The Challenge of the Internet of Things

GIS Pro takes a look at a hot button topic which is predicted to be disruptive rather than evolutionary. Backed by corporate equity the IoT is held back by standards but developers are urged to think holistically.

According to the blurb, the Westminster eForum provides 'the premier environment for policymakers in Parliament, Whitehall and regulatory agencies to engage with stakeholders in timely discussion on public policy relating to technology'. To this end, the forum offers numerous seminars on a wide range of topics (www.westminsterforumprojects.co.uk).

On 15 March, the subject was the Internet of Things. As it turned out the only parliamentarians present were an MP – Matt Warman and the Earl of Erroll from the House of Lords, who also happened to be chairs of the two sessions. There were a number of representatives from government departments, including a contingent of eight from the Department for Culture, Media and Sport, some academics and the rest from the private sector. The event only lasted the morning, but it was a full morning of short talks and question and answer sessions.

Rapid Growth

Emerging technologies always seem to attract large numbers when it comes to predicting the eventual size of the market. The revenue from IoT is still considered small, at £2bn last year, but market growth is claimed to be 20-30% year on year, reported Tom Rebbeck, research director, Digital Economy at Analysis Mason. He observed that the technology is currently at the stage of solving existing problems more efficiently, thus saving money. Development is being held back by the lack of standards. For example, there are four standards for low power wide area networks. Going with the wrong standard could be costly.

The Challenges

Gary Barnett, chief analyst, software at Ovum set out five challenges, or as he termed them – mountains to climb: the things (sensors), communications, security, integration and the fact that the IoT is pointless if it doesn't provoke action. Developers have been tending to use silo thinking to focus on the mountain with which they are most familiar, rather than taking a holistic view. He stressed, for example, the importance of embedding security into devices early in the design process, rather than trying to retrofit as an afterthought. Noone, he suggested, wants their oven to be under the control of a hacker. The IoT is being fuelled by dramatically falling prices of sensors, following the patterns that we have seen elsewhere. Barnett said that today there are sensors costing just £1 that can do the same job as a sensor which cost £5,000 a few years ago.

Financing

So the technology is there – what about the money? Roger Bickerstaff is a partner at Bird & Bird and offered some insight. He drew parallels between the stage of development of the IoT with that of 'cleantech' seven to eight years ago. For those of us who have never heard the term cleantech, it refers to the renewable energy industry. Currently, in Britain, the funding for IoT projects comes from corporate equity, whilst in other countries, such as South Korea, there is public sector money involvement. For investors, the issues are security of the revenue stream – cleantech in Britain was boosted by feedin tariffs, regulatory compulsion and standards. Standards, or lack of them, was a common theme throughout the morning.

In the question and answer session following these talks, the importance of energy harvesting was stressed, and likewise the need to minimise sensor power consumption. There was also concern that government regulation is needed but that it has to be proportionate.

Enabling the Smart Home

The second batch of talks came under the heading "Enabling IoT: connectivity, infrastructure and utilising commercial networks". Howard Benn from Samsung R&D pointed out that not only is there a multiplicity of standards, but there's also a multiplicity of standards bodies! Samsung manufactures white goods and so is focusing on the 'smart home'. Their solution to the standards problem was to invent a new one via the Open Connectivity Forum, a body with 200 members. They are currently writing standards for 5G communications.

Enabling IoT in Cities

Paul Wilson is managing director of 'Bristol is Open' (www.bristolisopen.com/) – a joint venture between the University of Bristol and Bristol City Council. He described how the city is taking a leading role in providing the infrastructure for the IoT, to develop a "super connected city". He has been fortunate because Bristol was able to purchase existing conduit to install its own fibre within the city, which they have supplemented with a mesh bouncing between lampposts. There are few cities in a similar position of being able to install their own network.

Bringing Services and Sensors Together

Following a much-needed break, the seminar resumed with sessions on standards. The chairman, the Earl of Erroll, noted that standards help innovators avoid getting locked in to proprietary systems. Nick Chrissos, head of innovation technology at Cisco UK and Ireland is working on bringing sensors and services together. One example was flood prediction, where Cisco is working with Scottish Water, the Met Office and Glasgow City Council. On the subject of security, he mentioned the difficulty of incorporating security on a sensor costing $2, which may remain operational for twenty years.

Smart Power

Perhaps the most interesting talk of the day came from Lucy Symons, policy manager at Open Energi. Her company is looking at the potential for the internet of things in the electricity supply industry. The industry requires realtime action to match supply and demand, and to make use of the increasing potential for storage. Not only is the IoT the missing piece in the renewables industry, with its changeable patterns of supply, but it also has the potential to reduce the need for power stations which are currently needed to supply peak demand. Smart Power exploits the flexibility that the IoT brings and the savings are obvious.

Legal Issues

Emma Wright, a partner in lawyers Bond Dickinson mentioned spectrum but concentrated on data. There was an assumption that much of the data for the IoT would be open and so could be affected by privacy issues. Also, whilst it is easy to persuade government to make its data open (having overcome the data protection thing), private companies tend to be more reluctant, and like to be paid. There is also the question about who owns the data and one way to avoid the problem is not to store it, apparently.

Disruptive Tech

In an excellent talk, Dan Byles, chair of SmarterUK and vice president, corporate development at Living PlanIT contributed to a session on policy, regulation and business practice. He believes that development will be disruptive rather than evolutionary because the IoT is predicated on dramatic changes in costs to make new processes and systems viable, very quickly. For example, he took the Uber business model: the company is now the world's largest taxi company but it does not own a single taxi. As other speakers had suggested, the technology will move from solving existing needs more efficiently towards dealing with emergent needs.

Telemedicine

Chris Francis, director, government relations at SAP, reckoned the origin of the IoT was 1874 with an 'app' for predicting avalanches. This was taking things a bit too far! Back down to Earth and he mentioned telemedicine. This subject had arisen earlier in the context that apps that seem trivial can end up being world-changers. Imagine, for example, the potential impact on the NHS if everyone wore monitors for bodily functions.

This was a useful seminar in pleasant surroundings at Glazier's Hall near London Bridge. For map lovers, there was the bonus of an historical map of London on the wall which was well worth perusal. Visit: www.westminsterforumprojects.co.uk/ forums/index.php?fid=westminster_eforum

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