Virtual-Thing: Thing Description based Virtualization

Second W3C Workshop on the Web of Things
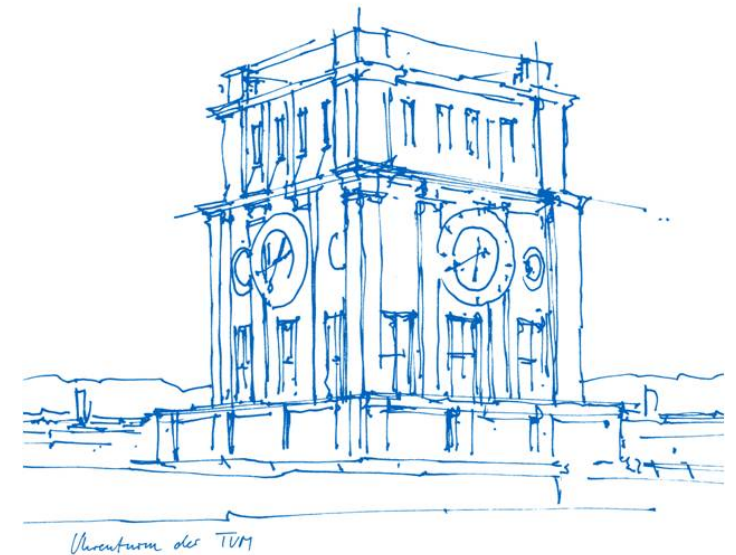
3-5 June 2019, Munich, Germany
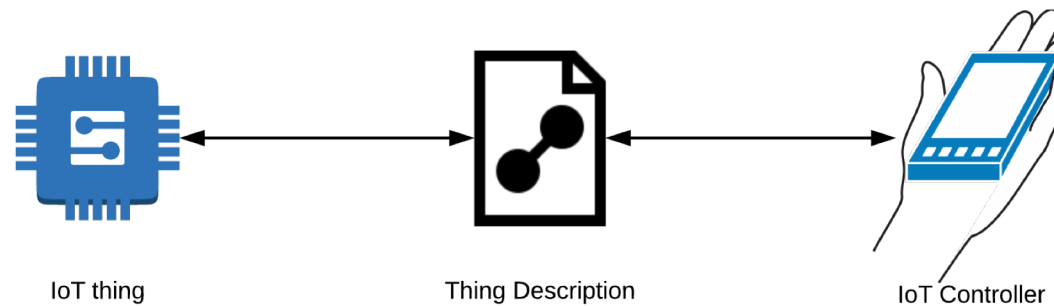
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Introduction

- Any W3C WoT device can have a Thing Description, telling other devices / controller how to interact with it.

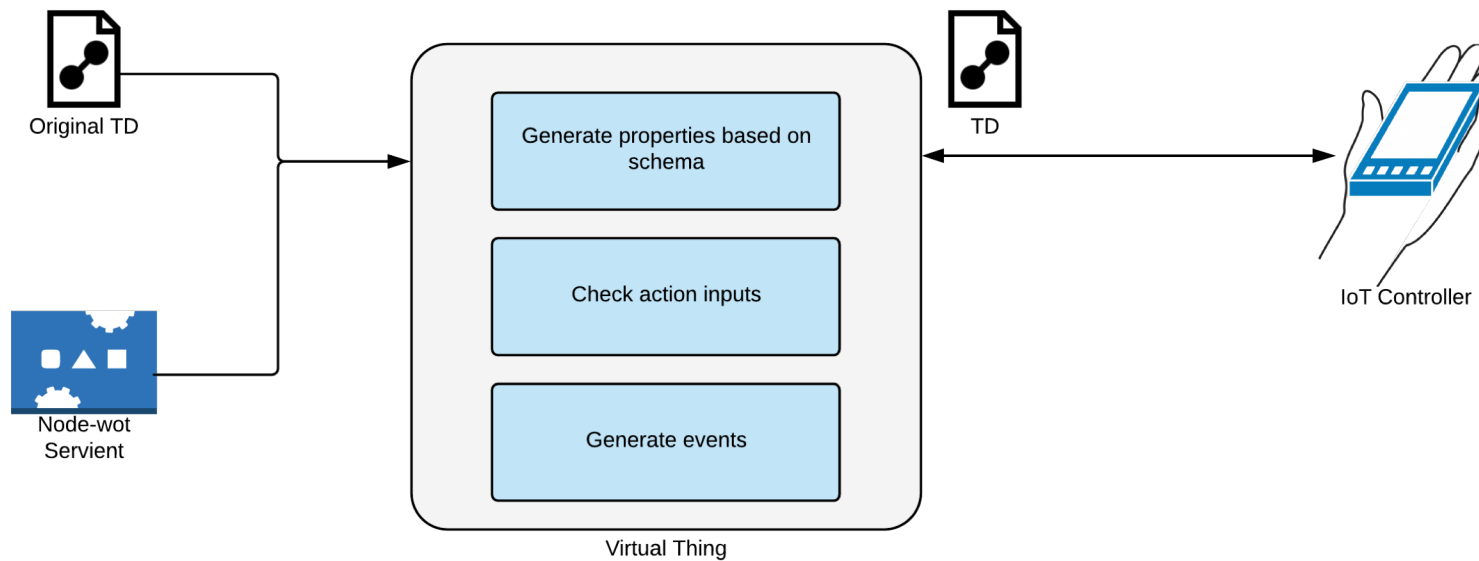IoT thing　　　　Thing Description　　　　IoT Controller

Problem

- No easy way to simulate a thing based on it's TD

- Hard to test your mashup without physical access to the device

- Running tests might overwhelm the tested thing

Virtual Thing

Simulate a thing based only on it's Thing Description

Virtual Thing

- Data is generated using the JSON Schema in the TD

- Properties can be written and will keep that value

- Inputs for actions are verified and must be in correct format

- Event generation can be set to: off, random intervals or a preconfigured interval
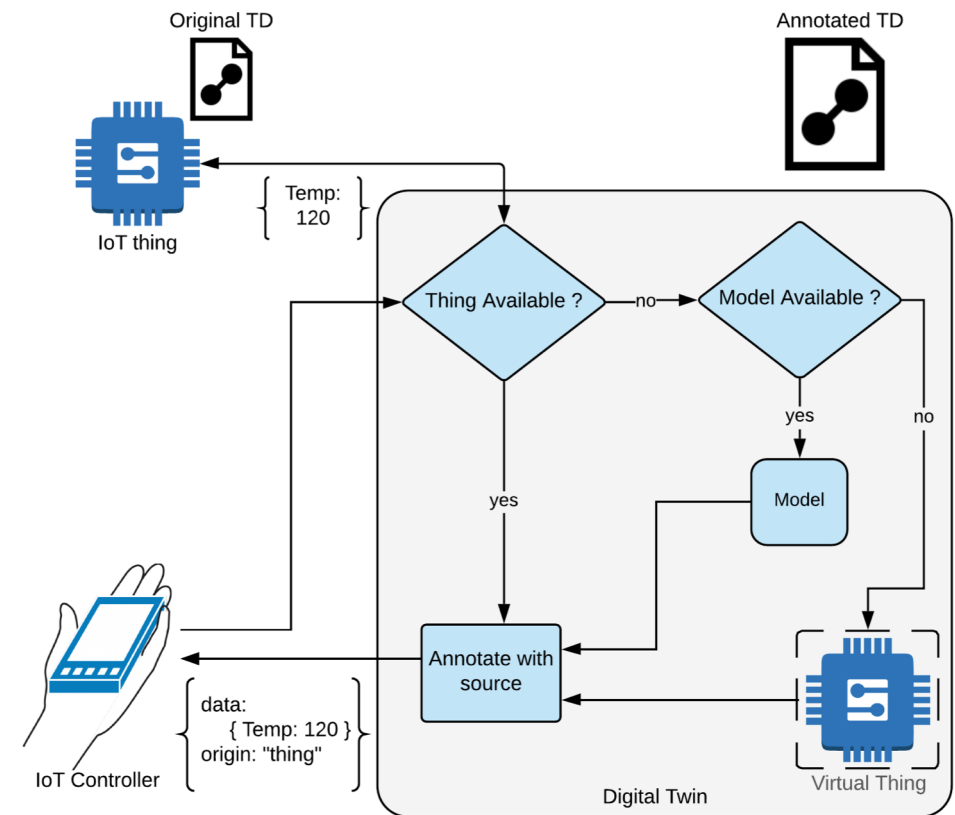
How to use it

- Available on NPM

```
npm install virtual-thing
```

- Easy to start

```
virtual-thing td.json
```

Taking Things a Step Further...

- What if a thing is not always available ?

- Augment it with an identical virtual thing to create

  a Digital Twin

- The Digital Twin acts as a reverse proxy

- Automatic transition between the two

- With the ability to write you own data generation

  models

Limitations

- Virtual-Thing can't copy href and contentType due to node-wot use

- Can only send JSON due to node-wot use

- Node-wot does not pass on event subscription / cancellation data

- Event subscriptions do not handle connection loss correctly

Thank you