T2TRG: Thing-to-Thing Research Group

IETF 100
November 14, 2017, Singapore

Chairs: Carsten Bormann & Ari Keränen

Note Well

- You may be recorded

- The IPR guidelines of the IETF apply:
  see **http://irtf.org/ipr** for details.

Administrivia (I)

- Pink Sheet
- Note-Takers
- Off-site (Jabber, Hangout?)
  - **xmpp:t2trg@jabber.ietf.org?join**
- Mailing List: **t2trg@irtf.org** — subscribe at: **https://www.ietf.org/mailman/listinfo/t2trg**
- Repo: **https://github.com/t2trg/2017-ietf100**

Agenda

Time	Who	Subject	Docs
15:50	Chairs	Intro, RG Status	draft-irtf-t2trg-iot-seccons draft-irtf-t2trg-rest-iot-00
16:00	Chairs	Meeting reports	Berlin, OCF
16:10	R. Moskowitz	Small Crypto for Small IoT	draft-moskowitz-small-crypto
16:35	Xavier de Foy, Dirk Kutscher	Edge computing and IoT	
	Michael McBride	Problem Statement of Edge Computing beyond Access Network for Industrial IoT	draft-geng-iiot-edge-computing-problem-statement-00
17:10	Michael McCool	WISHI: semantic interop of AVS and IoT	
17:40	Chairs	Meeting Planning, Wrapup	NDSS DISS CfP
17:50		The end	

T2TRG scope & goals

- Open research issues in turning a true "Internet of Things" into reality
  - Internet where low-resource nodes ("things", "constrained nodes") can communicate among themselves and with the wider Internet
- Focus on issues with opportunities for IETF standardization
  - Start at the IP adaptation layer
  - End at the application layer with architectures and APIs for communicating and making data and management functions, including security

Next meetings

- Regular WISHI calls (~ monthly)
- WISHI Hackathon follow-up call (November 27th)
- Regular WebEx with OCF (~ monthly, starting CW 49)
- W3C WoT?
- NDSS Workshop: DISS (Decentralized IoT Security and Standards), Feb 18 (submit Dec 1)
- 2018 planning started
  - London IETF 101: More Hackathon?
  - F2F with OCF? (e.g., April/Malaga Plugfest?)
  - Montreal IETF 102

RG Doc Status

- “State-of-the-Art and Challenges for the IoT Security” getting ready to publish

- “RESTful Design for IoT” adopted
  - New text on hypermedia driven applications
  - More on system design and hypermedia controls
  - Design patterns: calling procedures, collections, conversions, event as state, server push

T2TRG Berlin Meeting

September 23-24th, Berlin, Germany

(Ad-hoc:) What is the IoT?

- An IoT “Thing” is a node on the Internet that has a foot in the **physical world** (and not just for talking to humans), often with a narrow purpose

- **Constrainedness** is often a property of “Things”, but certainly not always (design for scale)

- Scalability to a large number of “Things” implies **frugality** in cost, power usage and other resources (scaling down)

Coexistence

- Many “IoT networks” will share
  - Spectrum (e.g., 2.4 GHz, but also sub-GHz)
  - IP networks
- So far, people have been trying to get the car going on the empty road
- How is the more crowded landscape going to look like?
- What can we do to avoid one network taking out the next?
- Will there be collaborative spectrum management for IoT?
- draft-feeney-t2trg-inter-network: “Inter-network Coexistence in the Internet of Things”

Other topics

- REST IoT practices (draft-irtf-t2trg-rest-iot)
- Edge computing, Decentralized Infrastructures for IoT
- SOFIE: Securely and Openly Federating IoT
- SWORN: Secure Wakeup/Radio Nudging
- The need for “compliance”
  (e.g., to IEEE 802.15.4, to RFC 6775 6LoWPAN-ND)
- APIs for constrained CoAP implementations
- Asymmetric crypto for constrained nodes
- Slipmux: One UART to bind them all

OCF T2TRG joint meeting

November 10th, Singapore

OCF T2TRG meeting topics

- IETF/IRTF & OCF status updates
- Security: OSCORE, MUD, ACE
- RESTful Interaction: links and collections, atomic measurements
- Ubiquitous connectivity and discovery: mesh networks, RD usage, cloud, NAT traversal
- Dependent IETF work: CoAP TCP, pub/sub (& YANG push), protocol negotiation
- OneIoTa model reviews

Action Items 1/2

- Setting up monthly calls; topic per call
- OCF review of Resource Directory draft
- Design patterns for cloud rendezvous
- Operational guidelines for TCP with TURN
- OneIoTa model notifications for reviews

Action Items 2/2

- Deep-dive on how to use ACE for constrained OCF devices
- Modifying link collections; PATCH format(s)
- OSCORE tunnelling to prevent traffic analysis
- Resource read forbidden by definition / forbidden by policy
- Atomic measurements and CoRAL / HSML; bundling
- Re-rendezvous when server knows something broken
- Publish dependent work items at the IETF

WISHI Hackathon

November 12th, Singapore

WISHI Hackathon

- iot.schema.org, IPSO smart objects, OCF models
  - How to enrich with semantics; translation & interwork
- Relevant resources: QUDT, SOSA, SSN
- Glue ontology needed? W3C WoT TD role
- Next call: Monday, November 27th
  - Practical experiment: define one IPSO Smart Object with QUDT vocabulary, and iot.schema.org & OCF definitions
  - Design patterns for metadata

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