

Web of Things (WoT) IG/WG

Michael McCool

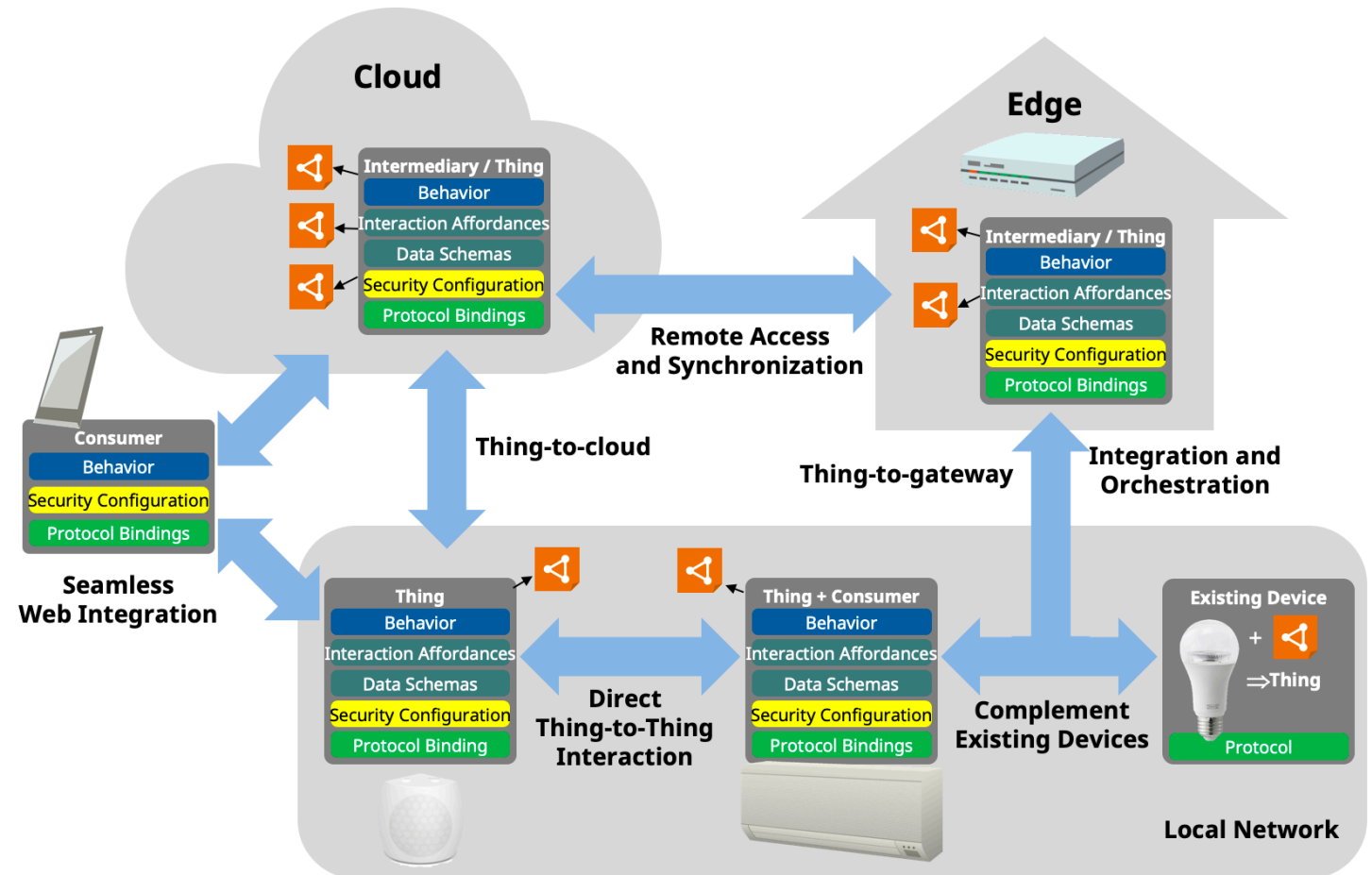
September 21, 2020



Goal and Use Cases

IoT Interoperability

- Simplify usage
 - Interaction abstraction
- Simplify data ingestion
 - Unified data schemas
- Bridge silos
 - Protocol bindings
- Enable "mashups"
 - Scripting API



Current Work Items

Deliverables	Updates	New
Informative	<ul style="list-style-type: none"> Scripting API Security and Privacy <ul style="list-style-type: none"> Guidelines Best Practices 	<ul style="list-style-type: none"> Use Cases
Normative	<ul style="list-style-type: none"> Architecture Thing Description 	<ul style="list-style-type: none"> Discovery Profiles



Thing Description

- Metadata for IoT services
 - ID, versions, types, creation time, ...
 - Titles, descriptions, ...
- Describes interactions
 - What they are (abstraction)
 - How to use them (protocol binding)
 - How to interpret data (schemas)
- JSON-LD 1.1
 - Vocabulary extensions
 - Semantic annotation (e.g. OneDM)
 - Protocol-specific vocabulary

```
{
  "@context": [
    "https://www.w3.org/2019/wot/td/v1",
    { "iot": "http://iotschema.org/" }
  ],
  "id": "urn:dev:org:32473:1234567890",
  "title": "MyLEDThing",
  "description": "RGB LED torchiere",
  "@type": ["Thing", "iot:Light"],
  "securityDefinitions": [{"default": {
    "scheme": "bearer"
  }}],
  "security": ["default"],
  "properties": {
    "brightness": {
      "@type": ["iot:Brightness"],
      "type": "integer",
      "minimum": 0,
      "maximum": 100,
      "forms": [ ... ]
    }
  },
  "actions": {
    "fadeIn": {
      ...
    }
  }
}
```



New Work Items

Use Cases:

- Expanding catalog of use cases
- Identifying requirements
- Identifying gaps and overlaps
 - Edge computing
 - Geospatial systems
 - Data modeling
 - ...

Interoperability Profiles:

- Support interoperability
 - Out-of-the-box plug-and-play
- Constrain features
 - Allow for finite, in-advance implementation of consumers

Discovery:

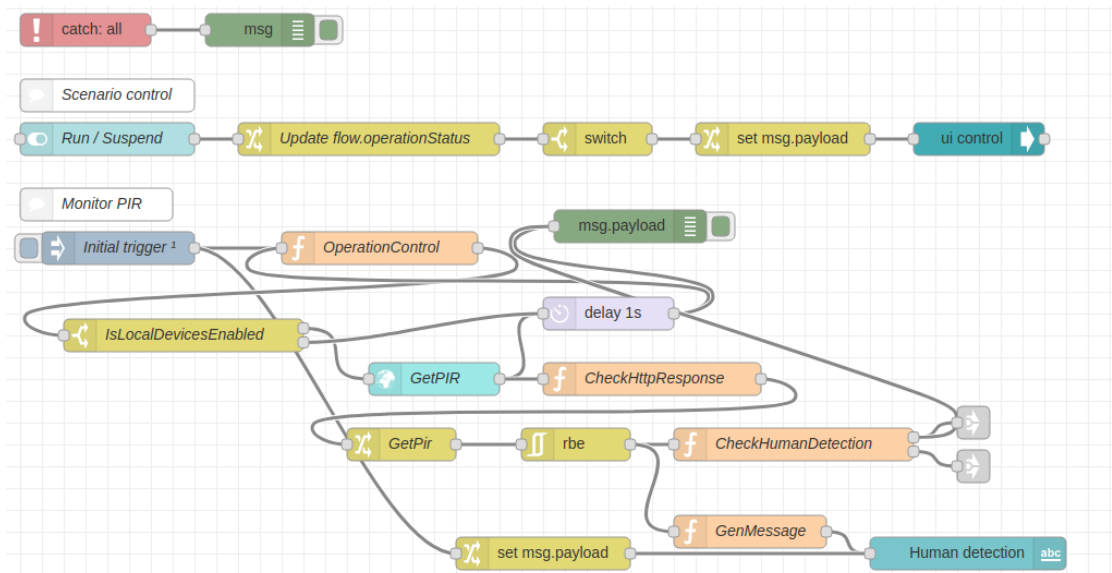
- Define how TDs are distributed
 - Allow for ad-hoc use cases
- Both local and global contexts
 - Spatial search not limited to local network
- Two-phase introduction/exploration
 - Introductions use existing mechanisms
 - Explorations include directory service and peer-to-peer metadata retrieval
- Emphasis on privacy protection
 - Introductions identify exploration services
 - Exploration services provide metadata *only* after authentication/authorization
 - Protect not only metadata but queries
 - Mitigate fingerprinting risks



Other Activities

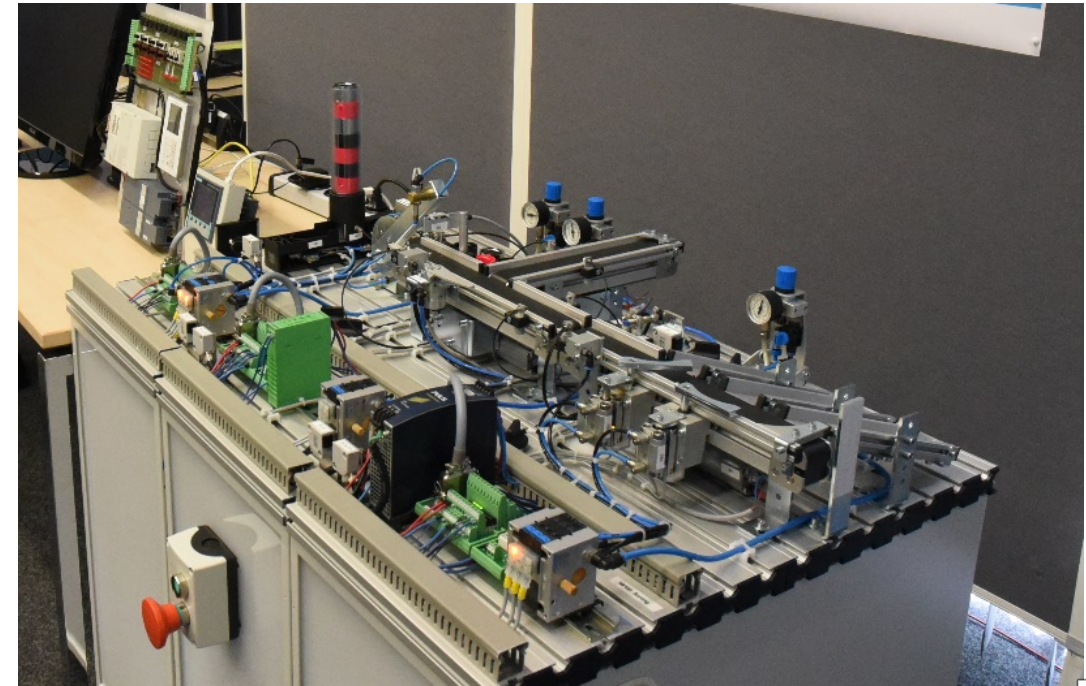
Implementations

- Node-wot
 - Scripting API implementation
- Node-gen
 - Node-RED integration



Testing and Validation

- Playground
 - TD checker
- Plugfests



W3C WoT Resources

- W3C WoT Wiki
 - <https://www.w3.org/WoT/IG/wiki>
(IG/WG organizational information)
- W3C WoT Interest Group
 - <https://www.w3.org/2016/07/wot-ig-charter.html>
(old charter)
 - <https://www.w3.org/2019/10/wot-ig-2019.html>
(new charter)
 - <https://lists.w3.org/Archives/Public/public-wot-ig/>
(mailing list)
 - <https://github.com/w3c/wot>
(technical proposals)
- W3C WoT Working Group
 - <https://www.w3.org/2016/12/wot-wg-2016.html>
(old charter)
 - <https://www.w3.org/2020/01/wot-wg-charter.html>
(new charter)
 - <https://www.w3.org/WoT/WG/>
(dashboard)
- W3C WoT Candidate Recommendations
 - <https://www.w3.org/TR/wot-architecture/>
 - <https://www.w3.org/TR/wot-thing-description/>
- W3C WoT Working Drafts / Group Notes
 - <https://www.w3.org/TR/wot-binding-templates/>
 - <https://www.w3.org/TR/wot-scripting-api/>
 - <https://www.w3.org/TR/wot-security/>
- W3C WoT Editors' Drafts and Issue Tracker
 - <https://github.com/w3c/wot-architecture/>
 - <https://github.com/w3c/wot-thing-description/>
 - <https://github.com/w3c/wot-binding-templates/>
 - <https://github.com/w3c/wot-scripting-api/>
 - <https://github.com/w3c/wot-security/>
 - <https://github.com/w3c/wot-security-best-practices/>
 - <https://github.com/w3c/wot-profile/>
 - <https://github.com/w3c/wot-discovery/>
- Reference Implementations and Tools: node-wot
 - node-wot: <https://github.com/eclipse/thingweb.node-wot>
 - TD playground: <https://github.com/thingweb/thingweb-playground>



Contacts

<https://www.w3.org/WoT/WG/>

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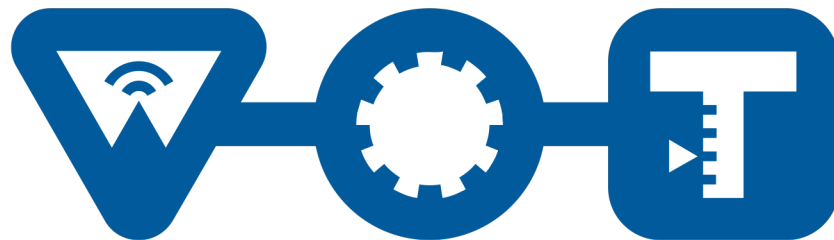
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WEB OF



THINGS