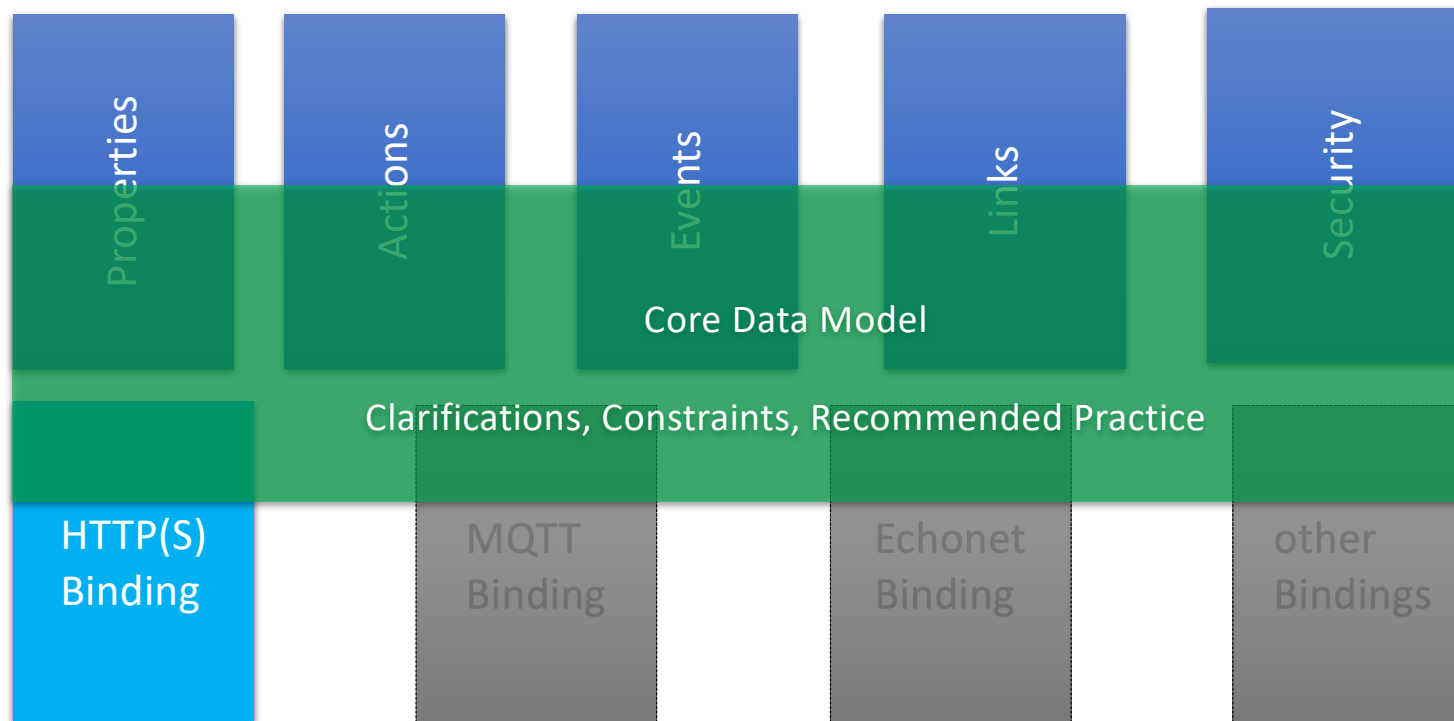


WoT Profiles

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2 Dec 2021

Profile Concept



Example Consumer Scenario

A worldwide climate monitoring system obtains data from sensors and gateways around the world to indicate the current weather conditions and be able to predict critical conditions.

The system displays a world map with all sensors, where the user can zoom in to individual regions.

Temperature, humidity and other sensor readings etc. are provided to a common server, which aggregates the data and uses configurable rules to trigger alerts based on sensor data.

This example motivates to consider the following aspects:

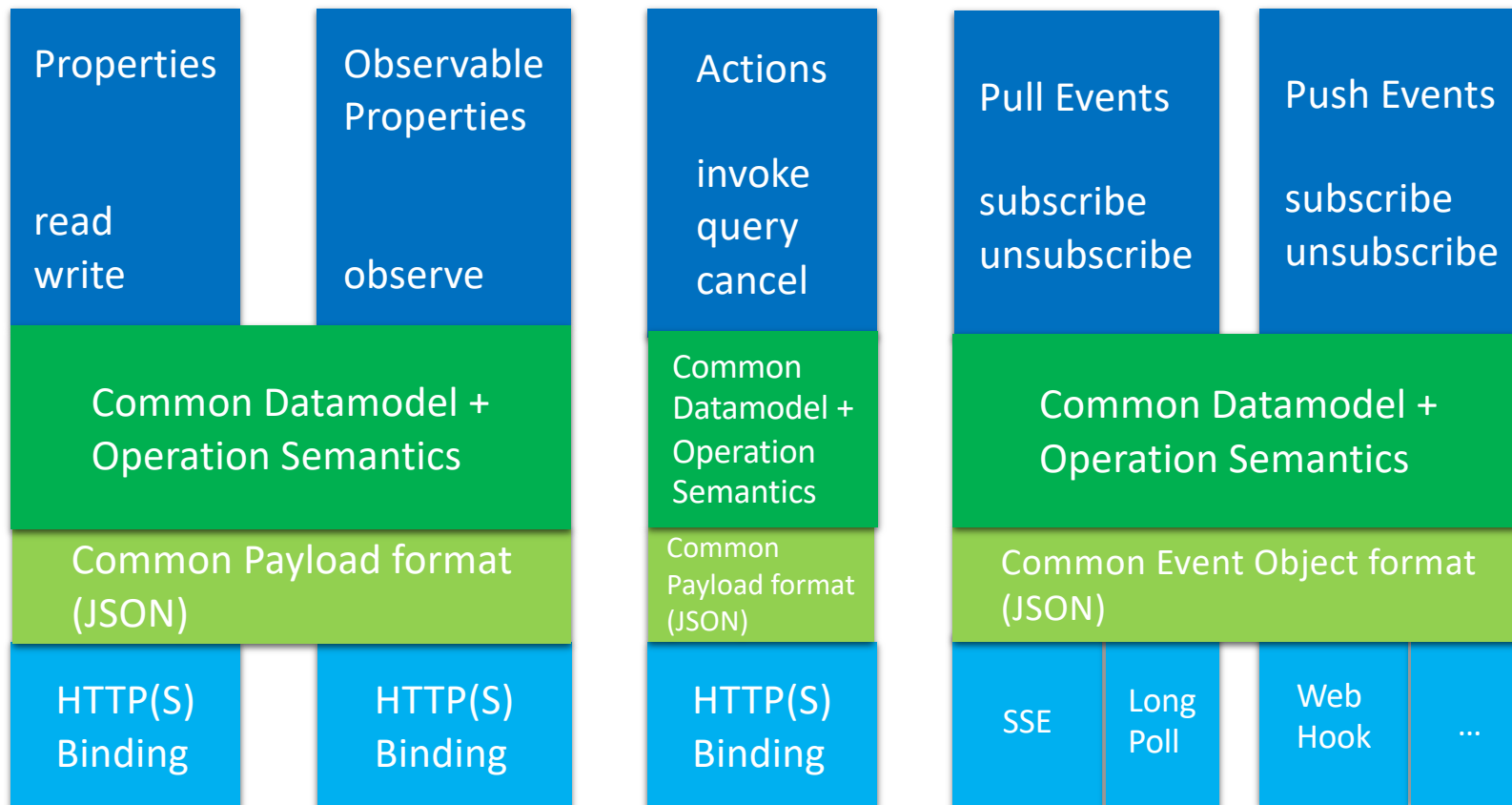
- All sensors and gateways must use unit schemes that are known and can be interpreted by the consumer.
- All sensors and gateways must use an unambiguous time and date format.
- All sensors and gateways must provide a human readable name that can be displayed on a map.
- All sensors and gateways must provide their location in a format that is known to the consumer.
- If a sensor and gateways provides interactions, these must be displayed in a UI in a human readable form.

Sensor readings will be displayed in a UI, the names must be displayed in a UI in a human readable form.

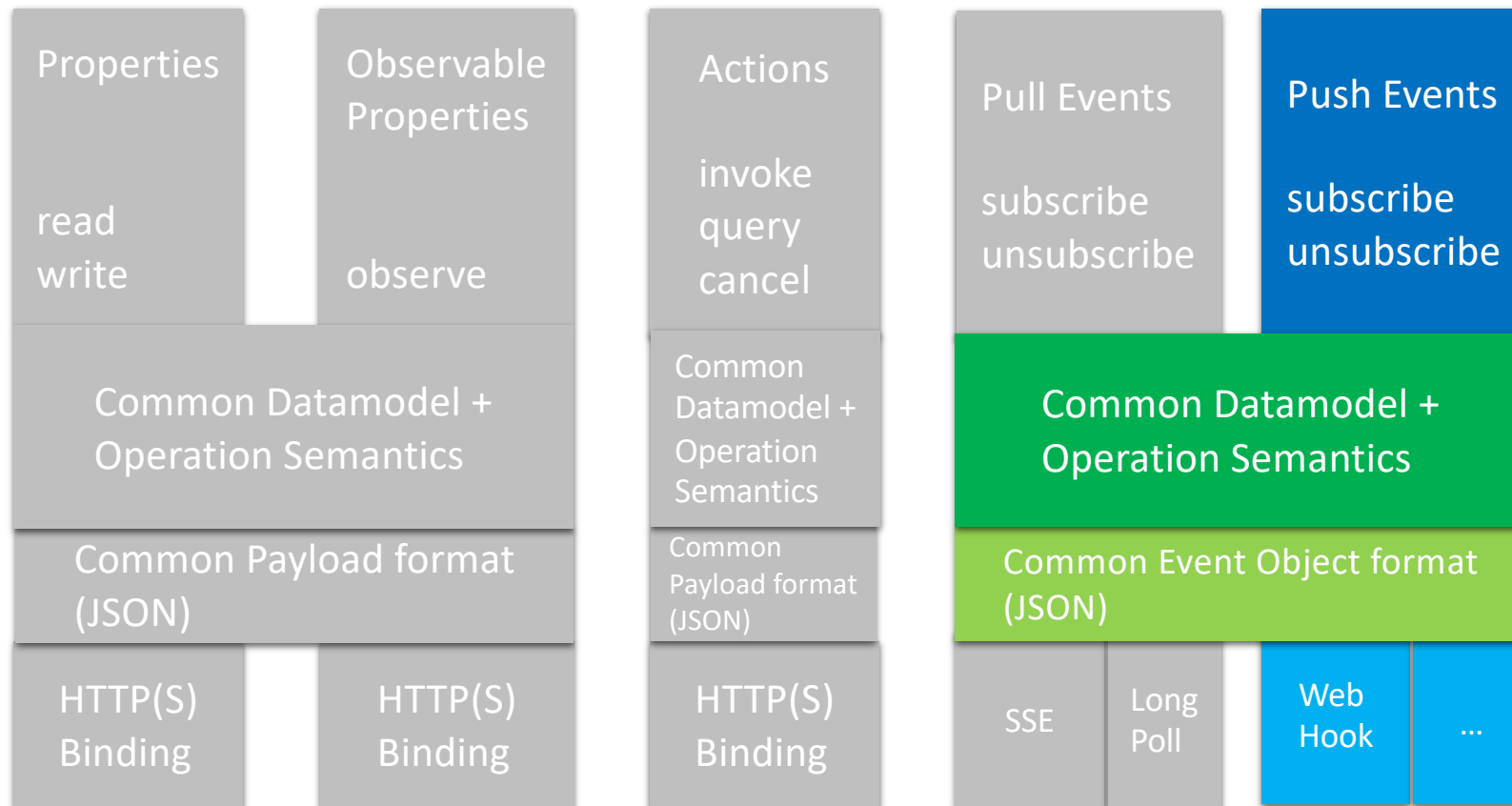
Some Implications

- Consumer must handle sensors and gateways
- Some gateways are aggregating/indirectly providing sensors data
- From a consumer's perspective the implementation (sensor or gateway) should not make a difference.

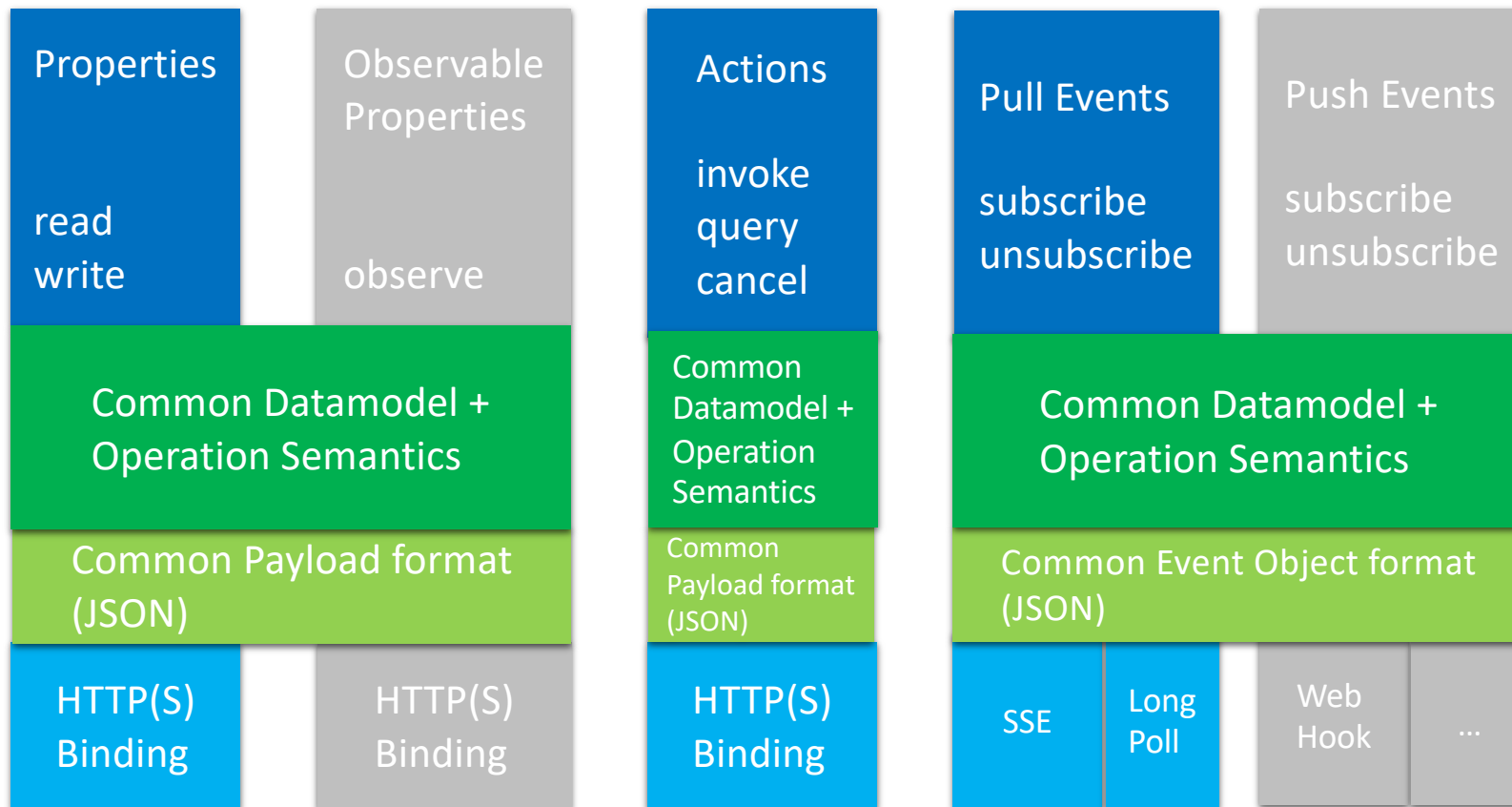
Common Datamodel + Operation Semantics



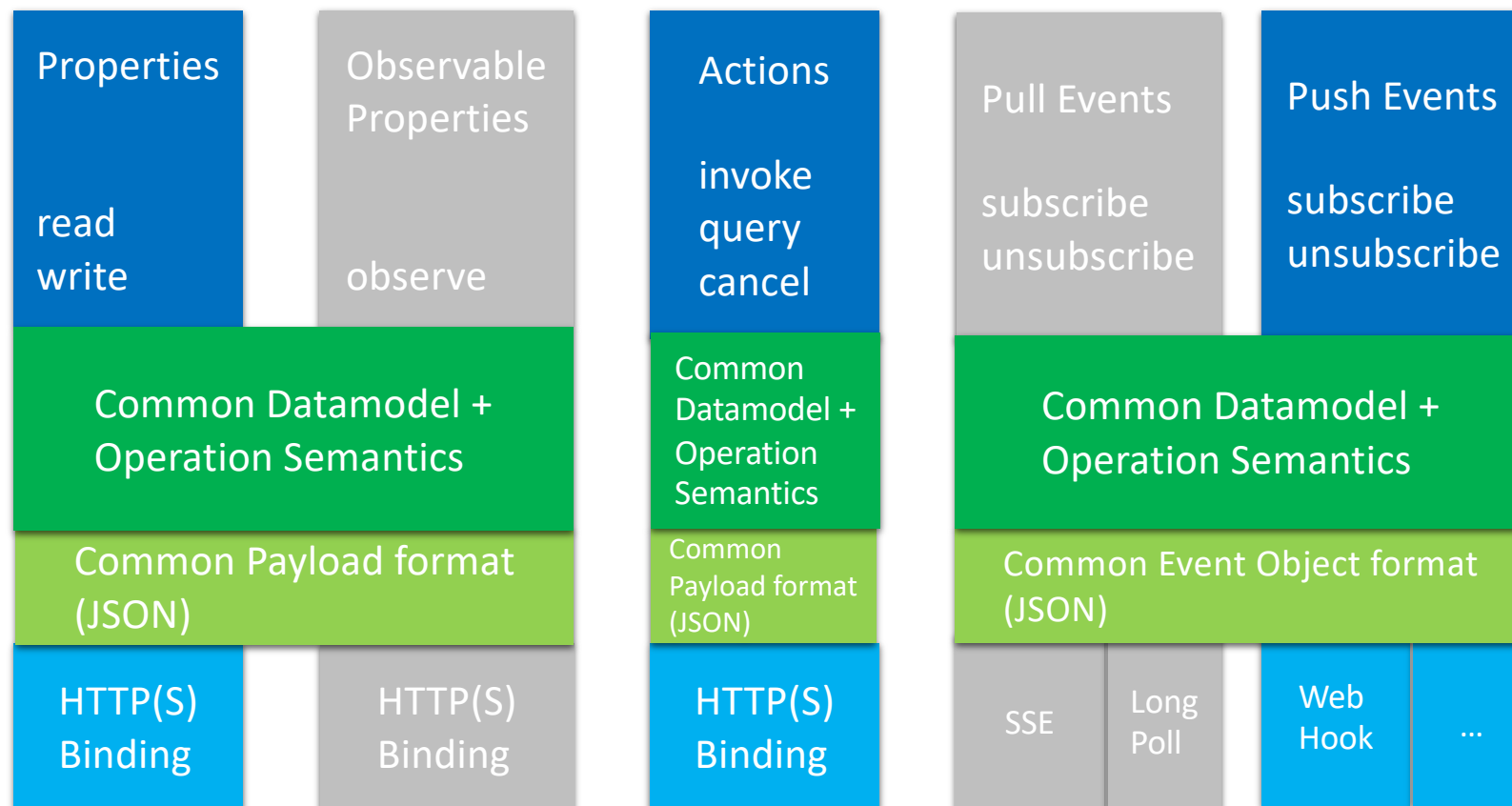
What does a simple Sensor need?



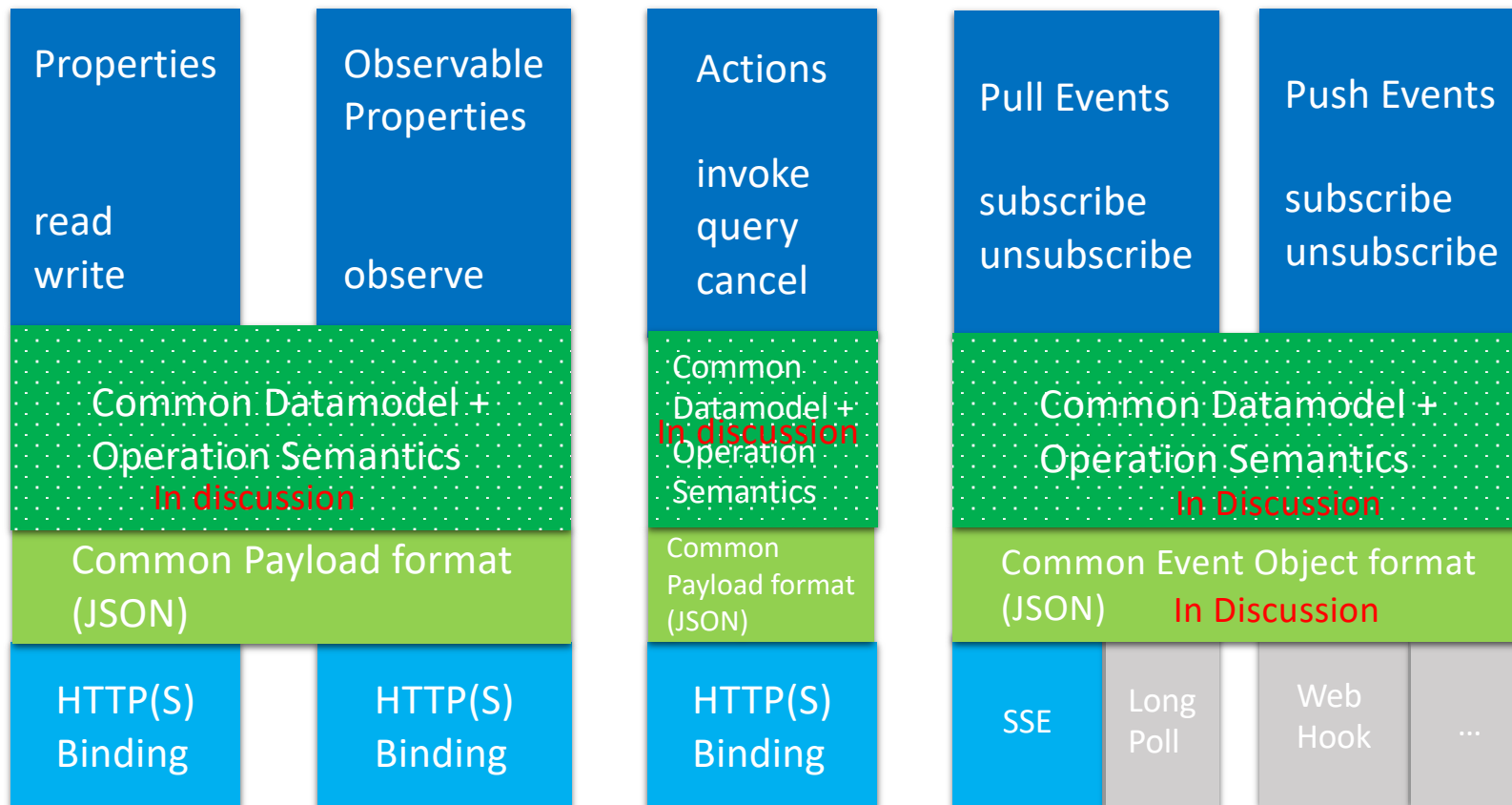
What does a Home Gateway need?



What does an industrial gateway need?



Where are we today?



Profile Names

The current HTTP binding of the core profile is not sufficient to address industrial use cases, since it does not contain a push event model.

It is more like a smart home gateway profile, the name core profile is misleading.

To ensure interoperability for things with HTTP (s) additional profiles have to be defined for:

- Sensors
- Industrial Gateways
- Digital Twins

However the core profile could include the missing pieces and be suitable for these deployments. A common datamodel and operation semantics is required.

Discussion (1)

McCool:

- Talking about core / home gateway
 - – common constraints, such as proposed names
- We should work bottom up, define profiles for narrow scenarios, home, industrial, ...
- Derive common constraints based on that experience
- Start with home and industrial, consider others later
- Look for overlaps
- Avoid to have different event models in different profiles
- Common constraints could be defined based on experience

Discussion (2)

Sebastian:

- Common data model: Usage of the TD information model
- Data model is application specific – semantics depend on application domain
- Structure of the TD information model
- We may have for 1.1 data model aspects for smart city, ...

Discussion (3)

Kaz:

- Which part to be described as the core profile?
 - We should look into industry based IoT standards, that might be quicker
 - Such as OPC-UA, Echonet, oneM2M, SG20
 - This is much related to the binding discussion
-
- Echonet has 2 levels of interfaces – WebApi and binary level API

Discussion (4)

Ben:

- Agree with Sebastian and McCool
- Difficulties to define common constraints on all devices that are defined on the TD information model
- Units would be useful, but difficult to chose
- Bottom up approach
- Disagree that current draft targets only home gateways
- Application domain specific profiles
- Events discussion is misleading – HTTP is not suitable for events

Discussion (5)

Scope of the spec:

- Interop
- Human readability was excluded
- We should revisit each assertion individually

Lagally:

- Building a UI is part of interoperability, otherwise you cannot interoperate between devices and humans