

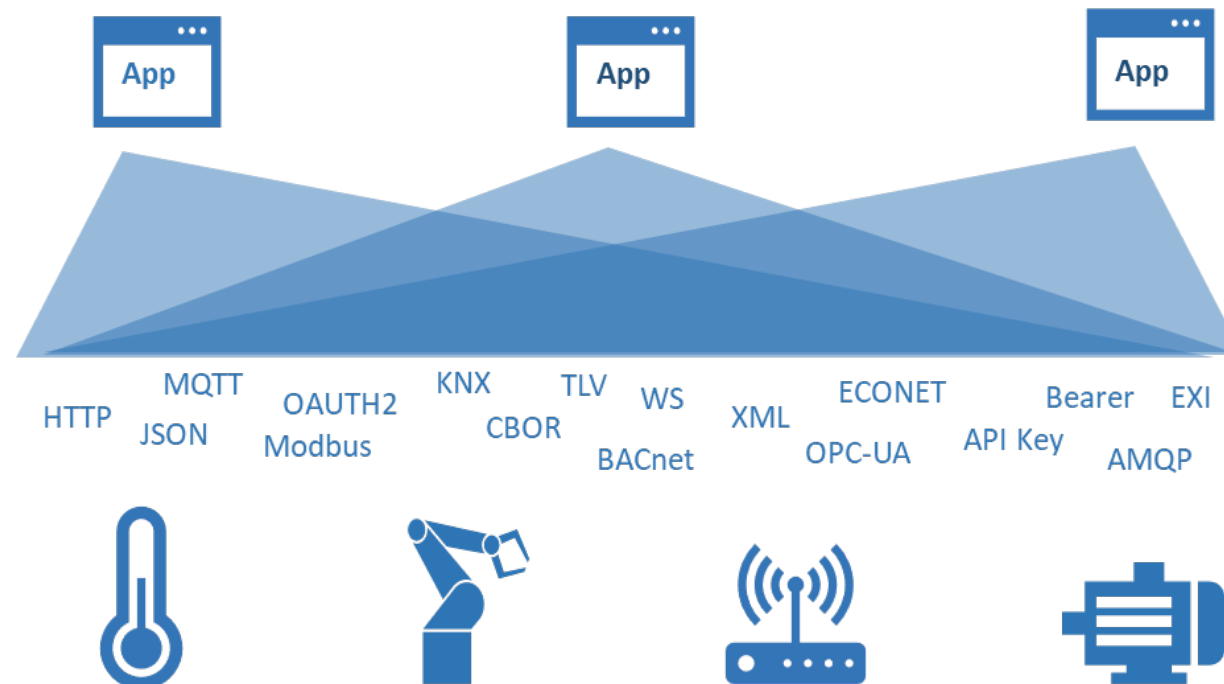
WoT Summary and Status

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W3C Web of Things (WoT)

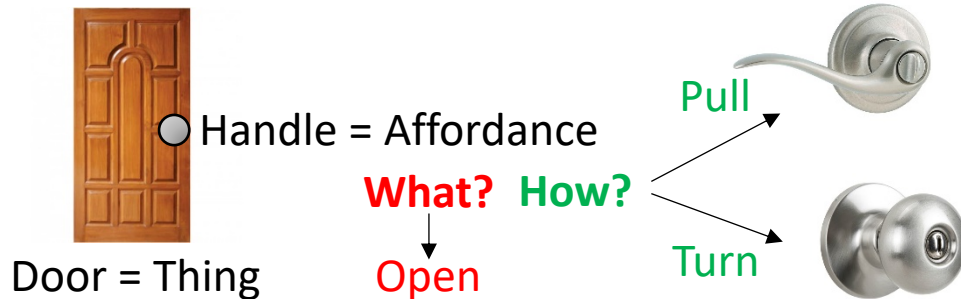
- W3C Working Group goal: Adapting web technologies to IoT
- Already published: Thing Description (TD) metadata format
 - TD describes the available interactions (network API) of a Thing
- New standards work in progress, including Discovery
 - How does a potential user obtain the TDs for a Thing?



WoT Descriptive Interoperability

WoT Architecture

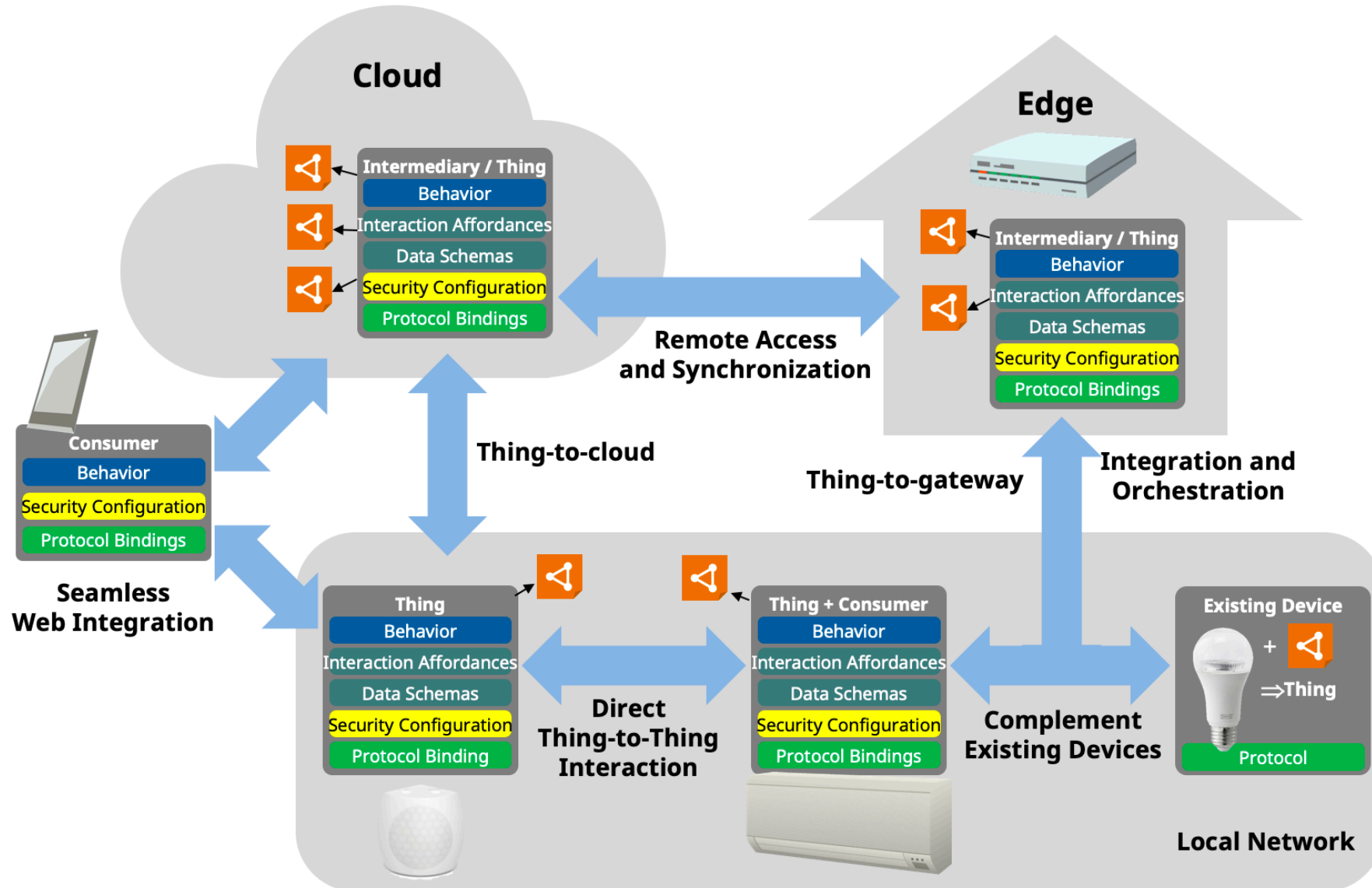
- Constraints
 - Things must have a TD
 - Must use hypermedia controls (general WoT)
 - URIs, standard set of methods, media types
- Thing Description Affordances
 - Describes WHAT the possible choices are
 - Describes HOW to interact with the Thing



WoT Thing Description (TD)

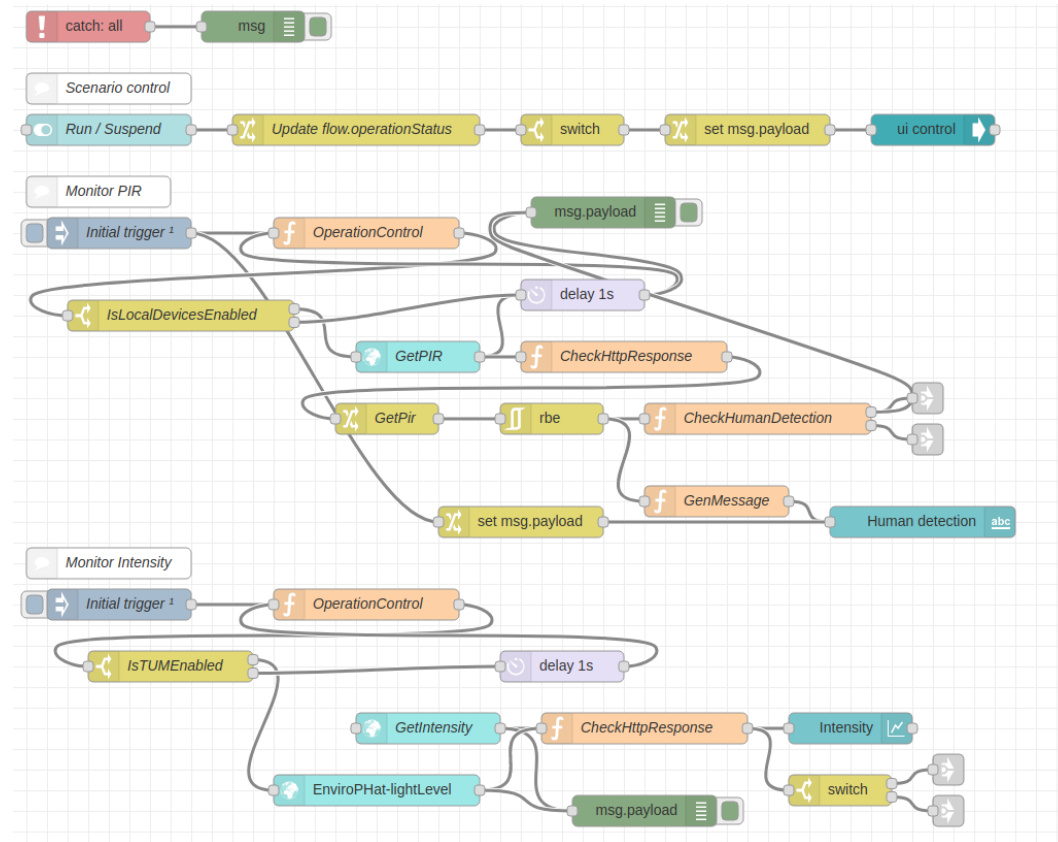
```
{
  "@context": [
    "https://www.w3.org/2019/wot/td/v1",
    { "iot": "http://iotschema.org/" }
  ],
  "id": "urn:dev:org:32473:1234567890",
  "title": "MyLEDThing",
  "description": "RGB LED torchiere",
  "@type": ["Thing", "iot:Light"],
  "securityDefinitions": [{"default": {
    "scheme": "bearer"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

Usage Patterns Overview



WoT Orchestration

Node-RED/node-gen



node-wot/Scripting API

```
WoTHelpers.fetch( "coap://localhost:5683/counter" ).then( async (td) => {  
  // using await for serial execution (note 'async' in then() of fetch())  
  try {
```

```
    let thing = await WoT.consume(td);  
    console.info( "=== TD ===" );  
    console.info(td);  
    console.info( "===== " );
```



```
    // read property #1
```

```
    let read1 = await thing.readProperty( "count" );  
    console.info( "count value is" , read1);
```

```
    // increment property #1 (without step)
```

```
    await thing.invokeAction( "increment" );  
    let inc1 = await thing.readProperty( "count" );  
    console.info( "count value after increment #1 is" , inc1);
```

```
    // increment property #2 (with step)
```

```
    await thing.invokeAction( "increment" , {'step' : 3});  
    let inc2 = await thing.readProperty( "count" );  
    console.info( "count value after increment #2 (with step 3) is" , inc2);
```

```
    // decrement property
```

```
    await thing.invokeAction( "decrement" );  
    let dec1 = await thing.readProperty( "count" );  
    console.info( "count value after decrement is" , dec1);
```

```
  } catch(err) {  
    console.error( "Script error:" , err);  
  }
```

```
}).catch( (err) => { console.error( "Fetch error:" , err); });
```

Current WoT WG Charter Work Items

Architectural Requirements, Use Cases, and Vocabulary

- Understand and state requirements for new use cases, architectural patterns, and concepts.

Link Relation Types:

- Definition of specific link relation types for specific relationships.

Observe Defaults:

- For protocols such as HTTP where multiple ways to implement "observe" is possible, define a default.

Implementation View Spec:

- More fully define details of implementations.

Interoperability Profiles:

- Support plug-and-play interoperability via a profile mechanism
- Define profiles that allow for finite implementability

Thing Description Templates:

- Define how Thing Descriptions can be defined in a modular way.

Complex Interactions:

- Document how complex interactions can be supported via hypermedia controls.

Discovery:

- Define how Things are discovered in both local and global contexts and Thing Descriptions are distributed.

Identifier Management:

- Mitigate privacy risks by defining how identifiers are managed and updated.

Security Schemes:

- Vocabulary for new security schemes supporting targeted protocols and use cases.

Thing Description Vocabulary:

- Extensions to Thing Description vocabulary definitions.

Protocol Vocabulary and Bindings:

- Extensions to protocol vocabulary definitions and protocol bindings.

Current Status

New/Updated Normative Documents in Draft Status:

- Architecture 1.1: <https://github.com/w3c/wot-architecture>
- Thing Description 1.1: <https://github.com/w3c/wot-thing-description>
- Discovery: <https://github.com/w3c/wot-discovery>
- Profiles: <https://github.com/w3c/wot-profile>

New/Updated Informative Documents in Draft Status:

- Binding Templates: <https://github.com/w3c/wot-binding-templates>
- Scripting API: <https://github.com/w3c/wot-scripting-api>
- Use Cases and Requirements: <https://github.com/w3c/wot-usecases>

Marketing Improvements:

- New Web Site, Animation, Resources: <https://www.w3.org/WoT/>

Contacts

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