

M2M - the rise and rise of the mobile machines

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Shifting the balance of long-term well understood costs has a disturbing effect on any market. The rapid rise in property prices, growth in car ownership and lack of parking in congested capitals such as London led to the recent economic viability of digging out personal underground car elevators. Like something out of 'Thunderbirds' a single vehicle parking space rises out and sinks back into the ground.

Other examples include the current exploitation of the Canadian oil sands now economic due to high oil prices, or the re-opening of mines in Cornwall in the UK that have been coming viable again due to the high cost of tin.

There are parallels in IT too. Expensive and complex technology once thought of as too futuristic can become economic when the costs of other needs increases or the cost of the technology itself decreases. If both happen at once the case can become overwhelming. One such area is machine to machine or M2M, often an favourite of science fiction writers and filmmakers describing the insidious communication between smart machines.

However the Hollywood tinted glasses overstate many things. Far more straightforward commercial value can come from the simple messages shared by pretty dumb systems – sensors, detectors and displays – which replace the need for doing this at greater cost, in person.

This means M2M often crops up in marketing slides with wild, blue-sky-thinking ranging from connecting manufacturers directly to consumers via internet aware fridges, in-vehicle sensors to networked vending machines.

While it presents well, implementation is sometimes a different matter. The ideas often prick the imagination, but are not aligned with business needs. The technical complexity and risk of integrating sensors and devices on disparate networks to existing applications will also tend to phase even the most able of IT departments.

However, this is starting to change.

Wireless networking, in both Wi-Fi and cellular forms has reduced in unit cost, shrunk in size and power requirements, and provides more options for M2M end points than fixed connectivity. In areas where copper or fibre networks are not present, or are not appropriate for environmental, commercial or social infrastructural reasons, wireless M2M creates new opportunities. These range from connecting street furniture, such as road signs, speed cameras and billboards, through to remote access surveillance for maintenance as well as monitoring anti-social behaviour.

There have been attempts to exploit this, but wireless networks bring their own headaches. Coverage needs to spread beyond the footprint of individual operators, and have more focus on where 'things' are, rather than the traditional approach of focussing coverage around population centres.

Neither do regular operator tariff models fit the usage patterns of potential M2M applications, which also makes it harder to justify investments. Some applications will only require the odd few critical bytes of data sent infrequently, others will stream high volumes of data such a video, which only contain the odd nuggets of valuable data, so high data tariffs are not acceptable.

These problems are largely commercial, with an underlying need to shift the technology focus towards the needs of things rather than people. Some operators themselves have tried to address this area, a notable example being Orange's M2M Connect, but it's difficult to get sufficient focus when there are other significant areas of revenues, such as the huge consumer and regular business use of mobile phones for voice and data access

As the opportunity grows specialist connectivity providers have emerged to focus on the specific connectivity needs of M2M. As well as coverage and reach beyond traditional cellular networks, automated systems have different requirements for availability, disconnections and consistency of network addressing that need to be tackled.

Good progress is being made in the standards arena, with the evolution to IPv6, which provides the huge uplift in addresses necessary to include all manner of devices, and some enhanced options for mobile.

These are not the most complex of the technical issues, however. All dumb devices connected together as part of a distributed application need a consistent framework of interfaces and services, and this is where the technology starts to collide with the business drivers. A number of organisations have to support and promote a common and open set of services for them to become sufficiently popular for adoption by developers to exploit them for innovative applications. Not for the sake of technology innovation, but business innovation.

It's not like there are no commercial challenges facing many businesses today. There is the escalating cost of deploying people to fix or monitor problems – travel expense, time and environmental impact – and the increasing need for business resilience and flexibility in a global, always-on, marketplace. There are real costs and beneficial values that can be ascribed to these issues.

The challenge for the proponents of M2M, where the cost of the raw components and services have now come down to commercially interesting levels, is to demonstrate how easily the novel technology can be integrated into existing systems to deliver real, incremental business value.

This is likely to be more mundane than science fiction's active billboards and robotic intelligence. The economic benefits of using M2M are becoming increasingly apparent and the technology costs of doing so reducing fast. So if well structured integration can be layered over the lower cost base of M2M technology, those businesses needing to monitor, maintain or manage dumb machines will have some smarter options to pursue, moving M2M from science fantasy to commercial reality.

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Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

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