IPv6 over Constrained Node e Networks(6lo) Applicability & Use cases

draft-ietf-6lo-use-cases-01

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History and status

- Discussed from IETF 89
- Initial Document: draft-hong-6lo-use-cases-00 (Oct.17.2015)
  - Presented at IETF-94 6lo WG meeting
- Update 01: draft-hong-6lo-use-cases-01 (Mar.21.2016)
  - Presented at IETF-95 6lo WG meeting
- Tele-conference (May.19.2016)
  - Productive discussion
- Update 02: draft-hong-6lo-use-cases-02 (Jul.08.2016)
  - Presented at IETF-96 6lo WG meeting
- Adoption call (Sep.22.2016~Oct.7.2016)
- Update 03: draft-hong-6lo-use-cases-03 (Oct.30.2016)
  - Presented at IETF-97 6lo WG meeting
- **WG document : draft-ietf-6lo-use-cases-00 (Nov.2.2016)**
- **1st revision : draft-ietf-6lo-use-cases-01 (Mar.12.2017)**

Update since IETF97

- Include new link layer technology
  - PLC (Power Line Communication)

- Add a use case of MS/TP
  - Management of District Heating

- Add a use case of PLC
  - Smart Grid

- Add a use case of IEEE 802.15.4e
  - Industrial Automation

- Some editorial comments

- Author added
  - AR. Sangi and T. Aanstoot

6lo Link layer technologies

- ITU-T G.9959 (Z-wave) : RFC 7428

- Bluetooth Low Energy : RFC 7668

- DECT-ULE : draft-ietf-6lo-dect-ule-07

- Master-Slave/Token-Passing : draft-ietf-6lo-6lobac-05

- NFC : draft-ietf-6lo-nfc-05

- PLC : IEEE 1901.2 (There will be a presentation)

- IEEE 802.15.4e

- (Possible Candidate) LTE MTC : 3GPP TS 36.306 V13.0.0

Design space dimensions for 6lo use cases

- Deployment/Bootstrapping

- Topology

- L2-Mesh or L3-Mesh

- Multi-link subnet

- Data rate

- Buffering requirements

- Security Requirements

- Mobility across 6lo networks and subnets

- Time synchronization re-quirements

- Reliability and QoS

- Traffic patterns

- Security Bootstrapping

- Power use strategy

- Update firmware requirements

6lo use cases (1/2)

- Use case of ITU-T G.9959: Smart Home
  - Example: Use of ITU-T G.9959 for Home Automation

- Use case of Bluetooth LE: Smartphone-Based Interaction with Constrained Devices
  - Example: Use of Bluetooth LE-based Body Area Network for fitness

- Use case of DECT-ULE: Smart Home
  - Example: use of DECT-ULE for Smart Metering

- **<u>Use case of MS/TP: Management of District Heating</u>**
  - Example: use of MS/TP for management of district heating

6lo use cases (2/2)

- Use case of NFC: Alternative Secure Transfer
  - Example: Use of NFC for Secure Transfer in Healthcare Services with
  - Tele-Assistance

- Use case of LTE MTC
  - Example: Use of wireless backhaul for LoRa gateway

- **<u>Use case of PLC: Smart Grid</u>**
  - Example: Use of PLC for Advanced Metering Infrastructure
  - Example: Use of PLC (IEEE1901.1) for WASA in Smart Grid

- **<u>Use case of IEEE 802.15.4e: Industrial Automation</u>**
  - Use of IEEE 802.15.4e for P2P communication in closed-loop application

Comments from Samita (1/2)

- The document is growing too big and lost focus a bit

- 6lo applicability to LPWAN : need to work with LPWAN chairs

- The same attributes for all usecases may not be required. We may pick one or two examples with complete set of attribut es
  - Additional comment : Create a table

- From the examples, it is not clear where 6lo network and no des are running in the example

Comments from Samita (2/2)

- Modification of Abstract section
  - Provide suggest text

- Change of the title
  - "6lo Applicability and Usecases" -> "6lo Applicability Guideline"

- Add a sub section on '6lo adaptation consideration' on Section 5 (Design Space)

- The goal is to hand out an IETF document to the non-IETF community to spread the word about IETF work on IPv6 IOT stack for constrained networks

- Editorial comments

Next Steps

- Solve Samita's comments

- Refer detnet use case draft (Pascal's comment)

- LPWAN as a use case? (Sandra Céspedes's comment)

- Security consideration for each use cases or in general?

- Add a tabular description for comparison of characteristics in terms of applications on different L2 technologies

Thanks!!

Questions & Comments