

3G takes its seat at the cellular technology table

Making **Wireless** — Making **3G**



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3G's time has definitely come. Once the maligned "stepchild" of emerging wireless technologies, the third generation of cellular is quickly silencing its remaining skeptics and living up to its powerful promise as the high-speed, data-enabling third-generation of cellular technology.

As proof, one needs only to look at the sheer volume of 3G handset shipments and subscriber growth in 2004 alone. According to analyst firm IDC, 20 million 3G handsets have already shipped in 2004, with 37 million total 3G subscribers forecasted by the end of 2004 worldwide. Indeed, the momentum for 3G is no longer simmering, it is starting to boil. By some accounts, 3G growth is expected to reach 425 million subscribers by 2008*.

Why the growth spurt in 3G?

Improvements in infrastructure and increased cap-ex investments by carriers have laid the groundwork for the burgeoning 3G market. At the other end of the value chain, 3G is now revolutionizing how cell phones are used and consumers are responding. Operators are now providing advanced features and services, which means an enriched user experience for the consumer and increases in average revenue per user (ARPU) for the operator. 3G is about multimedia performance, driven by demand for mobile entertainment and on-the-go productivity. Current 3G handsets feature high-resolution color displays, integrated video cameras, streaming of audio and video content, internet access at broadband speeds, location-based services, and multi-user 3D gaming. And these are only the beginning.

To be sure, 3G is succeeding by delivering user-rich, value-added services that are influencing consumers to switch to 3G mobile phones and networks. However, 3G's success won't occur in a vacuum.

There are three areas to consider for 3G to realize its full potential:

No. 1: Open standards drive rich value webs and interoperability.

Wide adoption of 3G will require introducing innovative services with cross-network interoperability. A cookie cutter solution won't do. Only a non-proprietary, open approach will foster innovation of new content, services, and applications. Open industry alliances and standards bodies, such as 3GPP, 3G Americas, Open Mobile Alliance, MIPI Alliance, and the Khronos Group, are driving for better and easier interoperability for the entire value chain. Wireless operators must work together with handset manufacturers, semiconductor partners and software providers to promote open standards for 3G networks and equipment. As cool as these services may be, none will be successful if the industry doesn't work together to drive interoperability across networks around the world.

No. 2: Economies of scale apply.

Deploying 3G comes with a price tag. Hence, economies of scale will help make the 3G UMTS market mainstream. Chip manufacturers must deliver higher performance, lower power, lower cost and more integrated complete solutions through smaller process geometrics and innovative silicon technologies. By doing so, this will lower the cost differences and space requirements between a 3G handset and its 2.5G equivalent. Handset manufacturers must have an open platform that allows them to leverage significant software investments, which will result in maximum flexibility to develop an extensible product line of mobile handsets.

No. 3: Multimedia-rich applications will define 3G, but not at the expense of the user experience.

Ensuring that complex applications work is integral to 3G success. Just a few years ago, completing the air interface was the bulk of the development and test work required to develop a new handset. However, certification of an air interface is no longer enough. Due to the growing number of applications running on a cell phone, equally important is video and audio codec certification as well as integration with operator services. This has already been proven in Japan, where such integration has helped ensure that while more applications and features have been added to the cell phone, the user experience and quality of service have not been compromised. This is essential to 3G adoption and increased ARPU.

Consumers already expect a high-end electronics experience from their state of the art digital cameras, camcorders and game consoles. They are beginning to expect the same experience on their mobile phones, with a broad range of compelling, interactive content. It may go without saying, but this must be accomplished while still delivering the same voice quality, form factor and battery life to which consumers have become accustomed.

**Source: IDC*

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The underlying 3G technology platform must deliver upon user expectations in key areas that may not have been as important in prior generations of wireless technology: multimedia quality for pictures, video and audio. This trend will only increase, with the expected surge of even higher performance multimedia applications and a strong trend to deliver a consumer electronics experience to the cell phone. Already we are seeing:

- Digital camera quality imaging with higher resolution sensors and instantaneous press-to-shoot delays
- Console quality gaming experience
- Consumer quality video record and playback
- Satellite digital TV reception and location-based services

As more such advances in applications appear, the potential 3G barriers consumers once faced, including high-priced, bulky handsets with short battery life, will continue to dissipate and focus the buying decisions more on the compelling services and content that 3G delivers.

What's next?

The combination of the essential with the desired (reliable communications with cool applications) will become increasingly important as 3G evolves. No longer just a device to make and receive calls, 3G is turning the cell phone into a universal remote control, allowing our on-the-go society access to entertainment and productivity with just a click on their cell phone. Indeed, these exciting services will be the cornerstone of accelerating 3G uptake, driving increased ARPU for mobile operators and creating opportunity for every part of the wireless value chain as we deliver a multimedia experience on the cell phone that equals a consumer electronics experience.

For more information on TI's views of the 3G marketplace, please visit www.ti.com/3g

