industry needs to clearly define what 5G is. Following extensive industry-wide discussions, we have reached an initial consensus on the fundamental requirements for 5G.

It is generally agreed that 5G must not only support people-to-people communications, but also enable connectivity between people and things and between things and things. In other words, we must pay attention to the Internet of Things (IoT). To meet IoT requirements, we must rely on two preconditions. First, there must be an extremely large number of connections in the future – up to 100 billion. Second, latency must be extremely low – at most 1 ms from end to end; otherwise, it will be impossible to meet the needs of different industries.

Industry expects us to leverage 5G to promote IoT advancement and support massive IoT connections via operators' public networks. This is the mission that the ICT industry needs to complete. In reality, however, most IoT connections are not supported by operators' public networks, but instead by private networks and proprietary technologies. To fuel IoT development through 5G, we must fully meet the needs of various industries and enable connectivity between people and things and between things and things.

That said, IoT alone cannot drive 5G industry development because the core of IoT is "things" rather than networks, and the mission of connecting every "thing" cannot be achieved merely by the mobile communications industry – it requires extensive

cross-industry collaboration. As such, IoT won't grow as fast as we expect, and we can't rely solely on IoT to support 5G industry development.

Another consensus reached is that 5G must promote breakthroughs for the mobile Internet. If we look back on the history of the mobile communications industry, we can see that in the 2G, 3G, and 4G eras, the industry grew on the strength of continuous technological innovation. These were eras that embraced technologies to constantly increase access speeds and spectral efficiency, lower latency, and improve user experience.

Looking ahead, the shift from voice to mobile data has just begun; however, this change will be more significant and have a greater impact than the transition from fixed voice to mobile voice. The mobile Internet is growing at a formidable speed, and consumers will inevitably demand higher speeds and better experience.

As such, I believe 5G must make ground-breaking advances in terms of network speed, spectral efficiency, and latency. Given the current capacity of 5G technology, we haven't seen any breakthrough yet. The entire industry must increase investment in 5G to make breakthroughs in network architecture, base station architecture, and core technology. Only in this way can we take the mobile Internet to the next level and enjoy true 5G.

So, it's fair to say that 5G is still being defined and that the results from this stage will impact the direction of the 5G industry. While increasing investment in 5G, Huawei also expects to collaborate with other industry players to make breakthroughs in 5G. We hope to achieve higher spectral efficiency, faster access speeds, lower latency, and massive connections. All of these features are necessary for operators to provide networks that give consumers a superior MBB experience and support 100 billion IoT connections. Let's work together to build a sustainable mobile communications industry!



And, on that note, thank you again for attending this forum. I hope you will gain many valuable insights here!

Thank you!