Fujitsu's smart meter communications technology becomes IETF (Internet Engineering Task Force) standard

Field proven stability and reliability, being deployed at Kansai Electric Power Company's area-wide smart metering system

Fujitsu's ad hoc communications technology originally developed in 2009 is assigned RFC (Requests For Comments) status by IETF, which has strictly adopted numbers of various technology as internet standard.

The technology can dramatically facilitate the formation of last one mile network for smart meters, by overcoming the technological challenges in achieving the communications stability under varying environment for the installation of smart meters from residential property in rural area to multi-dwelling unit in metro area. More concretely, the said stability is maintained by Fujitsu's distributed autonomous networking technology embedded in the communications system for smart meters, also known as AMI (Advanced Metering Infrastructure). This technology enables the configuration-less formation and self-restoration of communications network that can scale up to the level far more than the existing communication technology.

The Kansai Electric Power Co.,Inc. (KEPCO, Headquarters : Osaka, Japan), who has been in the leading position in Japan as to the deployment of smart meters, introduced the Fujitsu's communications technology to realize bidirectional communications necessary to collect the data on power consumptions as well as to remotely connect and disconnect the power supply. The technology is already deployed and stably working at more than two million smart meters in KEPCO's smart metering system. The system lets KEPCO not only optimize its operations such as meter reading, but also provide users with value-added services such as detailed visualized reporting on the power consumptions.

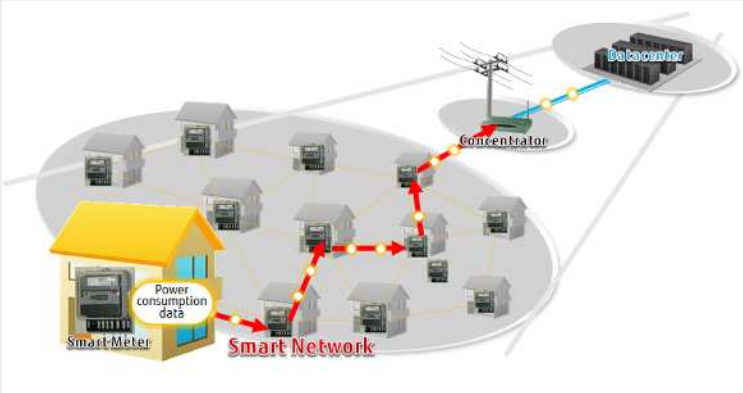
Leveraging the IETF's adoption as global internet standard, Fujitsu will actively market the ad hoc communications technology under the brand name of "WisReed" to worldwide electricity utility providers and equipment vendors.

Fujitsu's ad hoc communications technology

Fujitsu's ad hoc communications technology is the new technology which can autonomously form network of communications devices, when built into such devices, by recognizing each other device without any configuration setting nor change. The network of such devices is in form of mesh where data are transmitted by hopping through number of devices until the destination.

The existing wireless ad hoc communications technology has limitation where the control packets exchanged among communications devices to autonomously find each other and to build the communications paths eventually drain up the bandwidth necessary for data communications in the network so that one ad hoc network of devices under one concentrator cannot scale more than several tens of such devices.

The algorithm in the Fujitsu's ad hoc communications technology effectively lifts the limitation, where the network can scale up to more than one thousand communications devices interconnected under one concentrator device. Consequently utility provider can reduce the number of concentrator devices significantly. Furthermore, because the technology let each device autonomously chose the detouring path in case of network troubles caused by device failure or the increased traffic, communications in the network are maintained and restored automatically.



Adopted as RFC (Requests For Comments) at IETF (Internet Engineering Task Force)

The Internet Engineering Task Force (IETF) is a large open international community where internet technology standards are submitted, reviewed and publicly archived for reference once approved as internet draft. The approved draft is given the RFC (Requests For Comments) status with a unique number for lookup and reference.

This time Fujitsu's ad hoc communications technology is given the Experimental RFC status, which means the technology has been thoroughly experimented and as a result recognized as to be publicly referred. Since Fujitsu submitted the technology as draft, it has been fully experimented by relevant members at IETF as to prove its excellency in data reachability compared to the existing technology even under non-stable and lossy wireless environment. Consequently the technology was recognized to be very useful in being used as data communications technology for large scale network such as the one of smart meters.

Now the technology is publicly referable so that worldwide electricity utility providers and equipment vendors can use the specification as standard to realize the interconnection of communications devices.

KEPCO's Smart Metering System

KEPCO (The Kansai Electric Power Co.,Inc.) was the very first one in the industry when it started the research and development of smart metering system back in 1999, aiming for the improvement of customer service as well as the optimization of business operations through automated meter reading, remote connect and disconnect of power supply, and so on by equipping the meter with communications functionality. In 2008 KEPCO started the trial of smart metering system using Fujitsu's ad hoc communications technology. Now more than two million smart meters are deployed in its area and the whole system is working stably. Finally KEPCO aims to deploy the system to cover all of its around thirteen (13) million meters.

KEPCO uses the system to remotely collect the data on power consumptions at each residential user every 30 minute. The data is used at KEPCO's data center to improve the customer service, by calculating and producing the electricity bill in accordance with individual conditions of subscription as well as providing users with detailed visualized reporting on half-hourly trend of their power consumptions. The data is also used to understand the power distribution status in order to adequately plan capital expenditure for its power distribution network.

Smart Meter

Further activities

Fujitsu will contribute to the deployment of smart metering system by electricity utility providers based on our global experience in testing and proving the applicability and usefulness of its technology to the smart metering applications. Furthermore, Fujitsu will improve the reliability of the technology and enhance the breadth of its applicability through pilots and real deployments in the field, aiming for the provision of smart network as societal infrastructure to embrace the variety of sensor networking applications such as disaster prevention, structural health monitoring, etc.

Note : This document is an English version of the press release announced in Japan(http://pr.fujitsu.com/jp/news/2013/11/15.html?nw=pr).

Contact
FUJITSU LIMITED
Innovative Business Development Unit, Global Solution Business Division
Address: Shiodome City Center, 1-5-2 Higashi-Shimbashi Minato-Ku,
Tokyo 105-7123, Japan
Phone: +(81) 3 6252 2612
E-mail: gsb-ami@ml.css.fujitsu.com
Website: http://www.fujitsu.com/global/services/solutions/sensor-network/