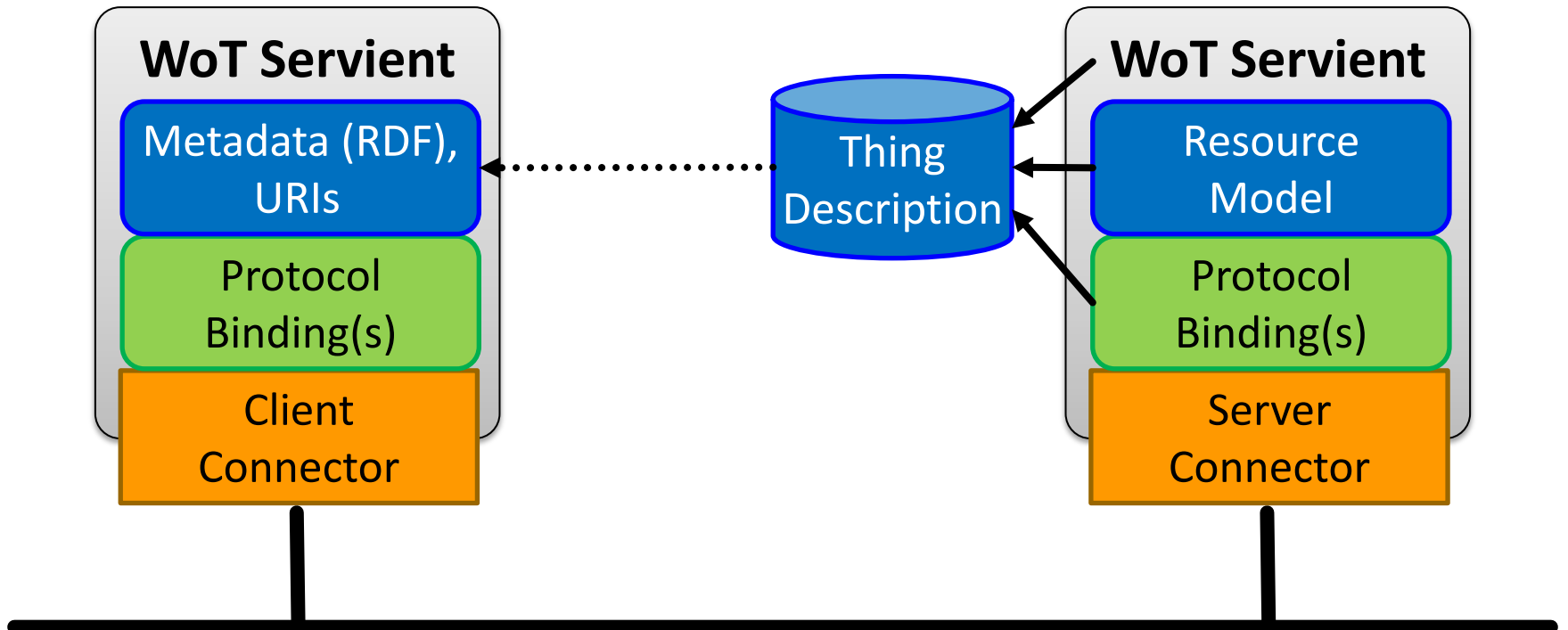


W3C WoT Thing Description

WISHI, Prague, July 2017

Thing Description

- Describes Thing metadata and interaction



TD Resource Model

- 3 Interaction patterns

TD Resource Model

- 3 Interaction patterns
 - Property
 - Action
 - Event

TD Resource Model

- 3 Interaction patterns
 - Property
 - Action
 - Event
- Web links with input/output data types

TD Resource Model

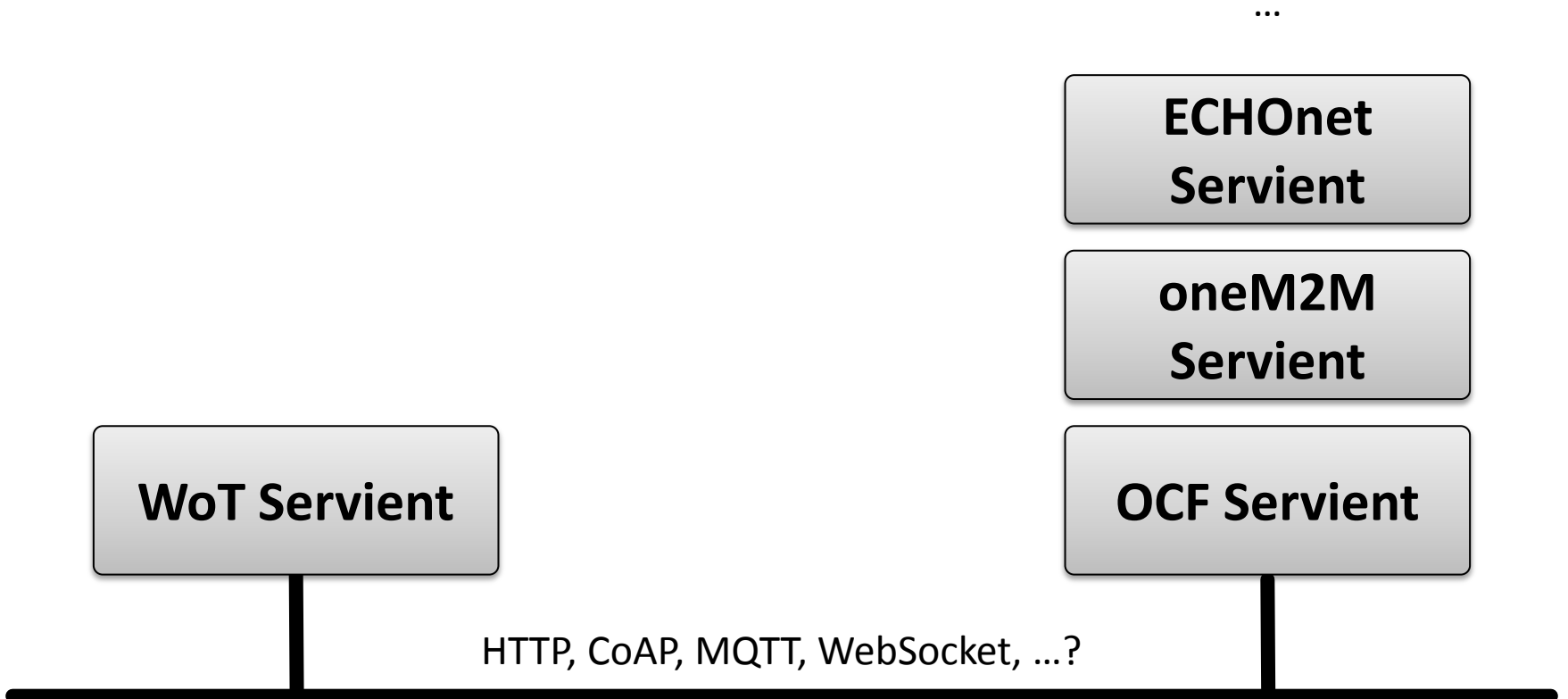
- 3 Interaction patterns
 - Property
 - Action
 - Event
- Web links with input/output data types
- RDF annotations of Things/Interactions

TD Example

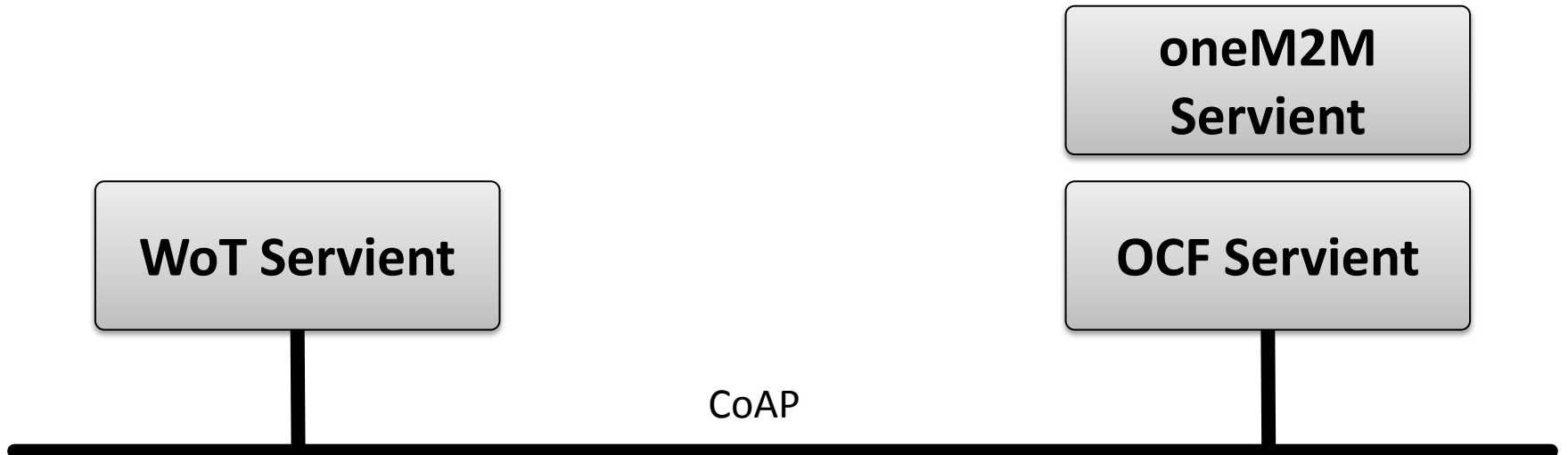
```
{
  "@type": ["Thing", "saref:TemperatureSensor"],
  "name": "myTempSensor",
  "base": "coap://www.example.com/temp",
  "interactions": [{
    "@id": "_:val",
    "@type": ["Property", "saref:Temperature"],
    "name": "myTemp",
    "valueType": { "type": "number" },
    "writable": false,
    "link": [{
      "href": "val",
      "mediaType": "application/json"}]]},
  {
    "@type": ["Action"],
    "saref:actsOn": "_:val",
    "inputData": {
      "valueType": { "type": "number" }},
    "name": "myThermostat",
    "link": [{"href": "set"}]},
  {
    "@type": ["Event"],
    "valueType": { "type": "number" },
    "name": "myWarning",
    "link": [{"href": "val/high"}]}
}
```

/.well-known/core
/temp
/temp/val
/temp/val/high
/temp/set

Interoperability



Interoperability (I)



Interoperability (I)

```
GET coap://example.org/someAC/someBinarySwitch
```

```
{  
  "containerDefinition": "org.onem2m.home.moduleclass.wind",  
  "powerState": false,  
  "childResources": [...]  
}
```

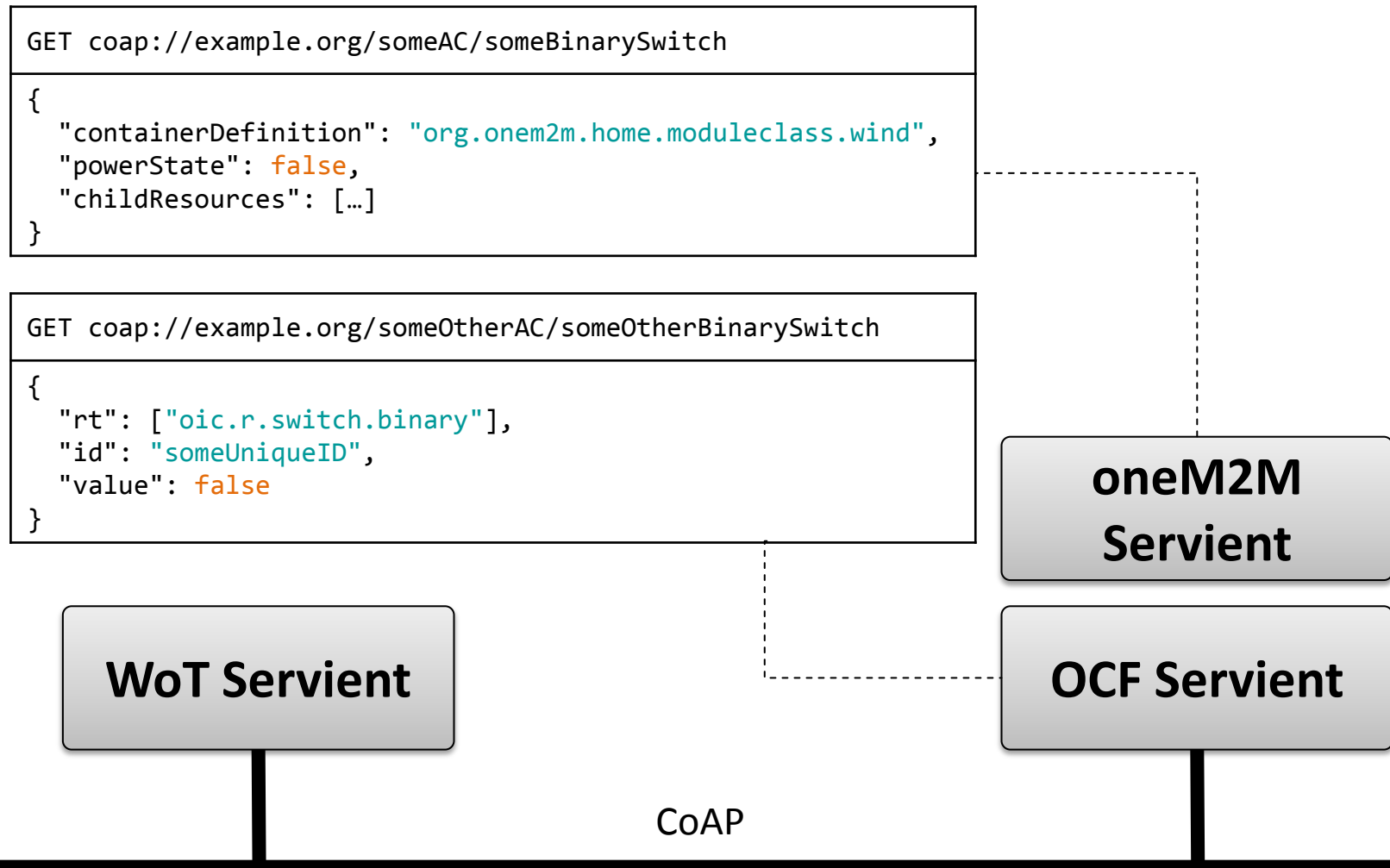
WoT Servient

**oneM2M
Servient**

OCF Servient

CoAP

Interoperability (I)



Interoperability (I)

```
GET coap://example.org/someAC/someBinarySwitch  
  
{  
  "containerDefinition": "org.onem2m.home.moduleclass.wind",  
  "powerState": false,  
  "childResources": [...]  
}
```

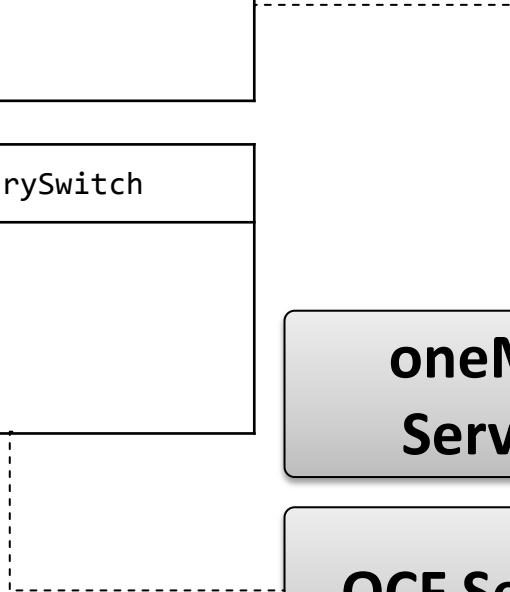
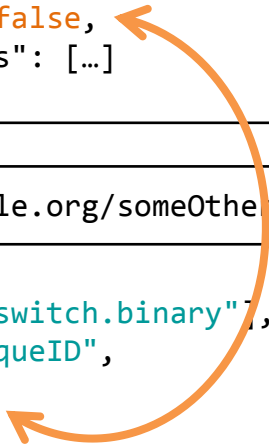
```
GET coap://example.org/someOtherAC/someOtherBinarySwitch  
  
{  
  "rt": ["oic.r.switch.binary"],  
  "id": "someUniqueID",  
  "value": false  
}
```

oneM2M
Servient

OCF Servient

WoT Servient

CoAP

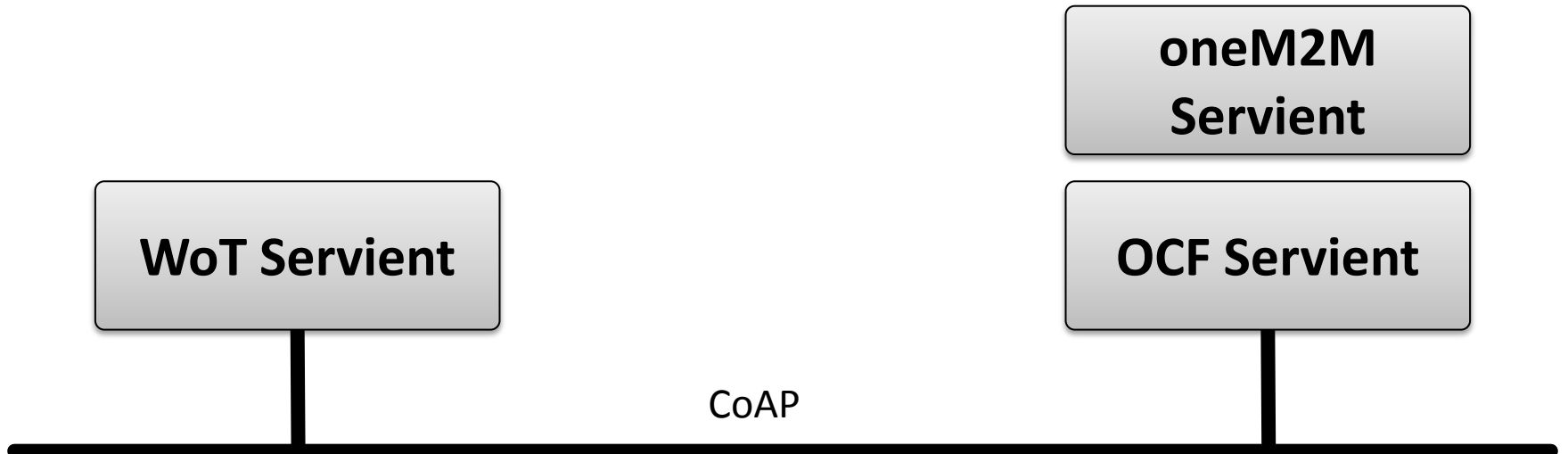


Interoperability (I)

GET coap://example.org/someAC/	GET coap://example.org/someOtherAC/
<pre>{ "@type": ["saref:Switch"], "interaction": [{ "@type": ["Property"], "outputData": { "type": "object", "properties": { "powerState": { "@id": "saref:hasState", "type": "boolean" } } }, "link": { "href": "/someAC/someBinarySwitch", "mediaType": "application/json" } }] }</pre>	<pre>{ "@type": ["saref:Switch"], "interaction": [{ "@type": ["Property"], "outputData": { "type": "object", "properties": { "value": { "@id": "saref:hasState", "type": "boolean" } } }, "link": { "href": "/someOtherBinarySwitch", "mediaType": "application/json" } }] }</pre>



Interoperability (II)



Interoperability (II)

```
GET coap://example.org/someAC/someWindSensor

{
  "containerDefinition": "org.onem2m.home.moduleclass.wind",
  "wind": {
    "windStrength": 4,
    "directionLeft": true
  }
}
```



WoT Servient

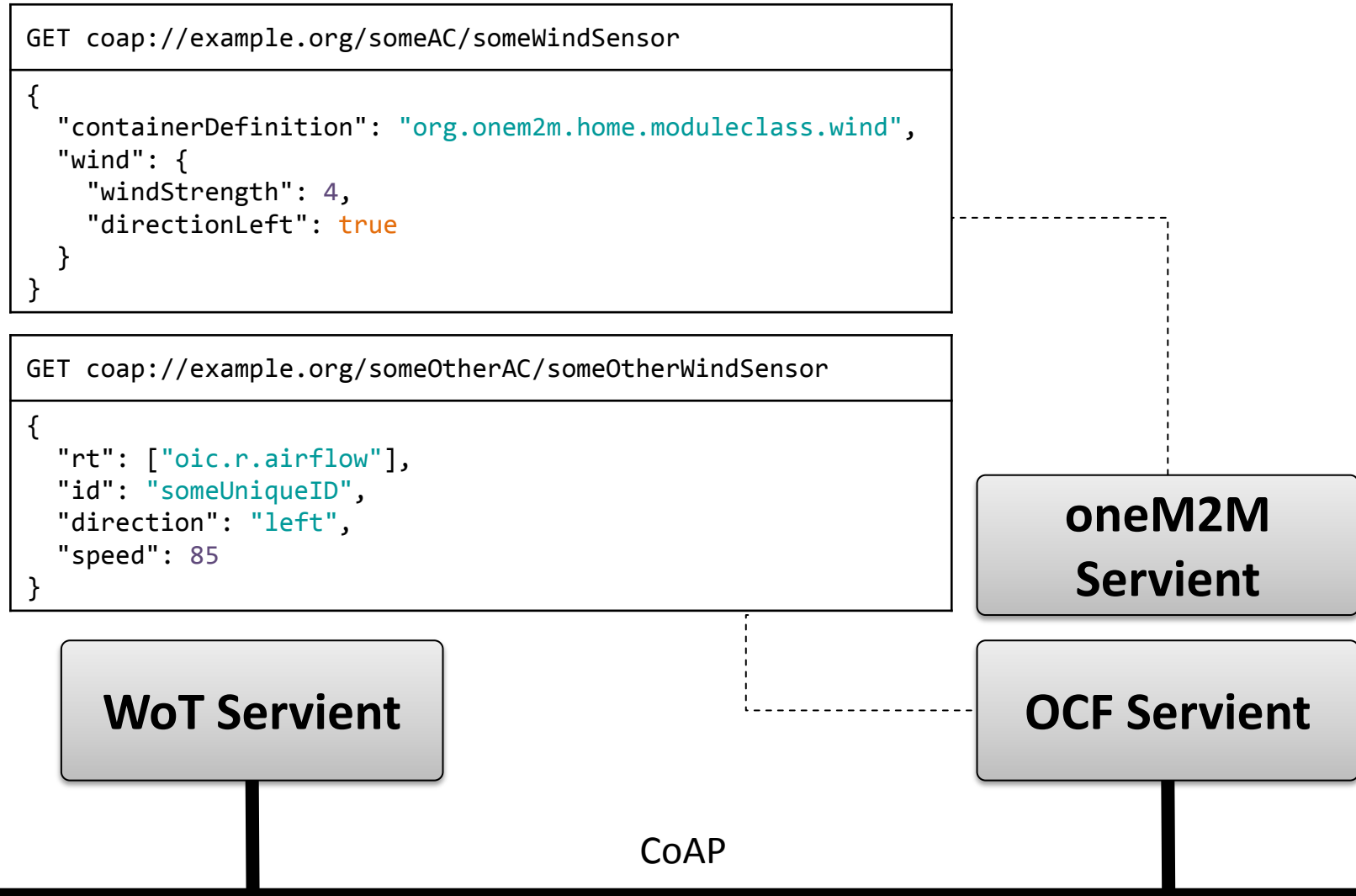
oneM2M Servient

OCF Servient

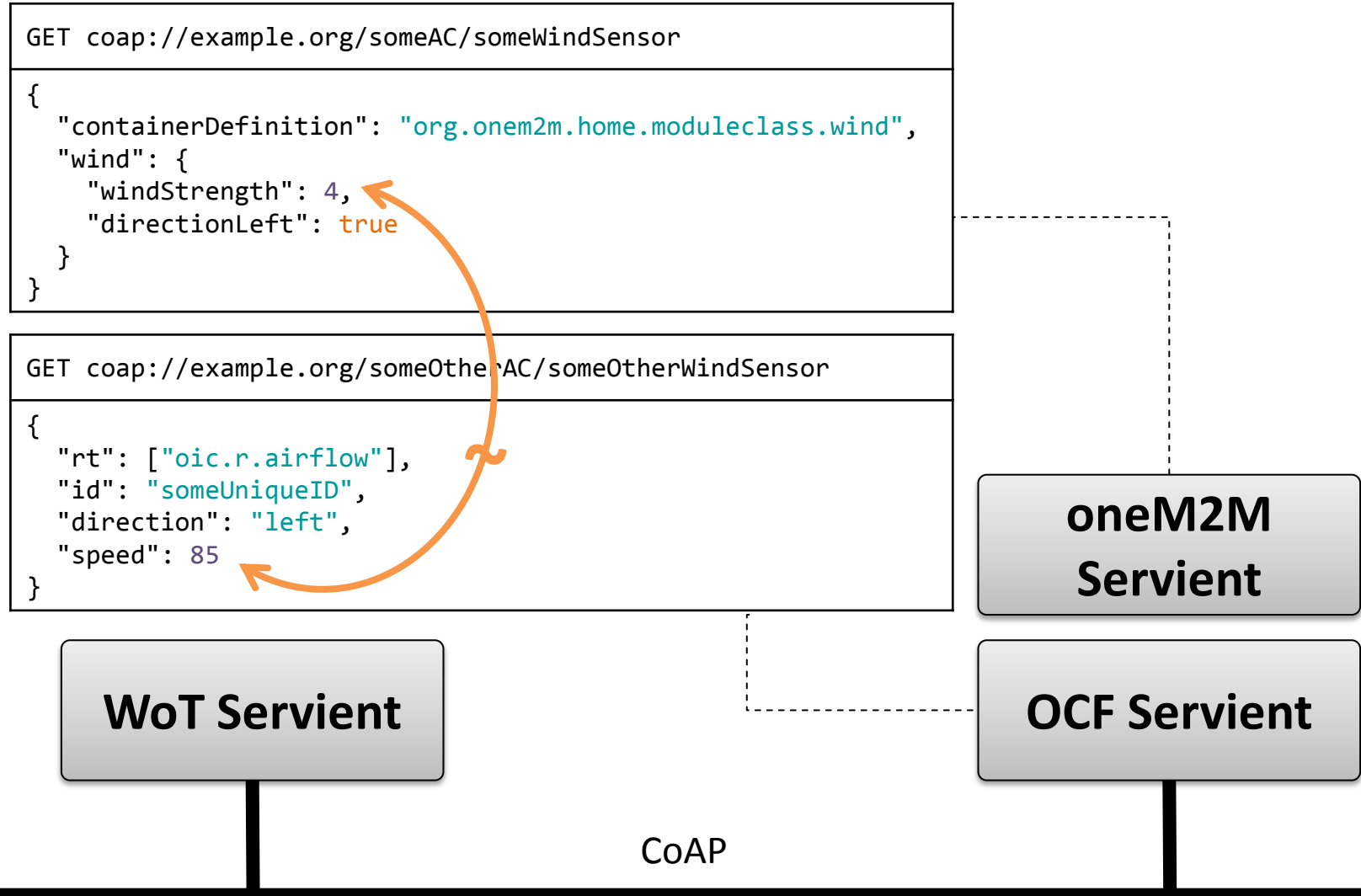
CoAP



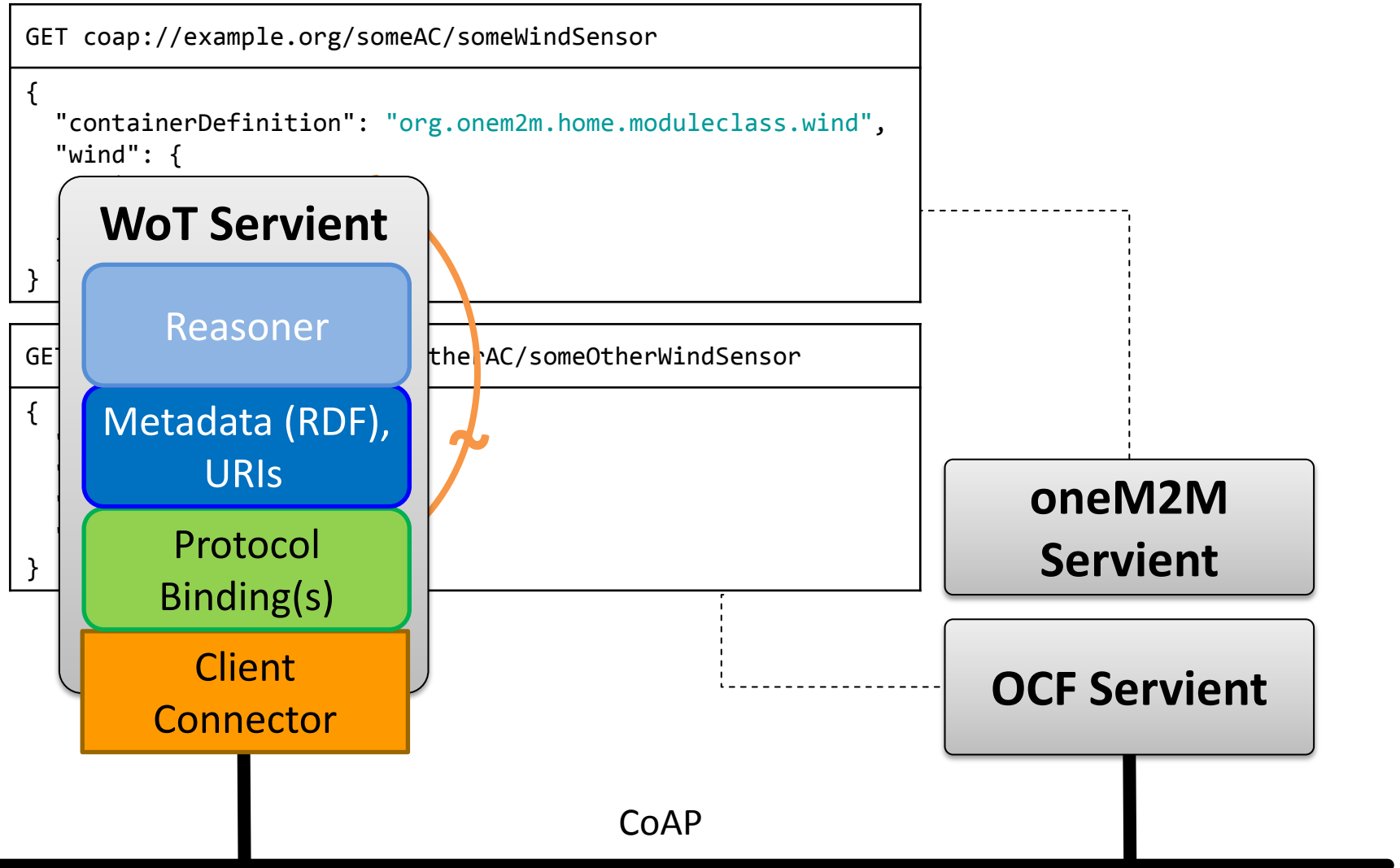
Interoperability (II)



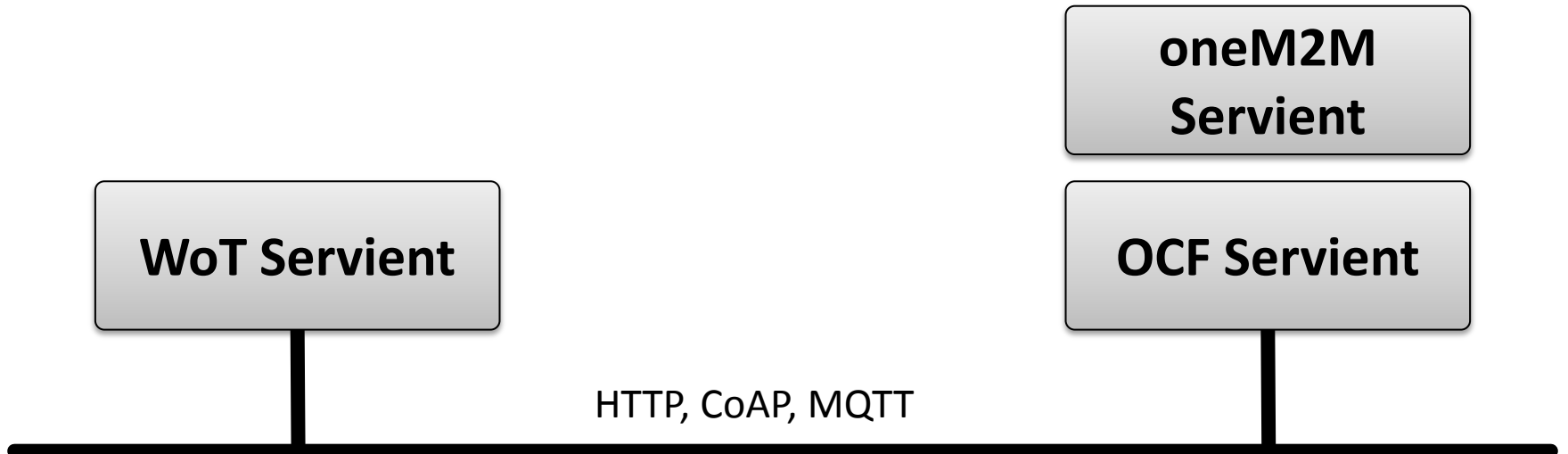
Interoperability (II)



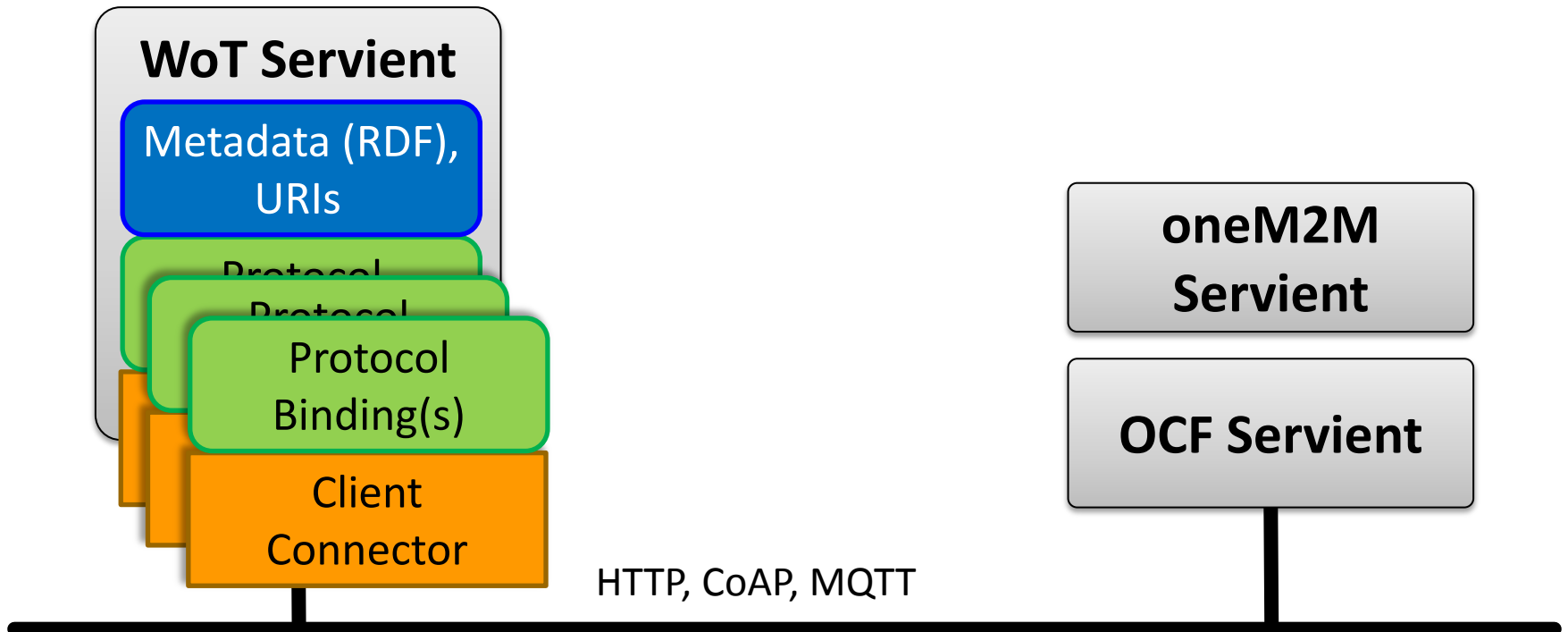
Interoperability (II)



Interoperability (III)



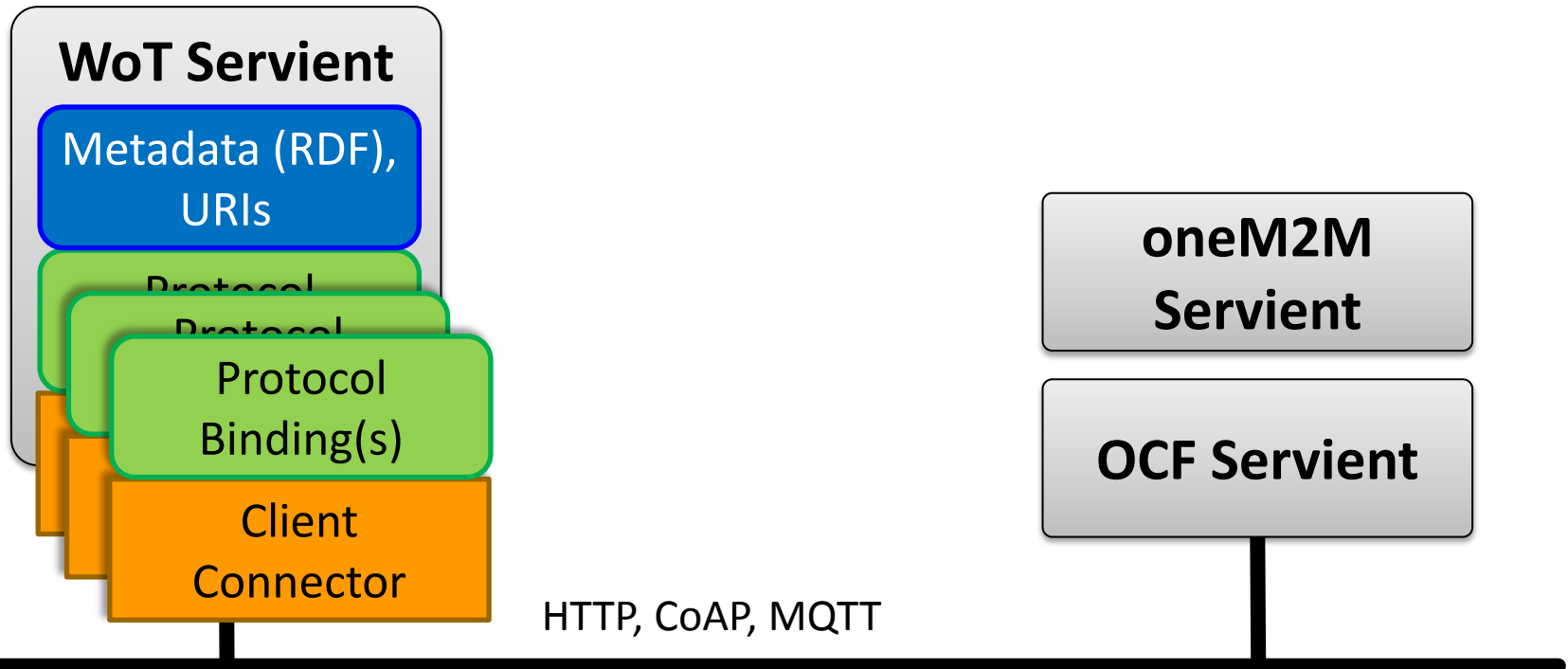
Interoperability (III)



Interoperability (III)

```
const Servient = require("node-wot").Servient;  
let servient = new Servient();
```

```
servient.addClientFactory(mqttclientFactory);  
servient.addClientFactory(coapclientFactory);  
servient.addClientFactory(httpclientFactory);
```



Implementation Status

- Reference implementation: node-wot
- Other implementations
 - Panasonic, Fujitsu, LemonBeat, Intel
- Integration of OCF (binding), oneM2M (semantic)
- Interoperability tested:
 - Industrial controller / lamp, fan
 - Temperature sensor / air conditioner
 - Industrial controller / water pump

Thank You

- More information available at:

<http://w3c.github.io/wot/current-practices/wot-practices.html>

<http://github.com/w3c/wot-thing-description>

<https://github.com/thingweb/node-wot>

TD Repository

- Register and discover appropriate TDs

