LTE is Now

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Around the world, wireless technology has become an integral part of the way we communicate - and our reliance on wireless communication increases daily. At every level of personal and professional life, users expect their fixed broadband, satellite and wireless services to quickly and seamlessly migrate to mobile. With the rising popularity of smart mobile devices, such as the iPhone and Google phone, we are seeing exponential increases in the use of data services by consumers, and subsequent demand for bandwidth.

The growing consumer requirements for faster and more sophisticated mobile communication services pose higher technical requirements on networks. Conventional network construction has strangled the profit potential of mobile broadband with prohibitively high deployment costs and subsequent prices - forcing telecom operators to tackle the double challenge of huge OPEX and decreased ARPU by transforming their service portfolios.

To meet increased traffic and capacity needs, operators have to make fast decisions on next generation upgrades that will enable them to boost spectrum efficiency, simplify network architecture, optimize base station and O&M efficiency, and cut per-bit costs to competitively supply Internet access via mobile devices, especially the increasingly popular and bandwidth-hungry HD VOD. HSPA+ represents a logical development of the Wideband Code Division Multiple Access (WCDMA) approach for supporting growing data and service demands. However, WCDMA will still require a significant investment to migrate from existing infrastructures, and has limited performance and benefits when compared with LTE.

LTE technology is able to realize these ambitious goals and bring high-quality broadband services to mobile users. As a more incremental improvement than we have seen – and one that offers additional spectrum and higher capacity, at lower costs - LTE is an exciting development for the telecom industry.

LTE also offers significant advantages to operators. IP-based, flat architecture networks reduce CAPEX and OPEX, and incorporate quality of service with VoIP. LTE provides enhanced spectrum utilization to support more users per cell, and has open interfaces for 3GGP and non-3GGP technologies. It provides considerably higher data bandwidth, translating into more data capacity per user, as well as more total data capacity per cell than all earlier technologies. With great relevance for added revenue streams, LTE enables operators to supply enterprise data networking, HDTV-quality and other intensive bandwidth applications. With LTE, consumers will benefit from access to a wide range of richly innovative new multimedia applications. The door is opened for applications, products and services targeted not only to today's mobile devices, but also to other new and non-traditional devices. Inevitably, LTE will facilitate the introduction of new services in areas that have not yet been fully explored for wireless services interaction, including consumer electronics and appliances, health care, public utilities, and telematics.

From a global perspective, we are seeing a growing operator trend toward positioning LTE as the future of mobile technology. According to the Global mobile Suppliers Association (GSA) April 2010 *Evolution to LTE Report*, one year ago there were 31 LTE network commitments, and as of April 2010, a total of 88 operators in 42 countries have committed to deploy LTE systems or are engaged in trials or planning. GSA forecasts that up to 22 LTE networks will be in commercial service by the end of 2010, and expects this figure to grow to over 39 LTE networks commercially launched by the end of 2012. According to ABI Research, by 2013, an estimated 30 million mobile broadband subscribers will have access

to LTE services, and by 2016, 10% of all mobile broadband subscribers will be accessing LTE services.

LTE is now well on the fast track and all indicators are excellent for continued growth. The LTE infrastructure market is forecasted by Infonetics Research to reach $11.4 billion (USD) by 2014, fueled by macrocell eNodeB deployments. While TeliaSonera launched the world's first commercial LTE network in Oslo and Stockholm in December 2009, giving the lead to Europe - the Middle East, Africa (EMEA), Asia Pacific and North America will drive the first major wave of LTE rollouts in 2010-2012. The second wave will kick off in 2012- 2013 when the Chinese operators start their rollouts along with the majority of Western European mobile operators.

Although the future for LTE is bright, its large-scale commercial deployment is still fraught with obstacles. The heavy investment already injected into 3G is encouraging many operators to either retain 3G as their area of focus while balancing evolution to LTE, or enhance 3G coverage with 4G as a supplement. Given this, the optimum choice is network convergence.

Operators looking to have cohesion across multiple networks need a solution that can accommodate different wireless standards and enable smooth future evolution. Huawei's SingleRAN@Broad solution was specifically designed to meet network convergence demand and is already widely employed across the globe. The integrated design of SingleRAN@Broad is proven successful in accommodating different wireless standards and enabling smooth future evolution. This solution offers 500 times capacity improvement through flexible multi-layer access methods and spectral efficiency gains. It also offers 97% cost per bit reduction and an improved voice and data experience. Best of all, in times of fiscal constraint, it poses minimum risk as an investment choice and reduces overall network deployment and maintenance costs, especially during initial LTE construction. As a result, several operators, including TeliaSonera, Telenor, Belgacom, and Net4Mobility, use this solution for deployment of LTE.

To support a 492% increase in data service traffic across its networks in 2008, TeliaSonera signed the world's first commercial LTE contract with Huawei and commercially launched its Oslo network in December 2009 with the network reaching maximum speeds of 100 Mb/s - a staggering 10 times faster than existing 3G networks.

Huawei's LTE solution is designed to boost operators' business development space and lower the CAPEX incurred by network upgrades. Through advanced technologies including MIMO, soft frequency reuse, and interference control, the solution increases cell capacity, enhances the stability of wireless access, and raises network coverage capabilities. Additionally, Huawei has launched its E2E LTE/SAE solution featuring integrated terminals, O&M, eNode Bs, Evolved Packet Cores (EPCs), and transmission. To minimize delays and increase speed, Huawei developed its diversified eNode B and EPC product series. The series also provides high spectrum utilization, All-IP flexible networking capabilities, and can seamlessly evolve 2G/3G networks into LTE. Field tests demonstrate a physical layer downlink rate of up to 173Mbps, the highest in the industry, coupled with a switch success ratio that exceeds 99%.

In order to meet the growing consumer demand for ubiquitous mobile broadband communications, operators must utilize networks that enable them to optimize spectrum, base station and O&M efficiency, simplify network architecture, and reduce per-bit costs. The adoption of convergence driven solutions will enable operators to deliver high quality services, while protecting previous investments. These once future possibilities of LTE can and should be enjoyed now.