

Smart Homes, Smart Energy, Smart Grids

Smart Connectivity ?

8th Smart Grids Cleanpower Conference
19-20 June 2017, Cambridge, UK

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Our Background

- ▶ Smart building connectivity – since 2007
- ▶ *Smart Homes*: Approach supported by ARM, Samsung, Nest, Hive, ...
- ▶ Smart Metering, Demand Response
- ▶ Consumer-facing solutions
- ▶ Deep experience of heterogeneous approaches

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- ▶ New, wider focus on smart buildings
 - ▶ Commercial
 - ▶ New build & Retrofit
 - ▶ Industrial-scale deployments, Smart Cities

Observations

- ▶ Connectivity is assumed to be already solved
 - ▶ IOT: All the effort has been on the “I”, not the “T”

To put it another way...

IOT



Very little focus on solving the “**Internet**” connectivity piece within the building (where the Things live)



Lots of “**Things**” being developed

Observations

- ▶ Connectivity is assumed to be already solved
 - ▶ IOT: All the effort has been on the “I”, not the “T”

- ▶ In-Home: “WiFi for everything”
 - ▶ But: ZigBee forecasts suggest c.900m chipsets in 2021
 - ▶ Low-hanging fruit keeps VP Sales happy in short term ?
 - ▶ “Horses for Courses” more likely to keep mass market happy in long run

- ▶ In-Commercial:
 - ▶ Bespoke, engineered solutions migrating to off-the-shelf approaches
 - ▶ Network stability needed for industrial scale roll-out
 - cutting-edge not always appreciated
 - ▶ Lots of “Non-I” IOT solutions (eg Sigfox, NB-IOT, ...)

(IT) Infrastructure Design is Key



Proper Smart Buildings:

- ▶ 1000s of sensors generating *ad hoc* network traffic in real-time
- ▶ Mix of sensors and comms networks
- ▶ In-sensor smartness will filter messages... to an extent

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Proper Smart Buildings:

- ▶ 1000s of sensors generating *ad hoc* network traffic in real-time
- ▶ Mix of sensors and comms networks
- ▶ In-sensor smartness will filter messages... to an extent
- ▶ Cloud-based IOT platforms are in vogue, but can they cope ?
 - ▶ Response times
 - ▶ Network bandwidth
 - ▶ Integration of AI with messaging infrastructure
 - ▶ Likely winners will deploy AI/processing hardware into the building

At the End of the Rainbow ?

- ▶ Deeply instrumented smart infrastructure can scale
 - ▶ and scale, and scale, ...
- ▶ Smart building -> Smart buildings -> Urban infrastructure
- ▶ Smart Cities deployed organically ?

- ▶ Holistic, integrated approaches will be key
- ▶ Commercial drivers ?

More Information

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