Rapid site

Getting fast, accurate access to on-site voice and data communications technology is one of the key problems facing the UK's construction industry. However, mobile technologies can be used to eliminate these pressures.

Ask any construction site manager or IT manager about the core problems they face when first setting up on site, and getting access to voice and data communications services is often high on the list.

Precious time is often lost waiting for telecommunications companies to run telephone and ADSL data lines to the site office – a service that can take between four and six weeks which, for small projects, can often be more than half the scheduled project time – while awkward site locations can make it both difficult and costly to run these lines onto site.

"We had one job in a quarry pit a few years back that demonstrates the problems the industry continually faces," says Neill Pawsey, IT Manager at Jackson Civil Engineering and Project Manager of industry research forum COMIT (Construction Opportunities in Mobile IT). "There was a quarry office on site and, when we bid for the project, we thought they had broadband access so it wouldn't be too difficult for us to get it."

However, on further investigation with BT it was found that the local distribution point was oversubscribed and any data connections would have to be brought in from another site. The result, a potential £16,000 data services bill for a project that had already been bid with tight margins.

"In the end we had to go for a mobile data solution as we couldn't justify the extra cost," explains Pawsey. "That example is typical of the frustrations that construction companies face. Like any other business we manage information. It's just that the information happens to be site drawings and specifications that are essential in the first few weeks of a project."

Lee Deakin, IT Manager at foundation and piling company Stent, agrees. "The first few weeks on site are often critical. Last minute changes can be made to drawings or specifications and any delays in getting that information to those working on site can be costly."

While the initial site set up is important, it's not the only time that construction companies have problems accessing voice and data communication services. If the work is to be completed in multiple phases, site communications are installed for the first phase, work is carried out and then the company demobilises from the site. A few months later they return to start the second phase to find the cabins have been moved, communications services disconnected, and the process has to start again.

"When working on restricted sites, we often have to install site offices inside the site's working boundary. Subsequently, we have to relocate the offices during the latter stages of the project in order to complete the works. As a result, the permanent data and voice services have to be ceased and re-provided which can cause a four-week break in site communications," says Deakin.

Testing technology

It's situations like these that encouraged industry research forum COMIT to work with technology providers including BT, O2 and Orange, among others, to find alternative mobile solutions to ensure construction companies can get high speed data to site more quickly before the permanent connections are installed. For projects operating to shorter timescales mobile solutions could provide the necessary connectivity for the life of the project.

Called Specific, Accurate and Rapid Provisioning (SARP), the project involves COMIT members trialling a number of mobile technologies including wireless, satellite, wimax, managed service provision and mobile data cards, among others, across different projects and site locations to measure their effectiveness.

"The key driver of the SARP project is to identify the mobile technologies that can be used, identify that they have been tested and proven to work in the field, and discover what the risks of using those technologies are – whether technological or financial," says Webster Springer, SARP Project Manager and Programme Director (voice, data, mobile and telco) at Alfred McAlpine Business Services.

The potential risks with mobile technologies are many and varied. "3G, for example, is currently thought of as one of the better solutions, however it's only as good as the cellular connection and depends on the number of other people using that system at the same time," explains Springer.

Wireless also has its drawbacks when used on busy construction sites. As well as having similar problems to 3G in that it's only as good as the cellular strength, wireless connections can be dropped because of interference from numerous rigs and lorries coming onto site.

"This shows there is no one-size-fits-all solution to the range of problems that construction companies face on site," says Springer. "As a result some of the technology suppliers have had to be innovative in the provisioning of services. Some, for example, typically operate under a 12-month contract which is no good on a three-month site project. The technology suppliers that we're dealing with have been willing to address this and provide alternative solutions."

Intelligent solution

One such alternative solution increasingly being trialled and adopted by some of the main construction industry players, such as Jackson Civil Engineering, Shepherd Construction, Pearce and NG Bailey, is an Intelligent Mobile Office (i-MO) system.

Designed by e-business solutions provider EMS, the i-MO device bonds together two standard 3G cards to strengthen the cellular network signal. It provides the option of using one mobile provider or two different network providers. When using cards from two different network providers the signal is load balanced between the two providers so if one goes down the system still provides continuity of service.

"All that our site staff have to do is plug it in, hook their laptop up, rig an aerial to the portacabin roof and turn it on," says Jackson Civil Engineering's Pawsey. "It makes it easy for our site staff who tend to get turned off by technology – they really want tools not technology. It also means we can get effective data communications on day one when we step on site, and we're not restricted in the types of applications we can run."

Shepherd Construction has also been using the i-MO system to plug the gap between starting work on-site and getting standard ADSL connections. "We are also using it when the ADSL line goes down. In one instance we cut through it and reinstallation took more than a week. It gives us that extra resilience and we don't have to worry about being without reliable site communications," says Shepherd Construction's ICT Support Manager, Steve Slater.

While the COMIT project is on-going and many of the technologies are still being trialled, benefits are already being felt across the industry. "The big advantage of these technologies is that they give you connectivity where you didn't have it before," says Pawsey. "It might not have the automatic broadband speed that some people will expect, but it gives COMIT and the technology providers a new target."

set-up

A portfolio detailing the products and services available from different technology providers will be available from COMIT towards the end of this year. For more information on the project see www.comitproject.org.uk.