



IEEE ComSoc/NATEA-SV Workshop

Smart Grids, M2M Platforms, "the Internet of Things" and
Other Networks for Smart Devices

Standardization as a Catalyst of M2M Market Expansion

ADVANCING GLOBAL COMMUNICATIONS

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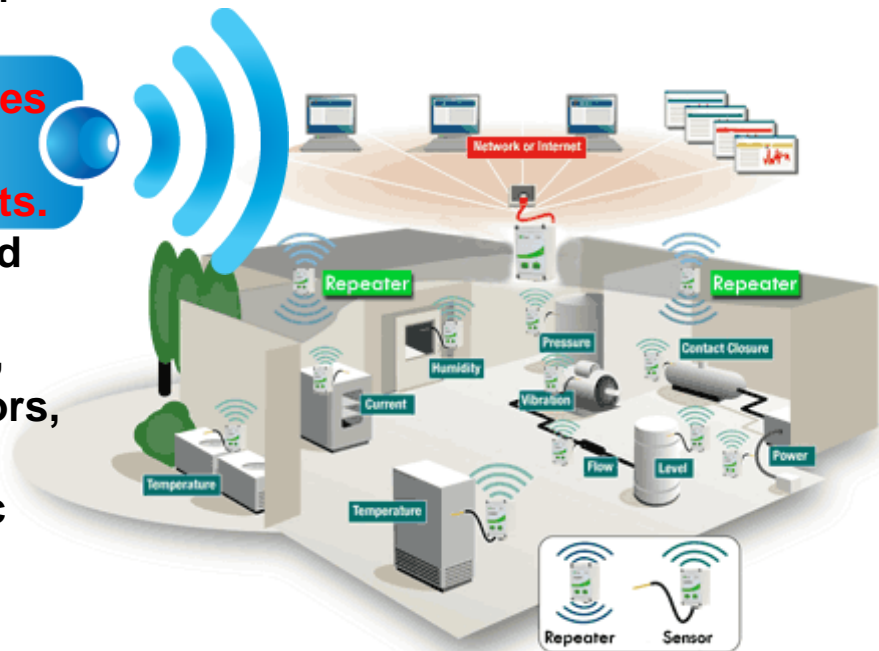
A Huge Market

5 billion devices connected to the Internet at the end of August 2010! (*)

- “In the **first connectivity wave**, the bulk of devices connected to the Internet were PCs and laptops plus their associated modem and networking equipment.”

- “The **second wave of growth** is being driven by the cellular industry . . . When you add emerging Internet connected device sectors such as tablets, netbooks, eBook readers, Internet TVs, digital picture frames, cameras, etc., you reach the 5 billion devices we see connected today.”

- “The **potential for greatest growth comes from the third wave which will include machine-to-machine (M2M) deployments.** This has the potential to go way beyond industrial applications to encompass increasingly sophisticated smart grids, networked security cameras and sensors, connected home appliances and HVAC equipment, ITS infrastructure for traffic and parking management, etc.”

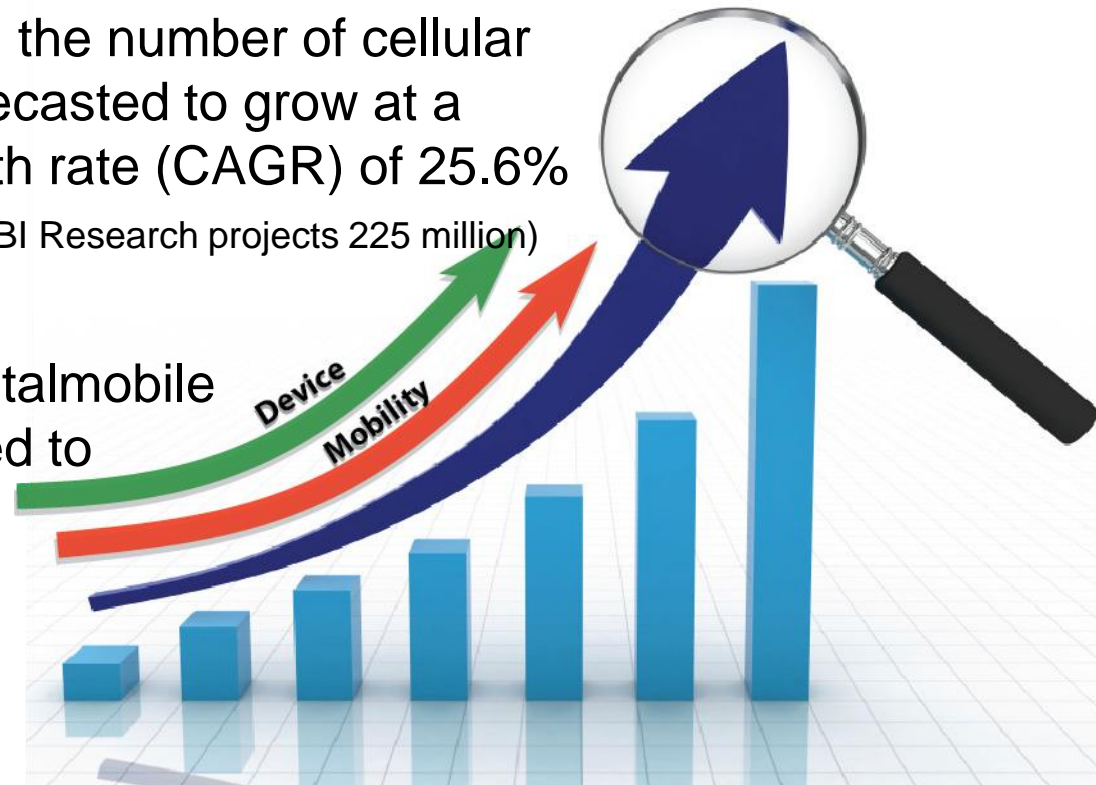


(*) IMS Research (UK) Press Release, August 19, 2010

With Explosive Growth

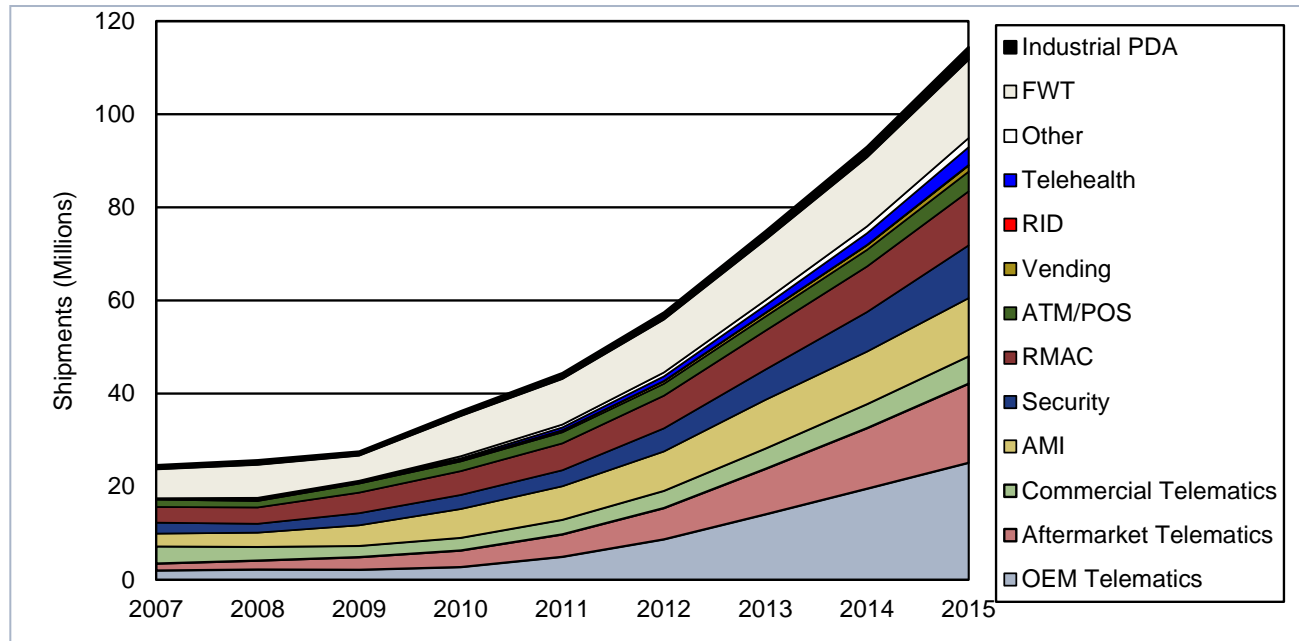
From Berg Insight, December 15, 2009:

- Shipments of cellular M2M devices are forecasted to grow at a compound annual growth rate (CAGR) of 19.2% to reach 67.0 million units between 2009 and 2014.
- During the same period, the number of cellular M2M connections is forecasted to grow at a compound annual growth rate (CAGR) of 25.6% to reach 187.1 million (ABI Research projects 225 million)
- The share for M2M of total mobile subscriptions is projected to increase from 1.4% in 2009 to 3.1% in 2014.



In a Variety of Markets

Cellular M2M Modules by Application



Note: **PDA** = Personal Digital Assistant; **FWT** = Fixed Wireless Terminal; **RID** = Remote Info Display; **ATM/POS** = Automated Teller Machine/Point of Sale; **RMAC** = Remote Monitoring Automation & Control; **AMI** = Advanced Metering Infrastructure; and **OEM** = Original Equipment Manufacturer

Source: ABI Research, August 3, 2010



Main Reasons for M2M Re-emergence

- Lower module costs
- Government initiatives
(Europe's eCall, Brazil's telematics (Stolen Vehicle Tracking) decree, smart metering regulation and legislation in Europe, US NIST's Smart Grid Interoperability Standards project, US state and federal telehealth/telemedicine projects, etc.)
- Private initiatives
(IBM's Smarter Planet, Cisco's Smart+Connected Communities, HP's Central Nervous System for the Earth (CeNSE), etc.)
- Saturation of wireless carriers' core business



Leading Growing M2M Markets

- Vehicle telematics
- Smart meters
- Connected buildings
- Healthcare monitoring

BUT . . .

**Independent
applications**

**Information
silos**

**Standards
needed!**

Telematics & Telemetry are increasingly seen as sources of enhanced productivity and additional incremental revenue

Why Standards?

“ICT [Information and Communication Technologies] is widely known as one of the key industries that develops at a fast rate, is pervasive and has a broad range of applications. Standards serve as the **foundation and forerunner for the development of the industry**, and play a very important role in **encouraging competition, spurring innovation, promoting high quality products and supporting public policy objectives.**”

Mr. Guoha Xi, Vice Minister of the Ministry of Industry and Information Technology (MIIT), GSC-15 Communiqué, Beijing, China, September 2nd, 2010



Why M2M Standards?

Smart devices, smart grids, smart motors and a myriad of other "smart" technological advances will be unable to "talk" to one another, resulting in chaotic communications structures – *unless standards are developed to enable, monitor, and **ensure interoperable interfaces** to the network.* (TIA, **USA**, Press Release – November 18, 2009)

Since IOT (Internet of Things) is envisioned as the future of Internet and Ubiquitous Computing that is going to change the way people lead their everyday life and since it is primarily based on the concept of Machine-to-Machine (M2M) communication, *it is **imperative that exhaustive standardization to be in place for its wide scale deployment.*** (GISFI, **India**, June 23, 2010)

Standardization is ***essential for long term development of the technology and for interoperability*** of services (ETSI, **Europe**, M2M Presentation at GSC-15, Beijing, China, 8/30 – 9/2, 2010)

TC 10 is the leading Technical Committee in CCSA focusing on Ubiquitous Network (UN) standardization in China to provide high-quality telecom ***standards to support the applications of M2M in different industries*** (CCSA, **China**, M2M Presentation at GSC-15, Beijing, China, 8/30 – 9/2, 2010)

**INTEROPERABILITY, CONVERGENCE &
ECONOMIES OF SCALE**



M2M Standards as Business Catalysts

Q. “What are the biggest things that are **holding back widespread adoption of M2M and connected devices?**”

A. “**The availability of standards is one of the big areas** /.../ Very often you get into a chicken-and-egg situation. You would love to put an M2M connection into a process, into a device, but for the amount of data that’s being sent it does not quite fly, it does not quite make the business case. If you take a car for instance you would like to put an M2M device to monitor the tires, and then another one to monitor the engine, and then you would probably want to be connected to see pictures; or entertainment; or get information. If you are not able to standardize communication within the vehicle then you are missing an opportunity to put one device that does all this. **Standardization is one big subject.**”

Vivek Badrinath, CEO Orange Business Services, The Peggy Smedley Show, September 7, 2010, radio interview: <http://www.wsradio.com/player/wsradio-player-link.cfm?player=windows&segdate=0907>



TIA TR-50's Standard Focus

TR-50 is focused on identifying and standardizing the commonality across various devices and applications so that devices of the same type, from different vendors, behave the same way, and that a single device may be used in multiple applications.

"It does not seem reasonable to me that a thermometer behave differently depending on whether it is installed in a car, a truck, a home or a factory, or that a single room may contain a motion detector to control the lights, another to control the heating and ventilation, and yet another as part of an intruder detection application."

Peter Nurse, Sigma Delta Communications, Inc.,
Chair of TIA TR-50.1, Engineering Subcommittee on *Requirements and Architecture*

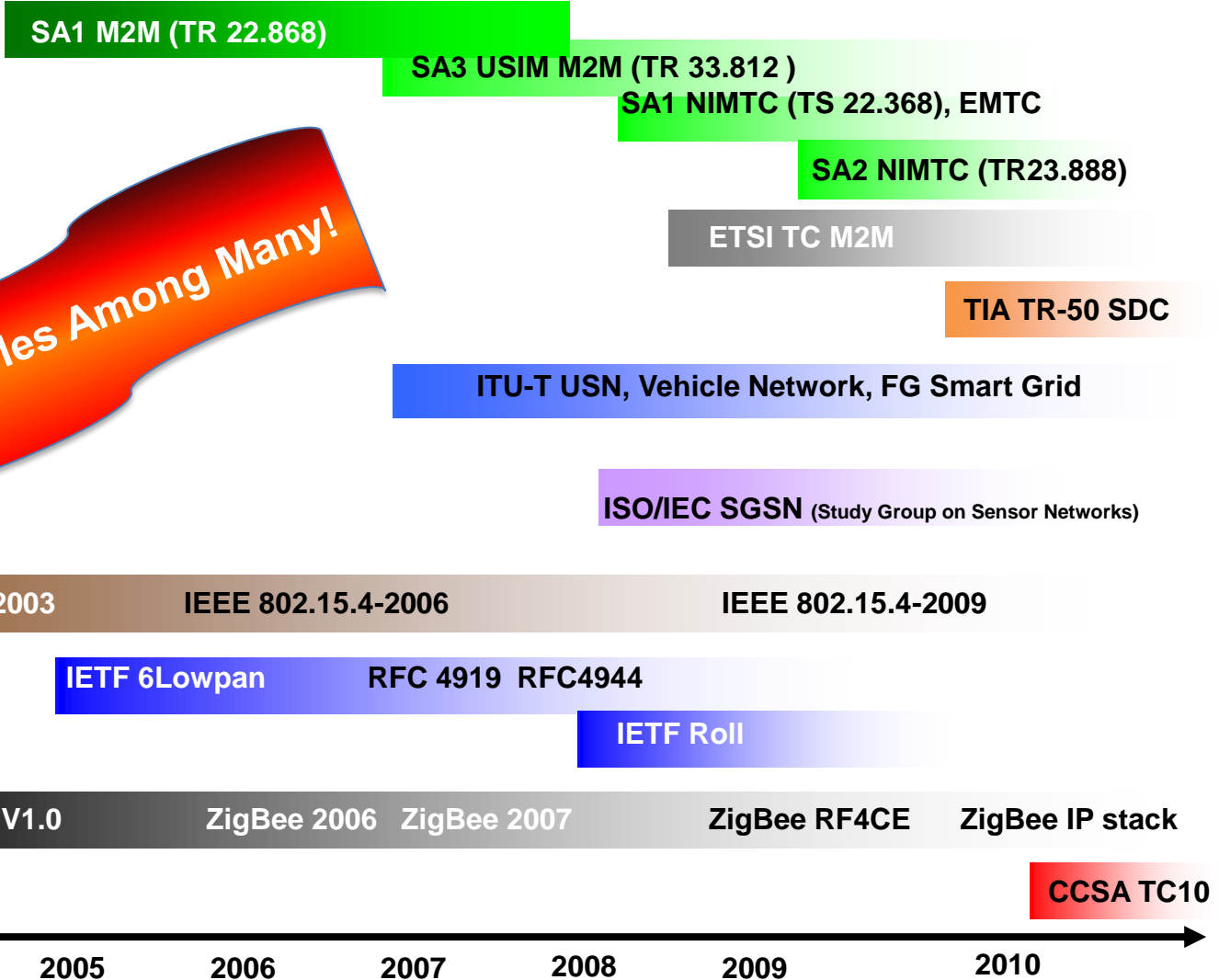
M2M Standardization Activity Around the World



ZigBee™



Examples Among Many!



Sources: CCSA & TIA



Need for Coordination & Collaboration

- Standards are most conducive to economies of scale if they are compatible worldwide
- Diverse M2M standardization work around the world increases the possibility of redundant and conflicting standards

“While there is competition in the global market place, there is subsequently also competition in standardization ...”

Walter Weigel, Director General, ETSI

The Standard, ETSI Newsletter, September 2010, p.4

M2M Standardization Task Force (MSTF)



To facilitate global coordination and harmonization an M2M Standardization Task Force (MSTF) was created at GSC-15 (Beijing, China, Sept. 2010)



Numerex™

Thank You!

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