# W3C WoT WG
# Thing Description
# Information Model

May 2017
Osaka

Sebastian Käbisch

# Agenda

1. TD Basic Assumption and current working assumption
2. TD Model
   - Requirements
   - TD model proposals
3. Next steps

4. TD lifecycle (Kajimoto-san) à 09:45am

# WoT TD Basic Assumption

**Servient 1**
(provides Properties, Actions,
and/or Events)

**Servient 2**
(consumes Properties, Actions,
and/or Events from Servient 1)

JavaScript,
C /C++, Jav...
Lua, ...

The *'index.html'* of
the Thing / Servient

JavaScript,
C /C++, Java,
Lua, ...

**TD**

E.g., Properties are
implemented
with JavaScript
objects

E.g., Properties are
implemented with
structs or classes

TD information and representation should
be independent of any platforms and
programming languages

# TD Current Working Assumption

```json
{
"@context": ["http://w3c.github.io/wot/w3c-wot-td-context.jsonld",
                    { "sensor": "http://example.org/sensors#" }
                    ],
  "@type": "Thing",
  "name": "MyTemperatureThing",
  "interactions": [
    {
      "@type": ["Property", "sensor:Temperature"],
      "name": "temperature",
      "sensor:unit": "sensor:Celsius",
      "outputData" {"valueType": { "type": "number" }},
      "writable": false,
      "links": [{
        "href" : "coap://mytemp.example.com:5683/",
        "mediaType": "application/json"
        }]
    }
  ]
}
```

**TD Context**
- minimal vocabulary set
- standardized by W3C WoT

**'External' Context**
- enrich definitions within TD with additional semantics
- is not to be standardized by W3C WoT
- reuse existing domain specific or unspecific vocabularies, e.g., from schema.org, OneM2M,....
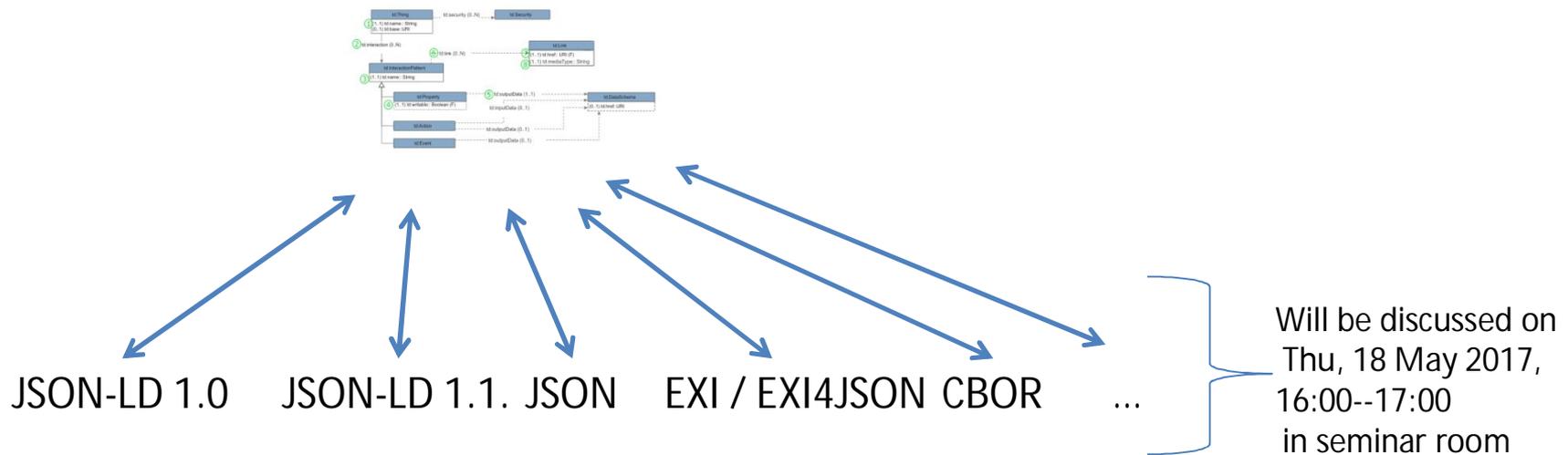
**Data Schema Definition**
- per default IETF JSON Schema
- working on semantic annotations

W3C Editor's Draft 06 March 2017
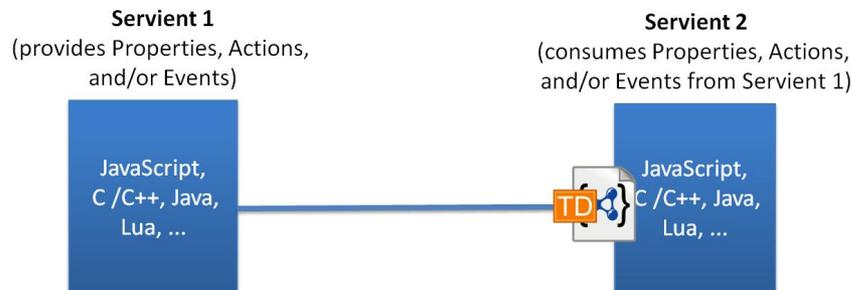https://w3c.github.io/wot-thing-description/

# TD Model Requirements

- Should be independent of any serializiation format



JSON-LD 1.0    JSON-LD 1.1.  JSON    EXI / EXI4JSON  CBOR    …

Will be discussed on
Thu, 18 May 2017,
16:00--17:00
in seminar room

- TD model should be very clear and understandable by developer that have different backgrounds (e.g., embedded, web, and semantic web developer)
  à  hard to meet

# TD Model Requirements (cont)

- Define a compact and minimal vocabulary / item set which can be always be expect when a TD is consumed

**Servient 1**
(provides Properties, Actions, and/or Events)

JavaScript, C /C++, Java, Lua, …

**Servient 2**
(consumes Properties, Actions, and/or Events from Servient 1)

JavaScript, C /C++, Java, Lua, …

Having hooks for
- WoT's interaction models properties, actions, and events
-  communication metadata
- semantics
- security

- Be extendable, e.g., for additional domain specific context knowledge (semantics, communication, security requirements)

# Current Situation in TD Web Meetings

- Shall the TD model based on semantic web convention?
  - interactionName vs. name, providesInteractionPattern vs. interaction, ...
  - see proposal from María Poveda Villalónet et al., http://iot.linkeddata.es/def/wot/index-en.html
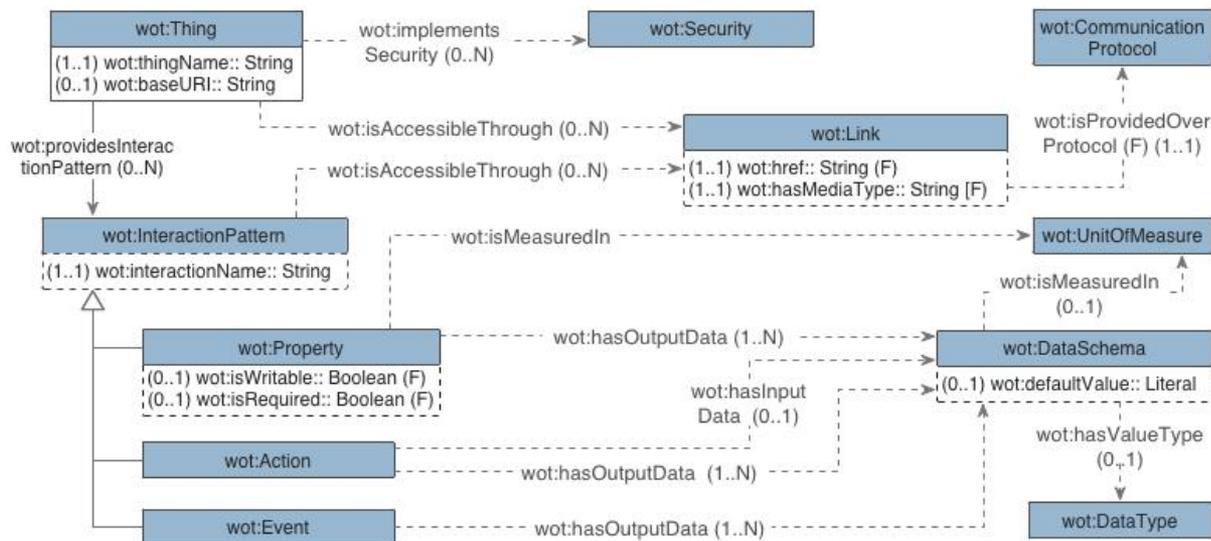
# Current Situation in TD Web Meetings

- outcome of the extra TD model web meeting (also see [https://www.w3.org/2017/04/26-wot-td-minutes.html](https://www.w3.org/2017/04/26-wot-td-minutes.html))

  à to have many adopters (also from non semantic web developer) TD instances should be very close to an introduced TD model

  à avoid mapping introduction between TD instances and TD model

# TD Core Model Proposal
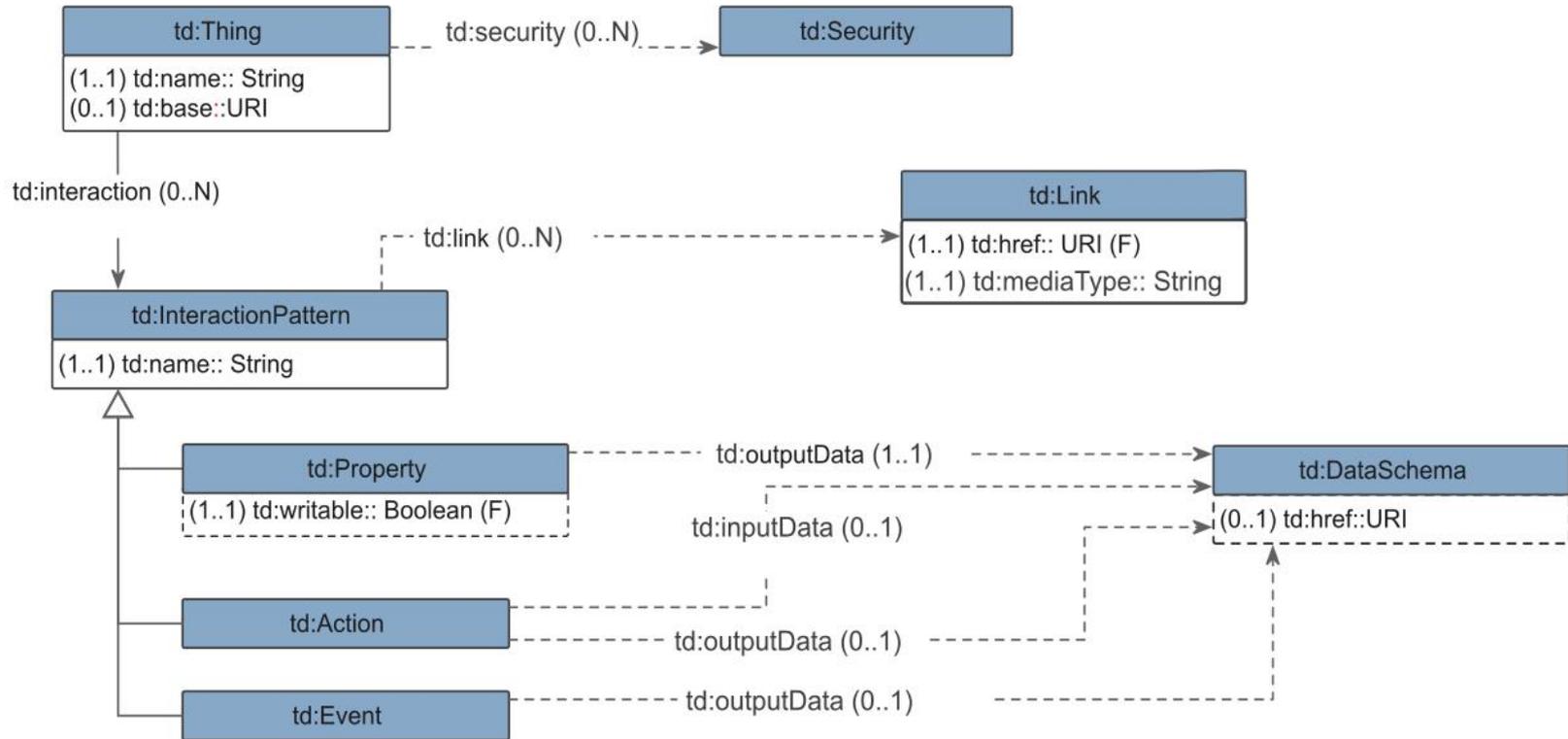
# TD Model with Instances



TD Model

Sample instances in different formats

JSON-LD

JSON