



LTE Lights Way to Mass Market Adoption

Technology's economics enables profitable flat rate wireless broadband.

Third generation high-speed data networks and their accompanying attractive flat-rate pricing and devices are creating a perfect storm that is driving mobile broadband to mass market levels and giving mobile operators a strong business case to migrate to Long Term Evolution (LTE) technology, the next generation of mobile broadband.

Mobile operators during the past year have experienced dramatic growth in mobile data traffic thanks to their widespread deployment of 3G networks such as High Speed Packet Access (HSPA) networks and aggressive flat-rate pricing plans for both laptops and smartphones, which is conditioning customers to use wireless broadband services on a daily basis. As this trend accelerates, operators must find ways to reduce their network costs and still make money despite the fact that their services are turning into mass-market offerings.

"Today's 3G networks simply cannot handle the influx of data traffic at mass-market levels without costly investments," noted Darren McQueen, vice president with

Motorola. "This hastens the need for an all-IP next-generation technology that is more spectrally efficient and requires fewer base stations and radios."

Indeed, wireless industry experts don't see any signs that the demand for mobile broadband services is slowing. Data-intensive services such as video streaming are growing exponentially on fixed broadband networks and are making their way to the mobile broadband realm as customers desire to access applications such as YouTube, Facebook and Flickr while on the go.

Even during an economic downturn, data usage is expected to continue growing as mobile broadband has become a part of everyday life, McQueen said. The flat-rate pricing operators are offering provides a stable and predictable way for customers to control their spending while giving them the scope to explore new applications without the fear of running huge monthly bills, he added.

The UK mobile broadband market offers a prime example of exponential mobile broadband growth. T-Mobile reported in early 2008 that the volume of data traffic on its network exceeded voice traffic for the first time. According to research firm Analysys Mason, three factors have contributed to the explosive growth of mobile broadband services: the deployment of HSPA, which enabled operators to provide data rates that can deliver a browsing experience that competes with fixed broadband services, USB dongles that offer a user-friendly experience over more cumbersome PCMCIA cards and a strong marketing effort led by Hutchison 3, which encouraged 3G uptake with aggressive marketing and flat-rate pricing. Hutchison 3 recently announced that it has seen traffic increase more than 40-fold since it launched affordable, flat-rate tariffs in September 2007.

"3G modem sales have increased dramatically since September 2007; more than 100,000 units are now sold each month, and this figure continues to grow. By comparison, subscriber additions for fixed broadband grew by only 200,000 in the first quarter of 2008, and growth is declining. Mobile broadband promises to provide a much-needed boost to data revenue growth," the firm noted.

Meanwhile, inexpensive, web-friendly smartphones are turning wireless customers into heavy users of mobile data services. AT&T, in particular, has announced that certain Internet-centric and multimedia capable smartphones have not only significantly boosted the operator's subscriber additions but also generated better-than-average revenue and drove up data traffic on its HSDPA network.

These trends are setting the stage for a mobile broadband offering that compares well or complement fixed broadband services on flat-rate pricing but with the added benefit of being mobile.

“The train has left the station, and there is no stopping it from moving in this direction,” McQueen said. “That means 3G operators will suffer capacity issues and will have to face a choice of either allowing the customer experience to degrade, invest significantly to support the capacity growth or deploy more efficient networks.”

Continuing to invest in 3G networks to accommodate the expected dramatic growth in data traffic is an expensive proposition because operators who have exhausted their network and spectrum capacity will have to find more sites to deploy more base stations and ancillaries, invest in new backhaul links and continue to upgrade all their core network elements to support the growth.

The threat of these high costs is spurring mobile operators to rethink their mobile data strategies. Operators such as T-Mobile International say that if they have to invest in more hardware, then they'd rather invest in next-generation LTE, which offers a significant capacity advantage to support future growth at a significantly lower cost per bit.

The ramifications are significant. The lower sector throughput capacity of 3G technology means that more base station radios and cell sites are needed to support the rising traffic demand. To support a similar data usage a typical HSPA network running two 5 MHz carriers could require a minimum of three times the number of base stations than a LTE network running at 10 MHz, McQueen said.

“LTE will always have an advantage because of the lower cost per bit,” McQueen said. “LTE operators can lower tariffs and attract new subscribers and at the same time make money.”

And LTE operators aren't relegated to offering just flat-rate pricing. John Jackson, vice president with the Yankee Group notes that as operators continue to grow their businesses by selling more flat-rate data plans, they also need to find new ways to monetize their networks.

“Carriers will need to expose their IT or network resources to the long tail of Internet-centric applications in a way that adds value,” Jackson said.

Ken Hyers, analyst with Technology Business Research, said that rather than being relegated to just a data transporter, mobile operators should be looking for ways to become a “smart managed pipe.” That means operators can manage the data transported over the network so that it becomes a revenue-generator. For example, operators can offer a lower priced plan for those customers not worried about latency and “Gold” plans for those who want the fastest data speeds possible.

According to McQueen, LTE's attributes enable this. Some applications will require the most optimal network performance available, thus allowing operators to charge extra for Quality of Service (QoS). For instance, an operator could provide more

bandwidth for a short period of time to enable customers to view video in real time or better QoS for mission-critical applications such as mobile commerce.

Moreover, because LTE is an all-IP technology, LTE can interconnect and seamlessly handover to WiFi, allowing operators to relieve network capacity and lower operating expenditures even further, McQueen said.

That capability can unleash a host of integrated solutions that can persist throughout the home and as a subscriber walks out the door, all without dropping the signal. It also creates a brand new source of revenue for operators and a powerful proposition for consumers who, for instance, don't have to stay home to download big files and pictures or upload several hundred mega bytes worth of photos onto YouTube.

At any rate, it is inevitable that consumer expectations for mobile broadband will reflect a continuation of the fixed broadband experience. Those operators that prepare for the onslaught now with LTE will gain a competitive advantage in the market and ensure that their services become a must-have for consumers.

"Pricing pressure in the market will ensure that tariffs reach a mass-market level," McQueen said. "Deploying LTE means operators can embrace that trend into a competitive advantage."

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