

Service-driven growth, devices, networks and the cloud

by Justin Chen, Chief Operating Officer, Huawei Technologies India Pvt. Ltd

With the advent of 3G, mobile data will be the fundamental growth driver and should account for half of mobile revenue within a few years. Residential use, the digital home, will change operators from communication pipe to smart content pipe providers. With broadband, media - in the traditional sense - will be replaced by networked content on three screens and machine-to-machine communications will outnumber human communication. Cloud computing will provide IT services online and the user will buy services instead of hardware.



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India's telecom market

India is among the few economies that has stood firm and tall after the global financial crisis; this is mainly due to the country's financial sector performance, favourable population demographics, increased domestic consumption and inherent resilience. The Indian economy registered growth of 7.4 per cent during 2009-2010, supported by several government initiatives that enabled development of various sectors. The contribution of agriculture to the overall Indian GDP has declined in recent years and that trend should continue in the future. This highlights the transformation of the rural economy from agriculture-based to a more balanced mix of sectors. This shift will generate further self-employment and empowerment of the rural masses. This, in turn, will increase the technology requirements of the rural population, which will boost telecom investments further.

Service revenues have not increased commensurately with traffic, so mobile data service operators globally are facing slow returns on investments. Although mobile data service traffic might increase 50 to 100 per cent,

corresponding revenue might only grow by 10 to 20 per cent. Uncertain returns cause operators to hesitate before committing to heavy network investments. However, delaying deployment of mobile broadband can lead to a loss of subscribers and slowing of critical business momentum.

2011 and beyond

The telecom industry is undergoing a transformation. By 2020, we will see noticeable growth in the following critical directions, which will pave opportunities for profitable growth:

First, mobile broadband is making the transition from voice to data communications. In the past ten years, mobile voice subscribers worldwide have grown from 700 million to over five billion, with India adding over 200 million voice users every year. In the next decade, the number of mobile broadband data subscribers should grow from the current miniscule numbers to over 200 million users. Mobile data will be a fundamental growth driver. In the next 5 to 8 years, global mobile data should account for half of mobile revenue, driven by user-generated content and video communications.

Second, the increasing importance of 3G for households will pave the way to the digital home and a shift in the operator's position in the telecom value-chain from 'communications pipe' to 'smart content pipe'. Broadband networks will alter the model of content distribution and media, in the traditional sense, will disappear, replaced by networked content on a 3-screen experience.

Third, the transition from human-to-human communications towards machine-to-machine communications is becoming a reality. By 2020, there will be over 50 billion connected devices on our planet.

Lastly, the CT (*communications technology*) to ICT (*information and communications technology*) transformation is another important trend enabled by cloud computing. The wide deployment of broadband networks enable usage of IT services in a similar fashion as telecom services. In other words, consumers and enterprises can switch from buying IT products to buying IT services; this means that consumers can pay as they use instead of paying a high, fixed cost. Just like the electricity you use today. This trend is inevitable as software migrates from

the client to the cloud and the services from LAN to the Internet.

Mobile broadband

Just as the development of the wireless industry in India presents telecom industry players with new challenges, it also presents unprecedented opportunities. 3G development together with the introduction of LTE services will drive the growth of mobile broadband market within the next few years. This will create a promising business environment and provide the tools necessary to benefit from the upcoming mobile broadband era.

Realizing the tremendous opportunities presented by ubiquitous broadband is essential for Indian operators to establish and maintain a future competitive edge. As the demand and consumption of mobile data services will grow simultaneously, operators may have to impose mobile data caps to restrict usage beyond defined limits and evolve towards usage-based billing.

3G network-sharing deals will also be rampant in India as operators eye pan-India coverage. Whether this will drive full market consolidation is still unclear.

Smart devices and applications

The steady growth in smart terminals usage and tablet devices, and the introduction of Android 3.0, is expected to encourage application developers to design new applications for smart devices.

Innovative technology, particularly Web 2.0, development of widgets etc. have enriched mobile broadband services by improving interactive experiences and enabling traditional enterprise and Internet applications on mobile devices. It is likely that by the end of 2011, an additional 100 thousand applications will be on the market globally. Many of the applications will use cloud computing platforms, and will cater to a wider range of users needs.

The proliferation of mobile data networks and the growing variety of feature-rich smart devices with front cameras, will increasingly drive mobile video calling as mobile broadband becomes available to more users.

The vendors' efforts to reduce smartphone costs will open new opportunities to create devices for mass markets. A global study reveals that 25 per cent of the total handsets sold in 2011 will be smartphones and this will contribute to 3G adoption.

Location and sensory features on smartphones - as GPS, accelerometers, gyroscopes, special

displays etc. have been driving applications development globally. Handset manufacturers are adding such 'killer' features to the devices to give them a competitive edge.

Besides, m-health, m-payment and mobile financial services will also be interesting to watch for. Mobile computing on new devices and through a wide range of applications will also witness development.

More than 40 per cent of the Indian population is 'unbanked', that is, they have no formal banking relationships; accordingly, financial inclusion delivered by m-commerce is another growing opportunity. Mobility and the cloud will bring banking and e-payments to the masses.

Cloud business

Operators will find that the limited capacity and interrupted user experience generated by legacy networks will continue to present challenges. So we expect heavy adoption of hosted services on carrier-grade cloud platforms offered by new 'service providers' with whom operators will partner for business models based on pure capital and operating expenses, hybrid or revenue-share models.

The move towards 'digital shopping malls', where operators become a one-stop shop for user-centric services, will drive applications hosted by service providers. Other service providers, including network equipment providers, will offer a full bouquet of services and customized applications in their hosted data centre. Operators will simply connect to the cloud and offer its services to start earning revenues instantly. This is a win-win model for operators, service providers and developers, but more importantly, provides the fastest time-to-market advantage.

Operators will ramp up their cloud offering and marketing activities with large enterprises and SMEs. Cloud computing will soon make the transition between 'early-adopter' to mainstream status.

The IT industry will increasingly depend on mobility, cloud-based applications, service delivery, value-generating overlays of social business and new IT services.

Indian enterprise IT spending for network and services of will reach US\$77 billion in 2011. Decoupling of hardware and software will grow, with virtualization and outsourcing becoming key service delivery models. The private cloud model will evolve as infrastructure, software and service providers work together on new offerings and value-added solutions.

Better access network topologies will be deployed to provide DSL-level bandwidth for users across the board. Two clouds will work together to deliver the most cost-effective means of enhanced user experience.

a 'high-speed cloud', consisting of pico and AP BTSs (*access point, base transceiver stations*) typically deployed in densely populated urban areas to deliver an average bandwidth of 2Mbit/s;

and, a 'continuous cloud' of Macro BTSs applied for wide coverage delivering a bandwidth of 256 to 512 kbit/s.

Flexible network mapping permits manageable, controllable mobile broadband networks, ensuring continuous network coverage in various scenarios, and provides users with inexpensive, quality broadband services. Convincingly, the 'two clouds' concept can reduce the cost-per-bit by as much as 70 per cent.

Convergence and IP

We are witnessing an increasing number of operators looking at implementing flat, future-proof RAN (*radio access network*) solutions to support multiple wireless systems using a single uniform platform. IP technology will help operators achieve convergence and evolution of networks for different technology systems, with smoother upgrades.

Backhaul

Wireless backhaul technologies such as e-band, converged Carrier Ethernet infrastructure for multi-service backhaul for 3G and BWA and packet radios will grow in 2011. GPON (*Gigabit Passive Optical Networking*) and FTTx (*fibre to the X*) are also expected to gain some traction in deploying fibre-based backhaul solutions, based on packet transport.

Finally, the migration towards LTE will reuse existing hardware to minimise upgrade costs. The technologies are mature and enable a smooth upgrade to LTE in different frequencies on different technologies without hardware swaps.

The coming three years will focus largely on terminals and applications, innovative business models for telecom and integrated telecom+IT services. 3G, LTE and backhaul will drive technological innovation.

Telecom operators, device manufacturers, application developers and network infrastructure vendors are all working to help the entire ecosystem meet consumer demands starting with the rollout of 3G and early LTE service. ●