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GSC MSTF Report

Dr. Jeffrey O. Smith
Convener, GSC MSTF
CTO Numerex

GSC MSTF 2010 Resolution (GSC15-Res30)

- 1) To establish a GSC M2M Standardization Task Force (MSTF) to facilitate global coordination and harmonization
- 2) To openly share relevant M2M material through liaisons, meeting invitations, etc.
- 3) To outline the worldwide M2M activity map and make recommendations on current and future activities
- 4) To encourage broad participation in the MSTF by GSC members and beyond
- 5) MSTF to report to GSC -16 on its activities and recommendations.
- 6) That Jeff Smith (jsmith@numerex.com) will be the convenor of MSTF until GSC-16



Highlight of 2011 Activities

- GSC MSTF Presentation during IoT-GSI Event - 9-13 May 2011 in Geneva, Switzerland
- May 18, 2011: GSC MSTF Meeting in Dallas, TX (GSC SDOs and other Standards groups)
 - Represented (Presentations): ITU-T SG9, ISACC, TTA, JCA IoT, TTC, Wavenis, OCARI, TIA, ATIS, NIST, OMA, ETSI, GISFI, CCSA, Georgia Institute of Technology (Georgia Tech).
 - Represented (Attendance): WirelessHART, and various companies such as Ericsson, Huawei, Alcatel-Lucent, Nokia Siemens, Sprint Nextel, Novatel, Qualcomm, Intel, Numerex, ILS Technology, etc.
- Presentation to ITU JCA-IoT, August 23, 2011, teleconference with ITU – Interest from Open Geospatial Consortium



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Highlight of 2011 Activities (Cont'd)

- September 20-21, 2011: GSC MSTF M2M Conference and Roundtable in Atlanta, GA (vertical markets groups and associations, GSC SDOs and other standards groups).
 - Represented (Presentations): TIA, Oracle, Continua Alliance, Microsoft, Intelligent Transportation Society of America, UPS, CABA, RF Monolithics, Zigbee, Federal Reserve Bank of Atlanta, International Payments Forum (ATMIA), USAT, Rockwell Automation, ISA, Emerson, EnerNex, GE Energy, Sagemcom, ITU, ETSI, OMA, 3GPP2, Georgia Tech.
 - Represented (Attendance): TTC, ATIS, GSM Association, Qualcomm, Verizon, AT&T, Sprint, ZTE, Cisco, Comcast, Globecom, Iridium, Hitachi, Axeda, Kore, Aeris, ILS Technology, Numerex, Tellabs, nPhase, Raco Wireless, LGE, Landis+Gyr, etc.



Strategic Direction

- Position GSC MSTF as a forum the purpose of which is to strengthen the work of international bodies focusing on M2M standards.
- Become a global source of valuable information coming from an eclectic range of sources, both traditional and non-traditional players in the M2M standards arena (in particular vertical market groups, fora and associations).
 - Develop a repository of non-commercial M2M information through the use of online collaborative tools.
- Establish GSC MSTF as a venue where ideas on M2M can be debated and exchanged outside a formal standardization process framework.



M2M Standards Activity Map

See (MS Excel) Activity Mapping Report:

GSC MSTF PRELIMINARY LIST OF GLOBAL ORGANIZATIONS, GROUPS, ASSOCIATIONS, FORA, AND OTHER ENTITIES WITH A DIRECT OR INDIRECT INTEREST IN MACHINE-TO-MACHINE (M2M) STANDARDIZATION

Organizations listed are involved in the creation of M2M-related standards either directly or indirectly as M2M stakeholders (producers, users, regulators, or general industry participants)



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Challenges

- Define a common terminology across SDOs and other groups
- Handle the big number of vertical market-related SDO's, associations and other groups
- Develop effective collaboration and harmonization between SDOs, governments, regulatory bodies, and various industry groups
- Eliminate overlap and duplication



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Next Steps / Actions (1)

- Develop GSC MSTF charter with rules and procedures regarding information sharing including liaison with M2M SDOs
- Establish (SDO) home base for GSC MSTF
- Nominate Chair and 2 Vice Chairs, not on same continent (for instance, if Chair is from the US, one Vice Chair from Europe and the other one from Asia)
- Create and maintain list of GSC MSTF individual participants
- Organize 2 GSC MSTF meetings before GSC-17



Next Steps / Actions (2)

- Identify GSC MSTF Correspondents, for each vertical market, to be in charge of maintaining database of M2M-related organizations and relevant information. For instance:
 - Automotive
 - Finance and other payment-related activities
 - Healthcare
 - Home automation/building automation/physical security
 - Manufacturing and industrial automation
 - Smart Grid and utilities
 - Supply chain
 - Other Verticals
 - Other Horizontals



- Develop on-line collaborative tools



Proposed Resolution

- Establish a drafting committee to create the GSC MSTF charter and amend GSC15-Res30 resolution accordingly to be submitted to GSC during GSC16. Amended resolution may include:
 - Some or all above-listed action steps
 - Renewal of Jeff Smith as convener/chair of GSC MSTF until GSC17
 - Identification of TIA as home base of GSC MSTF until GSC17



Supplementary Slides



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MSTF Dallas Highlights (1)

- Arthur Webster – Chair of ITU-T SG9
 - ITU is addressing issues such as
 - Climate Change
 - Conformance and interoperability
 - Internet of Things (global initiative)
 - Cybersecurity
 - Invite TIA to join as Sector Member of ITU-T
 - New work focuses on Cloud, Smart Grid, ITS
 - Invite MSTF to host 2nd meeting in Geneva in August
- Jim MacFie – Host of GSC-16 and Chair of ISACC
 - M2M Resolution notes to outline worldwide M2M activity map and recommendations on future activities.



MSTF Dallas Highlights (2)

- Eric Bernhart – GTRI
 - Critical issues and trends
 - Network Agnostic
 - Gateways to support authentication and security
 - Standards need to manage performance across the device- application layers
 - Latency - need order of magnitude better than Video Telephony. Establish sessions and tear them down quickly.
 - Device adaptability and Cost (reduced cost may mean less functionality and vise a versa)
 - Security for M2M is nascent – confidentiality integrity and availability. Authentication and key management of billion devices with intermittent network access is paramount issue. Security will impact the M2M architecture and ecosystem. Trend is toward an M2M Multilayer Distributed Security Architecture
 - Must have harmonized view, mind the gaps, network issues, customer focus, devices, security, integration



MSTF Dallas Highlights (3)

- Djey Kim -TTA
 - Korean communications commission announced basic plan for M2M all over Korea in 2 years
 - Globally harmonized open services platform should be developed
 - TTA would like to collaborate with external organizations for developing standards such as open service platform
 - Korea and work on smart cities is using M2M services
- ITU-T JCA-IOT (Hyoungun Kim)
 - First IOT meeting May 9-13, next meeting Aug. 22-23
 - IOT Overview document by Feb. 2012
 - Smart Ubiquitous Networks (SUN), a new vision beyond NGN. SUN key enabler for IOT
 - Thoughts on collaboration of IOT and MSTF. Collaboration is necessary but need to define what that is.



MSTF Dallas Highlights (4)

- Dr. Tomita - TTC
 - Machine to Machine, Internet of Things, Ubiquitous
 - Smart Grid Igniter in US (demand and response and cost varies). In Japan prices are fixed. In Japan, 10 electric companies
 - Wireless is technology for energy web. For ad-hoc communications for automobiles.
 - Have to think of what is going on in regions and verticals of the world. Want standards to get adopted and used region by region. Putting it to practice is the important link.
 - Attending activity of ITU and ISO (on ITS)
- Catherine Hammond - Wavenis Open standard Alliance
 - Build open standard to expand the reach of smart communications to more objects in the field
 - Wavenis technology based on mesh networks, highly scalable, fast time to operate, durable solution
 - One network for many services
 - Take into account to provide one network for different applications/verticals



MSTF Dallas Highlights (5)

- Eric Perrier de la Bathie – OCARI
 - Project started in 2007
 - Solution Designed for industrial networks (nuclear power plants)
 - With respect to standardization work with ITU if possible with the MSTF
 - Poster child of requirements different than what exist but then working with existing standards (like Wireless Hart) but need mobility. Willing to discuss with group that can resolve the issues. How much use from existing standards
 - What is difference with IEEE 802.15.4
 - LAN type of solution



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MSTF Dallas Highlights (6)

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MSTF Dallas Highlights (7)

- Peter Nurse - TR-50
 - Develop ubiquitous protocol for communicating with smart devices used in multiple verticals/industries
 - Architecture document to be completed in October 2011
- Harish Viswanathan - ATIS
 - Focus Group identified Gaps
 - Provisioning Activation Control
 - Billing Aggregation
 - Remote Configuration for carrier portability
 - Service Delivery Platform



MSTF Dallas Highlights (8)

- David Su - NIST
 - Interoperability is the key among products of the same standards, products of different standards.
 - Smart Grid applications are mostly machine to machine communications
 - Multilateral cooperation to advance the development and deployment of smart grid technologies and systems globally
- Gary Jones - OMA
 - Well established in Device Management and well positioned to extend its work to M2M communications
 - Converged Personal Network Service
 - Lightweight protocols for device management for M2M
 - Suggested to establish liaison between TR-50 and OMA



MSTF Dallas Highlights (9)

Joachim Koss – ETSI Board Member

- Coordinate ETSI's activities on M2M with other organizations
- Build interoperable standards for Service Capabilities interfaces
- Finalize M2M release in September 2012
- Security is one of the focus topics
- Regulations pushing for standards based solutions for Smart meter,/Grid, IoT
- Future of Internet of Things is built on M2M Communications
- ETSI GA agreed in principle to consolidation of M2M work on international level with partners, collaboration with other standards bodies



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MSTF Dallas Highlights (10)

- Asok Chatterjee – Member GB of GISFI
 - Creating standards addressing the specificity of the Indian Market
 - Promoting Indian initiatives to develop into global standards
 - Working Groups for Green ICT, Internet of Things, Special Interest Group (Security, QoS), etc.
 - M2M Study Focus are Connectivity Related, Application Related, Device Related
 - Security, privacy , and QoS are parts of all activities
- Mitch Tseng – CCSA
 - Chinese government has designated great importance to development of IOT
 - MIIT is drafting plan for convergence of IOT with Internet and Mobile Internet
 - WGs focused on requirements, network issues, sensory networks, and international standards cooperation
 - 5 sets of standards/reports published in 2010



MSTF Dallas Highlights (11)

- Cheryl Blum -3GPP2 Steering Committee Chair
 - Presentation not presented
 - Preliminary M2M Study completed in December 2010
 - Work underway in technical specification groups to address Communication System Requirements and Architectural issues for cdma2000 networks
 - Studying M2M numbering identifiers, numbering resources and addressing schemes. M2M devices will likely use existing identifiers with adjustments as necessary.



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MSTF Dallas Conclusions

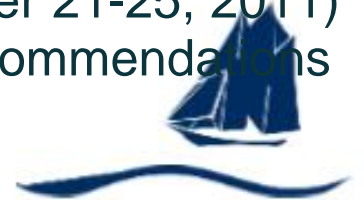
- Extensive work in M2M being undertaken in many SDOs and other forums
- Scope of work very similar among many organizations – to develop specifications to address M2M from a horizontal perspective and to support the various vertical applications
- Need strong relationship and cooperative liaisons among organizations to reduce duplication and avoid fragmentation of standards
 - Focus of MSTF is to facilitate cooperation and information exchange among traditional SDOs and beyond
 - TIA to recommend to GSC HoDs to invite organizations such as, but not limited to, OCARI, Wavenis, WirelessHart as observers to GSC-16, if they agree.
 - As a start of the activity map (per GSC M2M resolution) use TIA GSC MSTF ftp site
 - Future discussion of next MSTF face to face meeting to be reviewed among current participants
 - “If you want to go quickly go alone, if you want to go far, go together”



MSTF Atlanta Roundtable

Highlights (1)

- **Marco Carugi - ITU-T**
 - One of the challenges that SDO's are facing is in terms of standardizing terminology. At the ITU, M2M is a subset of the "Internet of Things"
 - ITU-T has three goals:
 - develop interoperable, non-discriminatory international standardization recommendations
 - bridge the standardization gap between developed and developing countries
 - facilitate international cooperation
- ITU-T is focusing on a number of vertical areas that impact M2M:
 - Security of networks and transmissions
 - Smart Grid
 - Intelligent Transportation Systems
- ITU-T is running two parallel M2M Standardization Initiatives:
 - The Internet of Things Joint Coordination Activity (JCA-IoT) - coordinates list of international standardization items in this field
 - The Internet of Things Global Standards Initiative (November 21-25, 2011) - is currently creating a unified terminology for IoT, draft recommendations for standards, and future work plans for global efforts.



MSTF Atlanta Roundtable Highlights (2)

- **Joachim Koss - ETSI**

- ETSI intends to collect and specify M2M requirements from relevant stakeholders;
 - develop and maintain an end-to-end overall high level architecture for M2M
 - identify gaps where existing standards do not fulfill the requirements and provide specifications and standards to fill these gaps, where existing standards bodies or groups are unable to do so.
 - provide the ETSI main centre of expertise for M2M
 - co-ordinate ETSI's M2M activity with that of other standardization groups and fora
- ETSI is preparing for Release 1 of its M2M Standard. Release 2 is currently being planned.



MSTF Atlanta Roundtable

Highlights (3)

Ileana Leuca - Open Mobile Alliance

- Deliverables: Interoperable Service Enablers
 - Addressing the general service enablers for applications (e.g. location, presence, device management, content delivery)
- OMA-DM Gateway, defines the management object and the relationship between the gateway and server.
 - 3 Operational Modes: Pass-Through, Proxy, and Protocol Translation
 - OMA Is attempting to increase dialogue with other organizations and is trying to get feedback for implementations on this gateway system in different vertical markets and OMA will try to include and adjust to reduce duplication.
 - The OMA-DM is available today in 2 billion devices. OMA is now working on a Lightweight DM system for low-end devices. The protocol has to be designed to ensure that there will be good control management on network devices.
 - Converged Personal Network Services Document: enables universal access to services across a convergence of personal networks and WAN/Cellular networks. Devices like smartphones can act as gateway between home devices and M2M application server. Special attention is required on the communication with the server. CPNS 1.1 recently approved - requires coordination with other OMA groups and outside SDO's



MSTF Atlanta Roundtable Highlights (4)

- **Shelley Moister – Zigbee Alliance**
 - Devices from multiple vendors & verticals will need to communicate to realize the full value and vision of energy management in a smart home
 - Utility/metering
 - Smart phones
 - Home management
 - Systems (e.g. gateways)
 - HVAC
 - Lighting
 - Automotive
 - White Goods
 - Micro-gen/ charging/storage



MSTF Atlanta Roundtable Highlights (5)

Anthony Delli Colli - Continua Health Alliance

- Doesn't certify devices but develops interfaces
 - PAN/LAN Interface
 - WAN Interface
 - HRN Interface
- Certified interoperable M2M systems provides a standards-based approach
 - Reduce cost of solutions
 - Create common devices for collecting data
 - Develop a device specializations standard - Continua intends to broaden its scope to create more requirements.
 - Integrate data workflows into EMR and PHR
- Continue supports incentive models for doctors and medical professionals to adopt performance-based technologies



MSTF Atlanta Roundtable Highlights (6)

Cheryl Blum - 3GPP2

- Completed a study on M2M and what is the impact to support M2M in a CDMA2000 environment. Much work is going on in the TSG-S that is looking at systems requirements required to support M2M in CDMA. There is also an ad-hoc group created to deal with numbering issues. TIA has experience with numbering and exhaustive numbers and new schemes.



MSTF Atlanta Roundtable

Discussion Points - Highlights (1)

- Foster dialog with national regulatory entities that oversee M2M domain.
- Develop collaborative mind mapping between MSTF and IoT/M2M related standardization bodies.
- Emphasis on cooperation and duplication of efforts must be given the utmost priority.
- Open GSC MSTF to non- SDOs.



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Discussion Points - Highlights (2)

- Coordination and Integration is desirable to address the “swivel chair” problem of customers having to deal with multiple vendors.
- Incentive models and monetization/revenue models for industry will emerge as key to drive adoption.
- To facilitate adoption of standards that address multiple verticals, focus should be on identifying and standardizing the building blocks that represent major functions across verticals, not the vertical applications themselves.
- Efficiency in standards adoption is critical – standards will be adopted when doing so is less expensive than proprietary solutions.



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Discussion Points - Highlights (3)

- Differentiation in the market will come from application of intelligence, features and user experience elements.
- Good standards can suppress undesirable, market-stifling regulatory action.
- The standards process, if focused only in SDOs, is not sufficient. Other parties must be engaged in a process that transforms requirements to standards. Objectives should be clear and expectations of immediate results should be avoided.
- Security is a critical issue that, if not adequately addressed, could slow or harm M2M progress and adoption.

