

iot.schema.org

Community Teleconference Agenda

April 19, 2018

Agenda

- Prototype HTML website
- Report out from WISHI plugfest at IETF 101
- Report out from plugfest at W3C WoT Prague
- Feature of Interest
- RDF shape constraints
- Charter update for WoT Community Group
- Next steps
- AOB

HTML Website Prototype

- iotschema.org
- adapted the schema.org HTML tools
- still a little rough but browseable

WISHI Semantic Interop

- WISHI sponsored at IETF 101 Hackathon
- Focus on Semantic Interoperability and Discovery
- Participants from Samsung, Ericsson, Eurecom, Siemens, Acklio
- Used WoT infrastructure, LWM2M, OCF, and vendor specific e.g. Philips Hue
- Used a Thing Directory and WoT Thing Description with semantic annotation from the iot.schema.org prototype definitions

W3C Web of Things Plugfest

- In conjunction with WoT F2F in Prague
- Focus on semantic annotation, protocol binding, and interaction through proxy servants
- Included automotive domain
- Used Thing Directory and WoT Thing Description with semantic annotation from the iot.schema.org prototype definitions

Learning from Plugfests

- Directory-based discovery using semantic annotation and queries is a workable method
- Ease of use for developers is very important
 - Simplified conceptual models for annotation and discovery are helpful – simple semantic categories
 - Ease the learning curve for domain experts creating new definitions
- Breadth of definitions and models is expected
- Feature of Interest modeling is a clear gap

Feature of Interest Modeling

- End to end semantic integration requires more than capabilities
- Needed to make a logical connection between capabilities and entities in the physical world
 - Door lock capability and "Front Door" entity
 - Also a property of an entity – level control capability of a light acts on the illuminance property of a space
- Modeling "branch" entities in the GENIVI VSS automotive specification requires domain specific definitions for doors, mirrors, seats and their positions on the vehicle

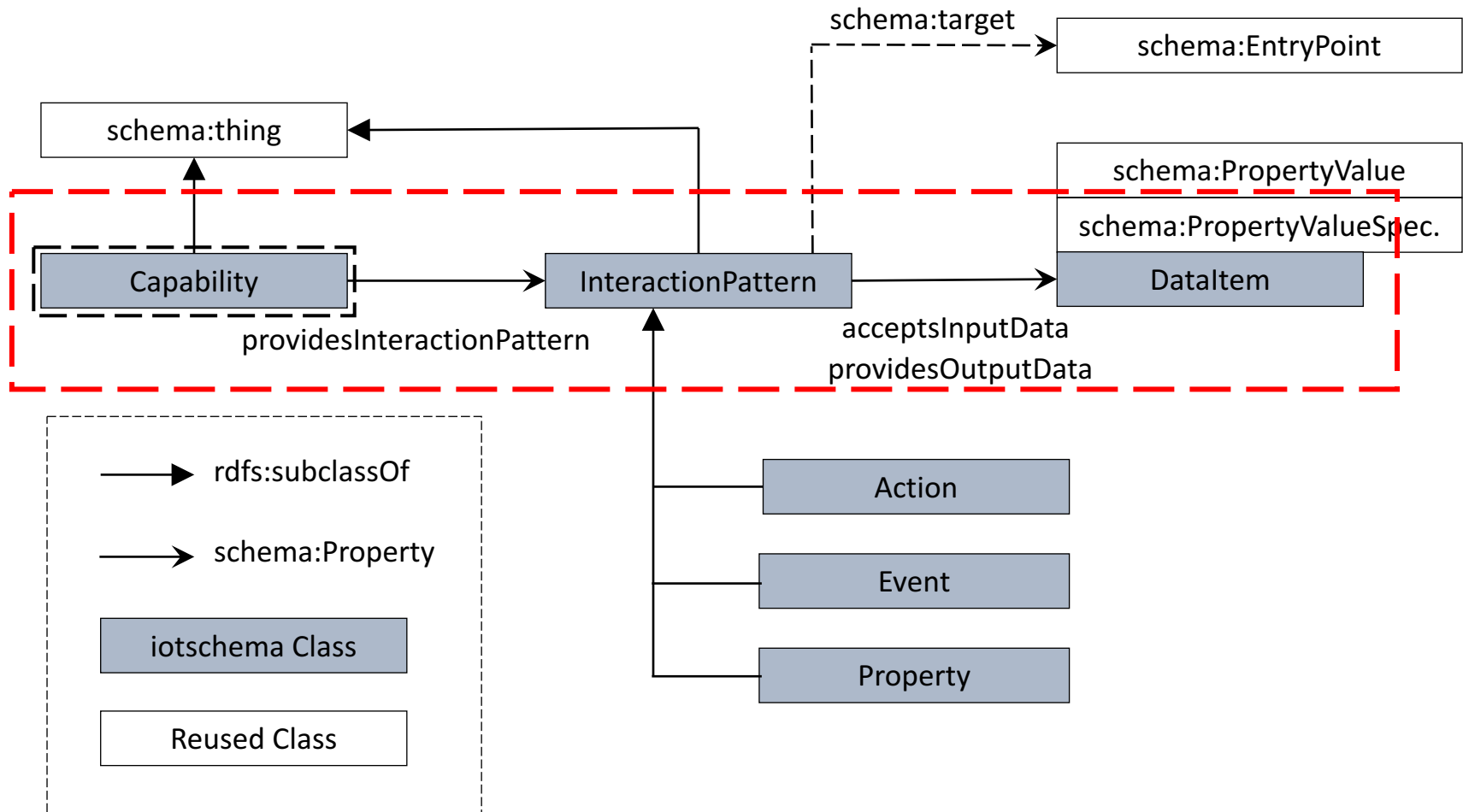
Feature of Interest

- Feature of Interest concept, originally from the O&M ontology
- Features of Interest are entities in the real world that are the target of sensing -
https://www.w3.org/2005/Incubator/ssn/wiki/SSN_Skeleton
- Features of Interest have Observable Properties
- Observable Properties are observed by Sensors

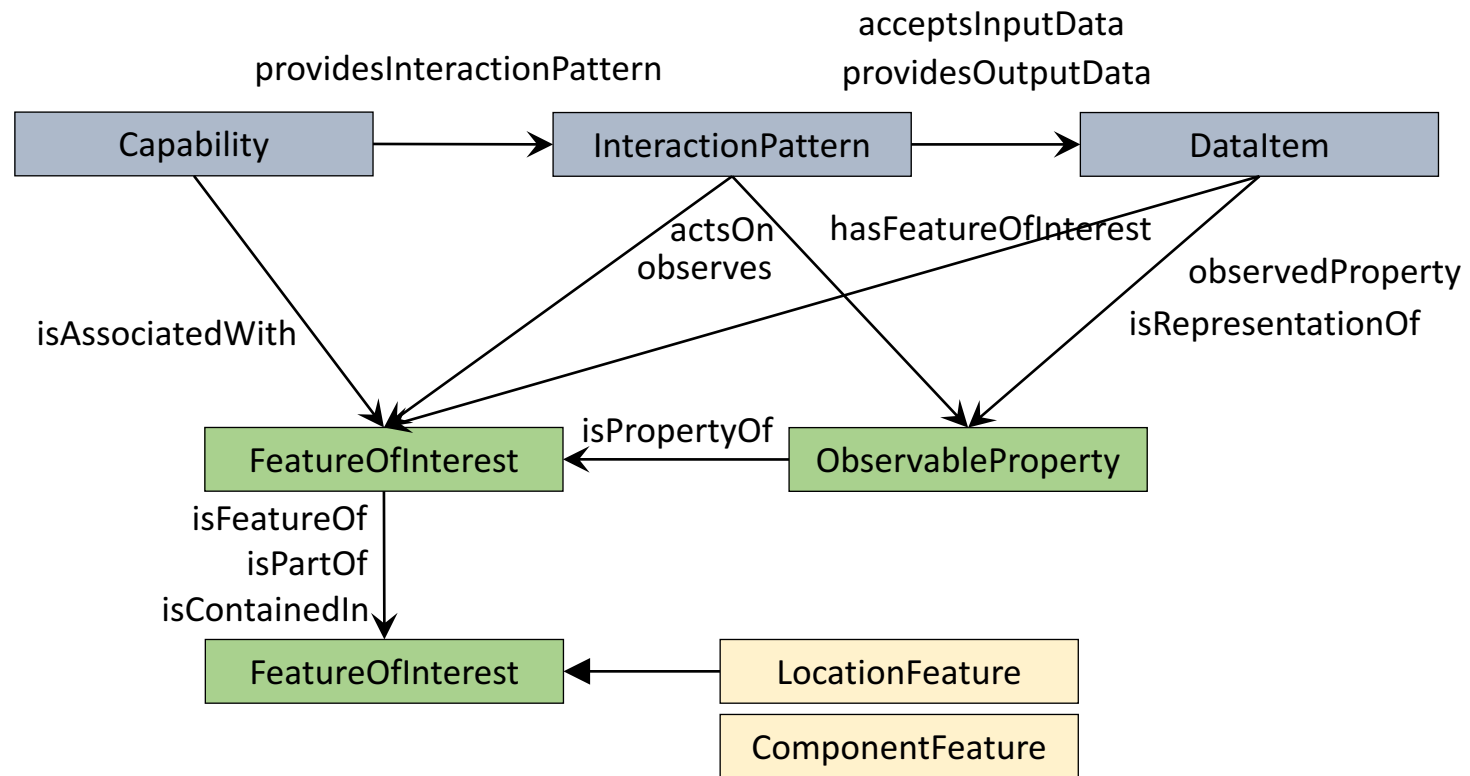
Feature of Interest

- This pattern may be extended for actuators to act on properties of Features of Interest
- Use property types like "actsOn" and "observes" to describe the relationship between Capabilities and Features of Interest
- Also need to relate Fol to other Fol in order to describe structural relationships
 - A water valve is "partOf" a clothes washer
 - More property types can be created to describe domain specific relationships

iotschema Capability Pattern



Feature of Interest Integration Patterns



Feature of Interest

- Define a starting set of property types for relations between capabilities and Fol
- Create some definitions for Features of Interest in relevant application domains (smart home, automotive)
- Incorporate Fol and relation types into Thing Directories
 - Add Semantic annotation for Fol on registration
 - Enable semantic filter for Fol on discovery

RDF Shape Constraints

- Use RDF Shape Constraints to define data shapes
- Common approaches have disadvantages
 - PropertyValueSpecification (schema.org)
 - JSON Schema

Charter Update

- W3C Community Group Charter – WoT CG
 - Incubate semantic definitions for iot.schema.org
 - Support multiple application domains, including connected home, automotive, industrial
 - Community contribution process according to governing IPR policy of schema.org or W3C community groups
 - Use the CG mailing list for community discussions and consensus process
 - Detailed technical discussion will use github issues

Next Steps

- Get the WoT CG Charter approved
- Update the base model to include datattem and Feature of Interest concepts
- Define datattem constraint mechanisms
- Create prototypes for Feature of Interest definitions
- Set up process and work area for incoming definitions
- Continue to develop tools
- Develop user guidance documentation