

HSPA evolution for the mobile handset 'always-on' experience



The arrival of HSPA was an important step towards the true mobile broadband era.

Now, key technology developments are on the horizon, promising to boost the performance of applications over mobile handsets, encouraging greater user adoption and generating more revenue for providers.

High Speed Packet Access (HSPA) technology is evolving, with key improvements in voice and data performance that will make mobile broadband an even better experience. While the focus of HSPA development has so far been on the network architecture and bringing higher peak data rates, mainly driven by laptop users, some important advances are set to enhance the end-user experience especially for consumers with handheld devices. Longer talk times and faster, always-on data applications are two critical benefits achieved through cost-effective advances in both the network and mobile handsets.

With these advances, Communications Service Providers (CSP) will be able to sell mobile broadband to more handset users, winning more revenue as a result. Furthermore, CSPs will benefit from lower cost per bit achieved with an estimated 20% higher capacity using their existing spectrum and network hardware.

Current HSPA deployments of 198 commercial networks in 86 countries (GSA, 18 May 2008) conform to 3GPP Releases 5 and 6, giving data rates equivalent to ADSL services. 3GPP Releases 7 and 8, collectively known as HSPA evolution, will bring big enhancements. Three key developments are expected to become commercially available during 2008–2009. Combined, these promise to make the always-on experience we are used to with fixed access, a practical reality on our mobile devices, improving talk time and battery life over 3G.

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Discontinuous Transmission and Reception can double battery life

Currently, 3G devices continuously transmit and receive a control signal when connected. 3GPP Release 7 allows the device to shut down its transmitter when there is no data to send or receive, saving power significantly. Clearly, any application sending and receiving bursty data will benefit the most, such as browsing and voice.

The impact on application performance is unnoticeable to the end user, yet the battery life of the device can be doubled, giving the ability to leave the device connected constantly, a valuable benefit for business users relying on push email services.

CS Voice over HSPA increases talk time

This new feature routes voice calls over HSPA packet-based transport channels instead of the reserved circuit-switched (CS) channel as required by the WCDMA air interface. End users see no difference in the voice service they get and the CSP does not have to make any changes to its core network.

However, coupled with Discontinuous Transmission and Reception, end-user talk time is doubled, call setup is faster and CSPs benefit from much higher voice capacity per carrier, making it feasible for both consumers and CSPs to use 3G as the preferred network for making voice calls.

Shorter setup times for better applications

With HSPA evolution, data connection setup times are reduced from the 1 s typical in WCDMA to less than 0.1 s. The improvement is achieved because physical channels do not need to be reconfigured during setup, allowing data to flow sooner. Coupled with the improved latency of HSPA, end users will enjoy faster download starts and a much improved experience for applications designed for the wired Internet.

All of these new features are straightforward to implement in devices without significant additional cost. Furthermore, with Nokia Siemens Networks infrastructure, only simple software upgrades are needed in the network.

Complementing the improved HSPA air interface and the availability of HSPA over the 900 MHz band, which can triple coverage compared to original 2100 MHz WCDMA deployments, these new features mean a much better end-user experience. CSPs will be able to enjoy new ways to encourage users to adopt mobile broadband and achieve better returns on their network and spectrum investments.