

WiMAX or TD-LTE: Addressing the demand for broadband services through a multi-technology approach

by Eran Gorev, President and CEO, Alvarion

Flexibility and freedom of choice are cornerstones in today's market, where service providers face saturated markets and unprecedented competition. A multi-technology approach is the most attractive and viable way for operators to grow their markets and grow within their markets. Broadband remains a key growth area that will be addressed by multiple wireless technologies. Operators are in an excellent position to take advantage of the current state of the industry to establish 4G services today, while enjoying a return on their investment.



Eran Gorev was appointed Alvarion's President and Chief Executive Officer in December 2009. He was previously President and CEO of NICE Systems Inc. Prior to NICE, Mr Gorev worked for Amdocs, where he was President of the North America Major Clients Division and Corporate Vice President and Head of Worldwide Sales.

Eran Gorev holds an L.L.B degree from Tel-Aviv University and a joint MBA degree from the Kellogg School of Management, Northwestern University and the Recanati School of Business Administration, Tel-Aviv University.

For the past two years or so, there has been a debate raging in the industry press which has created a 'WiMAX vs. LTE' perception (Worldwide Interoperability for Microwave Access, Inc. vs Long Term Evolution). This 'either-or' narrative is a common phenomenon which makes it easier to conceptualize the market from a technological standpoint, but it is a disservice for service operators. The truth behind the hype is that a multi-technology approach is the most attractive and viable way for operators to grow their markets and grow within their markets.

As the US continues to expand its broadband penetration, it is imperative for operators to evaluate a host of technologies that can

provide broadband services throughout the country, including rural areas. As operators address the need of providing high-speed wireless broadband, it will be critical to build a multi-frequency network using long range 4G wireless technologies that are specifically targeted for wireless broadband applications.

Most operators desire for a platform that meets current requirements with the flexibility to accommodate future technologies, so their investment is protected. WiMAX is already enabling a host of broadband applications for various types of service providers around the world. TD-LTE, on the other hand, is emerging as a new technology that has considerable momentum in a couple of key markets.



4G broadband creates new opportunities

With the introduction of new all-IP 4G wireless broadband networks, many new technology functionalities come to the forefront, enabling a variety of applications. The number of different applications which can be employed reflects upon the prevailing concept of providing many new opportunities for operators to pursue a variety of business goals. Flexibility and freedom of choice are cornerstones in today's market, where service providers face saturated markets and unprecedented competition.

The value of 4G solutions for vertical applications cannot be underestimated for markets such as utilities (with a special emphasis on smart grids); oil and gas and video surveillance have begun to be recognized as key growth markets.

As these networks enable packet-based communication, the cost economics as well as the ease of new service introduction is becoming increasingly optimized. This lower cost of ownership and attractive time to market allows for more greenfield operators to enter a market than was previously feasible.

In addition, 4G broadband networks complement existing wired infrastructure by extending their reach into areas that were not economically feasible before, in terms of broadband access. Wireless network infrastructure helps overcome many challenges, such as:

- limited or lack of wired reach;
- time consuming deployment;
- limited flexibility for changes and rerouting;
- high deployment costs (*CAPEX*); and
- high operating costs (*OPEX*).

4G drive: spectrum availability

A major driver for operators when selecting a wireless broadband technology will be spectrum availability and the cost of acquiring spectrum. Traditionally, broadband wireless deployments have benefited greatly from higher frequency bands (2.3GHz, 2.5GHz and 3.5GHz) due to the cost-economics associated with them. WiMAX deployments thrived on these frequency bands as the availability of cost-efficient spectrum created opportunities for many new service provider entrants around the world.

From the service provider perspective, the key to maximizing the broadband opportunities is to remain flexible in terms of deployment considerations on multiple frequency bands.



Choice of technology: TD-LTE versus WiMAX

Broadband remains a key growth area that will be addressed by multiple wireless technologies including those like WiMAX and LTE that are based on Orthogonal Frequency Division Multiple Access (*OFDMA*). While these two technologies are derived from different ecosystems, there are many similarities in the underlying technologies that enable both standards. The similarities will enable migration, which some service providers are demanding in order to have freedom of choice in the future.

TD-LTE is a standard for Time Division Duplexing (*TDD*) spectrum and has gained momentum in China over the last year or so. WiMAX is also based on TDD and is very similar to TD-LTE.

WiMAX will continue to be a preferred technology for 4G wireless broadband for many types of service providers. This is due to:

- maturity of available solutions;
- vibrant ecosystem, including devices;
- low Intellectual Property Rights (*IPR*) costs associated with the technology.

The ability to migrate from WiMAX should also be seen as a point of strength for the technology. Operators want to take advantage of the spectrum available today and can achieve a significant return on investment with WiMAX. There is no doubt that WiMAX will continue to strengthen and grow while the other technologies begin to mature. The prospects for TD-LTE appear to be very positive today, and migration is possible. WiMAX, as a 4G technology for TDD, is also continuing to evolve its own development path to WiMAX 2 with advanced features and functionalities.

Depending on the business model, applications and timeline, operators may have a tendency to prefer one flavour of TDD technology over another. Eventually both technologies will coexist as they are driven from two separate ecosystems and the demand for broadband services continues to grow around the world.

The bottom line for service providers is that they can quickly and cost-effectively provide 4G services today with WiMAX, with full confidence that regardless of how the market develops, their investment will be protected.

4G is here today

WiMAX has already enabled hundreds of broadband networks in both urban and rural areas, in the United States, and also around the world. As of August 2010, the WiMAX Forum recognizes 593 deployments in 149 countries, providing coverage to more than 620 million people worldwide.

These networks provide high speed internet access where it is currently unavailable and substantially increased data speeds for applications such as mobile banking, online gaming, streaming video, video-conferencing, VoIP and location-based services, and drive wireless Internet equipment and access prices to levels comparable with or even lower than cable, Digital Subscriber Line (*DSL*), and Fiber To The Home (*FTTH*)-based Internet services.

As some of the emerging economies such as India and China embrace these 4G technologies, the sheer volumes from these countries will make wireless broadband a very attractive value proposition for broadband services.

Both the WiMAX and LTE standards will evolve to IMT-Advanced requirements that will make them even more similar.

Society and the consumer market are painting a clear picture of the future of broadband and the industry. Insatiable demand for capabilities requiring broadband connectivity everywhere will continue to be addressed by both of these technologies, among other technologies, with the underlying goal of providing ubiquitous broadband.

Operators are in an excellent position to take advantage of the current state of the industry to establish 4G services today, while enjoying a return on their investment. ●