BIG DATA AND DATA AGGREGATION

Background

The upcoming roll-out of smart meters and the advent of smart grids – where information is fed back to utilities by households and businesses – will mean a massive increase in the amount of data being handled by those utilities.
Displaying that 'Big Data' in meaningful ways to the people who need to see it is one of the biggest challenges posed by the smart meter revolution.

t-mac action points

- Smart meters are crucial for the development of energy strategy in the UK.
- Aggregation, storage and visibility of information are the key to handling Big Data.

Lisa Gingell, director of t-mac Technologies Ltd, says:
As smart meters are rolled out across the UK, utilities are increasingly coming to a conclusion reached by private businesses over the last few years: more metering means more data. And MUCH more metering means, as it has come to be called, Big Data.

Large business energy consumers have had half-hourly read 'AMR' meters installed for many years, while other customers relied on estimated billing. In April 2010 the CRC Energy Efficiency Scheme programme required that all businesses using over 6,000mWh have AMR meters installed. With 2014's smart meter roll-out, residential and SME businesses will benefit from those heightened data insights, too. Utilities are expected to get their first real taste of Big Data when those household smart meters go live across the UK. Traditionally, home meter readings were collected once a month. Smart meters, on the other hand, can collect data up to every 15 minutes – almost 3,000 times a month. That increased data flow creates a Big Data problem for those utilities, particularly as the UK government has decided that every home in England, Wales and Scotland will be offered smart meters by 2019, and in Northern Ireland by 2020. The consumer roll-out starts in 2014.

There is a requirement on utilities to store and provide visibility of metering data for up to five years. And five years of data from millions of smart meters is a LOT of data.

Presenting that data in a format that is meaningful to those who need to use it – the energy manager, finance officer or building owner or occupier, for example – and in a matter of seconds will be a huge challenge for businesses. While this may seem a simple process (collecting, storing and presenting data as graphs, gauges and through reports, and changing units of measurement from kWh into £/pence or carbon emissions, for example) it is not. With millions of data points from a multitude of meters located throughout the UK and into Europe all reporting back frequently, and with the potential for years of that data being stored on servers, quick reporting, and therefore quick analysis, becomes a Big Data problem.

Without visibility of data, the information collected by smart meters, AMR and BeMS environmental sensors is worse than useless. In fact, without visibility that data merely becomes a storage burden.

The antidote to Big Data is aggregation. T-mac overcomes storage and display issues by using data mining principles, meaning we can not only store the data but present it through online software in a matter of seconds – opening up visibility to everyone from facilities managers and maintenance staff to financial directors and oversight bodies like the Department of Energy and Climate Change. Our displays are accessed through our online portal, meaning multiple viewers can gain visibility of data at any one time. And it all happens in a guaranteed maximum of five seconds.

It is that visibility, on a central platform with the background capacity to store large quantities of data securely for many years, which is going to be central to managing Big Data created by smart meters and, as they develop, smart grids themselves.

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