

IoTivity

Status and Future Direction

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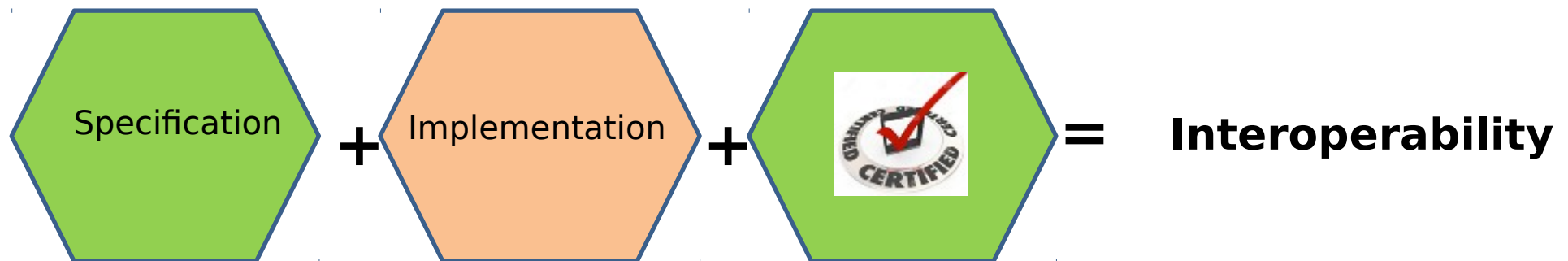


Agenda

- Introductions on IoTivity and OCF
- IoTivity Implementation Status
- Thoughts on Future Specs
- IoTivity Future Direction

OCF and IoTivity

- OCF is a foundation with leading companies at all levels to develop standards and certification for IoT devices
- IoTivity delivers reference implementation of the OCF standard specification.
- OCF Certification means a device implementation as defined in the specification and released into the open source.

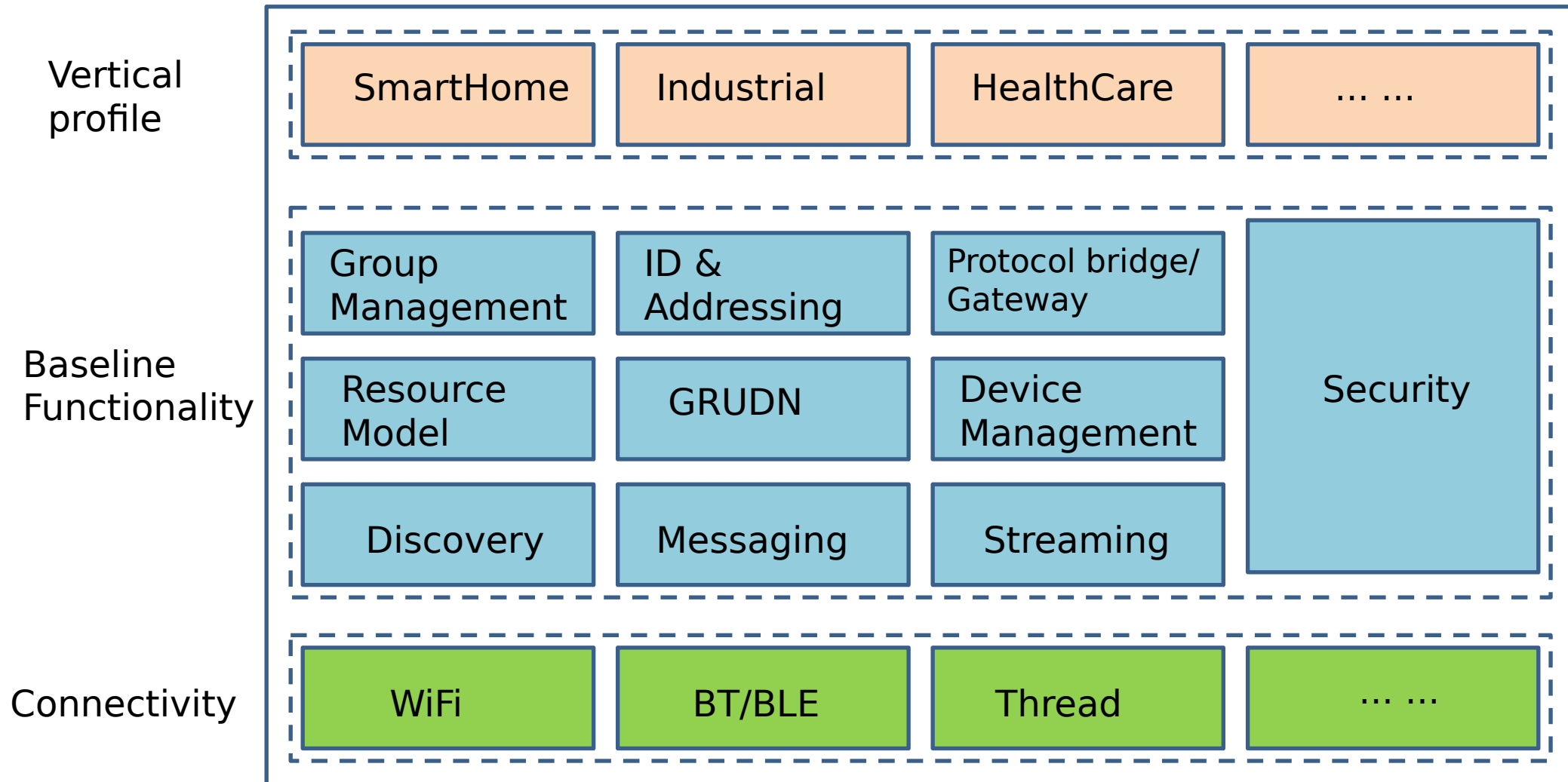


OCF



IoTivity

Scope of OCF Specification



CoAP related Implementations

OCF spec are basically derived from the CoAP specifications

- CoAP discovery (RFC 7252)
- CoAP Messaging (RFC 7252)
- CoAP Block wise transfer (RFC 7959)
- CoAP Observe (RFC 7641)
- CoAP over TCP from IETF draft : (<https://tools.ietf.org/html/draft-ietf-core-coap-tcp-tls-04>)
- Pub-Sub for CoAP(<https://tools.ietf.org/html/draft-koster-core-coap-pubsub-05>)
- CoAP-HTTP Proxy (RFC 7252 & <https://tools.ietf.org/html/draft-ietf-core-http-mapping-04>)

CoAP in IoTivity Base Layer

Messaging and Discovery

- IoTivity uses libcoap for packet formation and parsing.
- IoTivity transport implementations support IP/BT/BLE.
- IoTivity discovery implementation is RFC7252 spec compliant (Multicast port: 5683, DLTS : 5684 , Unicast: System Assigned port)

Block-Wise Transfer

- Support both Block1 and Block2 options
- Spec compliant

CoAP in IoTivity Cloud

CoAP over TCP/TLS

- <https://tools.ietf.org/html/draft-tschofenig-core-coap-tcp-tls-04>
- Message format follows by 'Alternative L3'
- TLS(RFC7301) to guarantee secure transmission

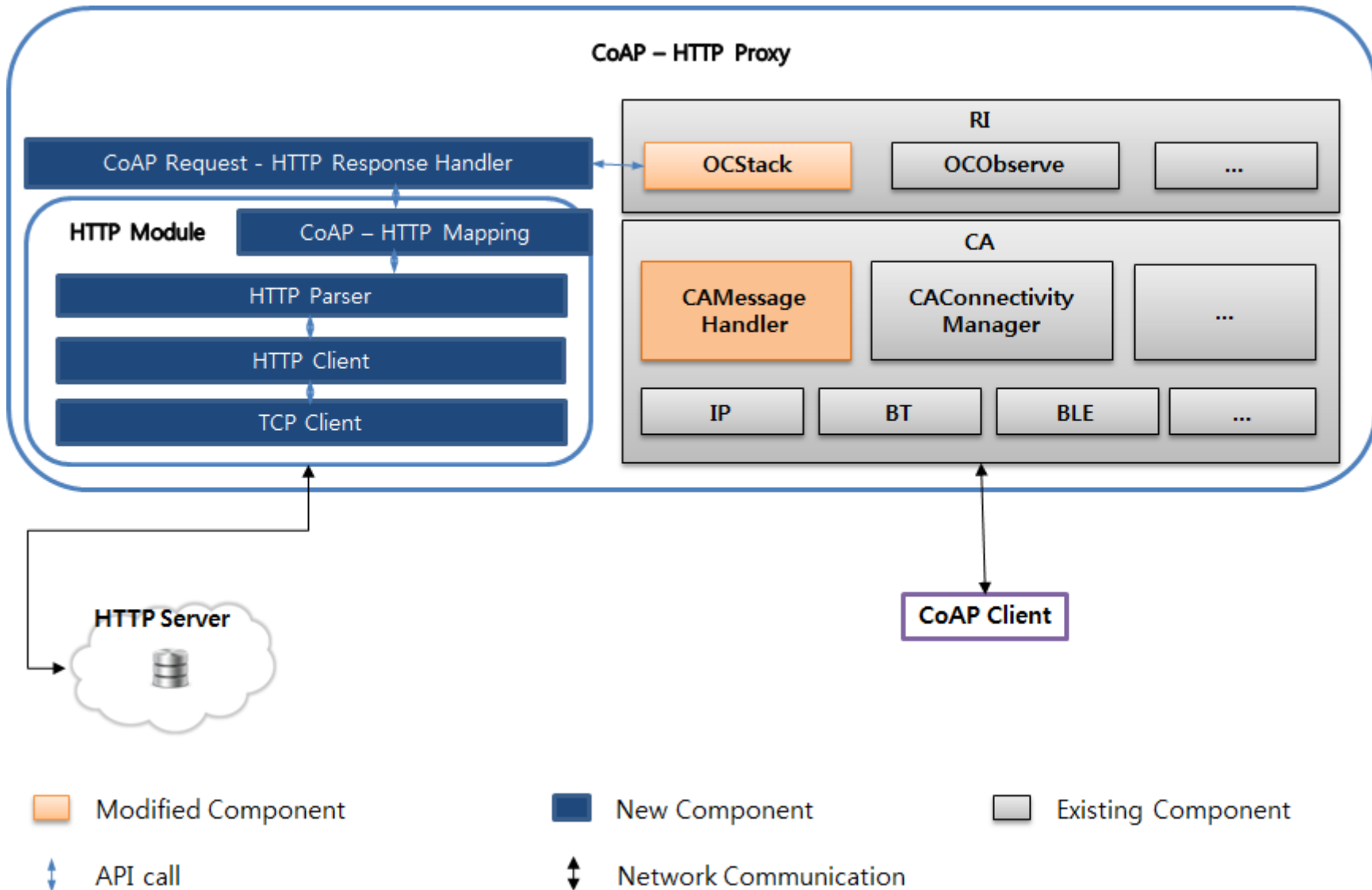
Pub-Sub Framework for CoAP

- <https://tools.ietf.org/html/draft-koster-core-coap-pubsub-05>
- Provide generic Pub/Sub Framework with a first realization being conformant to the CoAP Publish/Subscribe draft
- Data Models: Device Presence and CoAP Pub/Sub

OAuth2 over CoAP

- Multi-user secured connection using OAuth2.0 to CoAP Native Cloud is supported.
- OCF own specification.
- Need further check on <https://tools.ietf.org/html/draft-ietf-ace-oauth-authz-02s>

CoAP-HTTP Proxy



DTLS/TLS Implementations

- DTLS v1.2 (RFC6347)
- TLS v1.2 (RFC5246)
- AES-CCM Cipher Suites for TLS (RFC6655)
- AES-CCM Elliptic Curve Cryptography (ECC) Cipher Suites for TLS (RFC7251)

Thoughts on Specifications

Thoughts on CoAP Specs

- Introduce Advertisement concept in CoAP spec. Most of the D2D communication involves discovery from client and advertisement from server. In OCF we are using our standard like presence for advertisement which is not ideal.
- Introduce specifications on CoAP over other communication protocol such as BT (RFCOMM), BLE (GATT) etc.

IoTivity Future Direction

- In line with the future direction of OCF

Thank you!