



Motorola

LTE — Long Term Evolution

Definition

LTE (Long Term Evolution) refers to the new air interface that will be delivered by 3GPP in its Release 8 Specification set. LTE will provide users with a personal media experience similar to that of fixed line broadband both in terms of bandwidth and latency, meaning applications that can be delivered today on fixed line will soon be available over the air and fully mobility with LTE. The LTE standards are planned for completion by end of 2008. By combining expertise from across Motorola including, chipsets, network and video head-end solutions, and professional services, the Motorola LTE ecosystem will enable true media mobility, delivering innovative applications that can help operators to increase revenues and gain a competitive advantage.

Verizon Chooses LTE - and Motorola

Verizon plans to develop and deploy its 4th generation mobile broadband network using LTE – Long Term Evolution. The selection of LTE provides Verizon and Vodafone – joint owners of U.S.-based Verizon Wireless – with a unique opportunity to adopt a common access platform with true global scale and compatibility with existing technologies of both companies. Motorola is among the vendors selected by Verizon Wireless and Vodafone to participate in their joint LTE trials during 2008.

Picture a future where access to information is unlimited at speeds that make file-size irrelevant. High definition video is transmitted wirelessly to devices of all manners. The digital revolution has finally arrived. This is the LTE future as brought to you by Motorola.

Operators will be faced with having to make a decision on their next generation network upgrade; while HSPA+ may seem a natural and easy upgrade to support the growing demand on data services, it will require a significant investment to replace the legacy equipment and upgrade ancillaries and will bring only limited benefits compared to next-generation LTE.

LTE not only brings the realization of true mobile broadband experience nearly anywhere (multi-megabits with virtually no latency), it also allows operators to introduce new exciting services (HD video blogging, HD video on demand, media mobility, online gaming, and others) and brings a significantly improved business proposition (2.5 times capacity, lower cost per bit, spectrum flexibility, media mobility, flat IP architecture, and end-to-end QoS).

Motorola is uniquely positioned in LTE thanks to our years of experience in OFDM and mobile broadband innovation. Our WiMAX leadership position and the common technical features with LTE give Motorola the ability to bring to market an early and field-tested LTE end-to-end solution – like our 3rd generation OFDM broadband platform that is common to WiMAX and LTE.

Motorola's LTE solution is comprised of the common wireless broadband platform and a selection of radio options that include MIMO and smart antennas. The portfolio includes frame based-mounted radios, remote radio heads and tower top radios to support a wide variety of LTE deployment scenarios across newly available spectrum as well as existing GSM and CDMA spectrum.

Motorola's leadership in LTE is demonstrated by its #1 position in LTE RAN standard contribution, LTE trial activity with leading operators, membership in

the LTE/System Architecture Evolution (SAE) Trial Initiative (LSTI) and its demonstrated industry-first LTE-CDMA hand-over.

WHY MOTOROLA?

- 75% of Motorola's WiMAX development efforts leveraged to develop LTE
- Development organizations working in close collaboration
- Common OFDM broadband platform serving both WiMAX and LTE
- Bringing both technologies to market quickly
- High focus on quality, LTE benefiting from WiMAX field experience

LTE BRINGS OPERATORS BEYOND MOBILE BROADBAND

LTE will not only make existing applications faster, but will enable a wealth of new applications previously available only on a wired Internet connection. LTE takes the user beyond mobile broadband by bringing together the best of wireless and wireline experiences. LTE will be about personal media, with the ability to access content, share it and take it with you wherever you go.

Want to view an HD movie when out and about? LTE is the answer. Not only will access to all multimedia content and applications be available "while on the go", but the wall between wired and wireless will come down. "Follow me content" (moving from one environment to another with your content moving seamlessly with you) will become second nature.

For service providers and operators, LTE will provide incredible spectrum flexibility, significant added capacity and a platform for delivering premium applications — cost effectively — in both developed and emerging markets.

LTE's Key Benefits

*** Greater capacity / Lower cost per bit:**

With expected sector peak data rates in excess of 160Mbps and up to-to-four times HSPA/EV-DO capacity for voice and data, LTE will provide significant improvements to the user experience but also a much lower cost per bit compared to legacy 3.5G technologies.

*** Simple architecture:**

LTE's Evolved Packet Core is IP centric and technology agnostic, allowing operators to provide common applications and services across other fixed and wireless access technologies.

*** Spectrum flexibility:**

LTE will offer high levels of spectrum flexibility with the ability to deploy in a number of spectrum bands ranging from 450-2600MHz and a spectrum bandwidth that scales from 1.4MHz to 20MHz. This makes it very well suited for deployments by operators in both developed and emerging markets and offering operators the ability to reform existing spectrum in small increments and allowing them to make the most of new spectrum (such as 700MHz in North America and 2600MHz in Europe, the Middle East and Africa).

LTE PROMISES TO ...

- Reduce latency – ~15ms round trip latency
- Provide higher data rates – ~10Mbps per user
- Lower the cost per bit – 4-10x improvement
- Enhance provisioning: more services at lower cost and better user experience
- Improve capacity – 2.5-4x compared to legacy 3.5G technologies
- Enhance flexibility of use of existing and new frequency bands
- Simplify IP-based flat architecture, Open interfaces
- Allow for reasonable terminal power consumption
- Enable one network for all access technologies and the ability to offer common services and applications across all access technologies through an access agnostic Evolved Packet Core (EVC) and IMS based services and applications —

LTE IN THE MARKETPLACE

LTE is expected to be the technology of choice for most existing 3GPP and 3GPP2 mobile operators looking to migrate to a next generation network. In effect, LTE can be deployed in the existing FDD spectrum bands and offers a smooth migration with the ability to keep global roaming agreements and hand over calls to existing 3GPP and 3GPP2 networks, offering the coverage benefit of existing 2G and 3G networks. While LTE is mainly focused on FDD, LTE is also capable of using TDD spectrum and gives global operators the ability to standardize on one mobile broadband technology even if they have spectrum holding in both FDD and TDD in their various markets.

CONSIDER THE POSSIBILITIES WITH LTE

- Continuing to watch the latest HD TV series recorded on your DVR on your mobile phone, automatically transferred as you walk out the door
- Uploading HD content onto your social networking profile to let your friends know what you are up to
- The PowerPoint file you just saved on your laptop instantaneously becoming available on your smartphone
- Or even your LTE-enabled digital camera uploading your latest picture on your home server or social networking site for your family to see while automatically and instantaneously backing it up

Subscribers will be able to utilize the possibilities LTE creates in the way they want. Whether they are online gamers looking to play on the go, or families that want to share their vacation video instantaneously with friends, LTE will break the boundaries of existing communication systems and unlock the personal network of every subscriber.

MOTOROLA AND LTE

LTE will be about personal media, with the ability to access all your content, share it and take it with you wherever you go. Motorola expertise in OFDM, chipsets, backhaul, consumer devices, IP core, video solutions, applications and services will provide the backbone for an LTE ecosystem that delivers true media mobility and accelerate the delivery of personal media experience. Leveraging the benefits of Motorola's mobile broadband experience in OFDM network deployments, Motorola's LTE end-to-end solution will provide a seamless and flexible path to LTE with a high degree of future proofing for the service provider.

For more details about Motorola's LTE solutions please visit:

<http://www.motorola.com/experiencelte> or <http://www.motorola.com/lte>



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