Web of Things

How-To Extend TD with Other Semantic Models

Preparation for the next F2F Meeting

2017-06-30

Motivation: TD Discovery

- Problem Statement
  - Discovery of Things suitable for a WoT application;
  - Interop client can discover Things in order to dynamically adapt applications to changes, e.g., to replace malfunctioning sensor with an equivalent one;
- Focus
  - Things are discovered based on semantic annotations attached to Interaction Patterns of a TD.

Thing Description with Semantic Annotations

```
{ "@context": [http://w3c.github.io/wot/w3c-wot-td-context.jsonld,
                    http://w3c.github.io/wot/w3c-wot-common-context.jsonld],
"@type": ["Thing"],
"name": "MyTemperatureThing",
"interaction": [
     {
          "@type": ["Property", "Temperature"],
          "unit": "celsius",
          "name": "temperature",
          "outputData": { "type": "number" },
          "writable": false,
          "link": [{
                    "href" : "coap://mytemp.example.com:5683/temp",
          "mediaType": "application/json"
          }]
     }
 ] }
```

REMARK: semantic annotations are in green.

How-To

- **Step 1:** include Wot Common Context in TD "@context:
  - http://w3c.github.io/wot/w3c-wot-common-context.jsonld
- **Step 2:** for each @type of Thing or its Interaction Pattern, find a term in Wot Common Context to annotate it.
- **Step 3:** if the term does not exist, please let us know. We will provide it.
- **Step 4:** upload your TD in TD Repository:
  - http://plugfest.thingweb.io:8081/
- **Examples with annotations:**
  - https://github.com/w3c/wot/tree/master/thing-description/examples
- **More info** in Current Practices:
  - https://w3c.github.io/wot/current-practices/wot-practices.html#td-context-extension

Next Steps: use iot.schema.org

- Example
  - Air conditiner - PlugFest July 2016, China, Beijing
- Thing:
  - MyAirConditionerP1:
    - operationStatus
    - operationMode
    - desiredTemp
    - windVolume
- Problem statement:
  - What is the semantic meaning of these terms?

iot.schema.org Approach

- Thing -> Capability: **AirConditioningCapatility**
  - Properties:
    - operationStatus -> **ACOperationStatus**
    - operationMode -> **ACOperationMode**
    - desiredTemp -> **DesiredTemperature**
    - windVolume -> **windVolumeLevel**
  - Actions:
    - **ACTurnOn, ACTurnOff**
  - Values of ACOperationMode:
    - **Cool, Dry, Fan, Auto**
- Human readable docs with examples will be available

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```
{ "@context": [http://w3c.github.io/wot/w3c-wot-td-context.jsonld,
                    http://w3c.github.io/wot/w3c-wot-common-context.jsonld],
"@type": ["Thing", "AirConditioningCapatility"] ,
"name": "MyTemperatureThing",
"interaction": [
     {
          "@type": ["Property", "ACOperationMode"],
          "name": "operationMode",
          "outputData": { "type": "string" },
          "writable": true,
          "link": [{
                    "href" : "coap://mytemp.example.com:5683/operationMode",
                    "mediaType": "application/json"
          }]
     }
 ] }
```

REMARK: semantic annotations are in green.