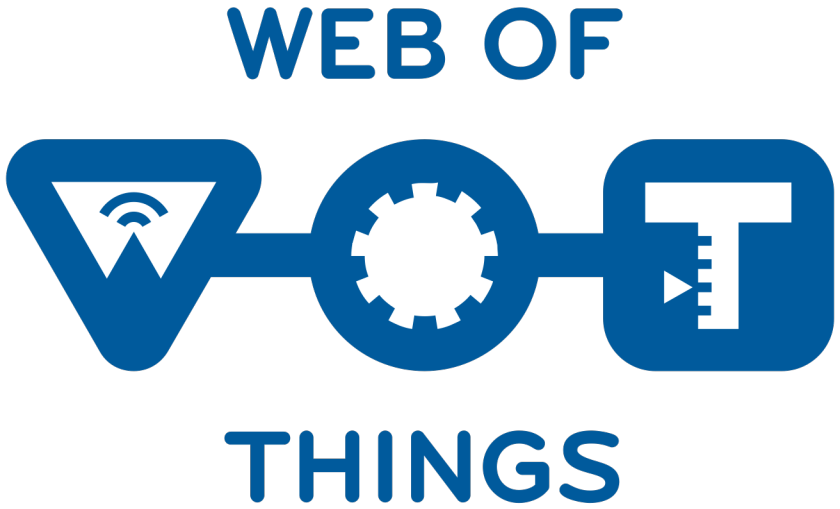


Web of Things (WoT) IG/WG

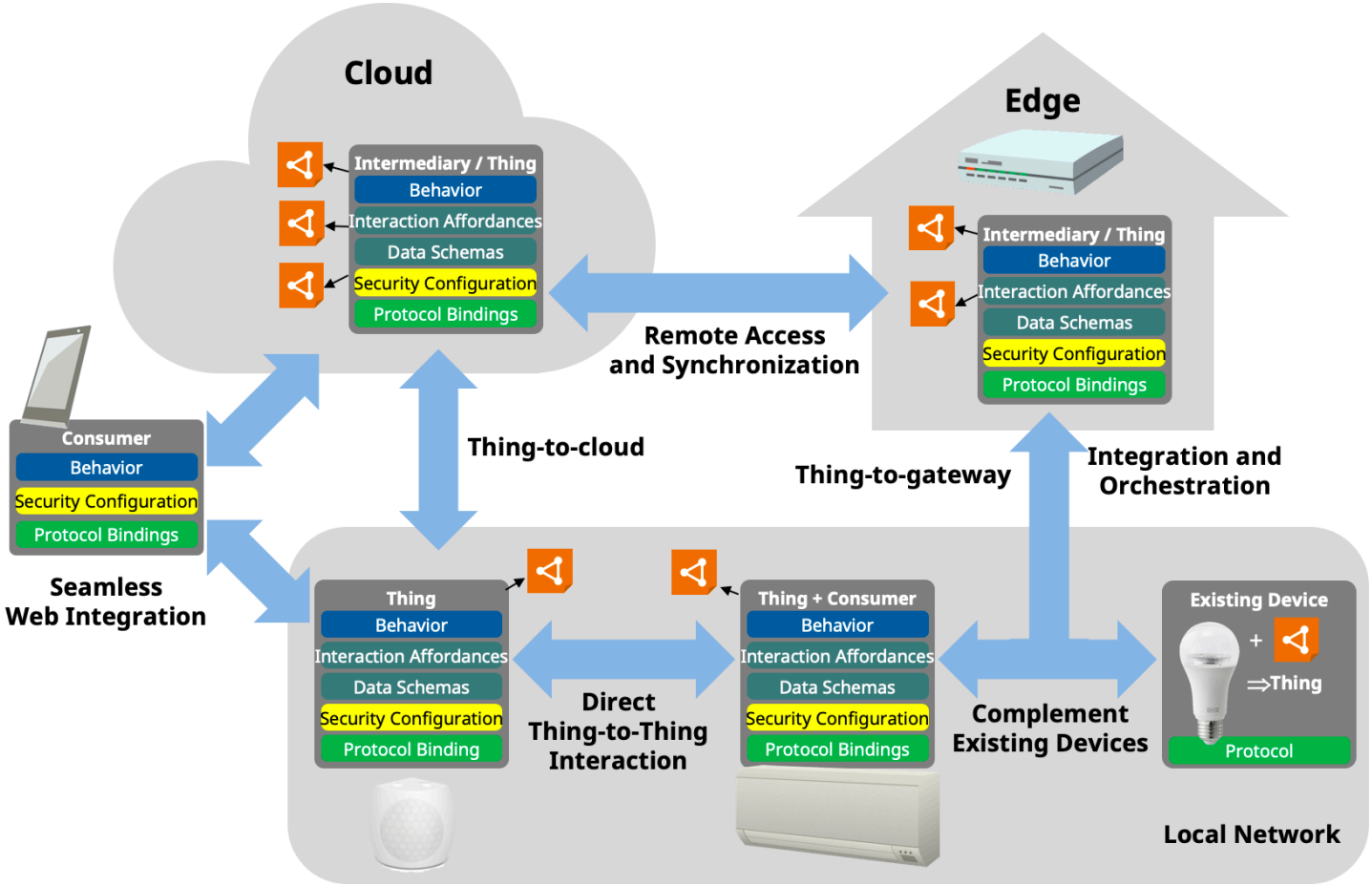
Michael McCool

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	• Scripting API
	• Security and Privacy
	  • Guidelines
	  • Best Practices
		• Use Cases

Normative	• Architecture • Thing Description	• 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

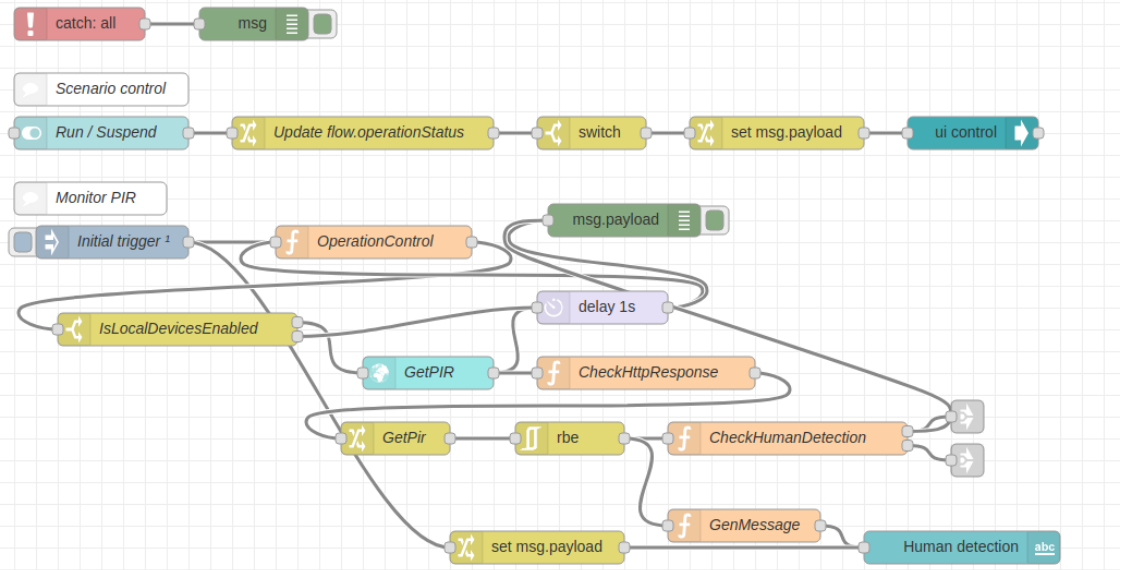
Discovery:

- 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

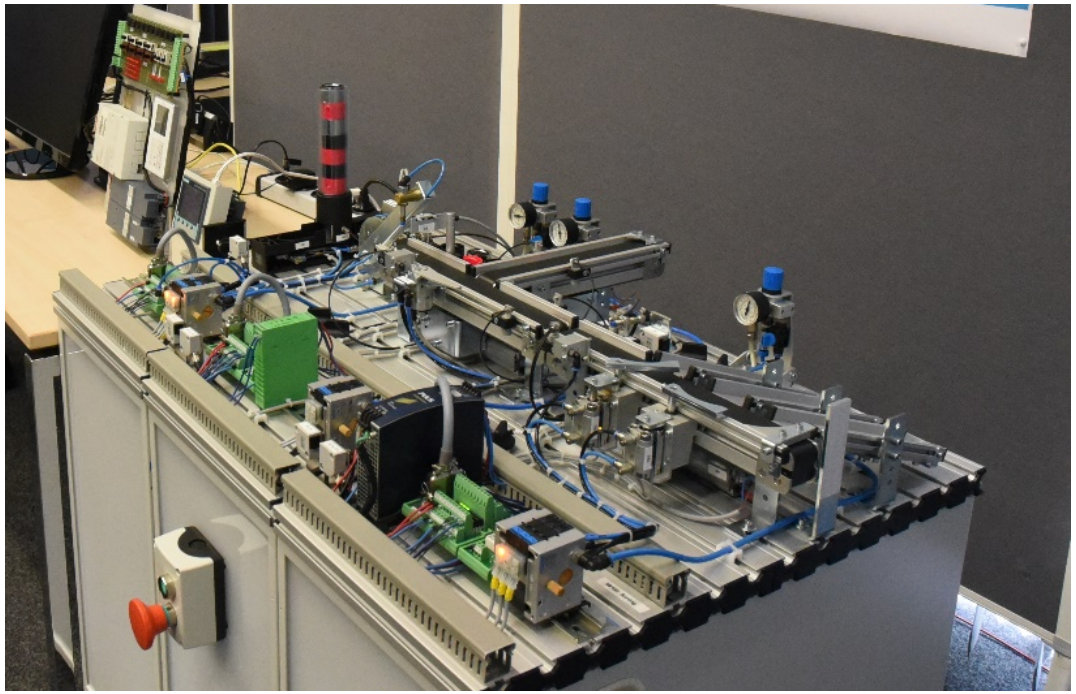
Implementations

- 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://cdn.statically.io/gh/w3c/wot/master/charters/wot-wg-charter-draft-2019.html?env=dev
    (new charter draft)
  - 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/
- 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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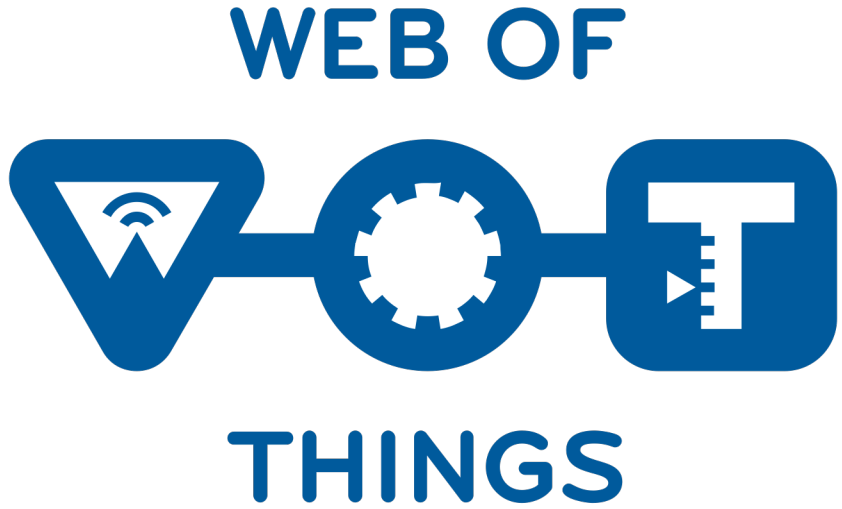
WEB OF
THINGS