A CoAP Usage for RELOAD

draft-jimenez-p2psip-coap-reload-01

Jaime Jimenez
Jose M. Lopez-Vega
Jouni Maenpaa
Gonzalo Camarillo
Architecture

- General Idea: Federating WSNs with RELOAD and CoAP.
- Maps CoAP URIs and Node-IDs.
- Nodes: CNs, RNs, PNs.
- Functions: Sensor, Actuator.
- Diff from draft...
Registration

• For registration: $\text{Store}(\text{ResourceId}, \text{value})$
• Example:

    Resource-ID=
    h(coap://overlay-1.com/proxy-1/.well-known/)
    Dictionary KEY = 9996172,
    VALUE = {./temperature-1;
              ./temperature-2;
              ./temperature-3}
Rendezvous

• RELOAD DICTIONARY model allows for multiple nodes to perform a store to the same Resource-ID.
• Rendezvous with one proxy hosting multiple CNs:
• Rendezvous with multiple RNs with sensors/actuators of the same class:
  – Fetch (h(coap://overlay-1.com/temperature/.well-known/)) → Several Dictionary Entries. Sensors with same properties (all temperature sensors).
Reading Sensor Data

• Direct Connection: AppAttach Request to Node-ID found during Rendezvous.

• Use CoAP to get the resource values:
  – CoAP Get Temperature/humidity...
  – Example:

    coap://overlay-1.com/proxy-1/temperature-1
    coap://overlay-1.com/proxy-1/temperature-2
    coap://overlay-1.com/proxy-1/temperature-3

• What if the CN (i.e. sensor) is asleep?
Caching Mechanisms

• Need due to battery constrains of CNs.
• When CNs wake up, send latest reading to proxy.
• Use RELOAD’s StoredDataValue structure.
• Small change, *ProxyCache* and *SensorCache*.
  – Sensor Cache: Information of one sensor (type, inactivity period, last awake...) . Can be extended.
Next Step

• TBD
  – Security: Secure connection between CN and RN.
  – Congestion Control: Many CNs accessing same RN.

• Comments, feedback...