

Most service providers are yet to launch 4G services although they were allocated broadband wireless access spectrum in 2010. The delays in service launch have been attributed to the limited availability of long term evolution-time division duplex (LTE-TDD)-enabled devices, lack of technical expertise and an uncertain regulatory environment. The high investment requirement has been another constraining factor for service providers already burdened with huge debt.

Moreover, the subdued response to 3G services has forced service providers to review their 4G service plans. Telecom companies have made considerable investments in setting up 3G networks across the country, but service adoption is yet to pick up, resulting in low returns on investments. As a result, service providers have adopted a wait-and-watch approach before offering 4G services.

So far, only Bharti Airtel has launched 4G services. These are offered in Kolkata, Bengaluru and Pune, and the company is expected to offer services in Chandigarh soon. Reliance Jio Infocomm (the erstwhile Infotel Broadband), which has a pan-Indian 4G licence, is likely to offer 4G services in only Delhi and Mumbai initially. Reliance has taken a cautious approach towards 4G service launch due to high network installation costs and relatively low returns on investment in other circles.

tele.net takes a look at the impediments to 4G service growth...

One of the biggest concerns of service providers is the limited availability of LTE-TDD-based devices. Service providers have selected LTE-TDD technology for their 4G networks. Globally, most companies apart from China Mobile and Softbank have opted for the traditional LTE-frequency division duplex (LTE-FDD) technology for offering 4G services. Therefore, the majority of equipment manufacturers have developed handsets, tablets, dongles and routers based on LTE-FDD.

Also, service providers across the world use various frequency bands to offer 4G services. While US-based companies utilise spectrum in the 700 MHz and 1800 MHz bands, those in Europe use the 2.6 GHz band for providing 4G services. Similarly, service providers in Japan, China and India use the 2.5 GHz, 2.1 GHz and 2.3 GHz bands respectively. This has limited manufacturers' ability to develop handsets and devices conforming to a particular frequency

band. As per the Global Mobile Suppliers Association, about 170 LTE-FDD-based devices operating in the 700 MHz band are available in the market, while only 43 LTE-TDD-based devices operating in the 2.3 GHz band are on offer.

Uncertainty regarding spectrum auction in the 700 MHz band has also prevented players from offering 4G services in the currently available 2.3 GHz band. While the government has indicated that it will auction spectrum in the 700 MHz band in 2014, it has not provided any specific timeline for this. Moreover, it is considering allowing service providers to swap currently held spectrum with that in the 700 MHz band. This could be a positive move for service providers as spectrum in the 700 MHz band is considered to be three times as efficient as that in the 2.3 GHz band. The government is currently working on the modalities of such an arrangement and may accept the Telecom Regulatory Authority of India's recommendation of pricing spectrum in the 700 MHz band at four times the cost of airwaves in the 1800 MHz band. The high price of 700 MHz spectrum could, however, be a damper and service providers may continue to provide 4G services using other frequency bands.

Inadequate optic fibre installation in the core network is another area of concern for 4G service providers. At present, most tower sites have a microwave or copper backhaul link, which are constrained by limited bandwidth. In order to provide high speed services, 4G networks need to be supported by optic fibre backhaul. However, service providers are yet to deploy optic fibre in the core network in several regions, thus delaying service launch. A migration from time division multiplexing to all IP systems will be required to support high data traffic. Also, integration of IP systems with legacy networks is critical for a smooth transition from 2G to 3G and 4G services and vice versa.

Restrictions on offering VoLTE (Voice over LTE) have also been a roadblock to 4G service launch. While 4G networks will mostly cater to data services, companies are more interested in bundling voice with data services. This has become imperative as the voice segment still contributes 60-70 per cent of operators' wireless revenues. However, offering VoLTE services poses a major challenge. Trials in developed markets have highlighted that VoLTE provides an improved user experience as compared to a traditional 2G call, but consumes twice as much power, thereby considerably reducing the battery backup of currently used smartphones. Therefore, handset manufacturers will need to address the issue of battery drain.

Considering that service providers have made significant investments in setting up LTE networks, 4G services are expected to be expensive at the initial stage. High tariffs are likely to be a deterrent for first-time users of broadband and these services will be subscribed to only by high-ARPU customers in Category A and metro circles. Consequently, companies would

struggle to drive the mass adoption of 4G services initially.

Service providers would also face competition from over-the-top (OTT) players for 4G revenues. At present, OTT players such as Google, Facebook and Skype offer free video and internet services and earn revenues through advertisements, while service providers facilitate internet connectivity. This results in revenue loss for service providers.

Limited provision of value-added services (VAS) and data-intensive applications has also been a key concern for service providers. Although 4G services would be primarily used for watching high definition videos, playing graphic-intensive games and internet browsing, the availability of customised and local applications would allow service providers to earn incremental revenues.

3G services have not witnessed mass adoption as the intra-circle coverage remains poor. Several users who had opted for 3G services in the past have now subscribed to 2G services (EDGE/GPRS) that offer similar speeds. Thus, service providers need to ensure that 4G network coverage remains optimal at all places. Further, Bharti Airtel has noted that the coverage area of a 4G tower site is less than that of a 3G site, implying that more 4G towers need to be deployed to ensure ubiquitous coverage.

Initial users of 4G services have expressed dissatisfaction over the fact that their broadband speeds decline to 128 kbps once the data usage crosses the monthly quota. As 4G service users would browse and download data at high broadband speeds, their monthly usage quota would be exhausted sooner. A shift to a broadband speed of 128 kbps would impact the 4G experience and discourage users from continuing with services. Therefore, companies need to address this issue to make 4G services more attractive.

The way forward

Despite these hindrances, service providers remain bullish about the growth of 4G services. Moreover, LTE-TDD technology is expected to evolve with several equipment vendors acknowledging its potential benefits over LTE-FDD. The availability of affordable 4G-enabled devices and local VAS content, and the growing demand for high speed broadband will provide a fillip to 4G service growth.

The government's move to allow VoLTE would also provide an impetus to service providers to fast-track 4G network roll-out. Bharti Airtel has completed trials for circuit switched fallback technology in Pune, Kolkata and Bengaluru. This would enable the company to offer voice services to 4G users through 2G and 3G networks. The operator is also conducting 4G trials using an LTE-TDD-compatible handset – Huawei-Ascend P1 LTE. Moreover, Reliance Jio Infocomm has formed strategic partnerships with several vendors to offer VoLTE and data services. Industry experts believe that Reliance's entry in the voice space will change market dynamics as the company is expected to offer services at low tariffs.

Overall, the segment is likely to gain traction with most service providers planning to launch 4G services in 2013. Government support and ecosystem development will also help in the proliferation of 4G services.

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