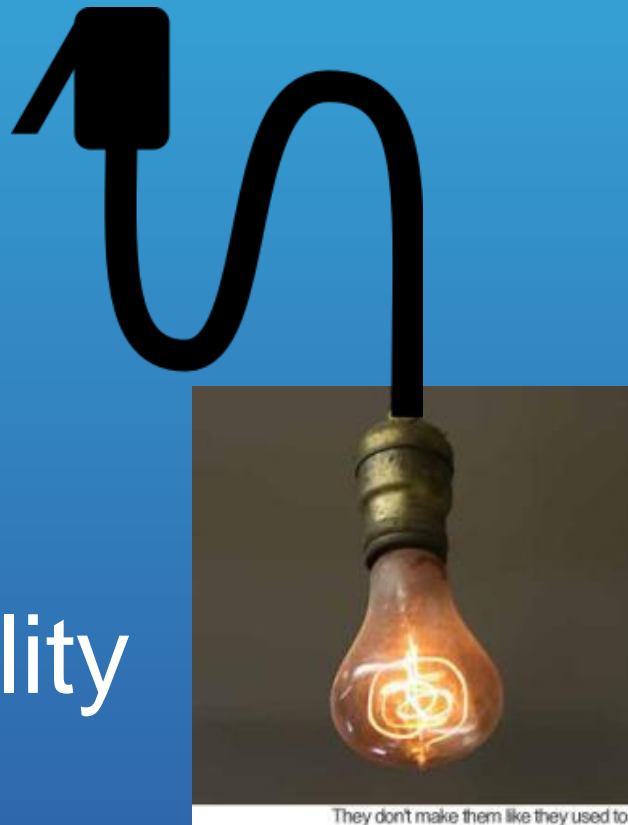# Application Interoperability

Tom Herbst, CTO, IoT Solutions

June 9, 2016

Consensus IP Lighting Controls Protocol

Golden Gate NRA, Park Archives, Fort Point Photo Collection, GOGA-2042

Standards Bodies and Industry Alliances

Institute of Electrical and Electronics Engineers

Standards body

802.3
802.11
802.15.4
802.15.7

No testing

Individual Voting Members

802.3 10BaseT
802.3af
802.3bt

Internet Engineering Task Force

Develop the Internet Protocol Suite
No formal Testing, occasional interops

Standards Body
Very Open
No Membership
No Voting

https://tools.ietf.org/html/draft-hartke-core-lighting-00

I E T F®

IP   CoAP

UDP   HTTP

IPv6   TCP

MQTT   CBOR

SensorML

WIFI Alliance

IEEE 802.11 Interoperability
    Joining
    Security
Little in the application space
Extensive Testing + Certification

7 Billion Devices Installed

2.4Ghz, 5Ghz, now 900mhz

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

WiSUN

IEEE 802.15.4G Interoperability
Utility and Smart Cities
FAN not the Application Layer
Mostly Outdoor, low bandwidth, long reach
Testing + Certification

WiSUN FAN
IPv6
6LoWPAN
802.15.4e
802.15.4g mostly 900mhz

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

ZigBee Alliance

Build on 802.15.4
Specifications including Applications
Mostly not IP
Testing + Certification

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

ZigBee Cluster Libraries
ZigBee Pro Routing
802.15.4 (mostly 2.4Ghz)

Thread Alliance

Build on IEEE 802.15.4
Indoor (mostly consumer)
IPv6 + Security
Not the Application Layer
Testing + Certification

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

IPv6 on 802.15.4 (2.4Ghz)

Open Mobile Alliance

Specifications for the Mobile Phone Space
No Formal Testing

Light Weight Machine to Machine
Application Protocol
(LWM2M)

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

TALQ Consortium

Defines API to Gateway to Outdoor Lights
Does not include the end devices
Does interops
     Planning Certification

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

Fairhair Alliance

Common Models for
    ZigBee
    BACnet
    KNX
On IPv6

CoAP based
Semantic Harmonization
Requirements to other orgs

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

Open Connectivity Forum

Full stack Profiles
IoT Centered
Doing Plug Fests now
Plan to do Certification

Not for Profit Corporation
Entity Based
BoD Membership vs Regular Members

How to move forward?

Select from existing standards and do tactical engagement in appropriate bodies

Device Application layer often not covered in bodies

Okay to innovate

CISCO
TOMORROW starts here.