Consumer Electronics and Buildings: Future Interoperability??

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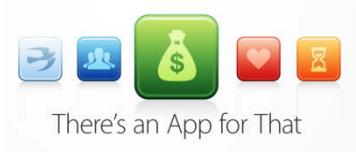
IoT's Ecosystem Problem

IoT is everywhere these days

- But most 'solutions' have limitations that limit wide ranging deployments

1. **Proprietary Ecosystems**
   - Requires system integration $$$
2. **Changing Platforms over Time**
   - Use your 2005 phone today?
3. **BYOD for IoT**
   - BYOD devices 'added' to buildings




Wi-Fi Coffee Machine

IoT Interoperability Problem

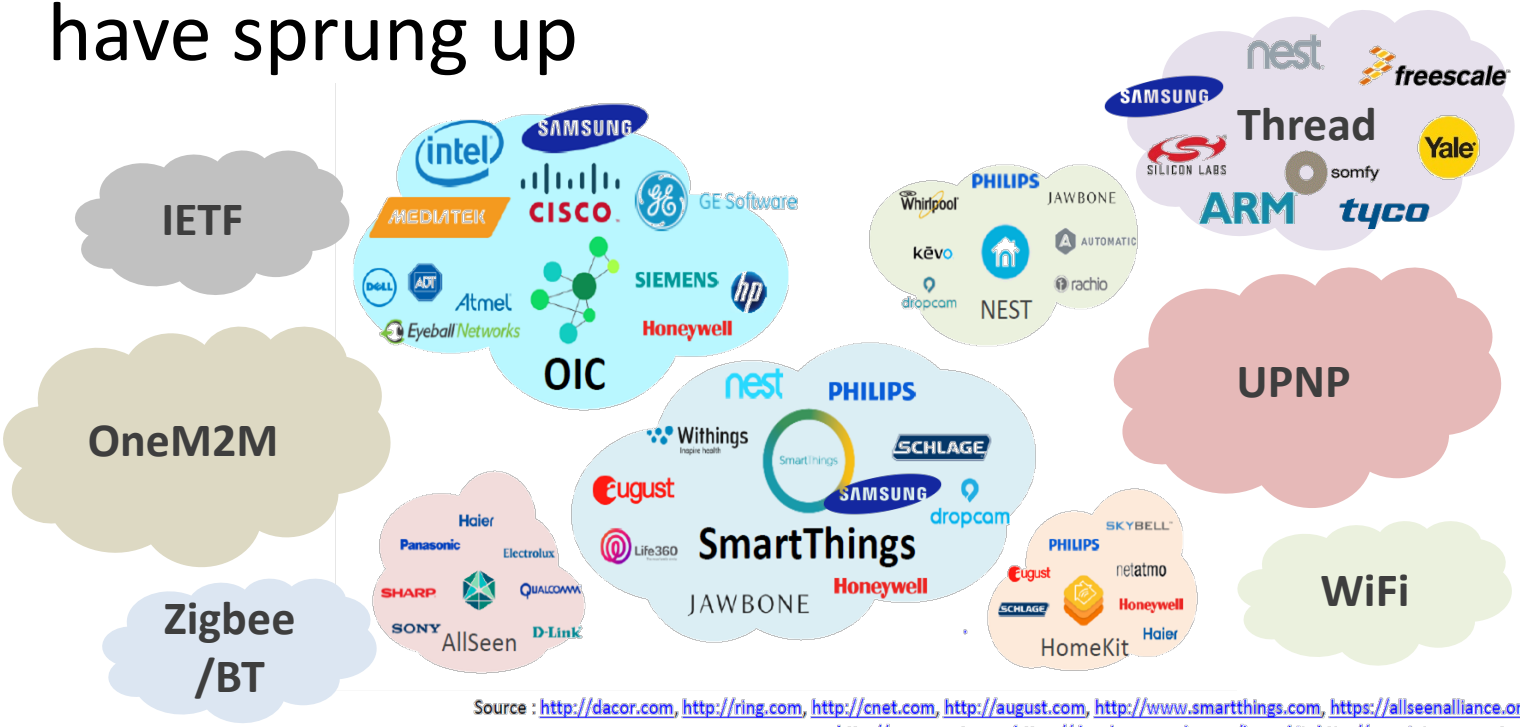
- Out of box experience
- Application
- Privacy
- Performance
- Semantic
- Data
- Protocol
- Communication
- Security
- Discovery
- Setup

Heterogeneous Open IoT

- The only way to overcome these problems is to:
  1. **Assume a heterogeneous, non-proprietary world**
     - No central ‘owner’ of the IoT world, assume a many ‘homed’ world
  2. **Cross-layer collaboration between manufacturers**
     - Apps thru Comms to Privacy/Security
  3. **Make it easy for setup and use (installers/consumers)**
     - Expect systems to be assembled/modified over time

IoT Standards Ecosystem

- Plenty of Groups and De Facto Standards have sprung up



Source : http://dacor.com, http://ring.com, http://cnet.com, http://august.com, http://www.smartthings.com, https://allseenalliance.org, http://www.nest.com, https://developer.apple.com/homekit, http://openinterconnect.org

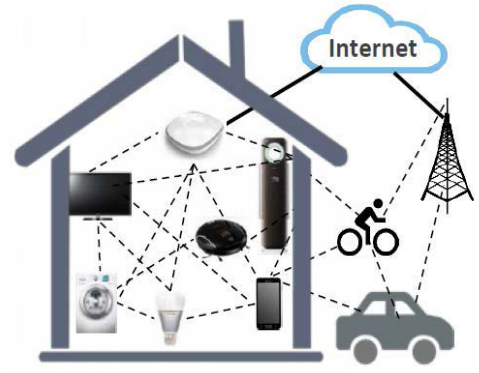
IoT Open Source Ecosystem

- Open Source can often be an easier way to get interoperability quickly

And many more

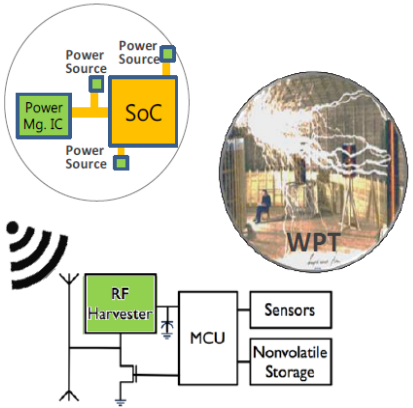
Other Technical Challenges

Connectivity



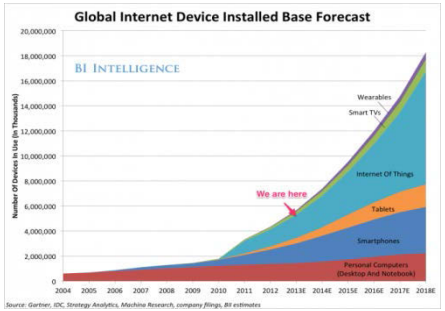
- Range Extension
- Interference
- Congestion

Low Power



- Power Management
- Energy Harvesting
- Wireless Power Transmission

Scalability



- User Device Volume
- # of Device Categories
- Support Over Time

Samsung Open IoT Commitment

SmartThings in Samsung

"In 5 Years, All Samsung Hardware Will be IoT Devices"

"Will Ensure that Others can Easily Connect to Our Devices" – CEO B.K. Yoon