TD.next

W3C Web of Things WG/IG

May 31, 2023

Revision

- A revision of the TD itself, format and content
- A revision of the TD specification document

  - The discussion today is more about the specification document
  - The TD revision form and content will be a result of addressing the requirements

TD.next big bits

- General restructure of the TD Rec. document
  - Descriptions, definitions, requirements sections
- Integration of the Protocol Binding specification
  - Interface to external specifications
  - Improve the binding mechanism itself
- Integration of the Thing Model specification
 - Adding optionality concepts, e.g. placeholders

General Restructure

- Better isolation of requirements clauses (SHOULD, SHALL)

- Large section for Protocol Bindings

- Incorporation of optionality concepts for Thing Model

Protocol Binding Goals

- WoT is not a protocol, but a way to describe affordances in a protocol-neutral way
- WoT is enabled by the bindings that connect TD to diverse network and application protocols
- Create an open system for protocol bindings, anyone can create a protocol binding
- Friendly to creators, users, and non-users of Protocol Bindings

WoT is not a protocol
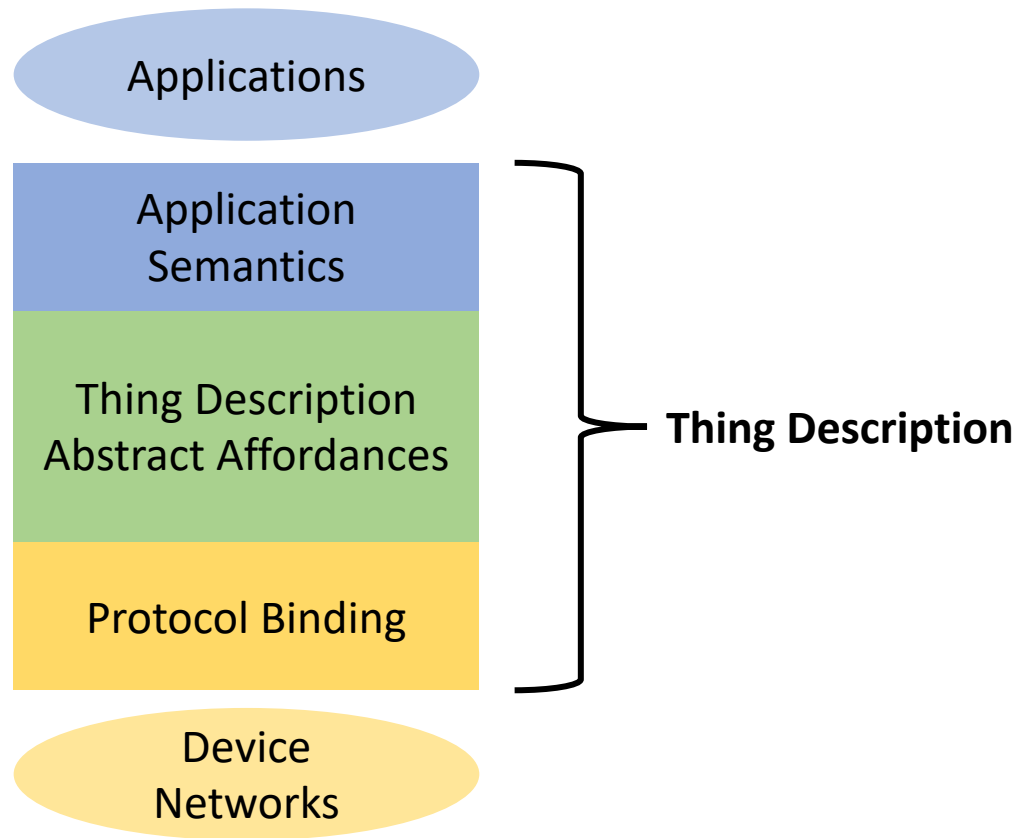
Bindings (Review)

- Protocol Binding
  - What we call the mapping of TD to a concrete network
  - Also specifically the mapping of WoT meta-operations to operations in a target protocol
- Payload Binding
  - The concept of mapping of a TD to concrete payload schemas or data models in a target system
- Ecosystem Binding
  - A combination of Protocol and Payload binding to map to a concrete third party specification, e.g. Matter

Bindings (Review)

- Defined protocol bindings (little "p")
  - HTTP, CoAP, MQTT
  - May include a default payload scheme

- Ecosystem bindings
  - Modbus, BACnet, OPC-UA
  - Different ecosystems have different operations that WoT meta-operations map to operations in the target protocol

- Payload bindings
  - Different ecosystems have different dataschemas for the same data.
  - Will there be meta-dataschemas to map to in the same way that there are meta-operations?

External Bindings

- The WoT committees can't proscribe validation for third party protocols and ecosystems, it's up to them to insure correctness and suitability for purpose

- Our challenge is to design an interface that proscribes documentation requirements for external bindings in such a way that they can be validated at the interface

- We will refactor our existing protocol bindings to conform to this interface and these requirements

Registry

- We will consider defining a binding registry, under W3C control, as a way to insure compliance with the proscribed requirements for protocol bindings

- There would be a set of requirements to fulfill before a proposed binding is allowed to be registered

- There would be a defined policy to insure fair and timely evaluation of proposed bindings

Thing Model (Review)

- Thing Model is a way to express optionality constraints for Thing Descriptions

- TM can be thought of as proto-Thing Descriptions or building blocks that can be used to construct Thing Descriptions that are similar to each other, e.g. a representation of a specific device type

- Same constructs as TD plus optionality constructs

- Thing Models are generally consumed by tools, not by clients (gateway that assigns addresses?)

Thing Model Integration

- The challenge will be to incorporate optionality constructs into the TD specification without creating confusion or unnecessary duplication

- The optionality constructs need to be coupled with their corresponding TD representations in the document

- Maybe a separate section is not the best approach