Smart Grid: How communications will transform utilities

Description: TM Forum Quick Insights reports take the communications industry's hottest topics and offer preliminary research and analysis, often including interviews with senior executives and ideas from corresponding executive roundtables discussions. Written by renowned industry journalists and analysts, these reports ask the questions we all want to know of opinion-leading senior executives.

A smart grid is a way to manage the delivery of electricity from suppliers to consumers in a way that saves energy, reduces costs and increases the reliability and transparency of power services. Most electricity providers are not prepared for these demands, in terms of culture or technology.

smart grid achieves all this via two-way digital communications, which will most probably be deployed as an overlay to the electrical power grid. As well as running the grid more efficiently, this could also allow the electricity supplier to control a range of devices at consumers' homes, business premises and industrial plants, as well work with a greater range of sources of power.

As the smart grid is deployed, the relationships between utilities and their customers, which have been relatively unchanged for decades, will change profoundly. Customers will gain control of services through this two-way flow of information and be able to make decisions, instead of being passive recipients.

Section 1 of this report is a brief outline of how the electricity industry works now, from power generation to users' premises.

Section 2 defines the smart grid and the reasons we why we need to develop it, which is largely about greater efficiency, better balancing supply and demand, and giving consumers much more control of their usage.

Early deployments of so-called smart meters didn't engage consumers' interest, but rising energy prices and the promise of reduced tariffs and dynamic pricing for high consumption appliances most certainly could. Also, home area networks are being developed to work in tandem with smart meters, so they can switch appliances off and on and allow the electricity provided to activate devices whose tasks are not time-critical when demand is low.

Section 3 looks at the challenges facing smart grids. One is the massive amount of data they will generate, how will this be handled and by whom? Today's wireless technologies are not designed to support several thousand devices simultaneously. Also, the networks must be designed to give voice traffic priority, especially in times of crisis when their traffic load is heaviest.

Although at the moment, companies that run power grids tend to view communications service providers (CsPs) as possible rivals in smart grid, it would make sense to think of them more as potential partners.

For example, utilities billing systems' are not designed to cope with this new way of doing business: they were designed for flat-rate tariffs and batch processing of manual meter readings, in quarterly or monthly billing cycles. In contrast, CsPs' billing systems have been dealing with complex product bundles and sophisticated charging models for many years, are commercially proven, extremely reliable, can operate in real-time and are highly scalable.

The rollout of the smart grid is akin to the massive transformation the communications industry has and is going through in the move to all-IP networks and converged services. this Quick Insights report concludes by looking at how the two industries could work together and how TM's Forum assets, such as its Frameworx suite of standards, can be leveraged for the benefit of both and their customers.

Keywords: Smart Grid Utilities Communications HAN Tony Poulos TM Forum Smart Meters Billing

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