A CoAP Usage for RELOAD

draft-jimenez-p2psip-coap-reload-01

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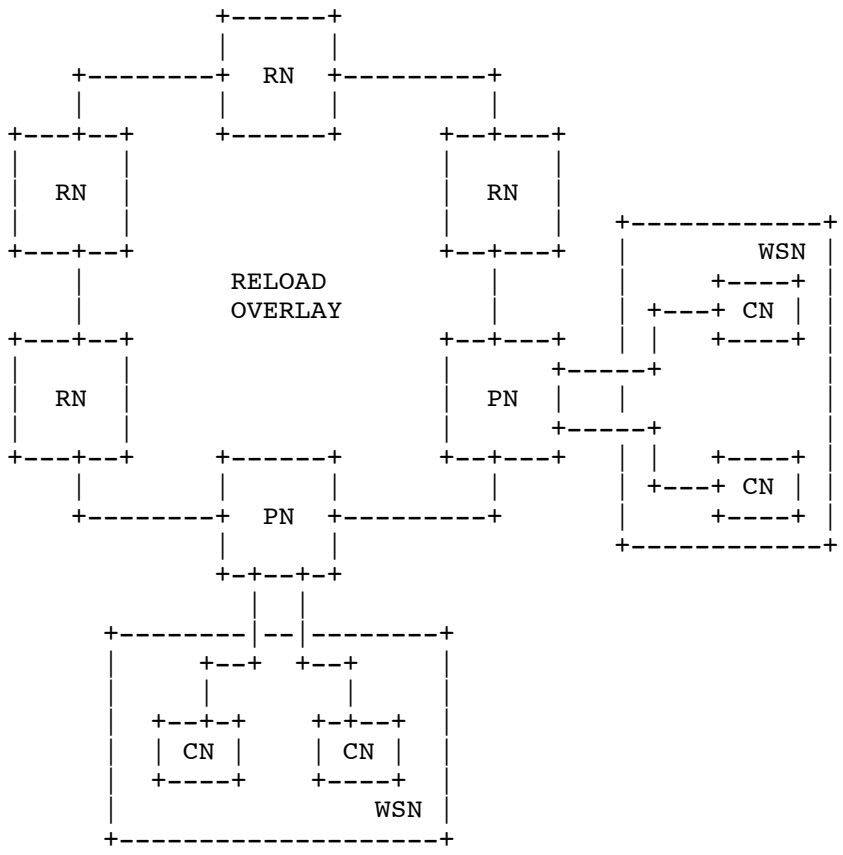
Architecture

- 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: *Store(ResourceID, 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:
  - *Fetch (h(coap://overlay-1.com/**proxy-1**/.well-known/)) → One Dictionary Entry: Node-ID (proxy) with CoAP URIs of sensors.*
- 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*.
  - Proxy Cache: Node_ID of proxy and List of its sensors and their readings . Can be extended.
  - 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…