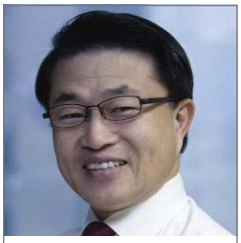
SK Telecom Adopts HSPA Technology to Strengthen its Mobile Data Strategy

By Dr. J. T. Ihm



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Over the past two years, SK Telecom – South Korea's largest mobile operator – has aggressively deployed one of the world's first handset-based, next-generation High-Speed Packet Access (HSPA) networks in cities across southern Korea. Our company is considered one of the most innovative service providers because of its rich offer, composed of innovative mobile lifestyle services. Because of this, SK Telecom is considered a model for the telecom industry in terms of its end-user focus and ability to stay ahead of its competitors.

The HSPA network is a new-generation mobile technology that leverages the standards associated with the Universal Mobile Telecommunications System (UMTS). It significantly accelerates data transfer speeds, with current support for 7.2 Mbit/s on the downlink and 1.4 Mbit/s on the uplink.

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Our company launched the world's first HSPA network in May 2006 and achieved complete nationwide coverage by the first quarter of 2007. We characterize the launch of our 3G+ brand (HSPA network) as the starting point for a new category of services for customers, which yields important new revenue streams. It also marks an important transition point as our company moves from a voice-based business model to one that is contingent on monetizing data services.

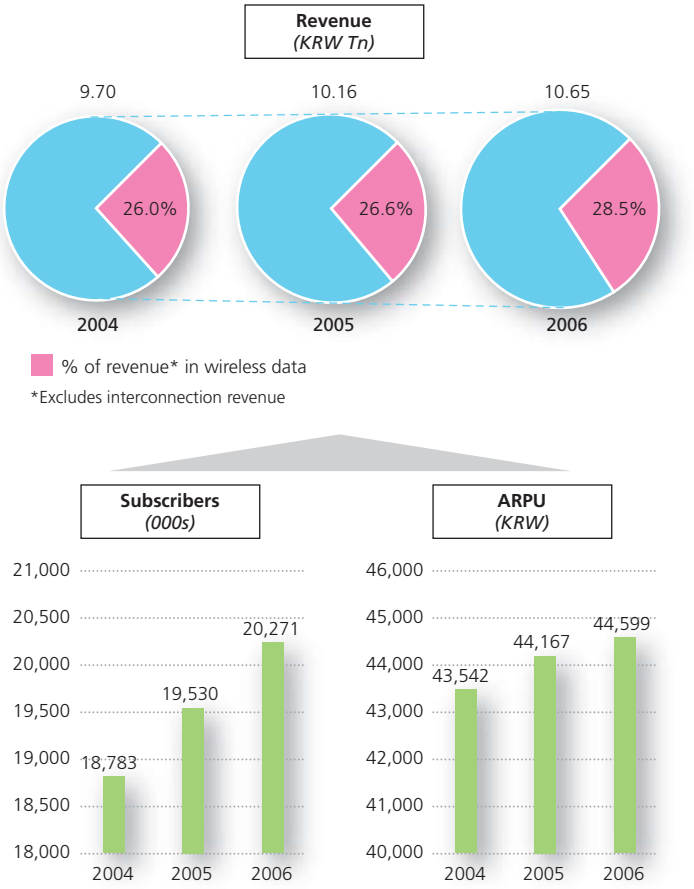
The services HSPA enables include not only high-definition video-on-demand and music streaming, but also multi-user mobile gaming, video calling, multimedia messaging and a host of other high-bandwidth services.

Broadband Mobile Data Delivers New Revenue Streams

Our company has been successful in profitably growing our business this year with significant subscriber adoption of Wideband Code Division Multiple Access (W-CDMA), from around 148,000 users in December 2006 to more than 2 million in November 2007.

This migration to HSPA provides our network with high spectral efficiency (up to three times better than UMTS Release 99) as well as high-throughput mobile data (with the ability to deliver up to 14.4 Mbit/s on the downlink and 5.7 Mbit/s on the uplink in the future). In parallel, it offers the capacity to offer a large choice of W-CDMA handsets at affordable prices.

Figure 1: **SK Telecom wireless business revenue over the past three years**



Meanwhile, Alcatel-Lucent's HSPA technology is helping us deliver high-quality communications through more efficient use of the UMTS network and spectrum. The technology is a key component of our "3G+" services because it ensures the bandwidth and quality of service required to support such new service offerings as "high-quality video calls" and "ultra-speed data transfers".

Alcatel-Lucent Answers Korean Market Requirements

Alcatel-Lucent has been helping our company perfect its network requirements by developing specific innovative features and products such as the Remote Radio Head (RRH) and Operations, Administration and Maintenance (OAM) functions.

All these refinements now benefit the worldwide market, and Alcatel-Lucent's portfolio has been enriched with functions in OAM, network supervision and fault and performance management. The company has also achieved the most significant deployment of RRH-based distributed Node B to date.

SK Telecom Develops HSPA Service Delivery Concepts

In rolling out our HSPA-based services, SK Telecom has developed a comprehensive strategy for engaging and attracting subscribers, leveraging its significant experience in offering Code Division Multiple Access (CDMA)-based services.

The rapid evolution of technology and deployment of various convergence services has created different levels of sophistication in the market. As a result, it is necessary to provide an array of services that match different consumer needs, devices and capabilities. Our major HSPA services are:

- Video telephony and related value-added services: Phone-to-Phone, Web-to-Phone, Fixed-to-Phone, Image Coloring, Image Message Call
- High-speed data services: T-Login/Hi-speed Internet Access, Full Browsing, User-Created Content
- Global: International roaming

SK Telecom believes that, by taking a strategic approach to integrating and optimizing different network technologies, we can serve the needs of existing subscribers, while laying the technological groundwork for future services in a cost-effective manner. To that end, our company plans to establish HSPA as a service platform for developing four key business "concepts" or market opportunities.

- **Visual Concept.** Our company is developing a series of HSPA technologies that deliver high-quality video calls, enable customer-created content, and expand the array of options for mobile gaming. Specifically, we plan to leverage 3G+ technology to shift the mobile phone user's experience from being a "listening" activity to a "watching" activity (Figure 2). In addition to changing the orientation of the user interface, we expect to see a significant shift in how users access network resources. The availability of affordable bandwidth in a mobile environment creates opportunities to offer services that are based on "always-on" usage models. Consumers will be able to use their mobile devices to participate in video conference calls, monitor closed-circuit TV cameras that (for instance) can keep them in touch with their children while away from home, or let users watch video-on-demand programming.

Figure 2: SKT 3G+: from "listening" to "watching"

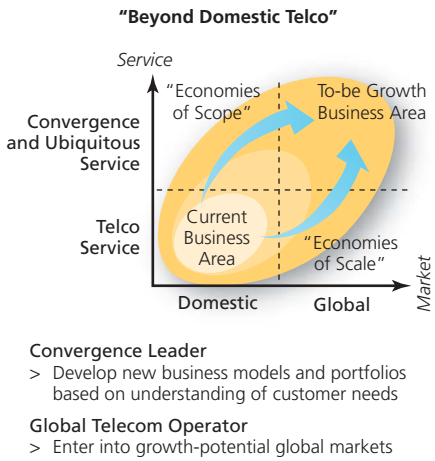
- **Internet Concept.** SK Telecom also plans to expand the ability of mobile devices to access Internet services directly and create an experience that is more like that offered over fixed-line access points. HSPA technology will bring a "full browser" experience to the mobile device. As a result, we expect the mobile platform to compete with desktop and laptop PCs to become a major wireless Internet access point. Indeed, the mobile device platform may offer greater opportunities to spur the growth

of user-created content on the Internet (Figure 3). However, we are not limiting our mobile Internet vision to hand-held phones, smart phones or other communications devices. Our company is moving aggressively to develop its T-Login technology. The T-Login concept is based on making HSPA USB modem technology, which offers high-speed wireless data service capabilities available to a wide variety of consumer electronic devices, including notebook computers, portable media recorders, digital cameras, MP3 players and game players.

Figure 3: SKT 3G+: An enabler for user-created content

- **Global Concept.** Our business leaders believe our long-term success will be highly contingent on our ability to expand our presence beyond our national borders. Executives note that the importance of "global roaming" has never been greater, as operators around the world form alliances to provide a seamless communication and entertainment experience for frequent international travelers. By moving past the CDMA infrastructure and adopting new W-CDMA platforms, SK Telecom is no longer limited in its ability to tap into revenue that may well originate from outside South Korea. The new 3G+ environment creates a whole new opportunity to establish global relationships and gain the benefits of economies of scale that transcend its current national scope of opportunity (Figure 4). Our recent investment in Helio in the United States is a good example of how we are moving to enhance our global position in the telecom marketplace.

Figure 4: Moving beyond borders



- **Convenience Concept.** With the availability of new, higher-bandwidth capabilities in the mobile network infrastructure, SK Telecom believes it is important to place greater focus on the "convenience" aspects of the user experience. Until recently, "convergence" has been one of the central organizing principles for delivering wireless data services. While convergence will continue to play an important role in designing new services, we plan to concentrate on providing a unified set of "convenient" solutions that are customer-oriented. By making mobile data services more intuitive from a design and integrated-support standpoint, our company expects to see faster adoption of new technologies by subscribers.

As a result, we are making significant investments in developing Universal Subscriber Identity Module technology. This is an application for UMTS-based mobile technologies that allows a smart card, which stores user and subscriber authentication information, to be inserted into a 3G mobile device. This will make it much easier – and convenient – for consumers to use their mobile devices in a secure manner to access an array of financial services, entertainment offerings and other applications that require strong authentication because they involve the exchange of personal information.

Conclusion

To support the rapid and cost-effective build-out of this network infrastructure, SK Telecom has worked closely with the important regional partnership between Alcatel-Lucent and LG-Nortel. The companies are working together to manage current and projected increases in mobile data traffic.

Our company is preparing to launch next-generation mobile data applications that will be deployed on top of our High-Speed Uplink Packet Access (HSUPA) technology. The new technology will enable content (large video files, etc.) to be uploaded to mobile devices as well as personal broadcasting services. Typically, through the HSUPA platform, SK Telecom will be able to promote interactivity and launch network-based games that make the most of reduced latencies. Indeed, the Korean games market is one of the most dynamic in the world, with distinct preferences such as multiplayer games. Interactivity and community are key factors in creating successful mobile games in the Korean market.

To assist us in further strengthening the success of these services, Alcatel-Lucent has upgraded our existing nationwide optical network with a Metro Core Connect backbone. This roll-out will allow our company to reduce total cost of ownership and enjoy a reliable end-to-end architecture, delivering high-quality services in response to Korean market demands.

Looking ahead, the collaboration between SK Telecom and Alcatel-Lucent will secure both companies' market leadership in one of the most competitive wireless marketplaces in the world.

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