CoAP over GATT

draft-amsuess-core-coap-over-gatt

Christian Amsüss

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Why

“Why even do non-IP transport for IETF protocol?”

| CoAP-over-UDP | | IPv6 | | Gattlink |
|----------------| |----------------| |----------------| |
| GATT | \ widely | 6LoWPAN f. BLE | | GATT | \ 
|----------------| | accessible | |----------------| | 
| L2CAP | | to users | | L2CAP | | 
|----------------| | (even from | |----------------| |
| BLE | / Chrome) | | BLE | | BLE | /

You Are Here BLE IPSP Goldengate

Same reasons as for CoAP-over-WebSockets: Can’t escape limited APIs.
BLE’s reliability doesn’t work exactly like I originally thought.
Neither do BLE implementations.
Lack of role reversal was limiting.
Discovery is lacking.
-03: Updated mechanism
based on GATT's properties (ordered, unilateral reliability – highly unlike UDP)

0 1 2 3 4 8 16 varying
<table>
<thead>
<tr>
<th>R</th>
<th>M</th>
<th>C</th>
<th>A</th>
<th>TKL</th>
<th>Code</th>
<th>Token</th>
<th>Options</th>
<th>ff</th>
<th>Payload</th>
</tr>
</thead>
</table>

- Re-introduced token.
- 1-bit message ID only takes care of incomplete operations.
- R-bit prevents accidental message reflection.
- Mechanism for requesting confirmation (a bit like empty ACKs).

Similar to CoAP-over-UDP, but adapted to BLE. Single-byte header.
For -04: More about discovery

What if we already know our peer...

...and there are many CoAP-over-GATT devices around?

“know”: by URI, by AS/audience, by advertised resources?
For further exploration, possibly in a later add-on

- Multicast by CoAP messages in beacons?
- SCHC retconning of non-CoAP attributes. (“Turn the temperature into a CoAP addressable resource”).
Addressing

It could be simple…

coop+gatt://00-11-22-33-44-55/.well-known/core

…but it is not, so we need protocol-indication (no updates here).
Roadmap

- Update implementations, re-run tests.
- Keep using CoAP-over-GATT as driver for transport-indication (could also pick -over-WebSockets or t2trg-slipmux)
- Explore this in the WG?
Thanks

Comments?

Questions?