

M2M Communications and its impact on Hospitality

Machine-to-machine (M2M) communications is likened to the dark matter of the telecommunications universe. It is the mysterious and enormous amount of data traffic flowing through the network that might be unseen and does not touch any human directly. However, it could be vital to the smooth running of hotel operations, conserving energy at the property and enhancing the guest experience. This article provides an overview of M2M, typical architecture and hospitality applications with an outlook in the future. This article is not about the band group M2M or Mission-to-Mars or about leaving M&M's on the pillow when the bed is turned down in the guestrooms.

What is M2M Communications?

M2M communications is the networking of computing and non-computing devices (e.g. sensors, meters, security cameras) to capture event-related information and then transmitting that information to specialized servers and software to interpret and respond. Response can include actions that might trigger decisions either on an automated basis or through manual intervention. The event information being captured or the data acquired might be a door opening, motion sensing in a guestroom, temperature, light, inventory level, security information and location sensing at a property.

Significant growth in M2M expenditures is forecasted by many industry analyst firms. The Telecommunications Industry Association (TIA) predicts for the wireless devices revenues in the U.S. market to grow from \$ 20.71 billion in 2009 to \$22.82 billion by the year 2013. An estimate for the smart device shipments is for it to grow from 73 million units in 2008 to 430 million units by 2013. Wireless sensors networking equipment represents much of the growth. With the equipment prices coming down, more ubiquitous wireless coverage, applications developments the key benefit of M2M is being realized – the ability to conserve energy

Please also refer to related article in the Spring 2010 issue on "Smartphones Power."

and operate a property in an environmentally responsible manner.

Typical M2M Architecture

The typical architecture would include a smart device, short-range network, a gateway, wide area network and a server for the application. The short-range network might use wireless technologies such as Zigbee, Wi-Fi or RFID and the wide area network might use cellular technologies, satellite communications, WiMax or any form of wired network. A reference architecture diagram from the European Telecommunications Standards Institute (ETSI) is shown in the figure to the right.

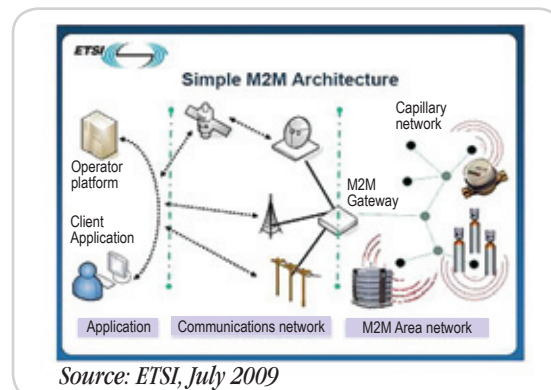
The framework of M2M communications might include the four stages of data acquisition by a device, transmission of that data over a network, data assessment by an application and then lastly response to the interpreted results. A smart device is defined as one that is digital, active, networked, configurable and is capable of performing certain functions autonomously. Smart devices allow for monitoring and control as well external service access and execution. The data acquired by a smart device flows over a network and through a gateway to a system that might consist of a server and an application. The system processes and analyzes the data collected and then determines the follow-up and/or corrective actions required. This whole process might take place in a totally autonomous manner.

Standards Developments in Process

Many standards development groups are working diligently to define the set of standards that will be required due to the burgeoning demand for M2M devices and the enormous amount of data that will be acquired by them. The TIA has created a new standards group TR-50 to study various use case examples of M2M applications and determine commonality in developing the appropriate standards that can be universal in nature. The Institute of Electrical and Electronics Engineers (IEEE) has embarked on a standards effort within its 802.15 group as well. The National Institute of Standards (NIST) has created a Smart Grid group. The European Telecommunications Standards Institute (ETSI) has a working group to develop standards for M2M. So there much work going on currently to facilitate interoperability among devices and across networks.

Hospitality Applications

Most of the M2M deployments have been in the utility, healthcare and transportation industries. Hospitality implementations have been taking place by way of guestroom automation, energy management, point-of-sale and video



Source: ETSI, July 2009

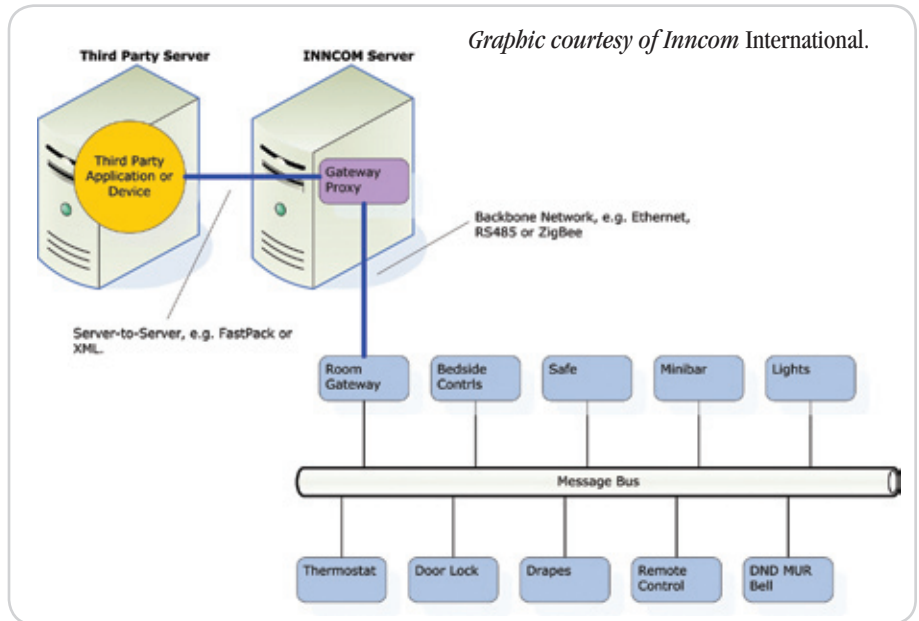
surveillance applications. Some hospitality applications of note are as below:

- Video surveillance applications with well integrated backend cellular wireless systems that can alert a centralized security desk as well as send pictures to the local fire and police departments based on pre-set thresholds of motion and sounds.

- Use in point-of-sale applications with cashless payments from vending machines, parking garages and business centers enabling mobile commerce and enhancing revPAR to the hotel.

- Utility meters, electric and gas, on the hotel property to monitor and control energy use by the various locations within the hotel and to conserve wherever possible based on occupancy and use of facilities.

- Room automation that includes networking of a variety of devices communicating with servers such as thermostats, light switches, door lock and remote control. The communications could be happening autonomously between devices and servers. A good hospitality example of this is shown in the figure to the right, Advice to hotel operators is to evaluate M2M applications at the specific property to see if energy savings could be realized and to work with the utility companies on possibilities for funding. Another key area is in enhancing guest experience and impacting revPAR through cashless payment applications.



Although M2M communications sounds futuristic—it is already here to stay. The outlook is for continued growth in hospitality applications and their deployments well into the future.

ASHOK KUMAR is an independent technology advisor with extensive experience in the justifiable implementations of emerging technologies such as wireless, IP networks, voice and video communications. He can be reached at 404.626.0227 or e-mail akumar@ieee.org.

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