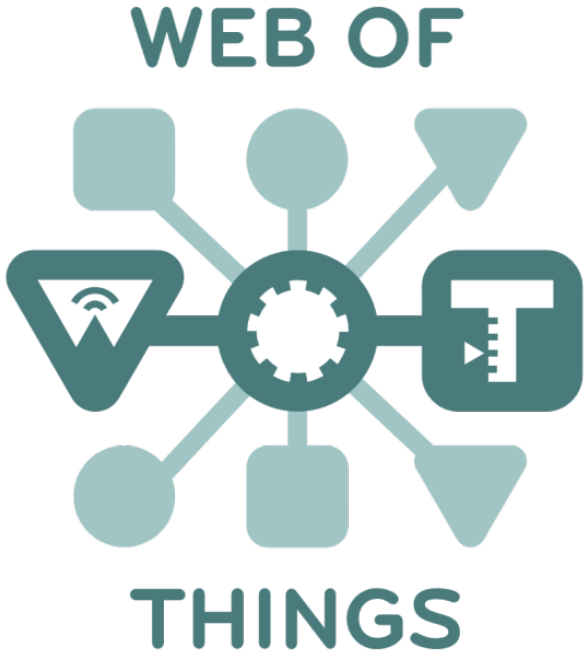

WoT Interoperability: Core Profile

Oracle + Smart Things joint proposal

10 July 2019

Is there a problem?

- Current WoT spec defines a generic description language.
- Implementers are free to pick what they like, only very few constraints.
- No out of-the-box device interaction across different stakeholders.
- Each new device class (potentially) requires implementation additional features at the consumer.
- TAG is concerned about lack of interoperability.
- Mozilla is concerned about lack of interoperability.
- Some member companies are concerned about lack of interoperability.

What do we need?

1. A profiling mechanism

2. A baseline device profile

Profiling Mechanism

A profile defines additional constraints on various aspects of the TD spec:

- Constraints on the **vocabulary** of TD classes
  - Make specific vocabulary terms mandatory, remove others
- Constraints on **class relationships**
  - limited cardinality, e.g. only one form per interaction affordance
- Constraints on **values** of vocabulary terms
  - e.g. only a single string, where the spec permits an array of strings
- Constraints on **data schemas**
  - e.g. no arbitrary nested objects, arrays of arrays, …
- Constraints on **security**
  - e.g.Security mechanisms are selected only at top level
- Constraints on the **protocol binding**
  - e.g. single protocol, predefined mapping of http verbs (GET/PUT) to operation verbs

Core Profile

- Guarantees a minimum level of interoperability
  - Reading and writing of properties
  - Invoking actions
  - Event mechanism (optional)

- How?
  - Formalize proven interoperability results of the plug-fests
  - Define additional constraints, e.g. no arbitrary depth objects
  - Focus on „easy to implement“ in resource constrained devices and cloud services

Core Profile Proposal

- Constraints on the protocol binding - Default Binding Profile for HTTP(S).
- Pre-defined mapping of http verbs to operations, e.g. PUT to writeproperty, POST with return payload for invokeaction, etc.
- Only a single “Forms” endpoint per operation and interaction affordance.
- Constrained set of data types in addition to constrained payload structure.
- Limited subprotocol(s) to handle observe and async events.
- Some limitations on security.

- Additional profiles may be developed that allow (require) protocol, payload, and data type adaptation.