The UK's version of Silicon Valley is looking to take a key role in helping to bring 3G applications to market. 3G Solutions for Operators talks to key players and finds out what's keeping Cambridge hi-tech firms awake at night

COLLECTIVE CHALLENGE

With a membership of more than 100 companies, Cambridge 3G has its origins in a joint initiative from UK firms Analysys and 3G LAB. The group's objective is to promote Cambridge as a leading European centre for 3G services and expertise. As Britain's answer to Silicon Valley, the city and the surrounding region boast a significant number of high-tech and telecoms businesses that have been drawn to the group's vision of sharing ideas and expertise to help bring next generation networks and services to market.

Along with information exchange, members of Cambridge 3G also have the opportunity to join the Applications Test Network Group (ATN), which is developing the UK's first independent 3G network specifically created for applications developers due to go live at the beginning of 2003. The network, which is project managed by consultancy firm Generics, will use eight base stations provided by Vodafone to test new 3G services and applications in and around Cambridge.

Generics is now working with potential partners and existing clients to define joint projects that will make use of the ATN. 'These projects involve the development and testing of prototype 3G applications, the testing of terminals, software and systems and the work on integration of 3G products into other solutions, such as WLAN,' says Rob Morland, Generics director of telecommunications.

Morland and his company are bullish about 3G prospects and believe there are two distinct schools of thought when it comes to considering future networks and services. 'On one side we have the majority of the press and the commentators influenced by them. This group sees 3G as a bottomless pit from which there is no chance of deriving future profits or success,' he says. 'On the other side there is the quiet but significant minority who are investing in 3G in a big way. The fascinating thing about this second group is that they won't talk openly about their investment for fear of the negative impact that this would surely have on their share price. Indeed, some companies we're close to would vigorously deny involvement in 3G if challenged, for fear of such a market reaction.'

Morland would be the first to admit the daunting nature of the challenges ahead. 'Obviously there remain some technology issues still to be fully resolved, the most publicised of which is hand-off between 2G and 3G networks,' he says. However he believes that in five years we will have forgotten these teething troubles, in much the same way initial problems with GSM have disappeared into history. With 3G, he concedes, there is a big issue with software in handsets. 'Although early 2G handsets suffered from software bugs, 3G handsets are many times more complex and they must also support a wide range of third party applications,' says Morland. 'This is a much more challenging problem for the handset vendors and we can expect some significant

patches and upgrades being required in order to stabilise many of the first generation 3G devices.'

Like most in the industry, Morland is also concerned about power consumption issues. Full colour W-CDMA handset displays are power hungry, so the wireless community will once again have to rely on Moore's law in the semi-conductor space to overcome this. 'There are also some very exciting new colour display technologies in development, such as light-emitting polymers and e-inks,' Morland explains. 'These could revolutionise handset displays and reduce greatly the power consumption needed.'

The Generics director also voices significant concerns about the 3G business case, which has yet to convince on paper, let alone prove itself in the market. 'At the moment, operators and content providers are still working out their respective positions – a discussion that is not without raised voices,' Morland says. 'However, operators have shifted away from the rather entrenched positions from which they claimed the vast majority of revenues. The move now is towards a fairer distribution with content providers, MVNOs and others who are striving to mark out positions in the new 3G value chain.'

In the short term, Morland believes the industry will see the emergence of many innovative 3G business models, most of which will fall at the first hurdle. His company believes it will take two years from the first commercial launches before we start to see the first signs of the winning business models emerging. 'This will be followed by rapid moves in the market, with those who have backed the wrong horse rapidly changing mounts and signing up with the new partners they need to put successful models into practice,' he says.

According to Generics, another key 3G concern is determining which market segments will drive uptake. There is already a divergence in views between those who see 3G mobile being led by business users and those who feel that it will be mass market. 'There is also a geographical mapping within these camps,' explains Morland. 'The feeling in the US seems to support the enterprise model and this is clearly consistent with the feelings of relatively new entrants in to the mobile space, such as Microsoft.

'On the other hand, in Japan development seems to be driven from the mass consumer, with i-Mode being the most obvious example of this,' he continues. 'In Europe, we are undecided, but it is interesting that Symbian, perhaps Europe's brightest hope on the operating system front, clearly backs the consumer-driven model. Its objective is to get its open platform into as many mass market handsets as possible.'

The Tao Group is one of the Cambridge 3G members charged with delivering software to a wide range of leading networks and blue chip manufacturers for release in 2003. Tao CEO Francis Charig believes software holds the key to many of the challenges of bringing viable 3G services to market. 'There are clearly issues relating to infrastructure functionality and availability,' he says. 'But the bigger issue for the longer term is that handset software in its current form is patently unable to deliver the kind of services for which consumers will pay.'

Charig also sees the ability to generate revenues from data services as being an economic hindrance to 3G gaining ground. 'Delivering some kind of data service is relatively easy. Delivering data services that consumers will pay for is almightily difficult,' he says. 'Clinging to old software technologies that are not specifically designed for 3G functionality is a big mistake, but it's the route the vast majority of manufacturers persist in going.'

In Charig's view the way to address these problems is through better handset software. 'There is a huge demand in the market for a comprehensive and global multimedia solution for devices. To date, the absence of appropriate technologies has significantly delayed the progress of 3G.'

As to the segments that will drive the market forward, Charig says: 'Enterprise will always pay for faster and better, but in the long run the biggest opportunities for marked differentiation are in the consumer market, with personalised multimedia services. Today's software technologies could deliver such differentiation, but to date they have mainly been ignored. If this situation continues, operators are likely to have problems convincing consumers that the new services are worth paying for.'

Given the problems associated with launching viable, high revenue consumer services, Charig sees the ▶

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consumer boom taking off on the back of services being proven in the business market. Success in the enterprise sector will have the knock-on effect of giving the consumer market confidence in the new networks, and this in turn will drive innovation in the consumer space.

Another member of the Cambridge group is PA Consulting. Dr Phil White, head of wireless technology at the group, believes the challenge to 3G rollout is less a technical issue than one of market confidence. 'It's certainly economic issues that are likely to hold things up for incumbent 2G operators,' White says. 'For new operators like Hutchison, these players are going as fast as they can, but with something as technically complex as 3G there are bound to be hold ups. In many ways it was entry forecasts for rollout that were over optimistic, rather than any insurmountable problems.'

White believes QoS concerns could prove another stumbling block to the commercial implementation of 3G networks. 'Let's consider previous experience. It took a year or more to get consistent QoS on GSM. It has taken a year to get QoS on hand-off to GPRS. The same will happen with 3G,' he argues. 'If I was an operator rolling out 3G, I wouldn't migrate my existing 2G customers to 3G on day one. It is going to be six months to a year before all the bugs are out of the networks. You need benign customers using the service in the early stages.'

White believes 3G operators must chase both consumer and enterprise markets. 'Early 3G discussions centred on consumer services, such as pictures to phones and the like – services we're currently seeing on GPRS. This remains a valid approach,' he says. 'But I'm convinced there's a market for high-speed wireless access to the corporate intranet – emails and the like on the move – but the main issue here is hooking it in to the corporate network. With GPRS it's quite hard to get corporate intranet access via a public provider. It involves a great deal of development work and the benefits don't necessarily make this worthwhile. With 3G, data speeds are higher and more consistent, so the benefits outweigh the problems. So business applications over 3G have a much better chance of success.'

Applications developer Commtag is already involved in delivering always-on products over GPRS and through that, gaining real knowledge of what it will take to deliver commercially viable solutions for 3G. 'We will feed this knowledge back in to the network to encourage broader application development,' says CEO Geoffrey Baird.

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In Baird's view, the main problem with 3G is that it doesn't really exist yet. 'No one can get hold of the 3G terminals. There are standards issues that are taking time to resolve and given the current state of the market, many manufacturers, we believe, are not investing as heavily in this technology as they might otherwise have done and this is slowing rollout,' he says. Like most developers, Commtag is frustrated by the lack of commercial device and infrastructure hardware for test and development.

So what are the revenue generating applications Commtag sees working in a 3G context? 'Like GPRS, we expect the killer application to continue to be email,' says Baird. 'Right now, though, there are only a few applications effectively using even GPRS for this service – and we are the main player in this market. The only real technological rival we see to 3G is WiFi, but in reality we expect the two technologies to co-exist.'

Baird believes enterprise applications are the key to generating revenue from 3G networks. 'We think that [3G's initial key market] will be among business users looking to extend their full desktop environment in to a full always-on wireless world,' he says. 'While the technology's multimedia capabilities will certainly be used in some instances, we believe that mobile data applications – and in particular email – will continue to dominate. Experience in Korea certainly seems to bear this out.'

The key to commercial adoption of any new technology is that real commercial problems are being solved and that return on investment can be proved, Baird concludes. 'This will only happen for 3G when applications which exploit the network and technology's capabilities are rolled out,' he says. 'We believe that, in the short to medium term at least, that application will be email. Our experience of delivering such a service over GPRS certainly bears this out.' ■

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