

# IoT 신규 오픈 컨소시엄 동향 및 비전

*OIC : Open Interconnect Consortium*

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# Big Movement in Products



1970



1980



1990

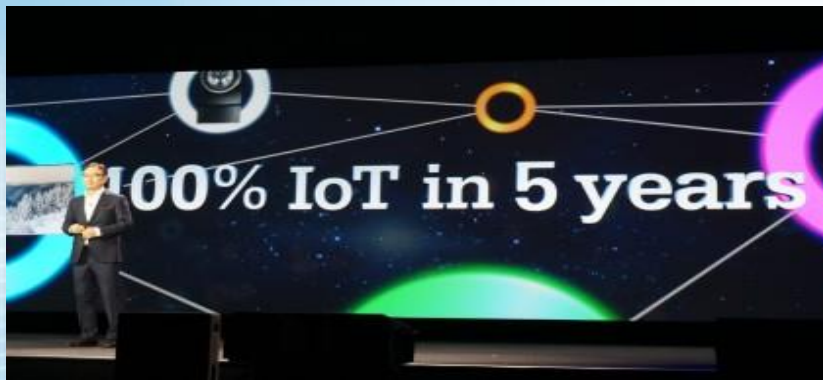


2000



2015

# 100% IoT Products in 2020



## Key is Interoperability



# Reason for Standards

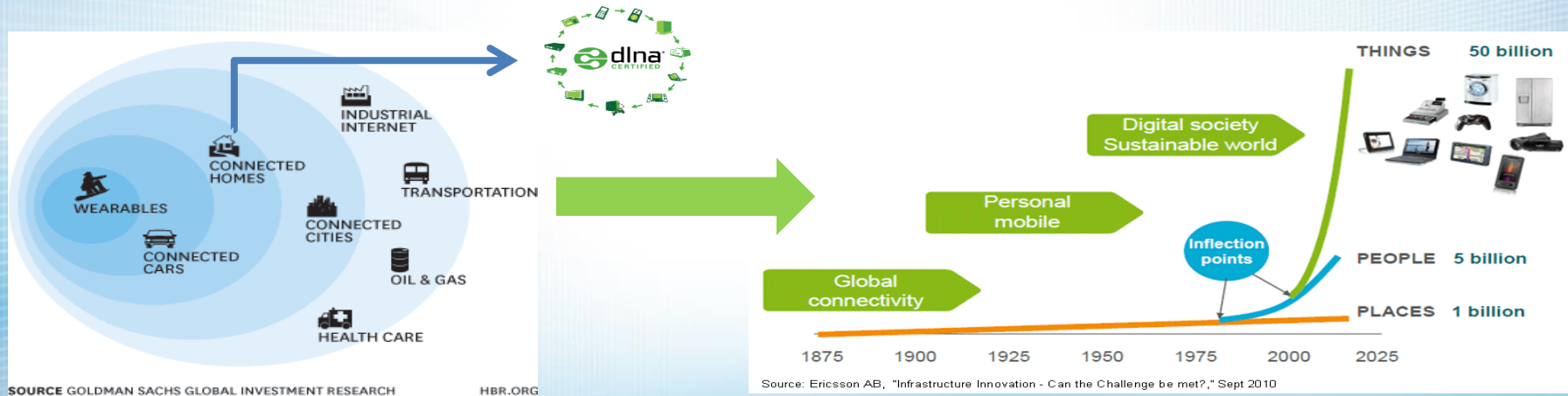


- **Interoperability**
- **Collaborative Deployment**
- **Cost Efficiency**

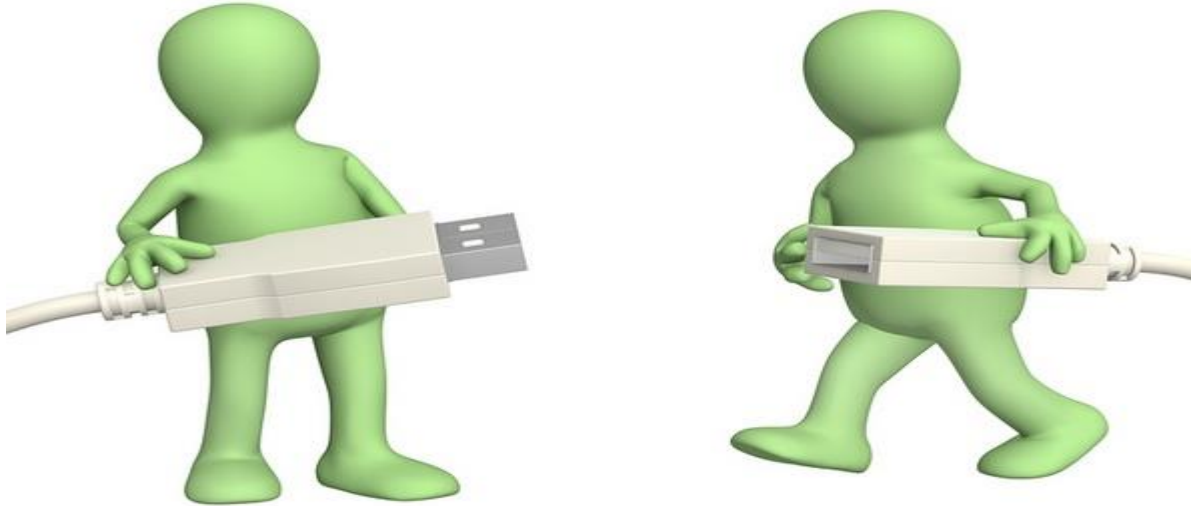
# Interoperability needs more...



# *Interoperable devices and features are tremendously growing up*



# How to Interoperable IoT ?



# Open Collaboration

*Since IoT does not mean for Samsung product only*

<https://www.youtube.com/watch?v=yMYTonV-7BQ>



**Open Source is only critical for IoT ?**



X Windows, Wayland, Cairo,  
EFL for UI & Graphics  
Gstreamer, PulseAudio, OpenAL for Multimedia  
Connman, Bluez, libsoup, wpa\_supplicant for Connectivity  
WebKit2 for Web  
SMACK & OpenSSL for Security  
Dbus, glibc for Base  
Sqlite for Database & PIM  
Linux for OS Kernel  
Eclipse for Tizen SDK  
QEMU, U-Boot for Target Emulator  
GCC, llvm, cmake, gbs for build

## CIO Journal.

FROM THE WALL STREET JOURNAL

WSJ.com

CIO Home

from Deloitte

May 9, 2014, 5:08 PM ET  
BY STEVEN NORTON

## Open Source Contributions Spawn Competitive Advantage at Sony Mobile

Carl-Eric Mols, head of open source software operations at Sony Corp.'s mobile division, says contributing directly to the open source community has cut maintenance costs and allowed it to speed up some product releases by two to four weeks, a competitive advantage that can translate to millions of dollars in new revenue.

"Contributing can make us a first market mover and give us a kind of monopoly in time," Mr. Mols told CIO Journal. Although competitors will be able to access and build upon the code, actively contributing gives Sony "the advantage that we know it best," he said.

***"About 85% of software at Sony Mobile Communications AB is open source".***

Open at the source.

As the first major computer company to make Open Source development a key part of its ongoing software strategy, Apple remains committed to the Open Source development model. Major components of Mac OS X, including the UNIX core, are made available under Apple's Open Source license, allowing developers and students to view source code, learn from it and submit suggestions and modifications. In addition, Apple uses software created by the Open Source community, such as the HTML rendering engine for Safari, and returns its enhancements to the community.

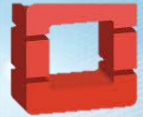
Apple believes that using Open Source methodology makes Mac OS X a more robust, secure operating system, as its core components have been subjected to the crucible of peer review for decades. Any problems found with this software can be immediately identified and fixed by Apple and the Open Source community.

Learn more about Open Source development at <http://developer.apple.com/opensource/>

Open Source Projects:

Component	Project	Version	Used In
AddressBook-Metakit	Metakit	2.4.9.2	Mac OS X, Xcode Tools
AirPortFamily	wpa_supplicant	0.3.9	Mac OS X
AKCmids	LibTIFF	3.8.2	Mac OS X, Xcode Tools
amavisd	amavisd	amavisd-new-2.6.5	Mac OS X, Server
apache	apache	2.2.19	Mac OS X, Xcode Tools
apache_mod_bw	apache_mod_bw	0.8	Server
apache_mod_encoding2	apache_mod_encoding2	20021209	Server
apache_mod_jk	apache_mod_jk	1.2.30	Server
apache_mod_perl	mod_perl	2.0.5	Mac OS X, Xcode Tools

# 8,200 individual members representing 1,000 organizations



## The Rise of Open Source: Linux and OpenStack

### Linux

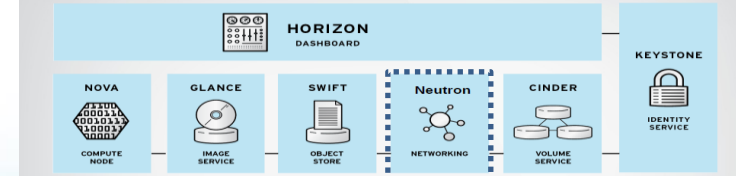
- 2013**  
94% of the world's top 500 supercomputers run Linux  
15 million lines of code are contributed by 8,000 developers and 800 companies
- 2012**  
Linux-based Android leads the worldwide smartphone market
- 2000**  
IBM announces \$1B investment in Linux
- 1999**  
IBM announces an extensive Linux project
- 1998**  
IBM, Compaq and Oracle publicly announce support
- 1995**  
Broad hardware support rapidly ramps adoption
- 1993**  
More than 100 developers contribute code to Linux
- 1991**  
The Linux kernel is developed to access large UNIX servers independent of an operating system

### OpenStack

- 2013**  
IBM unveils SmartCloud Orchestrator, a new private cloud offering based on OpenStack  
Community of 8,200+ individual members representing 1,000 organizations  
2013 predicted as the year of "OpenStack Services Firms"
- 2012**  
IBM, Rackspace, RedHat, AT&T and others establish the OpenStack Foundation  
Leading cloud technology companies as well as large ISVs bet on OpenStack for their core business
- 2011**  
Head and shoulders above the rest with respect to contributors, members, followers and community
- 2010**  
One among many competing open solutions for cloud infrastructure  
OpenStack comes out of the gate with favorable Apache license terms



## OPENSTACK ARCHITECTURE





# Why are companies increasing Open Source

## Direct Product Innovation:

Billions of dollars of free software harnessed to create products and services

## Faster Time-to-Market:

Business aligned with upstream open source projects enables faster time to market

## Better Hiring:

Organizations with strong external R&D attract top software talent



# Key Success factors for Open Source

## Fairness:

Contribution-base opportunities in community



## Business Opportunity:

Most of contributors aim to make a value not just fun



## Clearer License & IP Policy:

Fast and wide adaption in the market without any concerns

## Friendly Image and Open Culture to Company

# 5 ways to make money with open source

– Aaron Weiss

**Sell Support Contracts**

**Sell Value-Added Enhancements**

**Sell Documentation**

**Sell Binaries**

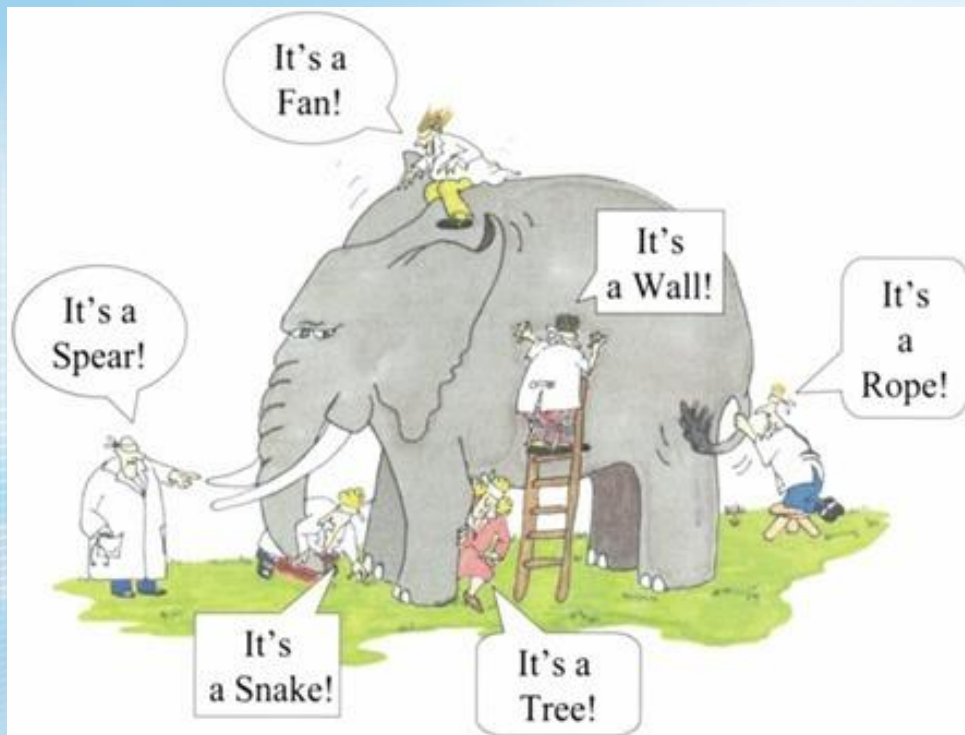
**Sell Your Expertise as a Consultant**

# So...Open Source or Standards ?





# Why a new Consortium



## What is IoT ?

# Goal

- **Single solution** covering **interoperability** across multiple vertical markets (Consumer, Enterprise, Industrial, Automotive, Health, etc...), OSs, platforms, modes of communication, transports and use cases



# OIC: IoT Connectivity



OPEN  
INTERCONNECT  
CONSORTIUM

SAMSUNG

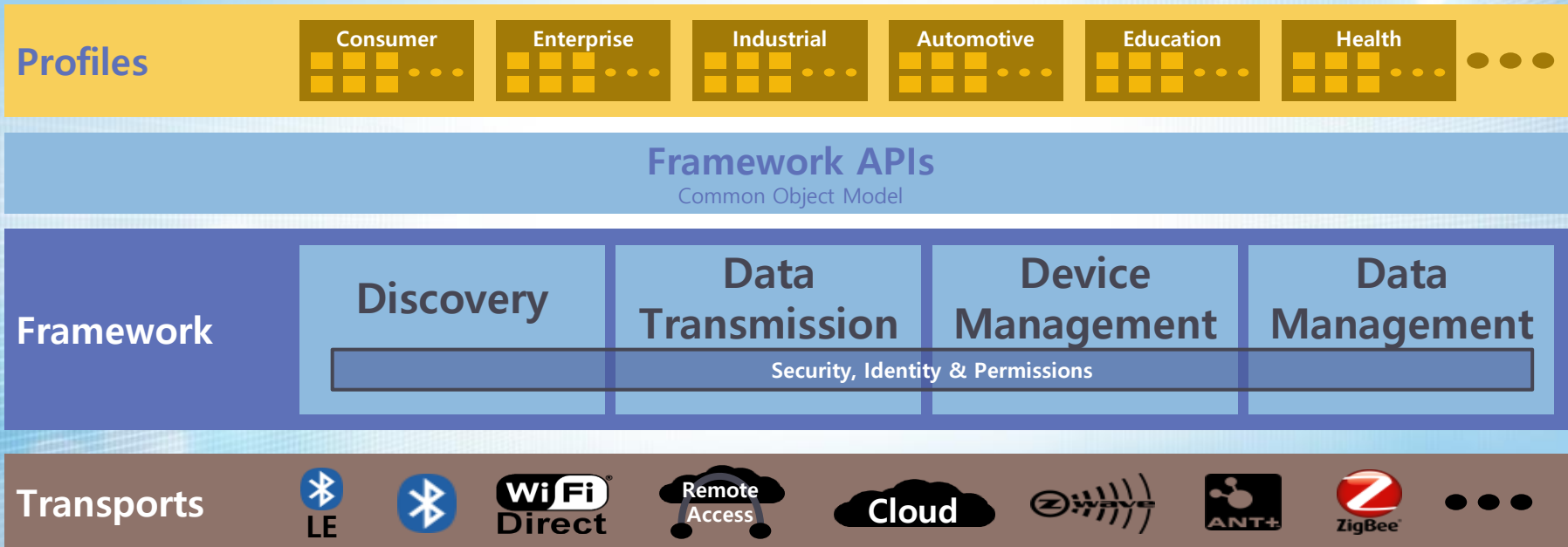


OIC: [www.openinterconnect.org](http://www.openinterconnect.org)  
IoTivity: [www.iotivity.org](http://www.iotivity.org)

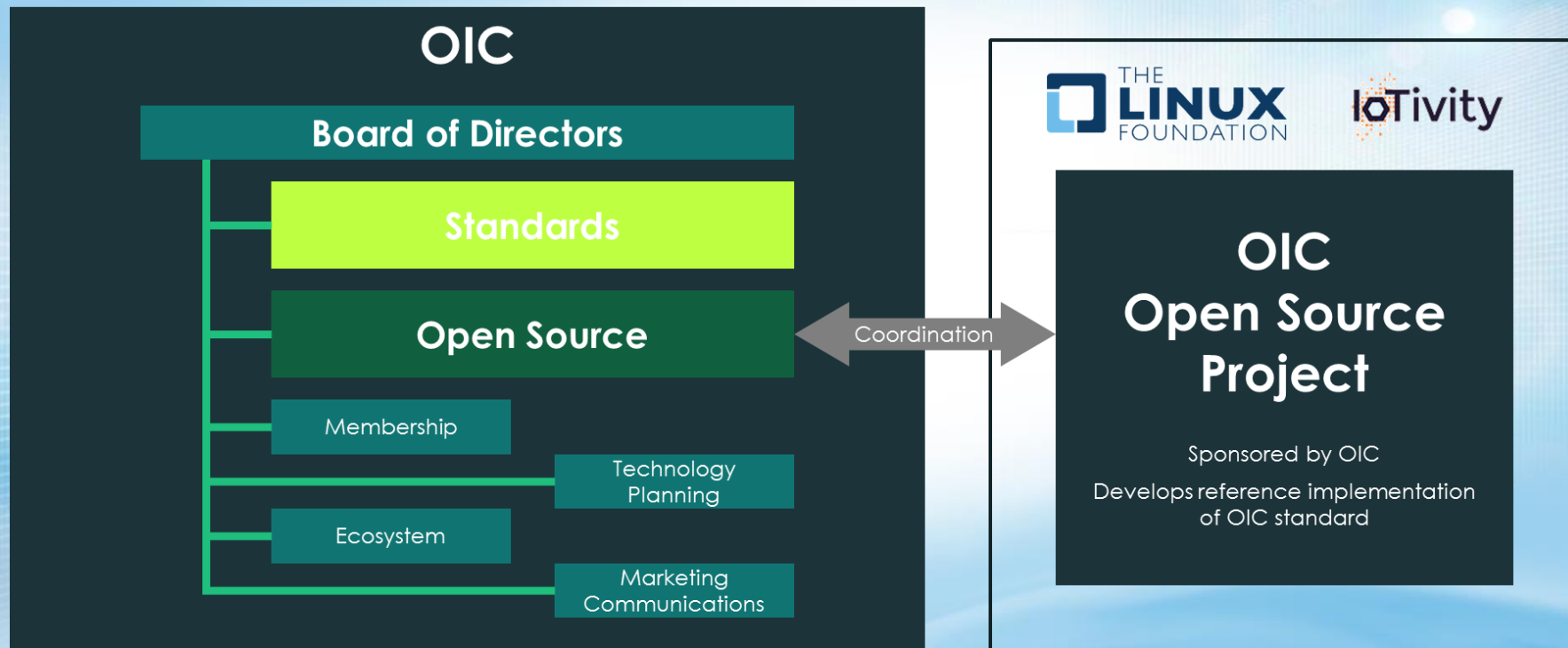
**“OIC is a standard & open source project that delivers “just-works” interconnectivity for developers, manufacturers and end users.”**



# Conceptual Architecture

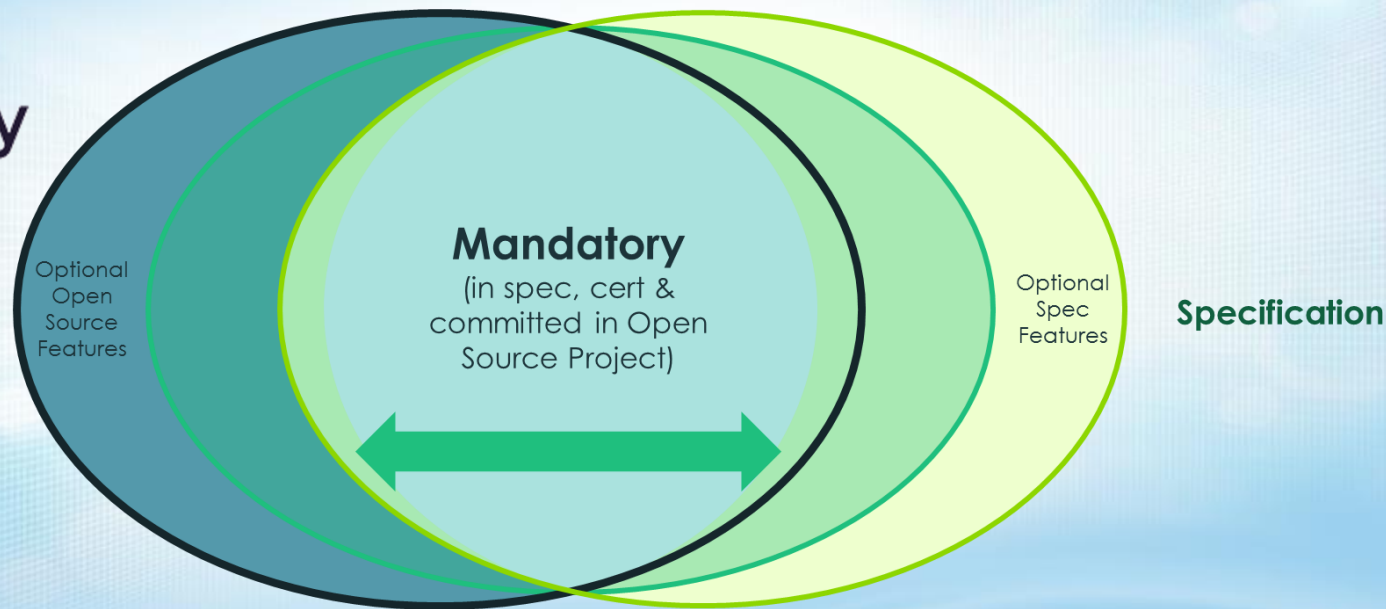


# Governance Structure



# Open Source & Standard Mechanism

IoTivity



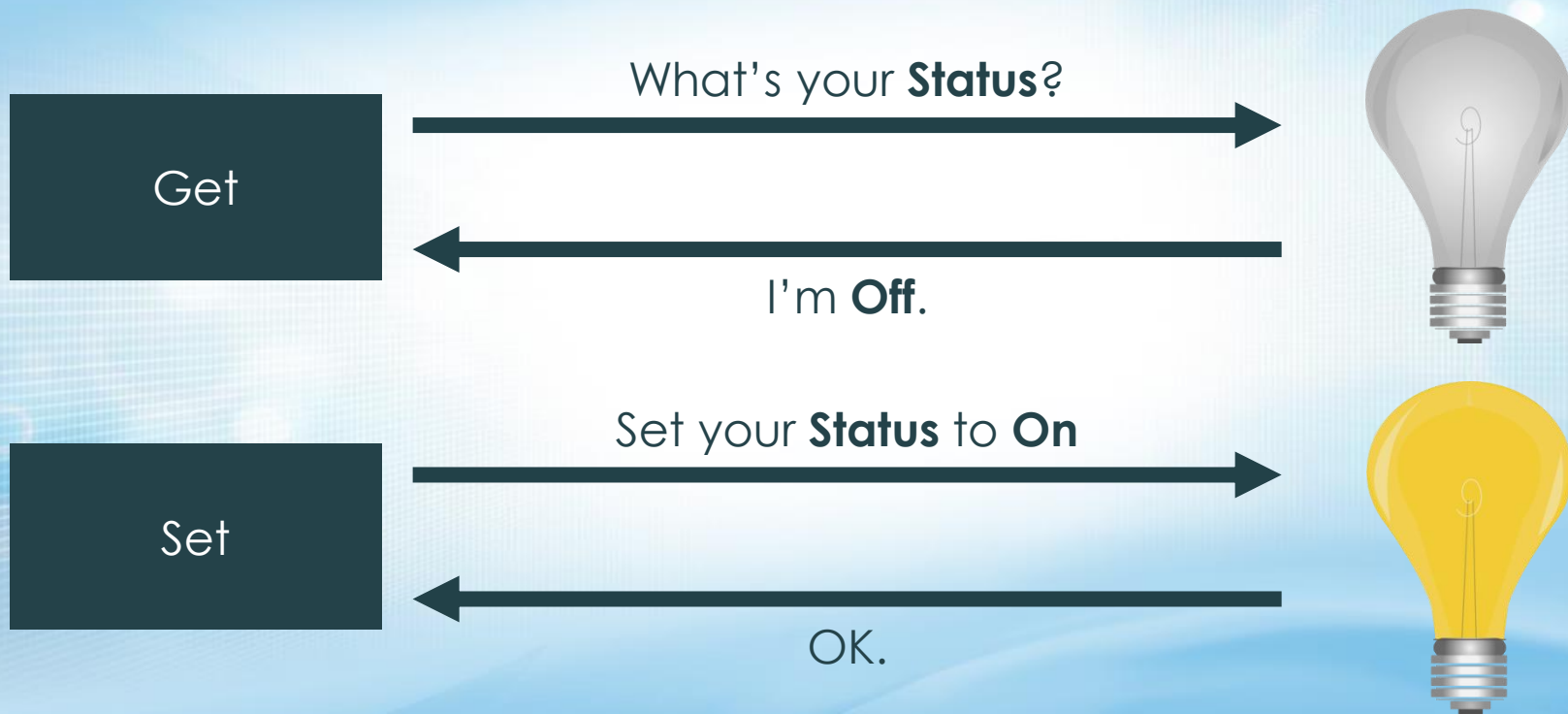
Interoperability Certification

# IP Policy

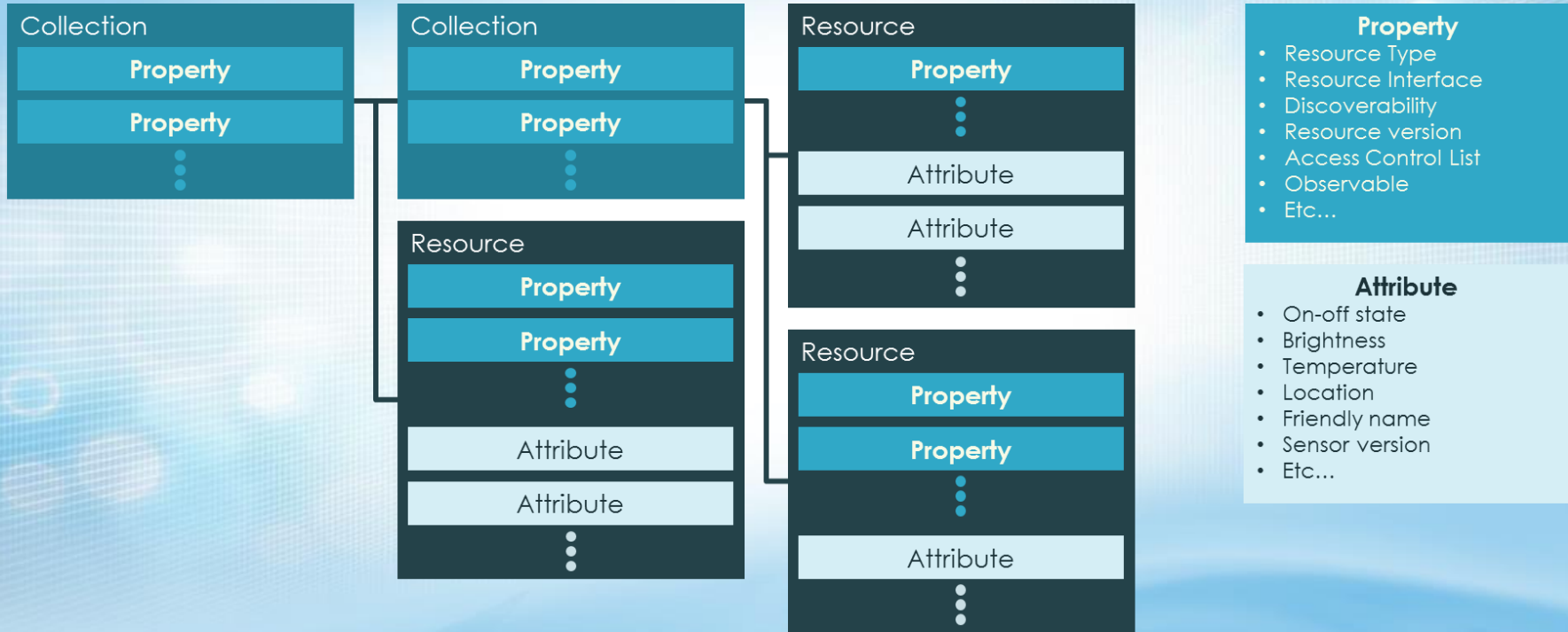
- OIC is a royalty free organisation
- Open Source – Apache 2.0
  - Copyright & patent coverage for submitted code
- Standard – RANDZ
  - Cross licensing of patent claims covering “Compliant Portions” of a member company’s certified products



# OIC: Protocols



# OIC: Resources and Structures



# Light OIC Resource Example

Resource
Light
Status: On/Off



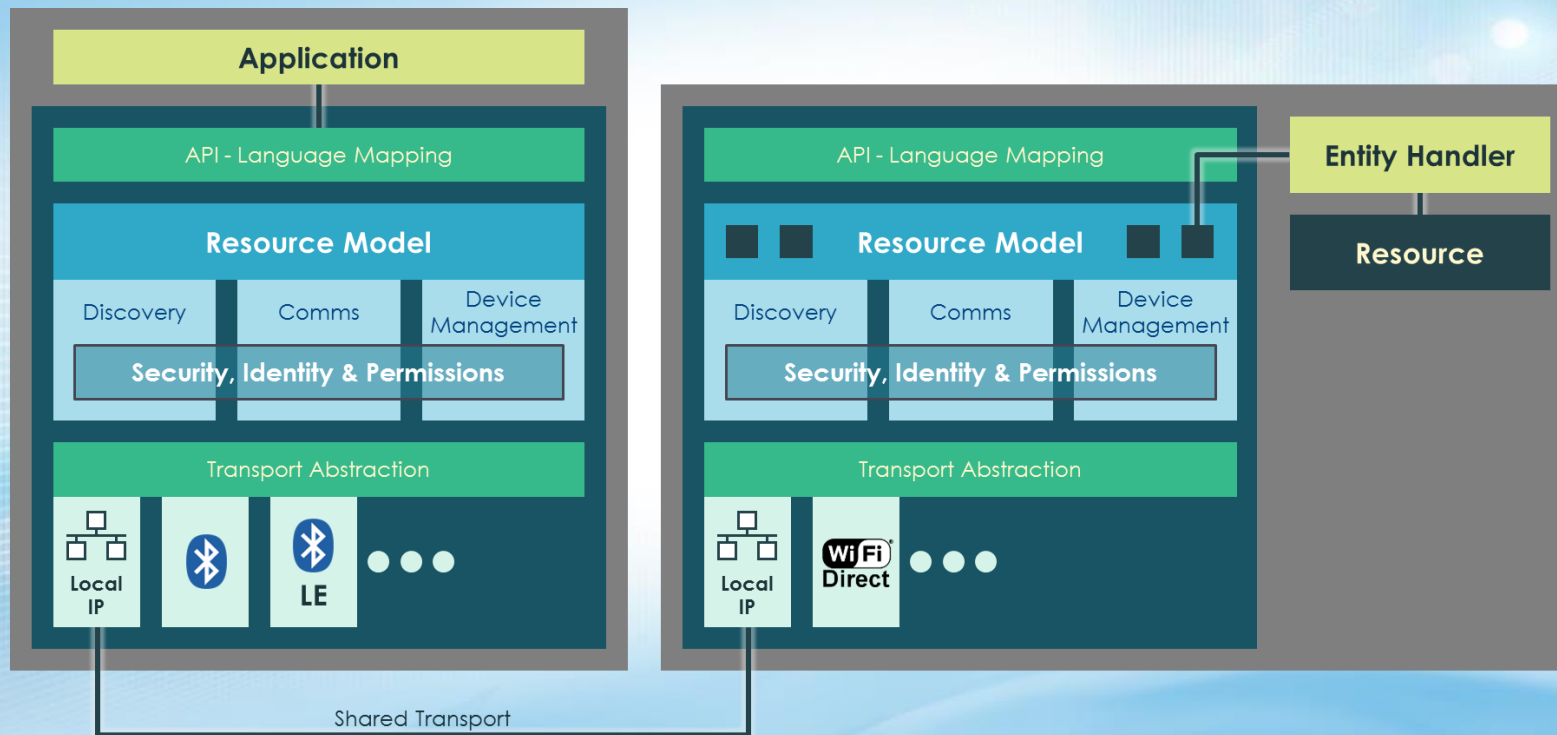
Resource
Light
Status: On/Off
Dimming: 0-100



Resource
Light
Status: On/Off
Dimming: 0-100
Hue: RGB
Hue: HSL
Colour Temp: K

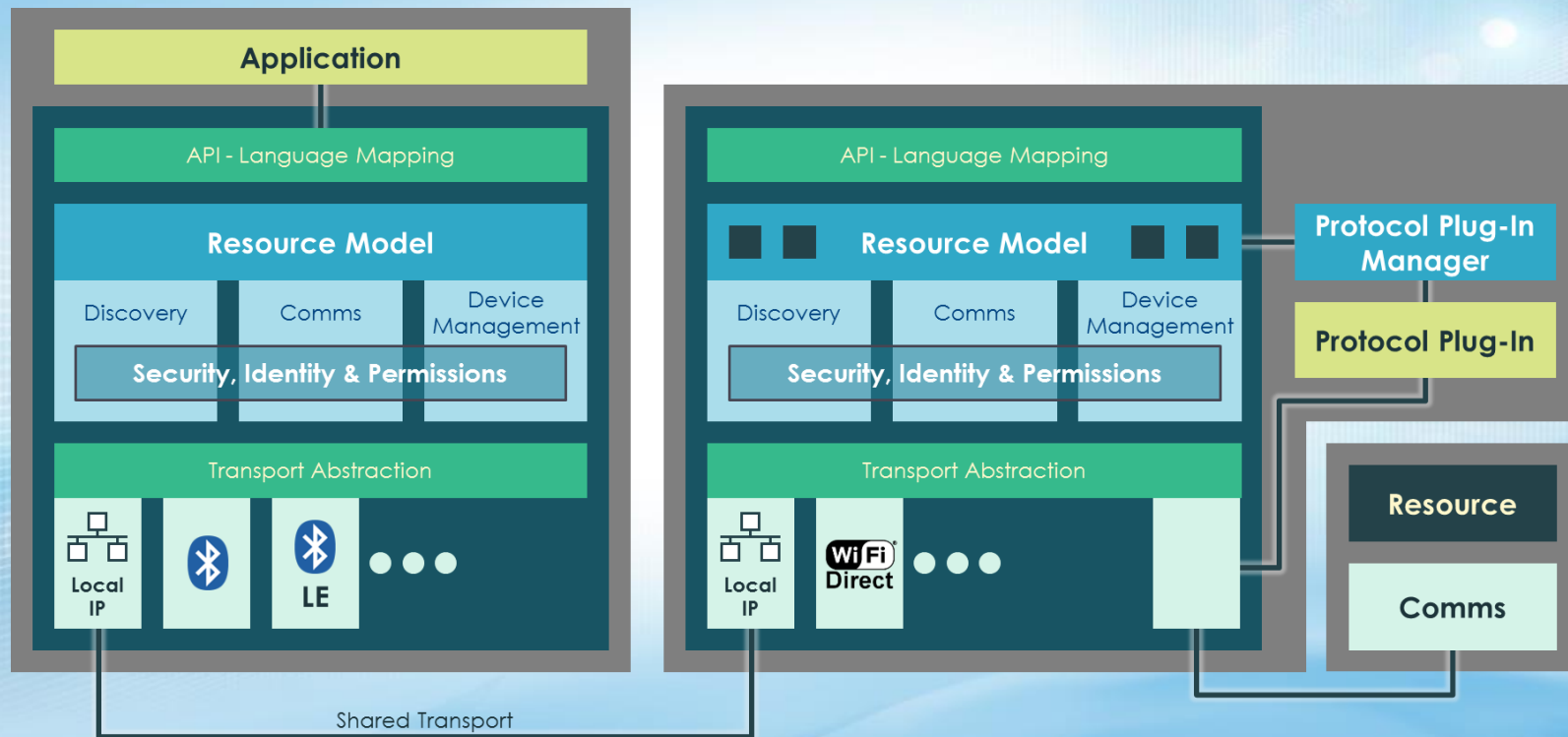


# Accessing OLC Resources





# Accessing non-OIC Resources



# OIC Membership

- – Included / Guaranteed
- – Eligible, but must be elected/appointed
- 1 – For companies with annual revenue <\$5M

		Board	Open Source	Standards			
		Director	Use & Contribute to OS Project	Lead Work Group or Task Group	Vote	Participate	Certify Products (IP Pool)
Diamond	\$350K	●	●	○	●	●	●
Platinum	\$75K	○	●	○	●	●	●
Gold	\$1K <sup>1</sup> -\$10K		●			●	●
Individual Member	\$0		●			●	
Non-Member			●				

# How You Can Use OIC Technology...

- Use the code from IoTivity.org
  - Open to any individual or company
  - Code is available at [IoTivity.org](http://IoTivity.org) under the Apache v2.0 license
- Join as a Gold member
  - Certify spec compliant apps and devices
  - Use OIC branding
  - Benefit from patent cross-licensing protection
  - Go to [www.openinterconnect.org](http://www.openinterconnect.org) for membership agreement, etc...

OIC, Oh I See...!!!