iot.schema.org Community Update

December 14, 2017

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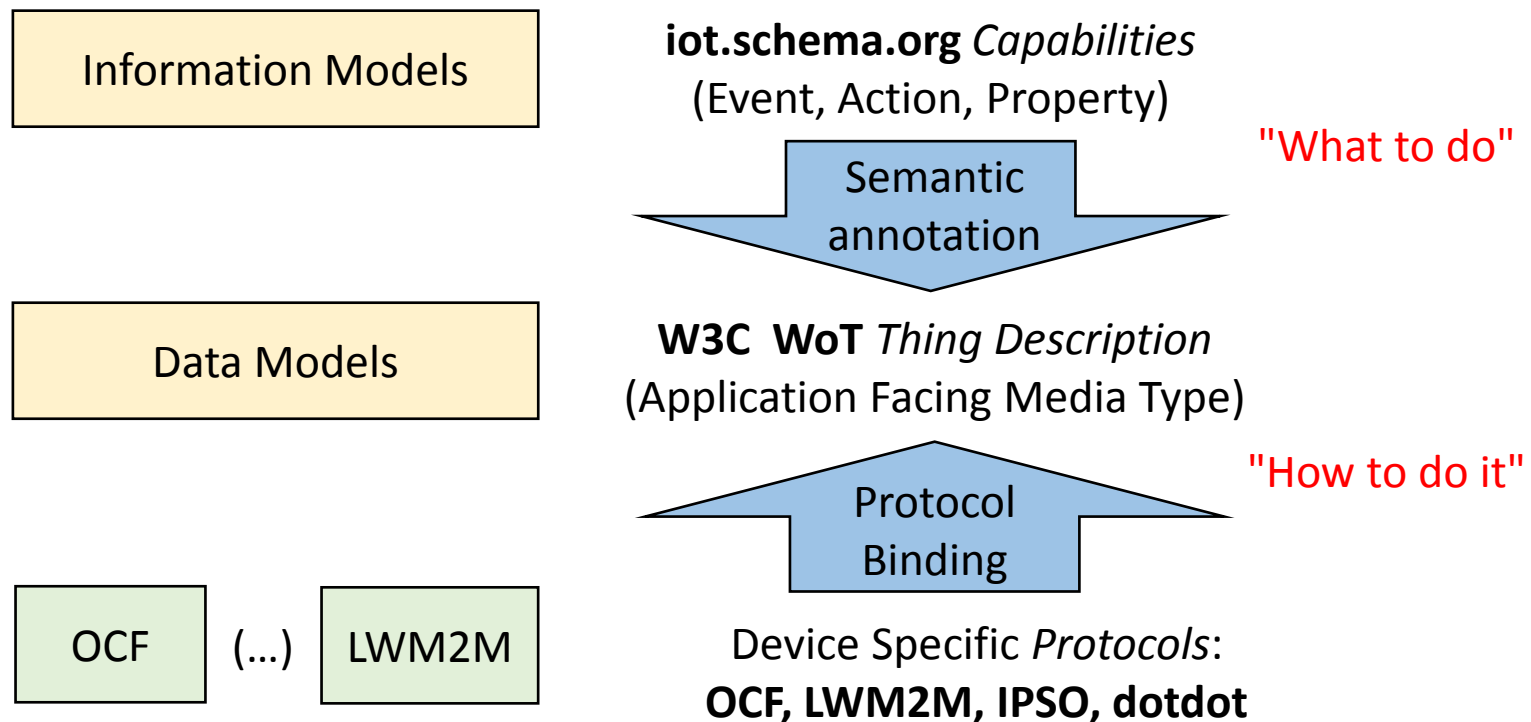
- Technical update

- Semantic Interops

- Way forward

Status Update

- Prototype website online
- Prototype capability definitions in progress
- W3C Plugfest; iotschema annotation used for semantic discovery and interoperability
  - November at TPAC, Burlingame and going forward
  - Common iotschema based semantic annotation with target-specific protocol bindings
  - Example TDs for Philips Hue light (http/JSON), IKEA Tradfri light (CoAP/IPSO), IPSO Motion Sensor(http/mqtt), OCF Motion Sensor(CoAP), etc.
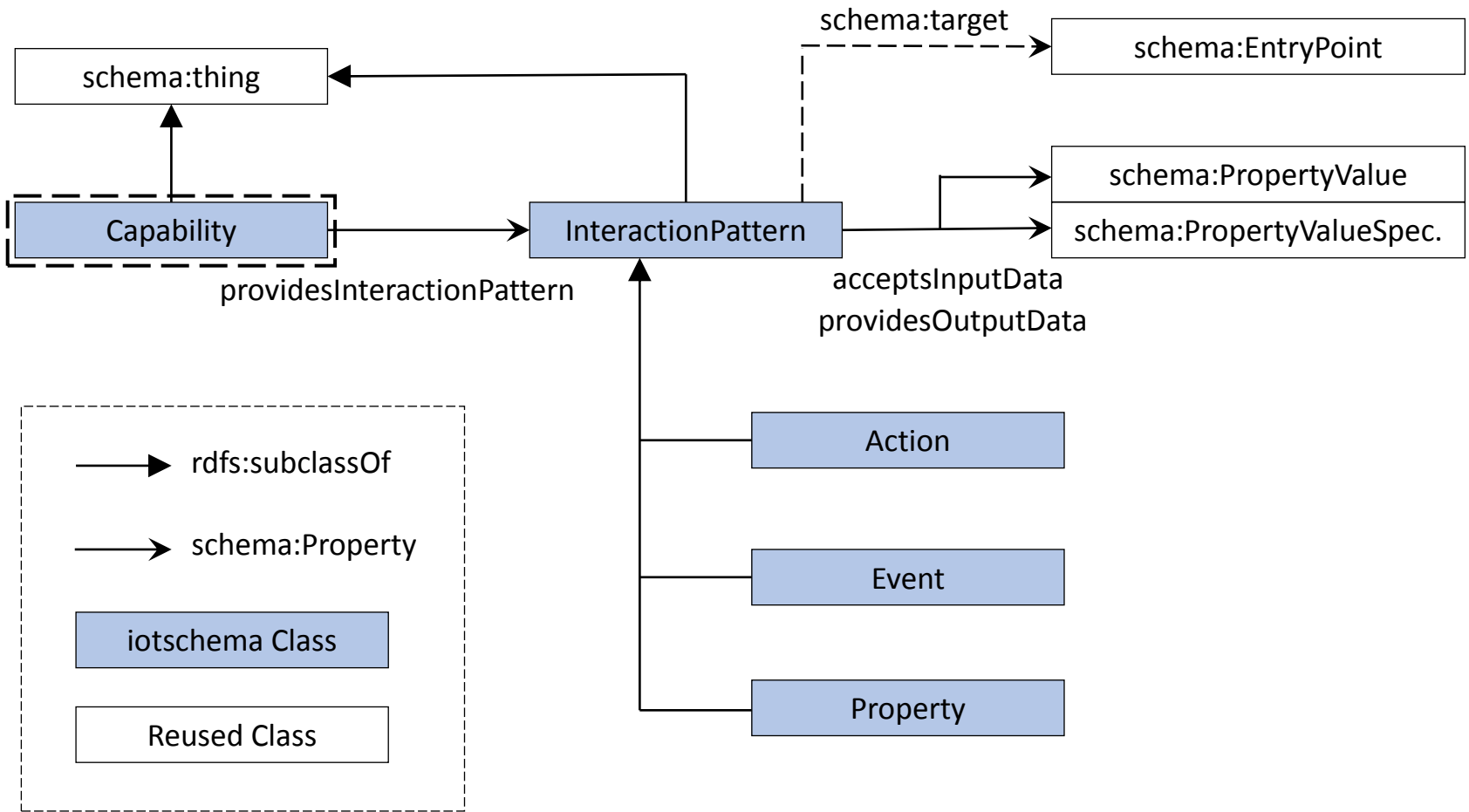 - Learning, take-aways

Technical Update

- Technical review – problem being solved
  - schema.org type capability for connected things
  - Starting with common descriptions of connected things
  - What to do => how to do it, focus on "what to do"
- Design Pattern Review
  - Classes: Capability, Interaction, Data Item
  - Interaction Types: Event, Action, Property
- Design Model Review
  - In prototype website a Capability currently does not show its Interaction Types
- Examples of definitions
  - Light, motion, temperature
  - Granular capabilities for the light: switch, level, colorcontrol

Layered Scope in Data Models and Information Models

Information Models

iot.schema.org *Capabilities*
(Event, Action, Property)

"What to do"

Semantic annotation

Data Models

W3C WoT *Thing Description*
(Application Facing Media Type)

"How to do it"

Protocol Binding

OCF (...) LWM2M

Device Specific *Protocols*:
OCF, LWM2M, IPSO, dotdot

iotschema Capability Pattern

TD Example with annotation

```
{
  "@context": [
    "http://w3c.github.io/wot/w3c-wot-td-context.jsonld",
    "http://w3c.github.io/wot/w3c-wot-common-context.jsonld",
    {"iot": "http://iotschema.org/"}
  ],
  "base": "coap://example.net:5683/",
  "@type": [ "Thing", "iot:temperatureCapability" ],
  "name": "Temperature Sensor",
  "interaction": [
    {
      "name": "Temperature",
      "@type": ["Property", "iot:temperatureProperty"],
      "inputData":  {
        "type": "object",
        "field": [
          {
            "name": "temperature",
            "@type": ["iot:temperatureData"],
            "type": "number",
            "minimum": -50,
            "maximum": 100,
            "unit": "Celsius"
          }
        ]
      },
```

Semantic Interoperability Testing

- Semantic Interops: hands-on Interoperability testing of concrete implementations

- Across diverse device ecosystems; e.g. OCF, LWM2M/IPSO, Bluetooth, BACnet, Zigbee, Vendor systems, LAN and cloud integration

- Diverse approaches to semantic annotation, adaptation, translation

- Collaboration with IRTF T2TRG WISHI

- Online and Face to Face

- IETF Hackathon events, Saturday and Sunday

Way Forward

- W3C (Web of Things) Community Group as venue
  - Starting in January
  - Scope and charter update
  - Governance process for publication
  - Preparation of a PlugFest
- New workstreams
  - Core schema development and extension
  - Schema publication
  - Tools development
  - Smart Home definitions
  - Semantic Interop planning
- Monthly community teleconference for workstream sync-up – Starting January