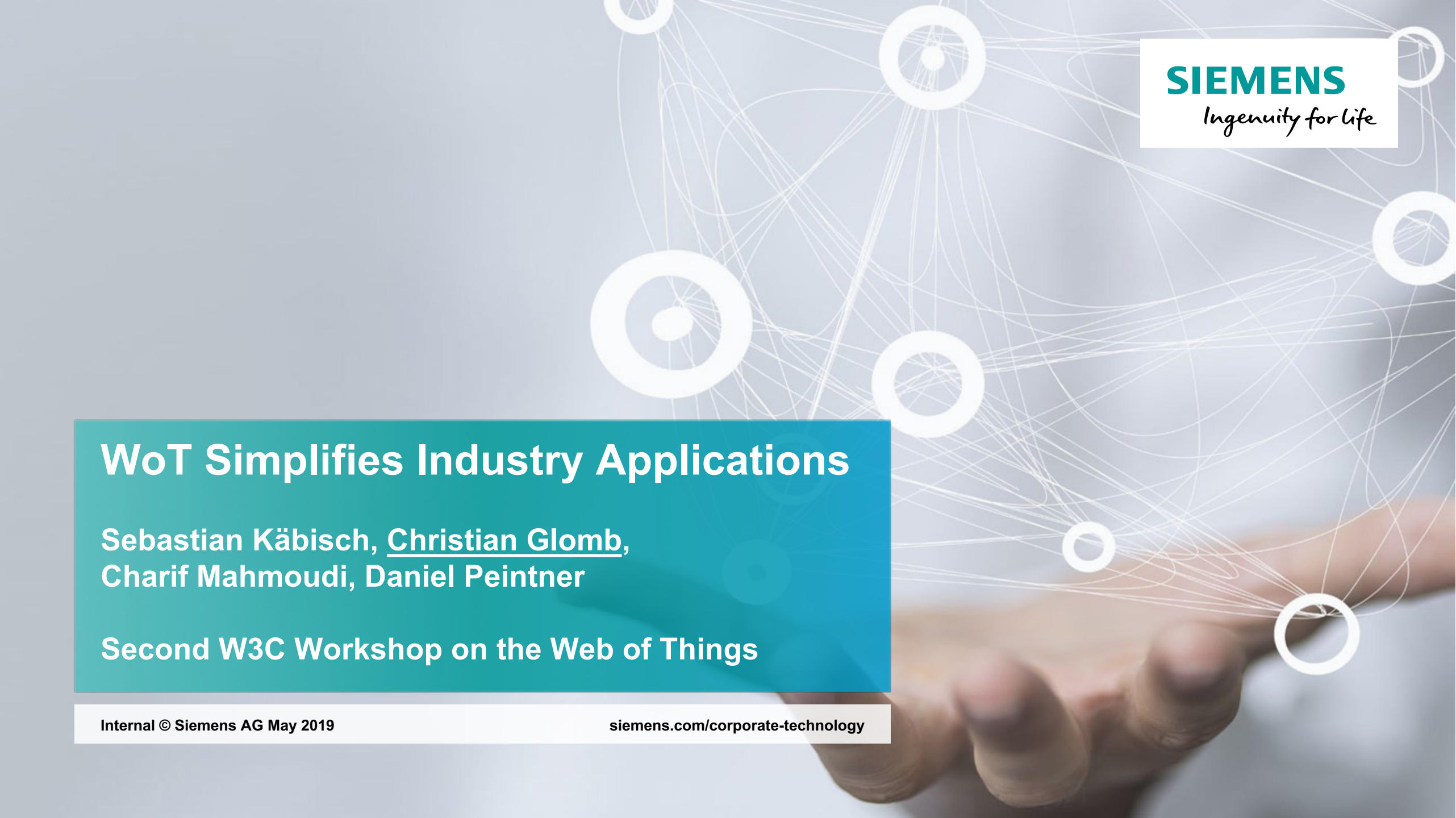

WoT Simplifies Industry Applications

Sebastian Käbisch, Christian Glomb,
Charif Mahmoudi, Daniel Peintner

Second W3C Workshop on the Web of Things

Let us spread the word about Web of Things!

SIEMENS
Ingenuity for life

External communication

BR24 Bayern Sport Wirtschaft Kultur Wissen Netzwelt #Faktenfuchs #fragBR24 Nachrichten

NETZWELT

BILD
Industrie 4.0
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SCHLAGWÖRTER
WoT 1 | Internet of Things | Industrie 4.0 42 | Siemens | Internet der Dinge 15

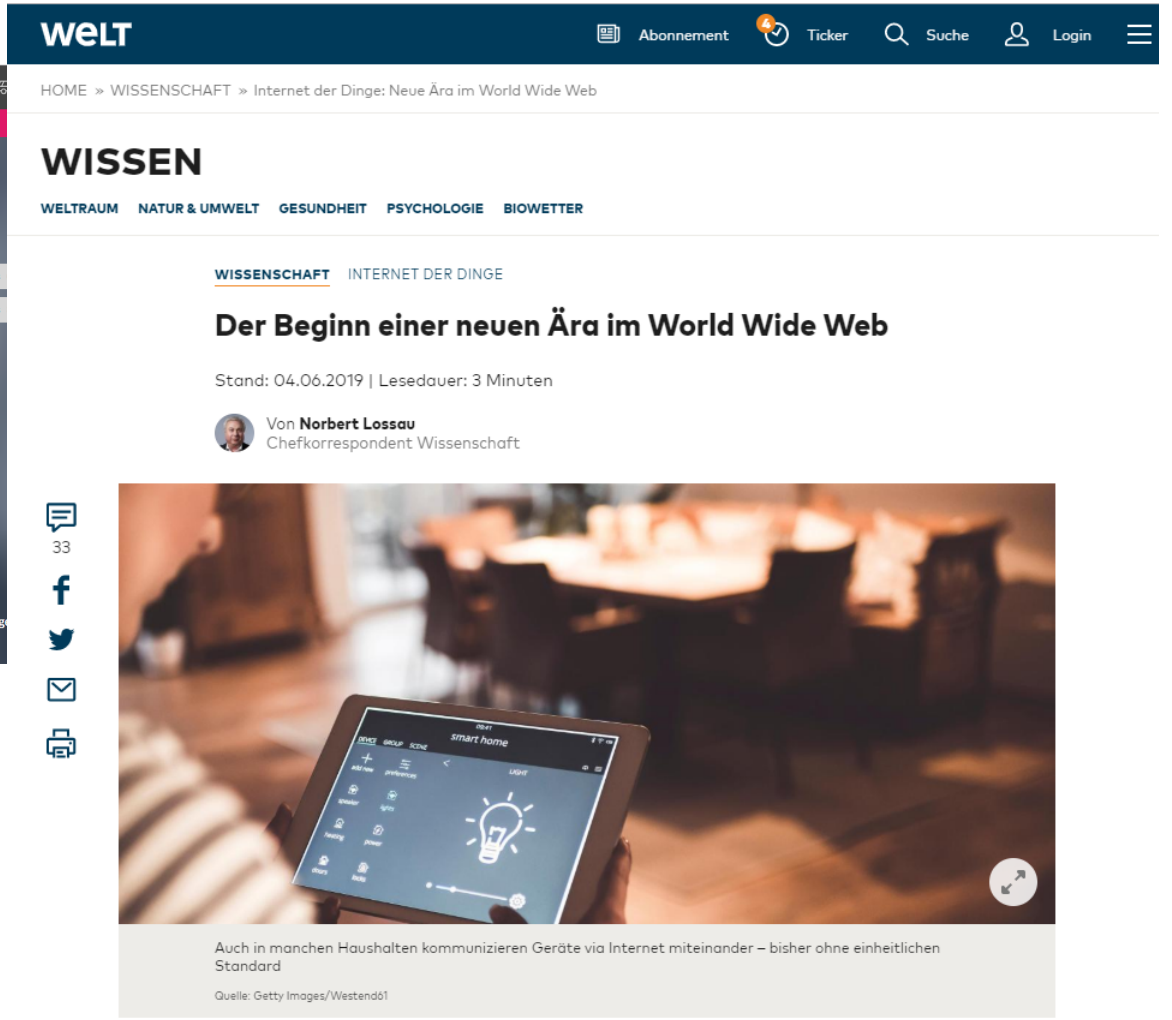
AUTOREN
Christian Sachsinger

04.06.2019, 13:34 Uhr

Industrie 4.0: Internet der Dinge wird erwachsen

W3C hat mit dem WWW die Grundlage für jenen Teil des Internet geschaffen, den wir täglich nutzen. Nun will die Initiative auch für das Internet der Dinge die Basis legen. In München - zu Gast bei Siemens – wurde der aktuelle Stand diskutiert.

Dass sich die internationale Netzgemeinde in München trifft, ist außergewöhnlich. Wichtige Mitteilungen werden meist im Silicon Valley verkündet oder vielleicht in Redmond, wo Microsoft sitzt. Doch diesmal geht es um eine Technologie, von der man sich in Deutschland das große Geschäft erhofft: Industrie 4.0 - das ist die deutsche Variante des Internet of Things. Die W3C-Organisation gibt Gas beim gemeinsamen Standard für die Vernetzung von Geräten und Maschinen, und zwar mit dem WoT (Web of Things)



WELT Abonnement Ticker Suche Login

HOME » WISSENSCHAFT » Internet der Dinge: Neue Ära im World Wide Web

WISSEN

WELTRAUM NATUR & UMWELT GESUNDHEIT PSYCHOLOGIE BIOWETTER

WISSENSCHAFT INTERNET DER DINGE

Der Beginn einer neuen Ära im World Wide Web

Stand: 04.06.2019 | Lesedauer: 3 Minuten

Von **Norbert Lossau**
Chefkorrespondent Wissenschaft

33

Auch in manchen Haushalten kommunizieren Geräte via Internet miteinander – bisher ohne einheitlichen Standard

Quelle: Getty Images/Westend61

Kühlschränke, die im Internet Nachschub ordern, oder Maschinen, die weltweit miteinander kommunizieren können, sind schon lange eine Vision. Jetzt gibt es eine globale Sprache für alle Dinge im Web.

Let us spread the word about Web of Things!

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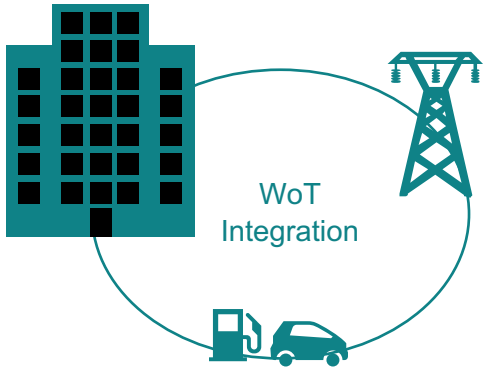
Internal communication

Whenever possible, along with conventional approaches, our team should try out a WoT solution and share the code in our internal repository



Come up with use cases

Implement proof of concept demonstrators

Discuss with business units about business relevance and identify the unique WoT selling point

Eclipse Thingweb

Overview | Downloads | Who's Involved | Developer Resources | Governance | Contact Us | Edit

The Eclipse Thingweb project will start with three sub-projects in the toolkit:

Thingweb node-wot

node-wot is the official reference implementation of the W3C WoT Working Group and implements the so-called "Servient Architecture":

Servient Architecture

node-wot provides a WoT Thing Description parser and serializer, several "Protocol Binding" implementing the WoT Binding Templates, as well as a runtime system ("WoT Runtime") providing the WoT Scripting API for applications. It is based on Node.js and its fundamental module structure.

Thingweb Directory

A Thing Directory is a directory service for WoT Thing Descriptions (TDs) that provides a Web interface to register TDs (aligned with draft-ietf-core-resource-directory) and look them up (e.g., using SPARQL queries or CoRE Link Format). The Thingweb Directory implements this service using the Apache Jena triple store and SPARQL endpoint.

Thingweb WebUI

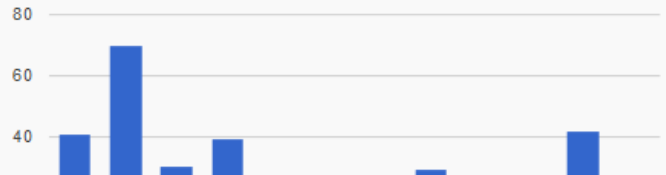
Thingweb also intends to provide tooling around the Web of Things ecosystem. The WebUI is an AngularJS browser app to visualize TDs and enable the interaction with Things from the Web browser.

Licenses:

Eclipse Public License 2.0
W3C Software Notice and Document License (2015-05-13)

Contribution Activity:

Commits on this project (last 12 months).



COMMITTER TOOLS

The following commands are available to project committers:

Elections

Nominate a Committer
Nominate a Project Lead

Intellectual Property

Create a Contribution Question...
Generate IP Log

Communication

Incubation Mailing list
PMC Mailing list
Send Email to the PMC...
Send Email to the Dev List...

Documentation

Legal Documentation Generator

Releases

Create a new release

Let us find a way to not just interchange Thing Descriptions but also (parts of) application logic!

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Scripting API

- Simplified API
  - https://github.com/w3c/wot-scripting-api/issues/64
- Browser API
- Enable market places / application stores

Let us remember that WoT is not the nth + 1 IoT protocol but rather the glue for existing and new protocols!

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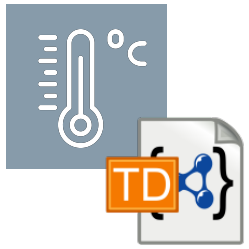
Binding templates




```
{
 "@context": […],
 "@type": "Thing",
 "id": "urn:dev:ops:13473-temp-12",
 “title": "Temperature",
 "security": { "scheme": "oauth2" },
…
 "properties" : {
  "value": {
     "type": "number",
     "minimum": "-40.2",
     "maximum": "48.4",
     "unit": "Celsius",
     "forms": [{
       "href": "opc.tcp://192.168.0.1:4840…",
       "contentType": "application/octet-stream“,
       “opcua:methodName": “READ"
      }]}}}
```


```
{
 "@context": […],
 "@type": "Thing",
 "id": "urn:dev:ops:42473-engine-12",
 "name": "Engine",
 "security": { "scheme": “basic" },
…
 "properties" : {
  "status": {
    "forms": [{
      "href": “modbus+tcp://192.168.0.98:502/….",
      “modbus:methodName": “READ"
```


```
{
 "@context": […],
 "@type": "Thing",
 "id": "urn:dev:ops:53473-lamp-12",
 "name": "Lamp",
 "security": { "scheme": "basic" },
…
 "properties" : {
  "status": {
    "forms": [{
      "href":
        “bacnet://192.168.0.20/…",
        “bacnet:methodName": “WRITE"
```

Let us take Eventing to the next level!

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Interaction affordance: Events

- Not just change of value (which can be observable property)
- Complex eventing, temporary things
  - Alarms
  - Time series (?)

- Guidlines for Web
  - WebSub
  - Event Source
  - …

Building Products is and will be using Thing Descriptions.

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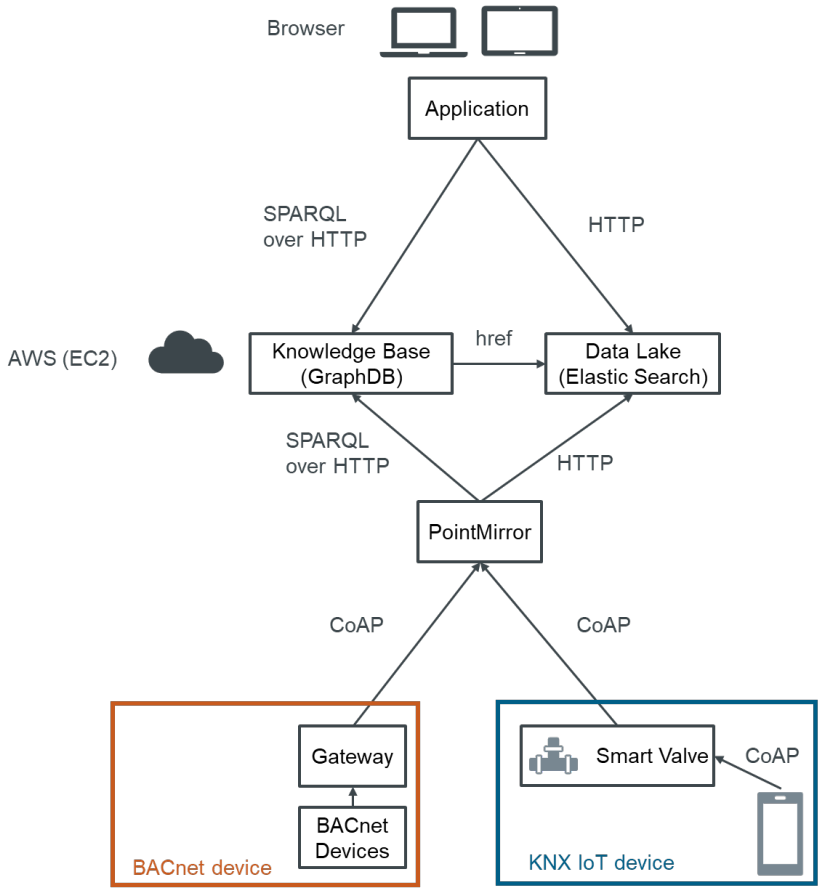
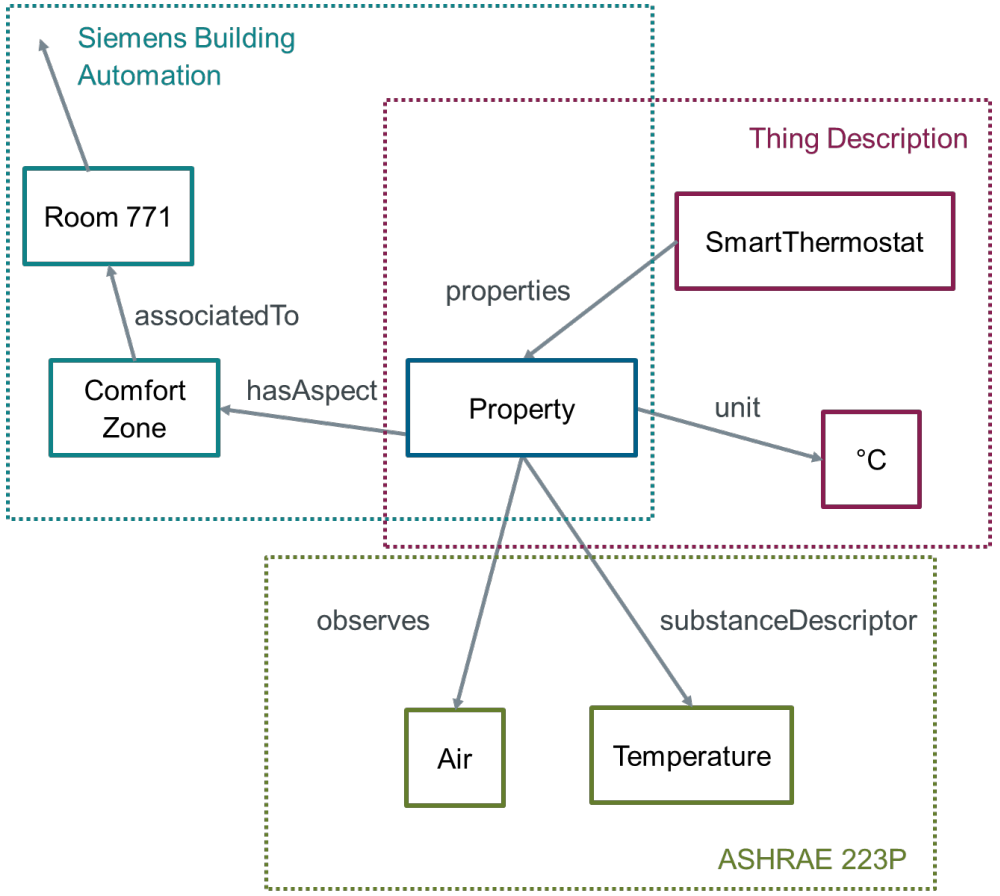
Building monitoring application based on WoT



Enriching Thing Descriptions with domain specific data



Digital Industries might leverage WoT benefits.

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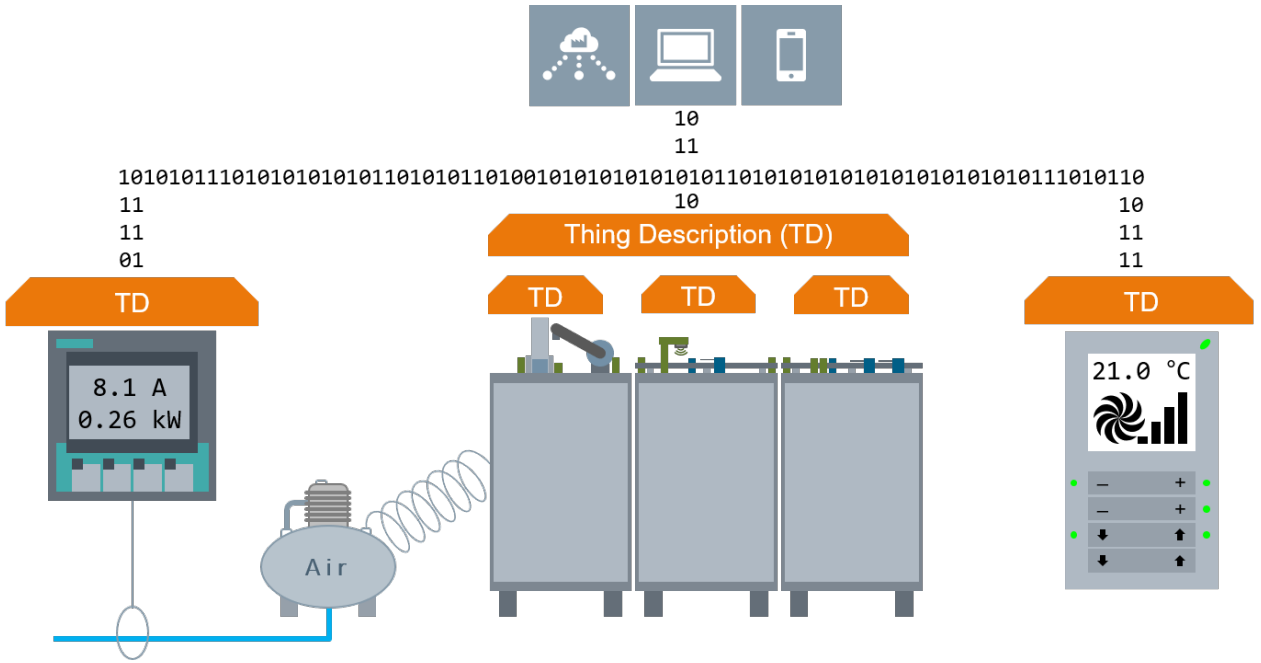
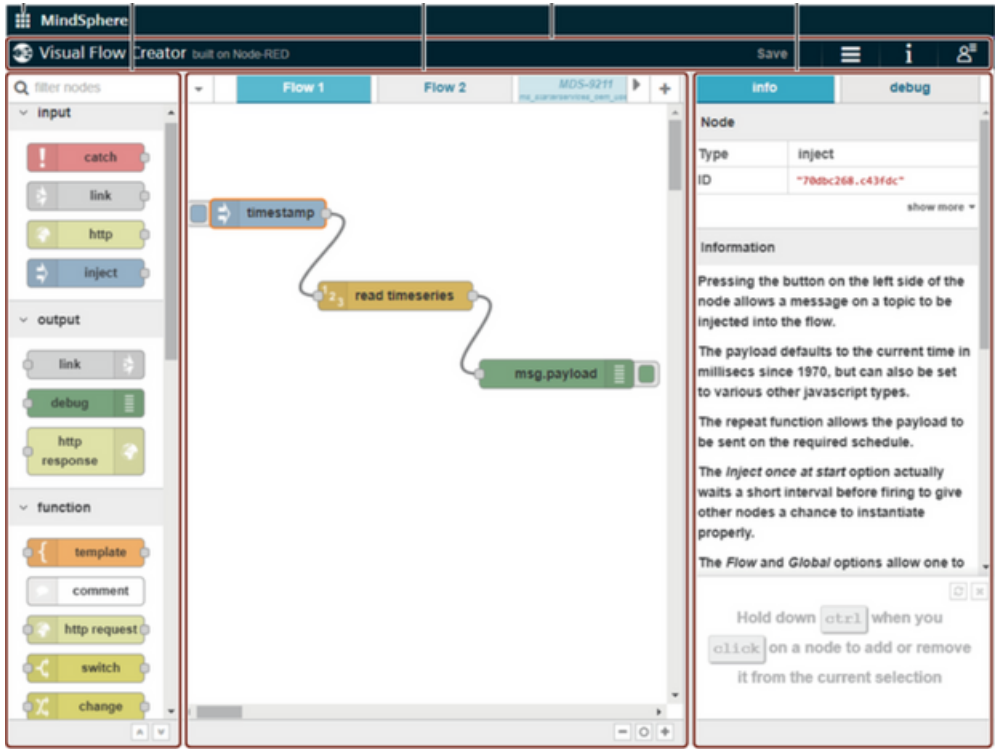
Simplified domain integration



Ease engineering on Mindsphere



Thank you for your attention!

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Dr. Sebastian Käbisch
Christian Glomb
Dr. Charif Mahmoudi
Dr. Daniel Peintner

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