In-Stat

In-Depth Analysis

The State of the LTE Market: CAPEX, Deployments, Subscribers, and Services

SKU: IN1004852WBB
Analyst: Chris Kissel
ckissel@instat.com
+1.480.483.4442
November 2010

Executive Summary

The pathway for LTE as a ubiquitous global cellular standard seems to be taken for granted. In-Stat shares this point-of-view, but there exists a question of timing. Does this conversion take place over 5 years? 10 years? Or is this more like a 15-year transition? What does the near future look like?

For all of the wonderful promises of LTE, greater bandwidths, lower latencies, a flatter networking architecture, LTE happens within the context of a larger telecommunications infrastructure. Companies that have made significant investments in their 3G network or their HSPA network will want to leverage their investments. Mobile operators will want to offer their subscribers affordable end-use devices.

LTE is also a spectrum play. The most desired spectrum used to support LTE services is in the sub-1GHz spectrum band. Transmissions at these frequencies propagate through walls better than higher modulation frequencies, and require less supporting CPE equipment than higher frequency cellular signals. Self-evidently spectrum has to be cleared, licensed and either allocated or sold off. Factors involving LTE spending, spectrum and device availability, HSPA networks, access-line acquisition, and backhaul all have to be considered in the formal forecasting of the LTE market.

There is no set pattern for LTE services deployment; which makes this somewhat different than cellular services. Cellular services were focused on serving dense urban areas and then filling out coverage areas thereafter. LTE deployments will come in many different flavors. The first LTE deployment from TeliaSonera did focus on urban areas in Stockholm and Helsinki. However, The Vodafone LTE deployment in Germany (which began in September 2010) is targeted for smaller cities and remote resort cities. Using LTE as a way to provide wireless broadband to underserved areas allows a mobile operator to refine practices before offering services in more congested urban markets.

The figure below shows global LTE subscribers to 2014.

HIGHLIGHTS

- In 2012, LTE CAPEX will peak at US$XX billion globally (although it is conceivable that LTE spending could peak again after 2014).
- By 2014, there will be XX million LTE subscribers—XX million will be using a TD-LTE interface to access LTE.
- The US market will be the initial LTE subscriber leader with XX million LTE subs by 2014. Both Asia/Pacific and Western Europe will follow behind with roughly XX million.
- By 2014, LTE services will be available to XX billion people globally.
- Counting multiple vendors in various regions, the multiple POP is XX billion people. This means that on average, a global LTE subscriber will have XX vendors from which to choose.
- In 2014, revenue from global LTE services will be US$XX billion.
- Global backhaul capacity for LTE in macro BTS will be XXGbps in 2011.
- There will be XX million LTE-enabled handsets sold in 2014.

Figure 1. Global LTE Subscribers, by Region, 2009–2014 (Subscribers in Thousands)

XX

Report Summary

The State of the LTE Market takes an exacting look at the LTE ecosystem. The report first estimates global LTE spending by year and by region for the years 2009–2014. Second, leveraging LTE announcements made by the 3GPP, In-Stat reviews the telecommunications environment of every country that has a mobile operator and that made an announcement committing to LTE airlinks in the future.

Understanding telecommunications in each nation is important. Before a mobile operator deploys LTE services, there are several steps that must be taken. The mobile operator must acquire spectrum (providing a national regulator has made spectrum available). Operators that have made recent HSPA investments will likely leverage those investments. After considering these factors, the report finally presents:

- LTE subscribers by country. The subscriber counts are further broken out by TD-LTE of FDD-LTE subscribers.
- Along the lines of subscribers, In-Stat looks at LTE POPs. In-Stat has also developed a tool called multiple POPs, where we anticipate areas where multiple vendors will be offering LTE services.
- LTE handset and LTE backhaul capacity is forecast by region.
- For the United States and Canada, LTE FDD subscribers, TD-LTE subscribers, LTE POPs, and LTE Multiple POPs are forecast segmented by the mobile operators that have committed to LTE.

Table of Contents

List of Tables

List of Figures

Methodology

Primary research for this report was accomplished through direct interviews and/or email exchanges with a wide array of semiconductor, infrastructure, end-use device, and service provider companies with interests in LTE technologies, from July through October 2010.

In the same time period, In-Stat tracked the LTE market through materials and press releases from the 3GPP and the 3GPP Americas (now renamed the 4GPP Americas). In-Stat regularly considers and contributes to articles in the mainstream press, the technical trade journals, and industry analyst white papers. Product announcements and company financials were also entered into our forecasting model.

We also have internal resources at In-Stat. Forecasts for LTE subscriptions were taken from In-Stat's extensive library of cellular subscription forecasts, which are updated quarterly. Forecasts for LTE-handsets were updated specifically for this report, utilizing In-Stat's large database of consumer electronic and PC product forecasts. Implicit in the report, but re-iterated here—subscribers and end-use device forecasts are made within the framework of wireless infrastructure development and laws and regulations regarding spectrum and usage. These environments are fluid, and the forecasts are likely to change on a quarterly basis.

The way the report is laid out, In-Stat decided to have dedicated analysis of each country where a mobile operator committed to LTE as a future airlink. As a part of the framework for the analysis, In-Stat gathered the population of each nation and the estimated cellular penetration for each nation. (Many countries have "over-subscription" rates; there are more cellular subscribers than there are people in a country). This simple exercise helped us to determine whether a country was still building its 3G infrastructure, or was ready to transition to LTE. Cellular subscription rates are presented as what in-Stat anticipates these subscriber rates will be at the end of 2010.

As mentioned earlier, wireless infrastructure is a fluid environment; therefore, forecasting can a problematic exercise. Of the many factors in migrating customers over to LTE, the following are the most important:

- Spectrum availability: In countries that held spectrum auctions for frequencies that were 2GHz and above, the spectrum auctions seemed to under-perform expectations. It seems that mobile operators in many nations are waiting for sub-1GHz spectrum to become available before there is a full-fledged commitment to LTE.
- Spectrum acquisitions: The spectrum acquisitions determine the subscriber rates. As often as not, the regulators in various countries decide if the mobile operator uses a discrete uplink spectrum and a discrete downlink spectrum, or if the same spectrum must be re-used.
- Recent HSPA investments: One of the truly attractive features of HSPA (and its variant flavors, HSDPA, HSUPA, and HSPA+) is that the airlink is backward compatible with W-CDMA and software upgradeable to LTE. However, the mobile operators will want to leverage their existing HSPA investments. And even if the transition for the mobile operator to LTE is reasonable on a

cost-basis, the operator still has to consider the needs of its own customers, who expect a set level of services and in many cases have newly-purchased devices that they will not want to replace.

- Competitive environment: Clearwire in the US and PacketOne in Malaysia are examples of WiMAX mobile data carriers that have established a market-niche in their own countries. In South Korea and Taiwan, their respective governments have incentives that still favor WiMAX.

The term POP is a well-known industry acronym. POP is the number of people (aka "population") that is covered by an airlink. For instance, AT&T has announced that they have 97% 3G coverage in the United States. When that figure is multiplied by the roughly 310 million people in the US, you have derived a POP.

Multiple POP is fairly intuitive. Using the example above, AT&T would have a POP of 300.7 million (.97 X 310 million). In-Stat believes that Verizon has a similar footprint; for this example we will say that they also have 300.7 million subscribers. In this case, the sum of the POP would be 601.4 million, and this would be a Multiple POP. In essence, the sum of all of the POP in a given country equals the Multiple POP.

If there are questions about the methodology or glossary terms in the report, the analyst will be happy to provide greater input. Numbers may not add perfectly due to rounding, as they are calculated at a higher precision than what is shown.

Related In-Stat Reports

#IN1004712GW *Small Cells Will Play a Very Large Part in Next-Generation Networks: Worldwide Femto, Pico, and Microcell Market Analysis*, July 2010
http://www.instat.com/abstract.asp?id=29&SKU=IN1004712GW

#IN1004713GW *2Q10 Cellular Contracts, Deployments, and Subscriptions Database*, July 2010
http://www.instat.com/abstract.asp?id=29&SKU=IN1004713GW

#IN1004858GDS *3Q10 Cellular Subscription Analysis*, September 2010
http://www.instat.com/abstract.asp?id=311&SKU=IN1004858GDS

#IN1004716GW *Wireless Backhaul: The Network Behind LTE, WiMAX, and 3G,* September 2010
http://www.instat.com/abstract.asp?id=29&SKU=IN1004716GW