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Global Mobile Trend Update

Global Networking Strategies

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In Europe, 2.5G networks are appearing and will form the backbone of cellular networks outside Japan until 2004+. The first European 3G networks will arrive in 2H02 with very limited coverage and reach, and will arrive in North America during 2006/07. Users must scrutinize operators and negotiate contracts with great care. Initially, these networks will be used mainly for voice and data services, but will not mature until 2004+, as transaction-based pricing evolves.

Higher bandwidth over cellular networks is slowly becoming reality around the world. The hype surrounding 3G has turned into widespread disbelief when it comes to available bandwidth, coverage, and rollout plans, compounded by the difficult financial situation of many mobile operators. Users with a pressing need to deploy mobile applications should focus on existing, proven technology (2G and 2.5G) from financially viable mobile operators, and not wait for 3G to become mature with the necessary coverage. Most of the advantages that 3G promises are provided by 2.5G, but without the associated risks. Best-practice applications should be developed to be as network-agnostic as possible regarding transport/transmission, as well as target devices (see GNS Delta 933, 26 Nov 2001).

Technology Paths to the Future

META Group believes there will be two dominant families of cellular technology in 2005:

- ▲ GSM networks evolving into GSM/GPRS/EDGE and the follow-on 3G technology W-CDMA
- ▲ CDMA networks evolving into CDMA 1X and the follow-on 3G technology CDMA 2000

Existing TDMA operators will migrate to one of the technology families (e.g., Cingular Wireless and AT&T Wireless have chosen GSM/EDGE) as an intermediate step toward 3G. In 2001, 80% of all new subscriptions on a global basis were in GSM/GPRS networks, and the pure economies of scale made GSM/GPRS dominant (and follow-on technologies such as EDGE and W-CDMA). We expect GSM/GPRS/EDGE/W-CDMA to have 85%+ global market share by 2005, and CDMA to have <15% (<40% in Americas, non-existent in Europe, and <10% in Asia Pacific). Highly specialized networks for pagers and e-mail access will be limited by 2005.

META Group research shows that 3G (outside Japan) will not happen in 2002, except for some pilot deployments in a small number of selected areas in Europe (2H02). Larger metropolitan areas in Europe will start to get coverage during 2003, and other densely populated areas during 2004. We do not expect that sparsely populated areas will get 3G coverage before 2007, if ever. Licenses for 3G mandating high terrestrial coverage will be renegotiated. The 3G handsets that become available

2001/02 META Trend: Worldwide cellular networks will migrate from circuit to packet switched (TCP/IP), providing "always on" service, simultaneous voice and data, improved encryption, and increased bandwidth (20-100 Kbps in 2001/02; 80-200 Kbps by 2006/07). UMTS standard W-CDMA will become the predominant third-generation standard in Japan (2001), Europe (2002/03), and the Americas (2006/07). WAP will remain the predominant wireless data standard, but will evolve to TCP/IP in 2002 and a converged WML/cHTML markup language (X-HTML) in 2003. Traditional application server vendors will absorb nascent wireless middleware/gateway functionality during 2001-03.

2002/03 META Trend: Worldwide cellular networks will migrate to next-generation packet-switched (GPRS) data technology, providing "always on" service and increased bandwidth (20-100 Kbps) during 2002/03. W-CDMA, already deployed in Japan, will gradually emerge in Europe (2002/03). The North American market will consolidate around GPRS and CDMA 1X in 2002, migrating to CDMA 2000, and W-CDMA during 2006/07. Data-only mobile networks (e.g., paging) will struggle to survive by 2004/05. Cellular carriers will provide wireless LAN access services in 2003, with seamless roaming by 2003/04. Software vendors will absorb wireless middleware/gateway functionality during 2002/03 and support X-HTML, MMS, and Java by 2003/04.

in 2H02 will be dual-mode GSM/W-CDMA. EDGE handsets will be available at the end of 2002/1H03. Mobile operators in the Americas will deploy 2.5G technology such as EDGE to get a more efficient usage of existing spectrum before deploying 3G, when new spectrum becomes available after 2005 (see GNS Delta 901, 7 Sep 2001).

Users should not expect to get more bandwidth than 20-100 Kbps during 2002/03, rising to 80-200 Kbps by 2006/07 from mobile networks. This implies that the use of mobile multimedia will be severely hampered until 2006. By 2005, virtually all GSM/GPRS networks will have upgraded to EDGE, because it has a low investment cost (approximately 10%-15% of initial network investment, compared to GPRS at approximately 5% of the initial GSM investment) and provides significant (up to 200%+) improvements in bandwidth as well as improved efficiency in frequency and resource use.

WAP (Wireless Application Protocol) will continue to be the least-common-denominator wireless data protocol. Our research shows that certain popular sites (e.g., the DHL parcel tracking site) have more WAP traffic than Web traffic. Starting 1H02 and becoming commonplace during 2003/04, handsets will support X-HTML (includes improved formatting over WML [Wireless Markup Language], has color support, and is part of the WAP 2.0 standard), MMS (Multimedia Message Service), and downloadable Java applications. This will follow a standards effort led by Nokia and endorsed by most major vendors and operators. A voice interface will emerge in 2002 and become mainstream by 2004.

Bluetooth will become a standard feature in handsets during 2002/03 and will predominantly be used for synchronization of information, when using the handset as a cellular modem and for local gaming.

Vendors Attempt to Relabel the Market

Users should be aware that, as true 3G rollout becomes increasingly delayed on a worldwide basis (except in Japan), vendors and operators have started to relabel technology previously considered to be 2.5G as 3G. EDGE (enhancement to GSM/GPRS) and CDMA 1X (follow-on to CDMA) are now being marketed as 3G. META Group strongly recommends that users not get confused by the marketing hype. EDGE and CDMA 1X are fairly low-risk enhancements, leveraging an existing infrastructure, as opposed to "true" 3G, which uses a completely new infrastructure.

Operator Viability Is Still Important

We believe the current overall financial situation of the mobile operators will drive consolidation through mergers and acquisitions, concomitant with further delays in 3G rollout plans. META Group research shows that mobile operators, on average, require a market share of 30%+ to be profitable. Companies should carefully evaluate the financial position of operators and insert contractual clauses to protect and offer contract renegotiation in case of:

- ▲ Merger or acquisition
- ▲ Pricing methodology change
- ▲ Disruptive change of technology, forcing replacement of handsets

Bottom Line

Companies and organizations that have a pressing need to deploy mobile solutions should exploit existing, proven technology, initially 2G and 2.5G, from financially viable operators. Users must ensure that they are protected from the impending changes by negotiating solid wireless contracts. They must set and enforce policy for cellular usage and start transitioning the responsibility of cellular to IT.

Business Impact: Improved cellular data networks will help open new channels to customers, partners, and employees, but they will be expensive and limited until 2003/04+.