

Mobile Broadband Best 3G performance now – ready for LTE



Executive summary

1. Mobile broadband – challenge and opportunity

Broadband access is a key enabler for business communications as well as for consumers joining communities in Web2.0. Business users see the value of ubiquitous broadband access and have largely equipped their notebook computers with HSPA data cards and subscribed to business data packages. These early adopters of mobile broadband have significantly driven growth. The growth of the total data volume by more than 350% within six months in a European network is representative.

With a wider choice of broadband-enabled mobile phones and consumer-oriented mobile internet access packages, the mobile broadband mass market is now about to take off. In matured mobile voice markets, mobile broadband access is becoming an important differentiator for mobile network operators. This huge business opportunity comes with the challenge of managing the expected data explosion.

2. LTE – towards highest spectral efficiency

LTE is designed to deliver the highest data speeds for the individual user as well as highest total data throughput.

The first release of LTE, as standardized in 3GPP Release 8, delivers peak data rates of up to 173Mbps and allows the maximization of the total data throughput on a given frequency spectrum allocation.

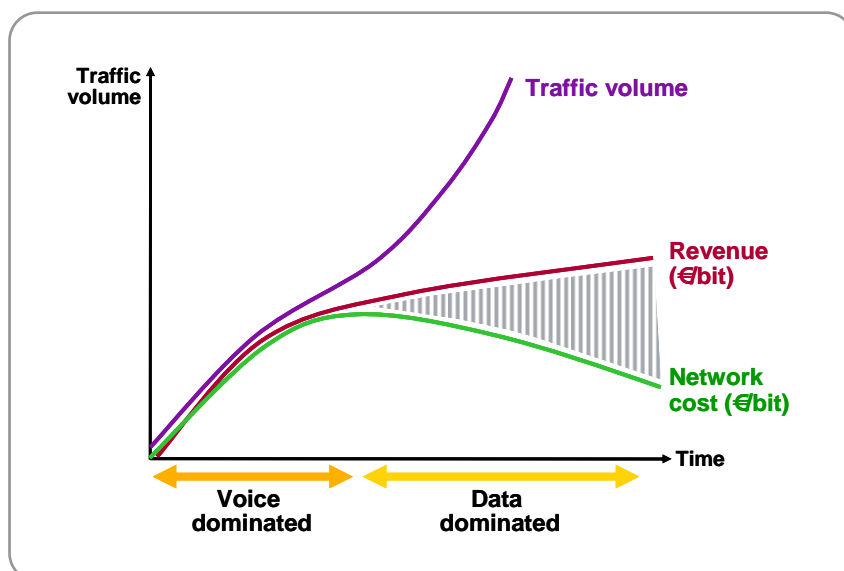
LTE is the first largely scalable radio access technology for use in a spectrum landscape that is growing increasingly complex around the world. LTE can be used in spectrum allocations from 1.4MHz to 20MHz. This makes LTE a mobile broadband technology for all mobile network operators, regardless of their legacy networks and spectrum allocations. Eventually, LTE will allow operators to simplify their networks by deploying LTE on all their spectrum allocations.

The operators' total cost of ownership of LTE is further reduced by the flat network architecture, which enables streamlined traffic flows and better system scalability, and the all-IP concept, which enables savings in the service delivery environment.

3. With Nokia Siemens Networks LTE starts now

From the continuous dialogue with our customers we understand that three challenges need to be mastered when developing an LTE introduction strategy:

- How to make sure that LTE can be introduced in any base station site?
- How to ensure smooth migration from the current network to LTE?
- How to future-proof ongoing investments in HSPA?



Our Flexi base station has been delivered to more than 100 networks. It provides market-leading performance and comes in extremely compact, outdoor-capable modules. The latest addition to the Flexi base station family, the Nokia Siemens Networks Flexi Multimode BTS, can be upgraded from WCDMA to HSPA to LTE via software. On top of that, the Flexi Multimode BTS, which will be available from the third quarter of 2008, is also extremely energy-efficient. WCDMA sites built with Flexi Multimode BTS consume only about 25% of the energy that the sites with the first WCDMA base stations consumed. While being energy-efficient, the Flexi Multimode BTS also has an astonishingly high output power in a small size, namely 3x 60W in a single Flexi Multimode RF Module. The SW-upgrade to LTE will be available in the second half of 2009. The Flexi Multimode BTS fits in any site scenario.

It takes more than the base station to ensure the smooth migration to LTE, however. We provide a comprehensive end-to-end network solution supported by close co-operation with Nokia terminals.

Nokia Siemens Networks' packet core network is in use in more than 200 networks and provides a smooth evolution from GSM/WCDMA/HSPA to supporting LTE. The Mobility Management Entity and SAE Gateway functionalities will be implemented in Nokia Siemens Networks' SGSN and Flexi ISN and will be available in the second half of 2009.

Only Nokia Siemens Networks now already provides the flat network architecture of LTE for usage with HSPA devices: I-HSPA. Above a certain traffic volume we recommend streamlining of HSPA networks by I-HSPA. From I-HSPA to LTE there are no network architecture changes. Our mobile backhaul solution is also LTE ready.

But end-to-end by Nokia Siemens Networks goes beyond radio access and a packet core. With our market leading IMS, we provide the proven service control engine for an all-IP environment. Our unique NetAct OSS system, which features a comprehensive element, network and service management functions ensures operational efficiency for all network technologies.

Our subscription management and charging systems enable you to monetize the mobile broadband offering. Nokia Siemens Networks professional services support you in all phases of LTE introduction and operation.

With the Nokia Siemens Networks LTE end-to-end solution, you

- bring LTE to any antenna site
- build on the experience from more than 100 WCDMA radio networks and more than 200 packet core networks and more than 500 systems integration projects
- ensure smooth migration from current networks to LTE with early network preparation and multimode capability

With Nokia Siemens Networks your return on invest is double: highly-efficient HSPA performance now, smooth LTE activation from the second half of 2009 onwards.

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