Spreading the Web of Things

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Introduction

Interoperability???
Existing IoT Systems

Provide **semantic metadata** that uniformly describes how to interact with Things.

Implicit interaction model, typically not well documented.

The IoT has a plethora of protocols, often dialects due to custom options.

Any IoT Device

- Application
- SDK
- Data Model
- Protocol

Every SDK and library is different, so that app development is expensive.

Define a **common runtime** for IoT applications that mimics Web development.

Capture each protocol once in a uniform template that describes how to configure common protocol stacks (e.g., CoAP or MQTT) to send the message expected by the Thing.

With thanks to Matthias Kovatsch.
WoT – Horizontal Solution

Web of Things: “glue in between”

With thanks to Matthias Kovatsch
WoT - Added Value

- Defragmenting the IoT ecosystems.
- Enabling open marketplaces for suppliers and consumers of services.
- WoT applications that can adapt to variations in device capabilities and how these are exposed as Thing Description (properties, actions and events).
- Based on semantic descriptions potentially leading to semantic interoperability.
W3C Begins Standards Work on Web of Things to Reduce IoT Fragmentation

W3C has recently launched the Web of Things Working Group to develop initial standards for the Web of Things, tasked with the goal to counter the fragmentation of the IoT, reduce the costs of development; lessen the risks to both investors and customers; and encourage exponential growth in the market for IoT devices and services.

Regarding W3C’s presence at Mobile World Congress 2017, W3C CEO Dr. Jeff Jaffe commented, "There are huge, transformative opportunities not only for mobile operators but for all businesses if we can overcome the fragmentation of the IoT. As stewards of the Open Web Platform, W3C is in a unique position to create the royalty-free and platform-independent standards needed to achieve this goal."

Read the Media Advisory to learn about the technical approach the Working Group will take and the broad range of collaboration.

Unlocking the potential
Things and Cloud

Source: https://www.w3.org/TR/wot-architecture/
Web of Things in Action

• Two main domains
  – Smart Home
  – Connected Car
European Wide Positioning Service Platform

- Delivering real time ITS services using WoT
- European Wide Positioning Service Platform
  - Precision positioning as a service
  - Creating a Marketplace by bringing Stakeholders together
  - Takes advantage of **Digital Single Market** concept
  - **Secure** communication and data exchange

HIGHTS project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 636537.
When HD Map is available, the vehicle can switch to a better positioning algorithm
Demonstration
Project Things by Mozilla

Project Things is an experimental framework of software and services from Mozilla for connecting “things” to the web and will consist of three main components:

**Things Gateway**
An implementation of a Web of Things gateway.

**Things Cloud**
A collection of IoT cloud services.

**Things Framework**
A collection of re-useable software components for building Web Things.

You can read more in our blog post "Building the Web of Things".

Source: https://iot.mozilla.org/about/