WoT WG/IG Outreach

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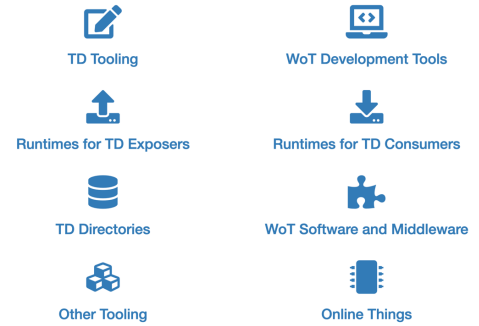
WoT Status Quo

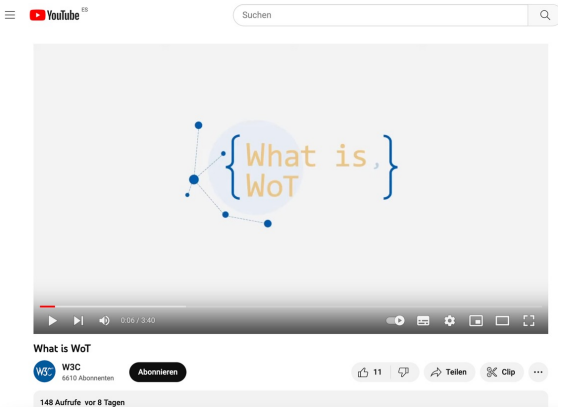
- W3C just finalized WoT 1.1

- growing number of open source implementations
  - https://www.w3.org/WoT/developers/

- growing market/commercial adoptions
  - Takanaka, Fujitsu, Siemens AG, evosoft, Sick AG, Deutsche Telekom AG, Schaeffler, Bosch, Microsoft, ELCO Industry Automation, …

- growing community
  - WoT & Japanese WoT CG
  - New developer channels (e.g. Discord)
  - youtube channels for explainers and tutorials
  - Blogs, hands-on tutorials, …
  - …



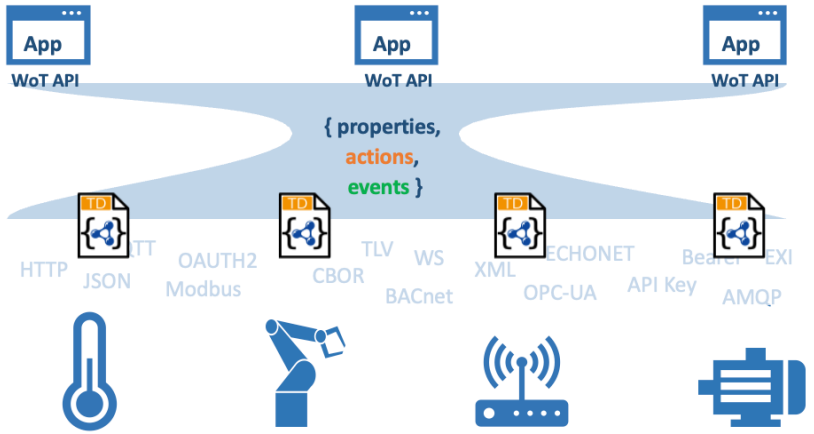


WoT Attractions

- **WoT is not a protocol and also does not offer domain/application data models!**

- WoT provides technology building blocks like the TD and the binding concept, which allow to easily reflect existing IoT approaches and describe them on a common standardized basis

  → existing IoT systems do not have to be changed, WoT can be used as a complementary solution
  → increase interoperability in the IoT
  → benefit of established web technologies & their tools/libs



Support WoT Addoption by SDO Collerberations

5.3 External Organizations

To succeed in establishing inter-platform standards, W3C needs to coordinate with IoT alliances and standards development organizations. A longer list is available on the Interest Group wiki that includes cooperations partners from former Web of Things charters.

List of active and new liaisons:

OPC Foundation
: For coordination on the development of the OPC UA binding for the W3C Web of Things. A formal agreement between the OPC Foundation and the W3C is being considered to establish an official relationship.

ECHONET Consortium
: For collaboration on integrating ECHONET Consortium based platforms within the Web of Things, including platform metadata and approaches for enabling semantic interoperability, and end to end security across platforms.

Industrial Digital Twin Association
: For coordination on the use of TDs and bindings in the Asset Interface Description (AID) submodel for the Asset Administration (AAS) specification. Additionally, the AAS submodels can be used for Digital Nameplate (DNP) and Product Carbon Footprint (PCF) to form the Digital Product Passport (DPP) of products that the European Commission is demanding each product to supply (DPP4.0). Also see the related GitHub comment.

ASHRAE
: For coordination on the development of the BACnet (ASHRAE 135-2020) binding for the W3C Web of Things .

IETF
: Coordinate common interests related to Internet of Things and Web of Things, e.g., issues such as serialization, security, and trustworthiness.

IRTF Thing to Thing Research Group
: For coordination of matters of mutual interest in relation to the Web of Things, such as data modelling, discovery, directory services, and IoT semantics.

Connectivity Standards Alliance (CSA)
: To coordinate smart home use cases and to develop a potential Matter binding.

One Data Model
: For coordination of Semantic Definition Format (SDF) with the Thing Description.

Open Geospatial Consortium (OGC)
: To coordinate geolocation use cases and potential geo-based definitions for Thing Models and Thing Descriptions.

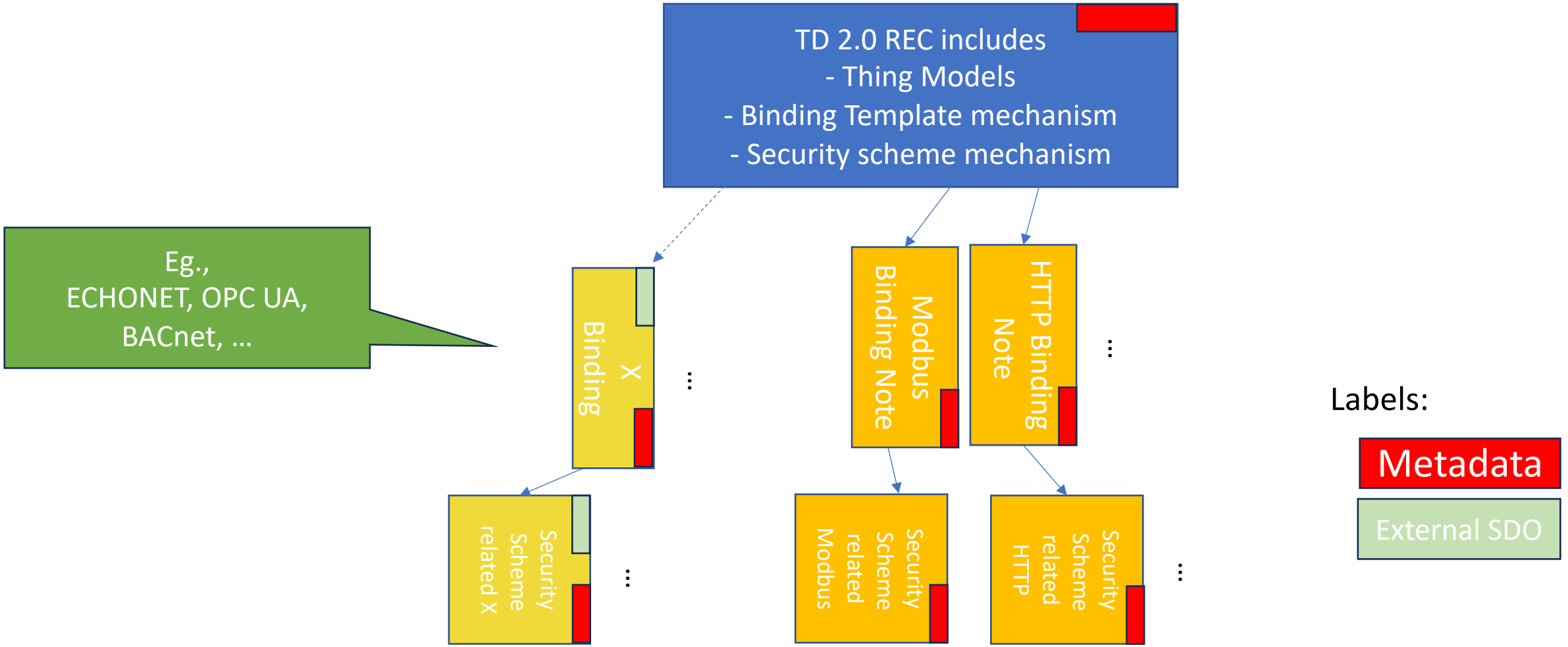
Conexxus
: To coordinate retail use cases and show case in PlugFests.

ECLASS
: For collaboration and coordination of the technical realization of the use of ECLASS in the W3C Thing Description.

ITU-T
: Coordinating smart city and digital twin use cases and aligning terminology definitions.

https://www.w3.org/2023/08/wot-wg-2023-draft.html

New Document Organization in WoT 2.0 Will Simplify WoT Adoption



Latest WoT Adoptions: OPC Foundation

OPC Foundation: Kick-Off Web-of-Things Connectivity Working Group

By OPC FOUNDATION - 06 Jun 2023

Kick-Off „Web-of-Things Connectivity“ Working Group on June 27, 2023

The Web-of-Things Connectivity Working Group (WoT-Connectivity) will define how to configure the OPC UA Information Model that exposes the underlying devices described by WoT Thing Descriptions via an OPC UA Server that acts as a protocol mapping and data model mapping service from non-OPC UA asset interfaces to OPC UA.

This service is often run on Industrial Edge gateways. It accesses non-OPC UA assets (like Modbus assets or assets with a proprietary interface) and maps the asset's data model into an OPC UA server address space.

The schema for the mapping to OPC UA will be provided by W3C Web of Things standard in Thing Description JSON-LD format, which will potentially be extended to cover all required protocol bindings (see https://www.w3.org/TR/wot-binding-templates/#binding-overview).

The Kick-off Meeting is scheduled for June 27, 2023 as a web conference.

Start Times (duration ca 90 minutes)

- 6:00 am PST (US West coast)
- 9:00 am EST (US East coast)
- **3:00 pm CEST (Germany)**
- 10:00 pm JST (Japan)

(duration 60-90 minutes)

23 Aug 2023 - Prediktor Drives Standardization on OPC UA in Solar Energy Production

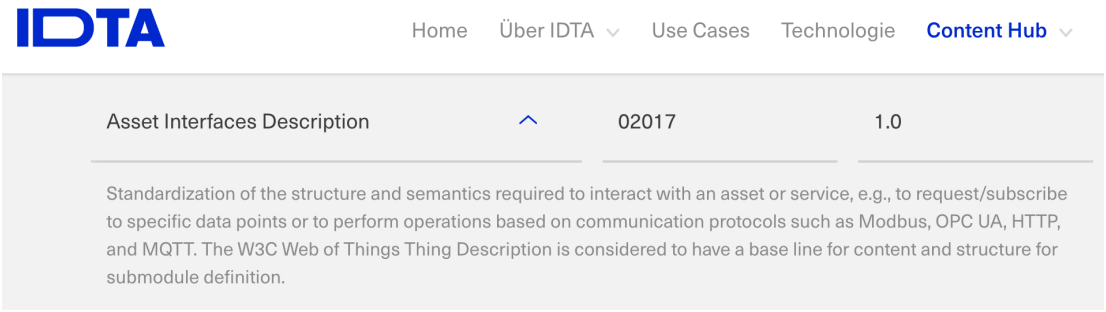
https://www.rfid-wiot-search.com/opc-foundation-kick-off-web-of-things-connectivity-working-group

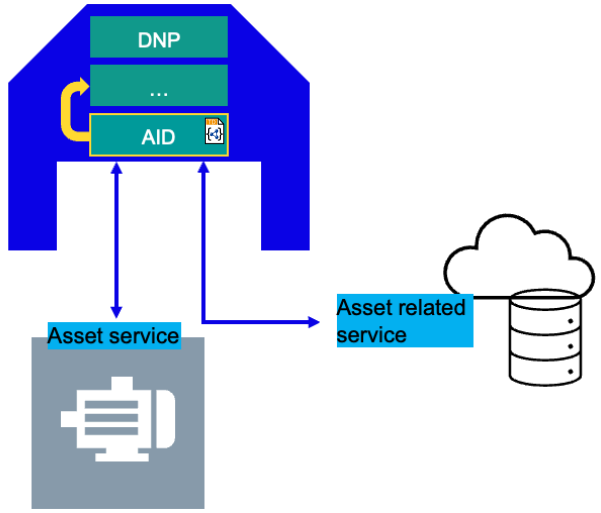
Latest WoT Adoptions: Asset Administration Shell

- Asset Administration Shell (AAS) is an industrial digital twin implementation currently being standardised by IEC 63278

- AAS allows to specify submodels that provides specific information of an asset

- there is a Submodel specification Asset Interface Description (AID) that allows to describe Asset's interface or Asset's related service based on WoT Thing Description https://industrialdigitaltwin.org/





Collaboration to improve WoT & extend WoT related Use Cases

5.2 Other W3C Groups

JSON-LD Working Group
: For collaboration on JSON-LD features and WoT use cases.

Efficient Extensible Interchange Community Group
: In relation to efficient interchange for Thing Descriptions.

Web and Automotive Business & Working Groups
: For collaboration on technologies and requirements relating to connected cars and the Web of Things.

Device and Sensors Working Group
: For coordination on APIs for sensors and actuators.

Decentralized Identifier Working Group
: For coordination on identity management and information lifecycle.

Web & Networks Interest Group
: For collaboration on networking and computing technologies on the edge and in the cloud when exposing interactions between Things.

Spatial Data on the Web Working Group
: For collaboration on geolocation, in conjunction with the Open Geospatial Consortium.

Accessible Platform Architectures Working Group
: In addition to horizontal review, coordination on impact of WoT technologies on accessibility, and support for new capabilities that help leverage WoT connectivity and sensor networks for accessibility support in public and private spaces is needed.

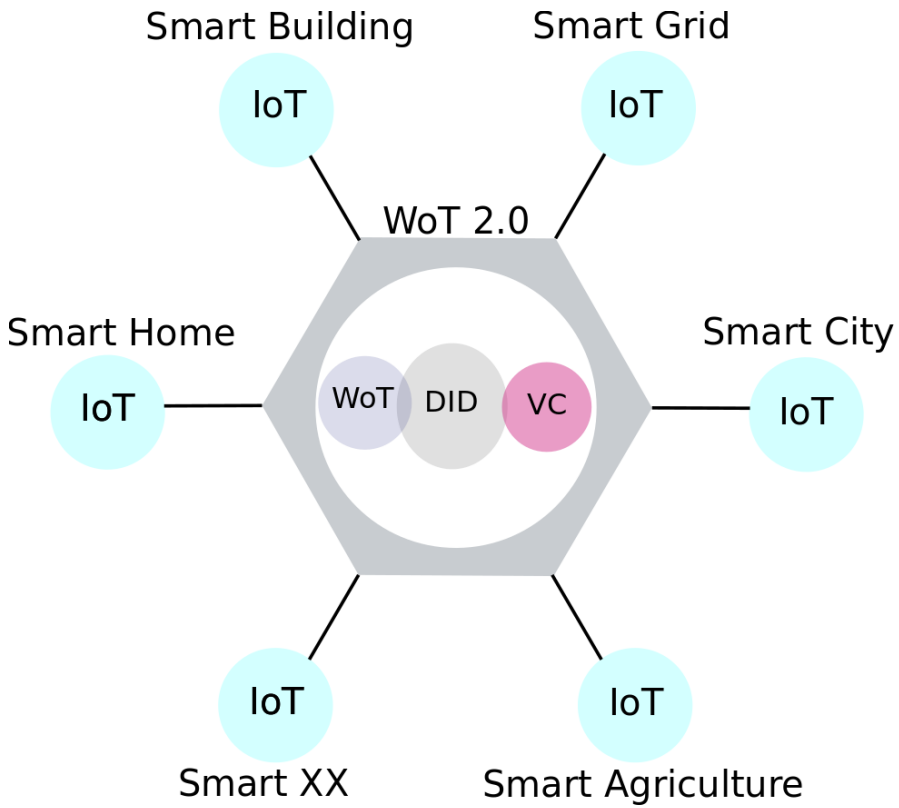
Privacy Interest Group
: In addition to horizontal review, during development of deliverables such as discovery and information lifecycle that require the development of a privacy-preserving architecture, close technical collaboration with the Privacy Interest Group will be needed.

Schema Extensions for IoT Community Group
: For collaboration on extensions to Schema.org for IoT use cases.

Autonomous Agents on the Web Community Group
: For collaboration on application of Web of Things in Agent-based systems in the Web.

https://www.w3.org/2023/08/wot-wg-2023-draft.html

Latest WoT discussions in W3C Web-based Digital Twins for Smart Cities Interest Group



https://w3c.github.io/smartcities-workshop/draft-charter/index.html