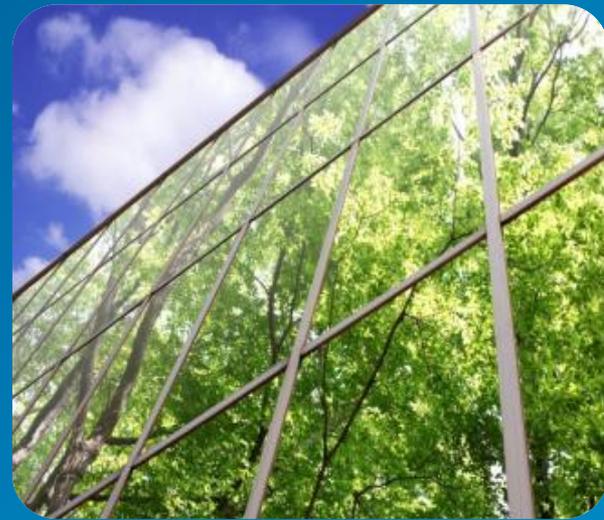


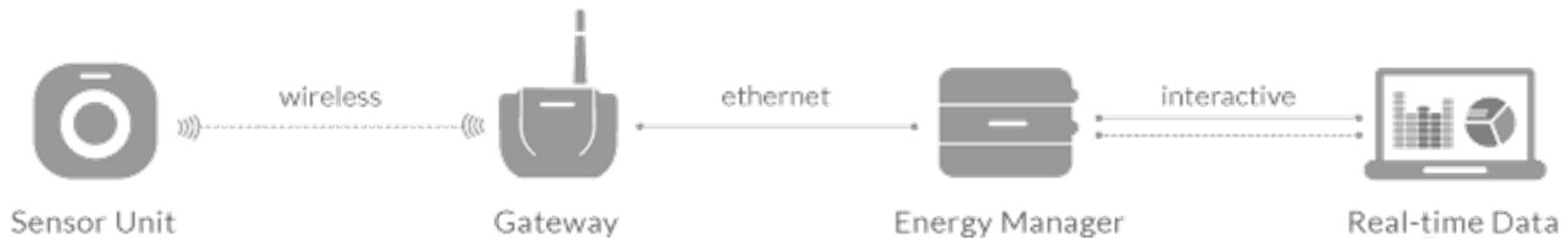
The New World of Connected Light

Peter Duine
Philips Lighting
February 2016



Trends driving changes in Lighting

- Legislation is driving field task tuning, occupancy sensing, and day-light harvesting.
 - Title 24, ASHRAE 90.1
 - Best implemented per luminaire
- Further savings?
 - Reduced time on the ladder, field commissioning, etc.
 - Ease of reconfiguration when space changes
- Group control, energy reporting, integrate into the BMS?
 - Need a network:



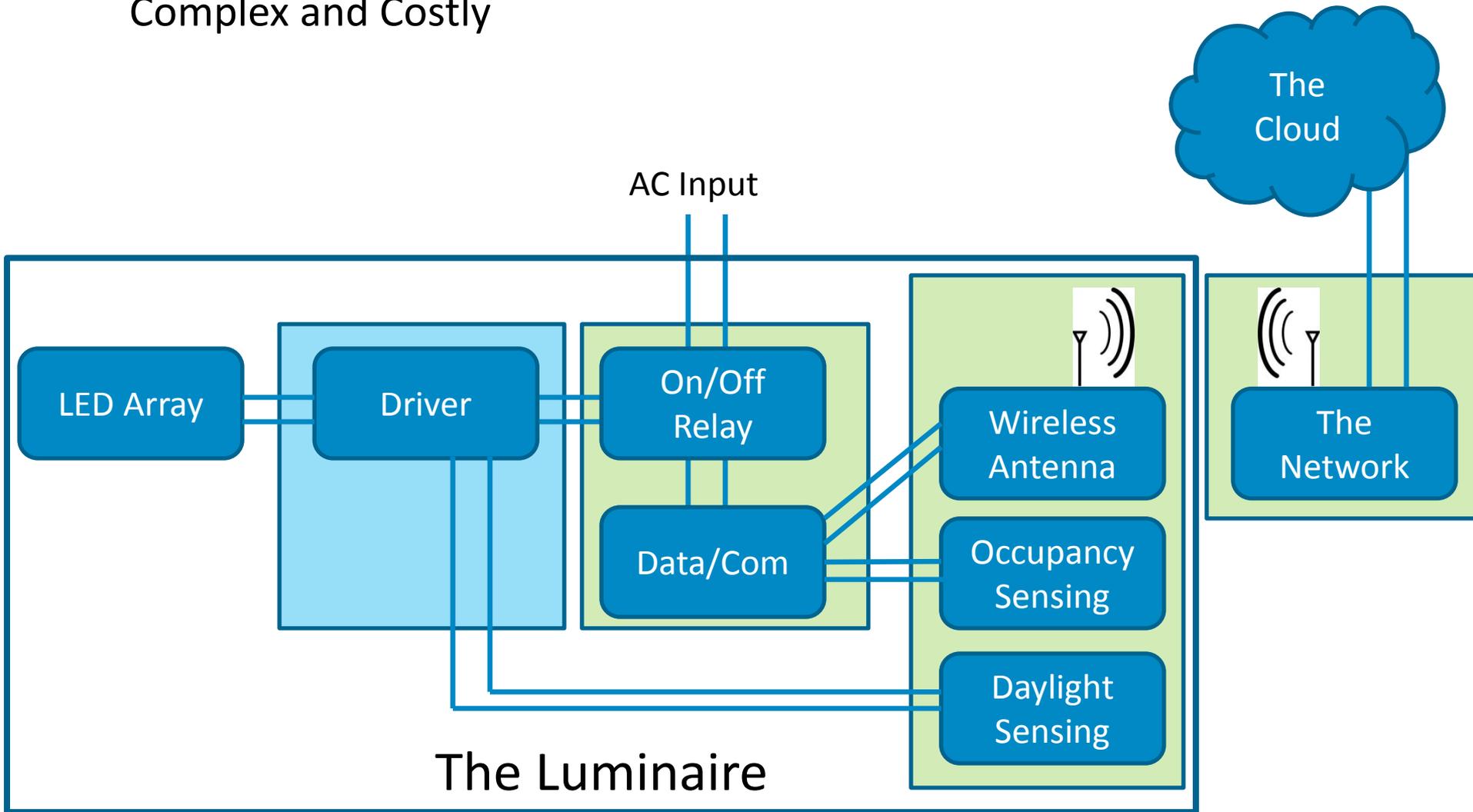
What is “Connected Lighting”?

Smart lighting fixtures will drive enhanced energy saving and make Lighting a key element in the “Internet of Things”

- **Lighting is everywhere where people are**
- **Lighting provides an opportunity for human centric data collection**
 - Luminaires become the collecting points for local information.....data nodes
- **Focus will gradually shift from energy savings to data collection for new uses:**
 - Building automation / control (HVAC, security, elevators)
 - Occupancy/space management
 - Retail engagement

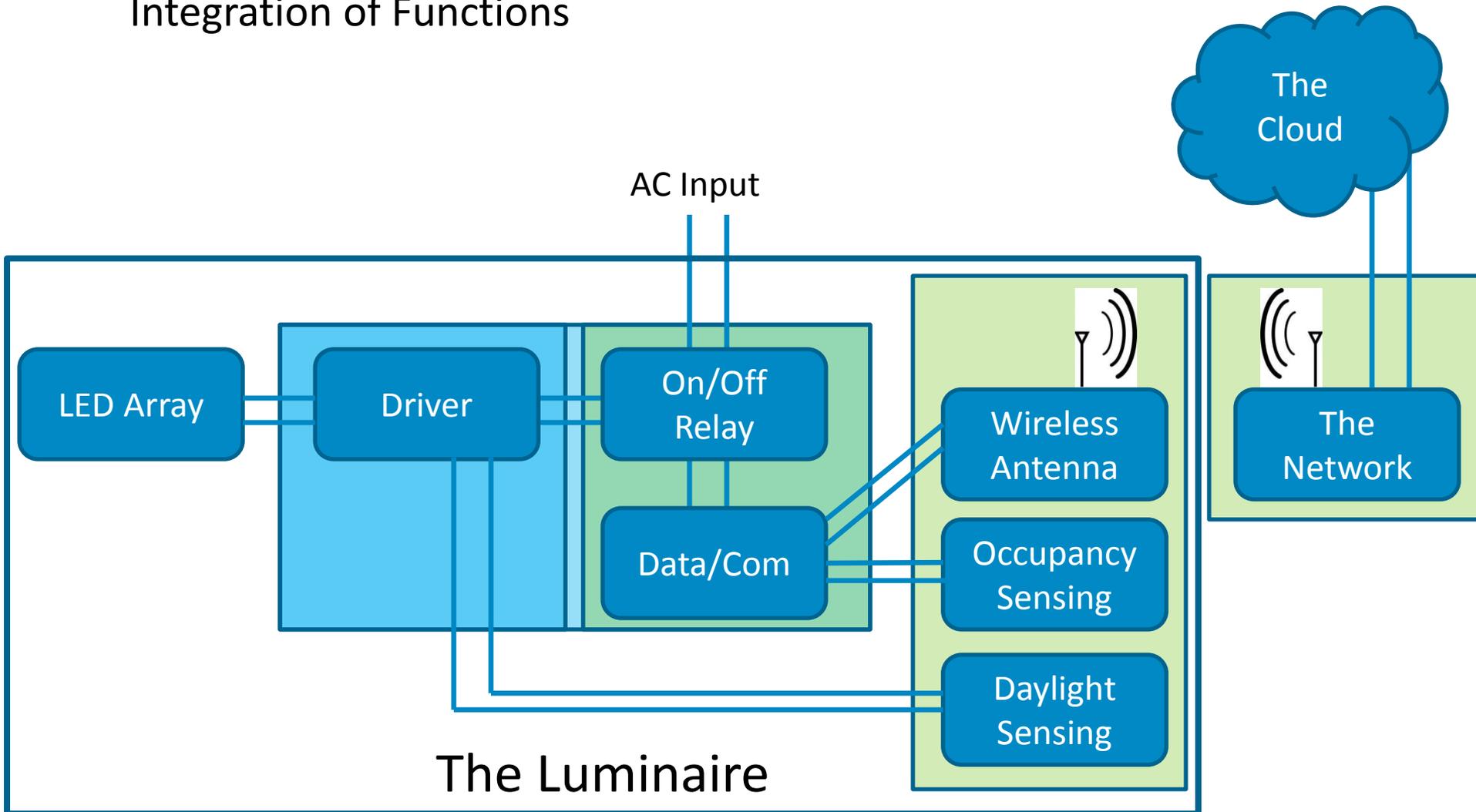
The World Yesterday

Complex and Costly



The World Today

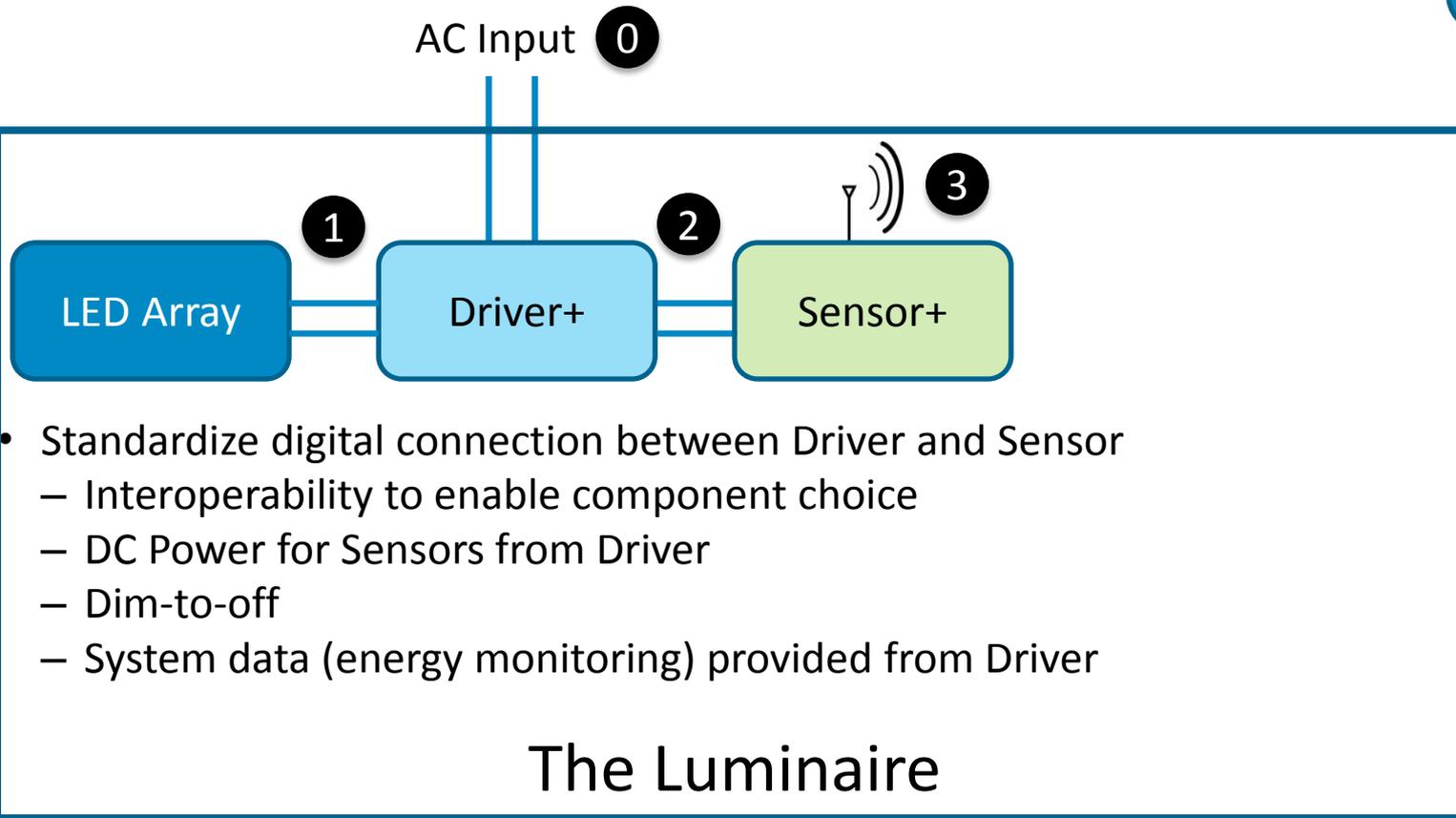
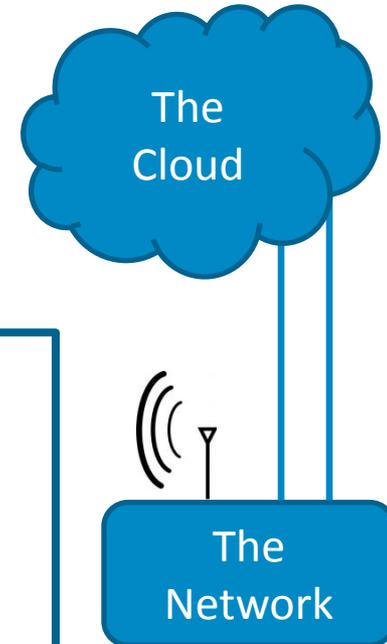
Integration of Functions



The World Today

Reduction of Complexity and Cost

- Enable every fixture as a wireless point



- Standardize digital connection between Driver and Sensor
 - Interoperability to enable component choice
 - DC Power for Sensors from Driver
 - Dim-to-off
 - System data (energy monitoring) provided from Driver

The Luminaire

Smart Lighting has taken off rapidly – why?

- The availability and adoption of low power wireless standards
 - Open standardized wireless communication protocols are now available
 - Wireless networks enable new value added functionalities: home and building automation, and reduction of energy consumption



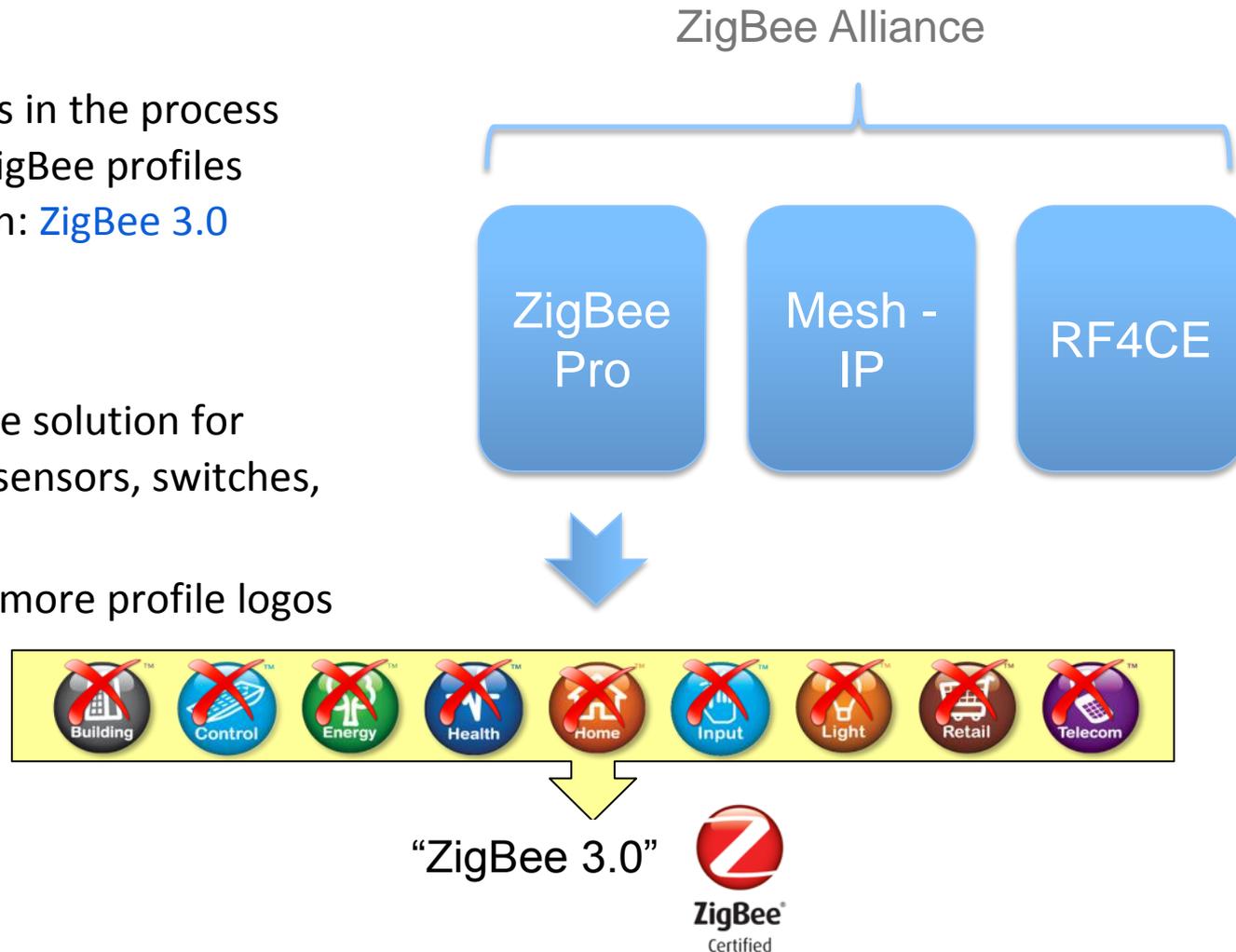
ZigBee 3.0

What is ZigBee 3.0? Background..

- The ZigBee Alliance is in the process of merging various ZigBee profiles into 1 simple solution: **ZigBee 3.0**

ZigBee 3.0 offers:

- Simplicity: one ZigBee solution for lighting, luminaires, sensors, switches, etc
- One ZigBee logo, no more profile logos



ZigBee 3.0

Status

- ZigBee 3.0 specifications were finished by end of 2015
 - ZigBee 3.0 was launched at CES 2016
 - First 3.0 certified products expected in Q2 2016
- ZigBee 3.0 is the successor of existing (ZigBee Pro based) profiles, and is fully backwards compatible with ZLL, ZHA
- Existing profiles (ZLL, ZHA, ..) will cease to exist after a sunset period (default 6 months (in discussion))
 - After sunset period, new products will have to be ZigBee 3.0 certified
 - Existing products can be supported with existing profile for maintenance, improvements, etc

Technology and Stuff

