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Progress... To-Go
HSPDA, IMS, and WiMAX

by Paul Budde

Mobile data is unique. If the mobile operators would exploit the unique features of mobile (in key user markets such as teenagers) as opposed to wireless, there are plenty of good niche market opportunities. However, operators will need to change their business models in order to successfully tap into these markets.

Around the world, thousands of mobile data entrepreneurs are prepared to have a go at this market. They have the creativity, innovation and eagerness that are lacking in the more bureaucratic and technically-oriented mobile operators. So, if these operators would just step aside, and if a viable business model (linked to better prices) is created for the mobile data companies, then the sky is the limit.

If the operators would pursue mobile data opportunities along these lines, they will indeed come to understand that this will be a completely different market from (wireless) broadband. There will be some collisions and overlaps at the outset, but I am sure these markets can be developed along their own lines.

At the moment, however, the market is still far too confusing for customers. How on earth can we expect them to take the mobile data industry seriously while we continue to bombard them with such a confused array of incompatible products and services?

3¼G ALREADY ON ITS WAY

Before 3G has even been widely introduced we are already seeing a repeat of the 2G scenario. Having delivered the 3G networks to their customers, the vendors are on the move, and are already securing their next level of sales. The 3¼ version is now under development – known as HSDPA (High Speed Downlink Packet Access).

The new technology will increase speeds of the 3¼ G network to between 8 and 10Mb/s. In Stockholm, Ericsson has already deployed a pilot network that delivers 5MB/s.

The vendors aim to keep in line with developments on the fixed network, where Digital Subscriber Line (DSL) speeds will be improved along similar lines. Their goal is to deliver to their customers a transparent experience using broadband over the fixed or mobile networks.

It will be interesting to see if commercial applications can be developed based on HSDPA. So far the ideas have not gone much beyond ringtones and music downloads. I am sure that the innovative entrepreneurs out there will be able to come up new applications, but the problem hasn't been lack of applications, but rather a lack of viable business models.

By and large the operators have refused good sharing arrangements with content providers (Japan and Korea are exceptions). Instead they have generally opted to go it alone and this has led to very poor mobile data performances. Furthermore, the prices charged for mobile data are nowhere near those charged for fixed networks and, unless this changes quite dramatically, we won't see a large uptake of HSPDA, and it will most likely suffer the same fate as the dozen or so upgrade technologies introduced on 2G networks over the last five years.

The mobile industry is putting on a brave face, telling us that 3G and WiFi/WiMAX are aimed at different markets and won't compete with each other, that is true but many of the current 3G developments are aimed at wireless broadband; most probably in frustration about the fact that the operators find it difficult to commercially exploit the unique mobile functionalities that 3G has to offer. I remain convinced that, if we do get affordable WiMAX services and end-user equipment, there won't be much room for 3G broadband, unless they start to follow the affordable Internet model.

WiMAX is already very much an IP-based technology and 3G is not. This means that voice can be added to WiMAX reasonably easily and cheaply, turning it into a real competitor – not just for broadband but also for telephone calls.

HSDPA

High-Speed Downlink Packet Access (HSDPA) is an evolving telephony protocol. It is a packet-based data service in WCDMA downlink with data transmission up to 8-10 Mb/s over a 5MHz bandwidth in WCDMA downlink. Its standards were developed by the 3rd generation partnership project (3GPP). Release 4 specifications enable provision of services through an all-IP core network, and Release 5 specifications focus on providing data rates up to approximately 10Mb/s to support packet-based multimedia services. MIMO systems are the work item in Release 6 specifications, which will support even higher data transmission rates up to 20Mb/s. HSDPA is evolved from and backward compatible with WCDMA systems.

To succeed, HSDPA must compete with CDMA2000 EV-DO and WiMAX. This might be difficult as, in Japan, KDDI's CDMA2000 is generally considered as being much more successful, faster and smoother than DoCoMo's and Vodafone's UMTS / WCDMA.

Mobile Triple Play and converged multimedia services will also put new demands on the core network. Evolution to all-IP service delivery is a natural step of both fixed and mobile communications and IMS is a key component of the operator's long-term network evolution towards all-IP.

WILL HSDPA DETHRONE WiMAX?

WiMAX arrived too late to make a major impact on the fixed broadband market but, with hindsight, I believe that this would not have had a major impact even if it hard arrived a year or so earlier. It is mainly moving into those broadband markets that don't have DSL, or where only ADSL is available. Wireless has the potential to compete with fixed systems in these markets, but it often does not constitute more than 10%-25% of the total broadband market, and here it will also compete with satellite and BPL. Furthermore, the closer to populated areas, the bigger the threat that fixed line operators will extend their reach.
So, while it is still a strong contender in this space, we started to direct our consideration of WiMAX to new markets and have been talking about wireless broadband taking over where mobile data has failed. The mobile technology is not well positioned to deliver high-speed, low cost broadband in a wireless environment – partly for technological reasons and partly because of the business models currently being used by mobile operators.

WiMAX could build this wireless grid in an open fashion, thus providing content and service providers with an economically viable way to develop new services for a wireless environment. There will be plenty of such opportunities – just think digital cameras for one – sharing those 'Kodak' moments with people on the other side of the wireless broadband connections.

Now these technologies are theoretically also available on mobile networks, but they are far too expensive, too cumbersome and, with the dozen or so different technologies used, certainly not seamless and universal.

Last year, for the first time, I began to report on HSDPA and, at a very interested analysts' conference in Shanghai, Ericsson was once again enthusiastic about this technology. Now a year later it has the first trials in place.

Theoretically, yes, it all looks great and fantastic. The pics on the mobile phones look better than the one on 2G phones but, on the other hand, the hype is more of the same. I can't see operators rushing into this. Most are still coming to grips with the first generation 3G, and they are now already being forced to look at the first upgrade, with many more to come. Apart from the obvious costs involved for the operators, they would still need to change their business models, otherwise HSDPA will end up on the same pile as WAP, GPRS, MMS, POC, and half a dozen variations on the theme. It is this change in business modeling that is required before mobile operators will ever be able to successfully enter the wireless broadband market beyond a few niche applications.

The mobile operators do have the advantage of having systems in place for billing, customer service and so on, and that makes them formidable competitors to anyone daring to enter their turf with WiMAX. But if WiMAX does deliver, it will certainly upset the mobile market – it will be the biggest disruption this industry has seen in its entire history.

So, let the games begin.

IP Multimedia systems (IMS)
A new mobile platform has been developed that makes seamless communications possible between fixed and mobile networks. Called IP Multimedia System (IMS), it sits between the access layer and the services layer and allows for more efficient IP services, as well as the opportunity to develop more multimedia services.

There has been a lot of talk about the IMS market – many conflicting messages, plus the usual techno hype. Critics are saying that one of the confusing elements of IMS is that it started off in the 3G environment. This environment is now threatened by wireless broadband and it looks as though IMS has become a band-aid solution to turn 3G networks into IP-based networks.

But IMS has moved beyond this and is rapidly becoming the de facto IP platform for the new NGNs. It started off in the mobile market, but the reality of 2005 is that it is being adopted in the fixed market, while implementation in the mobile market may still be a few years away.

At the heart of IMS is another widely supported standard – SIP (Session Initiating Protocol) – which provides real-time, peer-to-peer, multi-party and multimedia capabilities. There are already many SIP-enabled devices in the market.

Now solidly based on 3GPP, IMS is now the standard for the softswitches, and the industry is widely supporting this standard, with most manufacturers bringing IMS products to the markets. It is proving to be an excellent solution for connectivity across the various network domains, providing an excellent platform for the delivery of value-added services.

This, in its turn, fits nicely with the development new media centers, which are going to be the distribution platforms for the new converged services.

This has motivated companies such as BEA to develop new products to the IMS platform, such as SIP servers and network gatekeepers, which extend the reach of NGNs to external service providers, while the network control and management remains with of the network operator.

With most countries still considering the introduction of 3G, the industry is already developing 3¼G and beyond, with technologies such as HSDPA (High Speed Downlink Packet Access). Linking fixed and mobile together on IP Multimedia System (IMS) is another development, allowing for mobile TV and triple play models. Mobile will need to carve out its own unique markets next to wireless broadband. After that, it's on to 4G