

The Business Case for LTE

By David Waite
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The transition to LTE promises to fundamentally change the mobility ecosystem and enable new capabilities well beyond traditional voice and data services. As the migration to LTE gains momentum, all members of the ecosystem – carriers in particular – are taking a closer look at the LTE business case. LTE's economic benefits are grounded in the new capabilities it has to offer. Higher-bandwidth and lower-latency will significantly improve the user experience for bandwidth-hungry content and applications. LTE's all-IP architecture, spectral efficiency, and bandwidth flexibility, promise to improve overall network economics. To understand how these capabilities will impact the LTE business case, it's useful to consider their potential impact on subscriber economics - ARPU, CCPU, CPGA, churn, and adoption.

Subscriber Economics

ARPU has been trending flat to down in recent years, falling from roughly \$52 at the end of 2005, to nearly \$50 today on a blended basis. During this same period, data ARPU roughly doubled from \$5 to \$10, helping offset a nearly 15% decline in voice ARPU. LTE promises to reverse these declines by accelerating adoption of high-speed data services and innovative new content and applications. The dilemma for carriers, however, is that LTE's all-IP architecture will create a more open environment for OTT applications, including 3rd-party VoIP services, which threaten to further commoditize the network. To overcome this threat and realize revenue gains from LTE, carriers will need to partner with content and application providers, develop application store-fronts such as Apple's App Store, and perhaps deploy APIs that expose LTE's value-added network capabilities to 3rd party application and content developers for a fee.

CCPU averages about 50% of ARPU today. LTE's IP architecture and greater use of Ethernet backhaul could significantly reduce transport costs per MB, a key component of CCPU, relative to comparable 3G networks. Furthermore, LTE's greater spectral efficiency, bandwidth flexibility, and use of 700 MHz spectrum, should reduce the number of cell sites and related costs required to serve subscribers. Over time, however, these benefits are likely to diminish as demand for bandwidth-intensive services grows, and carriers are compelled to boost cell density and backhaul capacity to maintain network coverage and performance.

CPGA comprises two key components – device subsidies and sales and marketing costs. Despite the trend toward more expensive smartphones, economies of scale eventually should drive down subsidies as 3GPP device volumes grow and component and manufacturing costs fall. Competition from new device entrants, including PC manufacturers and traditional consumer electronics companies, should place additional downward pressure on price. However, sales and marketing costs, which can represent over 50% CPGA, will almost certainly increase as wireless penetration approaches 90% and competition for subscribers intensifies.

Finally, at just under 2% today, churn could increase in the near-term as the race to deploy 3.5G/4G networks creates periods of network disparity among carriers. Open-access environments may worsen the situation by breaking down switching barriers among providers. Longer-term, however, innovative new services and improved network performance should enhance customer loyalty and retention, and also may help to accelerate adoption by encouraging new performance-sensitive segments, particularly business segments, to subscribe. Device penetration per subscriber also will increase as more consumer electronics devices, such as Amazon's Kindle and in-vehicle systems, become wirelessly enabled and drive further adoption.

Impact on the LTE Ecosystem

So, what does this mean for the LTE ecosystem, and what must each segment do to ensure LTE's success? For equipment providers, the focus should be on understanding the needs of their customers' customers. They must anticipate the types of services, applications, and content that will be demanded by end users in a 4G environment, and incorporate the required functionality into their equipment for service enablement by carriers. Service providers should define new business models and marketing strategies to drive acquisition and retention of subscribers, as well as adoption of high-value content and applications. As described earlier, carriers will need to partner with content and application providers, develop application storefronts, and possibly create value-added network APIs. They also will need to define the right channel and pricing strategies to simplify the adoption of new service categories.

Application and content developers will need to create services that take advantage of LTE's capabilities. Applications such as real-time multi-user video gaming and multi-media remote health monitoring are just two examples. Developers should consider how LTE will change the mobility value proposition, and determine how best to leverage LTE's capabilities to enhance the 4G experience.

Finally, device manufacturers will play a critical role in the success of LTE. Improved displays and user interfaces, for instance, will be necessary to facilitate interaction with advanced applications and content. Additionally, new device categories, including mobile internet devices (MIDs), in-vehicle systems, and machine-to-machine devices, should be developed to fully leverage LTE's improved performance and network coverage. All of these advances must be realized with more on-board computational power and longer battery life.

LTE's new capabilities promise to essentially change how we think about mobility, from core voice and data services to high-value-added content and applications. However, for the LTE business case to prove-out, all segments of the ecosystem must enable the capabilities necessary for end users to reap the full benefits of LTE.

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