

Is there a future for satellite comms?



Since 7/7 the pressure has been on emergency services to secure the most advanced communications technology – a difficult task during an economic crisis. Are satellite communications therefore an expensive luxury? John Severs examines the dilemma.



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CEO, Excelerate.

Satellite is far more expensive than 3G and offers a level of service that may only rarely need to be used. And for managers looking to cut costs, a move away from satellite is perhaps attractive. However, an assessment of the way satellite communications are used may be a more profitable option in terms of both level of service and costs.

Tom Wheeler, technical manager at Tariam Satellite Communications, admits that satellite communications services are an expensive option. "In the current economic environment, everyone rightly has an eye on costs. The problem is the words 'cheap' and 'satellite' cannot readily be used in the same sentence for business grade services. This is because the cost of the satellites and the sophisticated infrastructure has to be passed on to the end customer, as well as the site equipment and basic connectivity. So when you are paying for your airtime and hardware, you are paying for a share of those costs as well. Satellites are expensive to build, launch and run, and the corresponding services are of the highest quality, as this is what the sector demands, and so it's hard to make the services cheap."

As a result, many businesses opt for mobile telephony and 3G options. Tareq Khamis, managing director of Prime Satcom Consulting, admits that satellite faces competition from these cheaper alternatives, but he is confident satellite is the right option in the public safety sector. "Within communications technologies, there are obviously a lot of products around, but if you are looking for something transportable, then you are really only looking at a satellite versus mobile telephony battle. Obviously, mobile telephony is cheaper, but you also have to consider the

quality of service: how reliable it is, can you be sure that wherever you are you will always have a service available, and if you do have a service, how good is that service and how much bandwidth does it offer.

"Mobile telephony is basically a terrestrial system so uses a terrestrial network. This means that if there is a problem with the local network, your communications are going to be interrupted. In flooding emergencies and major terrorist events, terrestrial networks are very vulnerable. Satellite technology is almost on its own in offering complete 100 per cent availability – guaranteed bandwidth to a specified level that is always available. So is there anything cheaper than satellite that offers a comparable service? No. But is mobile telephony cheaper? Yes, it is, but you will have to live with its inadequacies."

These inadequacies, he says, centre around the issues of bandwidth and coverage, with not enough of either available. Wheeler agrees. "3G and mobile phones can appear to be a cheaper alternative for remote site communications, but as soon as you get to the point where you're in a mission critical situation or remote location, the GSM service is just too inconsistent. Users in remote sites find 3G isn't widely available, and consequently broadband speeds aren't possible.

The GSM mobile networks have been developing a secure GSM network for the emergency services and military, which is now in place, but ultimately if the terrestrial core goes down, the services are very vulnerable. Satellite then, tends to be more reliable than GSM and it can offer better bandwidth. A lot of companies that come to us test 3G and find that it doesn't offer a business grade, supportable service and discover that satellite is really their



only option for the level of performance they require."

The problem, of course, is that the level of coverage satellite offers is not always required. Indeed, a lot of the time the standard of service satellite offers goes above and beyond what is needed. Hence, to someone trying to balance the books, it appears less than cost effective and the 3G option a more efficient service in terms of finance. However, David Savage, chief executive of Excelerate, believes you have to look at the bigger picture: "If it is just sat there doing nothing, it could be viewed as being expensive if one were to completely ignore the business continuity, resilience and civil contingency benefits. But who can do that? Also, when you consider all the applications that can be run over the satellite link, and that it is the only way of guaranteeing that bandwidth will always be available, it is very cost-effective. In addition, in terms of delivering on a per-meg basis, it is cheaper than most other mobile bearers with service levels and locational delivery guaranteed."

Khamis adds that a greater understanding of the way in which satellite communications are supplied and used can make it a much more cost-effective product. "Companies perhaps need to put more thought into why and how they are going to use satellite communications. The first approach is always, 'We need something for emergency incidents', and then they worry that they may be paying for something expensive that they may not need to use. In response, we point out that there are other things you can use the service for, such as there might be a local community event and the satellite equipped vehicle may be hired out to provide Internet connections to stall holders or the general public. Gloucestershire Fire Brigade found that they could use the system as a back up for their Remsdaq systems at their fire stations. You suddenly find, when the technology is installed and at your disposal, that you can use it for multiple applications. And, of course, you can share it with other regions and services. You could hire it out, which could bring in much-needed revenues. If you are paying for it, you may as well make it work harder for you.

"In terms of other options, you can obviously opt for back-up services where you pay less per month, but then you have to pay more per bit per second per hour when you actually do use the service. It is also possible for two services to share a link. A fixed satellite link is provided and shared via wireless technology. That is very much a localised and specific set-up, used for a specific purpose. You can take a vehicle which receives the satellite signal out to an incident and then other emergency services working at that incident can tap into the satellite network and use it through the wireless connection. Whether they pay for the privilege is something that the emergency services would have to decide for themselves."

Finding applications with which to occupy a satellite service, however, is not going to be a priority for busy public safety professionals. Admittedly, some of the applications are useful and would bring in cash, but for many, extra resources would have to be brought in so an organisation can co-ordinate the additional usage. A more advantageous and popular option would be for the technology itself to become cheaper. The general opinion is that this is not that easy. However, a shift in the type of



technology being used may offer a future solution.

Tariam's Wheeler explains: "One of the key factors limiting bringing down the price of satellite communications is the current technology and available satellite capacity in the required spectrum. The vast majority of the satellite capacity for voice and data (IP) communications over Europe, Africa and the Middle East is on Ku band. However, we are just launching the first services on Ka band in Europe. Because of the way the Ka spectrum works and the higher frequencies involved, this means we can put up to ten times more data over our network. It is massively more efficient in terms of what we can do, and so we can pass that cost reduction on to the end customer.

"At the moment, there is really only one satellite over Europe providing Ka band and there's little spare capacity on it, but a new Ka band satellite will be launched in 2010 that will give us substantial more capacity and will enable us to make these reduced cost Ka services more widely available. Ka band equipment is smaller, cheaper and simpler. As a result of the higher frequencies used, dish sizes are smaller. From the other perspective, much higher levels of bandwidth can be made available over relatively small and inexpensive equipment. So, over the next few years, the cost of airtime and hardware will reduce significantly, but realistically we won't see commercial enterprise- and government-level Ka-based services being made available much before Q1 2011."

The likelihood is that public safety sector budgets are going to get smaller before they get bigger and, as a result, managers in charge of communications are going to find it increasingly hard to justify money spent on satellite communications. However, by understanding the possibilities satellite offers in terms of applications available, shared link ups, and the hiring out of the service, they could form a compelling argument in its favour. In addition, the onset of Ka band networks with the promise of lower costs could tip the balance away from the cheaper 3G and GSM options that some claim will be vulnerable in the event of a major incident.

Excelerate's satellite solutions are used by the Italian Garda (opposite page) and the Royal Berkshire Fire and Rescue Service.

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➤ Tareq Khamis, Managing Director, Prime Satcom Consulting.