The use of Internet-standard IoT networks to create smart infrastructure

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How are IoT systems interoperable?

Example from Semtech: standardize on a radio/simple protocol.
Moving to standard protocols

For Interoperability and standardisation we are using Internet Engineering Task Force standards.

<table>
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<th>Smart Application</th>
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<td>Services – CoAP</td>
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<td>Transport – UDP</td>
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<td>Routing – RPL</td>
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<td>Network - 6LowPAN</td>
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<td>Data link - IEEE 802.15.4</td>
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<td>Physical layer 433/868MHz/2.4GHz</td>
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Trials used ContikiOS
Currently developing with RIOT-OS.
Other OS’s support this stack
6LowPAN with RPL routing

- 6loWPAN can auto-configure IP addresses ($2^{128}$)
- Routing adapts to loss/changes/growth
CoAP: constrained application protocol RFC7254

Binary, UDP, HTTP-like, RESTful interface to/from devices

Adapted from Shelby’s CoAP webinar
Building smart infrastructure

- Sub-GHz low power for range/coverage
- 6LowPAN for Internet combatibility
- CoAP standardises interfaces
- -> Web of Things can provide discovery
- -> test deployments are crucial