

Una reale interoperabilità con zigbee

Bruno Vulcano

R&D Manager – Legrand Group RF skills center & Digital Network devices

Vice Chairman of the zigbee alliance

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Our vision:

We believe all objects can work together in a way that enhances the way we live, work, and play.

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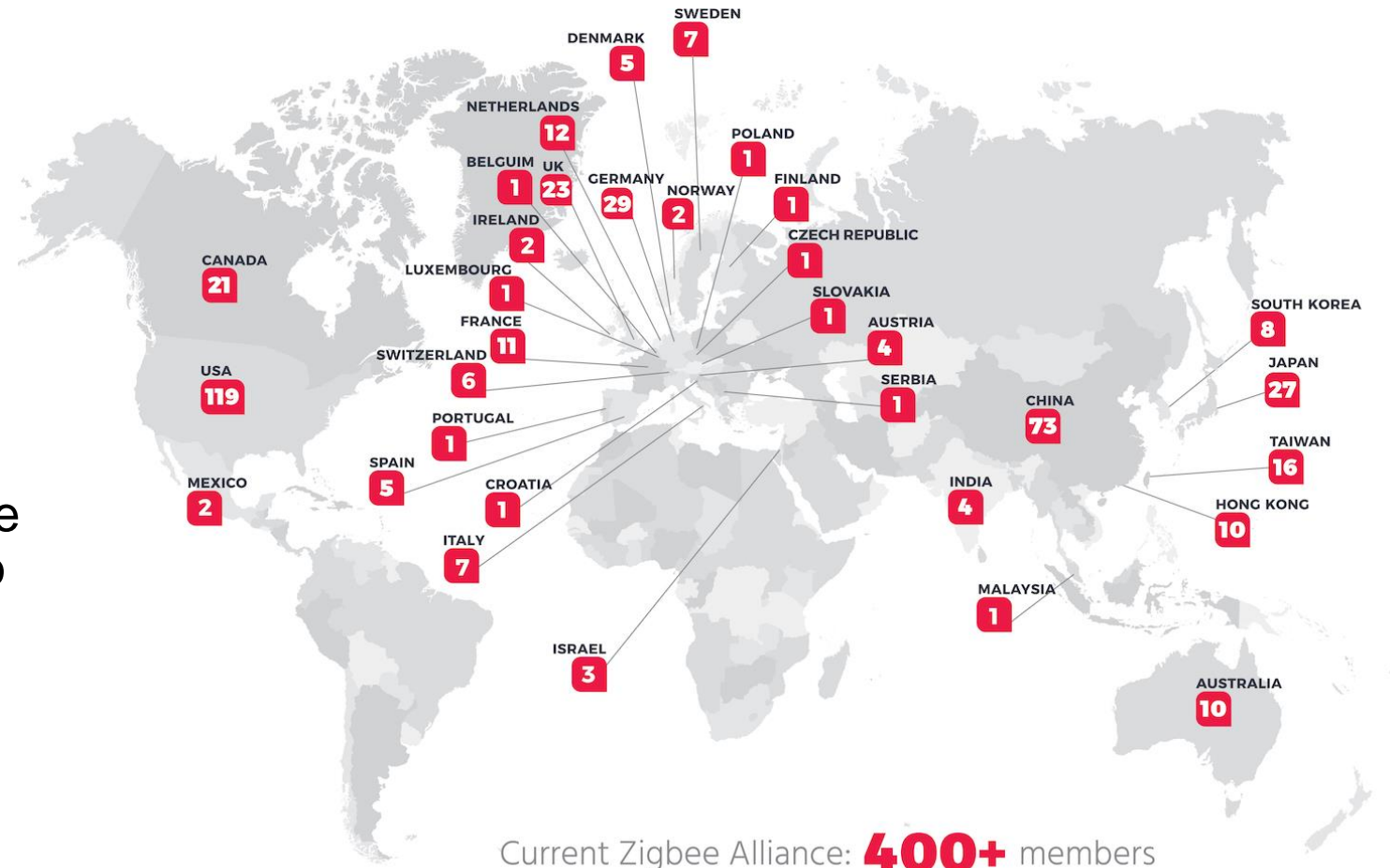
Our mission:

The Zigbee Alliance ignites creativity and collaboration in the Internet of Things by creating, evolving, and promoting universal open standards that enable all objects to connect and interact.

We are the standard bearer of the open IoT

Established in 2002, our wide-ranging global membership collaborates to create and evolve universal open standards for the smart networks in our homes, businesses, and neighborhoods.

Our standards are the only complete IoT solution – from mesh network to the universal language that allows smart objects to work together.



Our Board of Directors



Chairman of the Board: John Osborne, LEEDARSON

Vice-Chairman of the Board: Jean-Pierre Desbenoit, Schneider Electric

Vice-Chairman of the Board: Bruno Vulcano, Legrand Group

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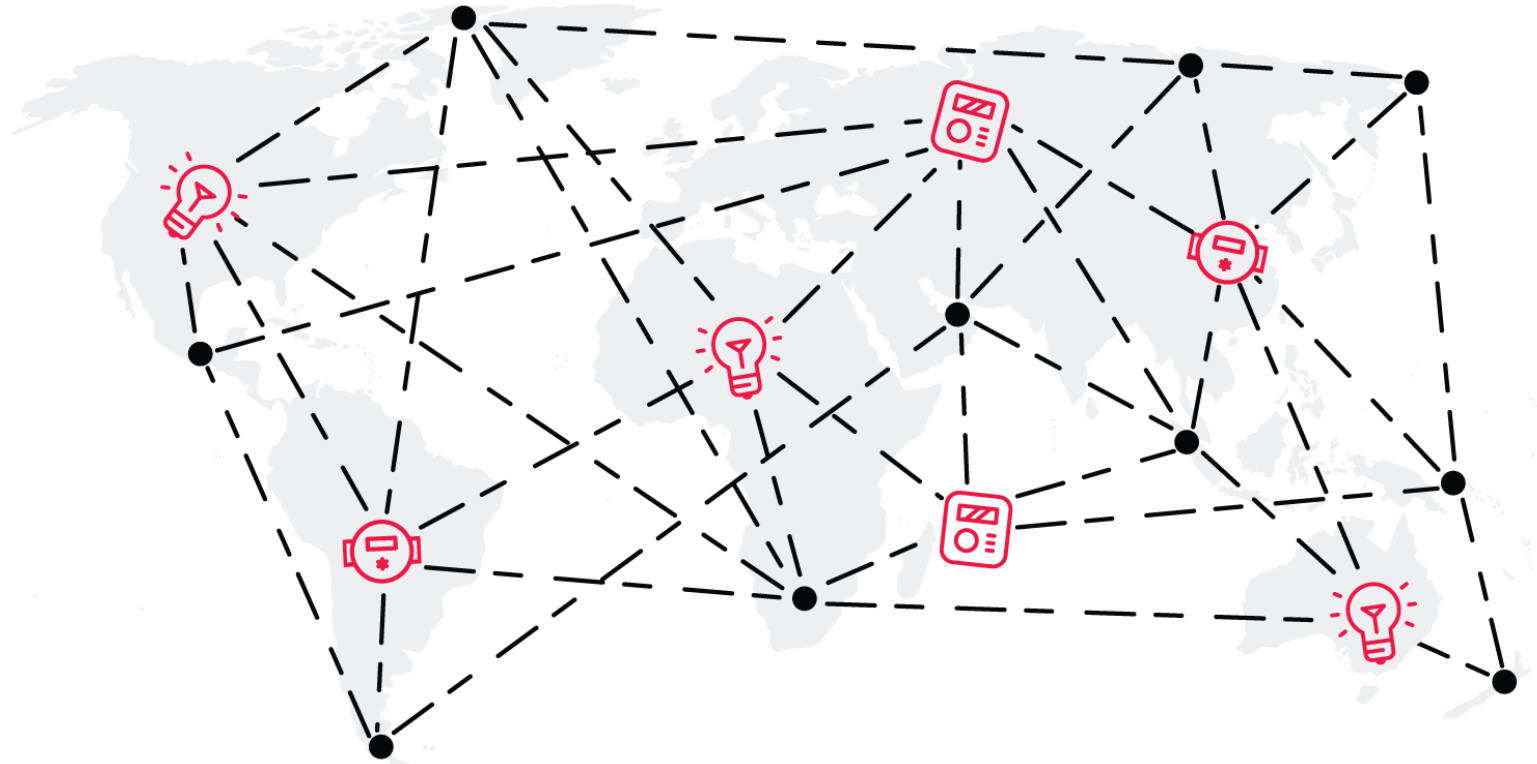
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What we do

Develop open, global standards for wireless device-to-device communication for the IoT (Internet of Things).

Certify products to help ensure interoperability through our Certified program.

Promote the use of our standards around the world.



Status of the Alliance

- By 2023, **3.8 billion Zigbee devices** will be shipped worldwide.
- **"In 2023, Zigbee PRO will make up the majority (48%) of the smart building 802.15.4 unit shipments** with Thread/other 6LoWPAN making up 39% by this time and other 802.15.4 (12%). "
- "...Wireless mesh sensor network standards have made 802.15.4 the predominant networking technology for the Internet of Things.

- ON World

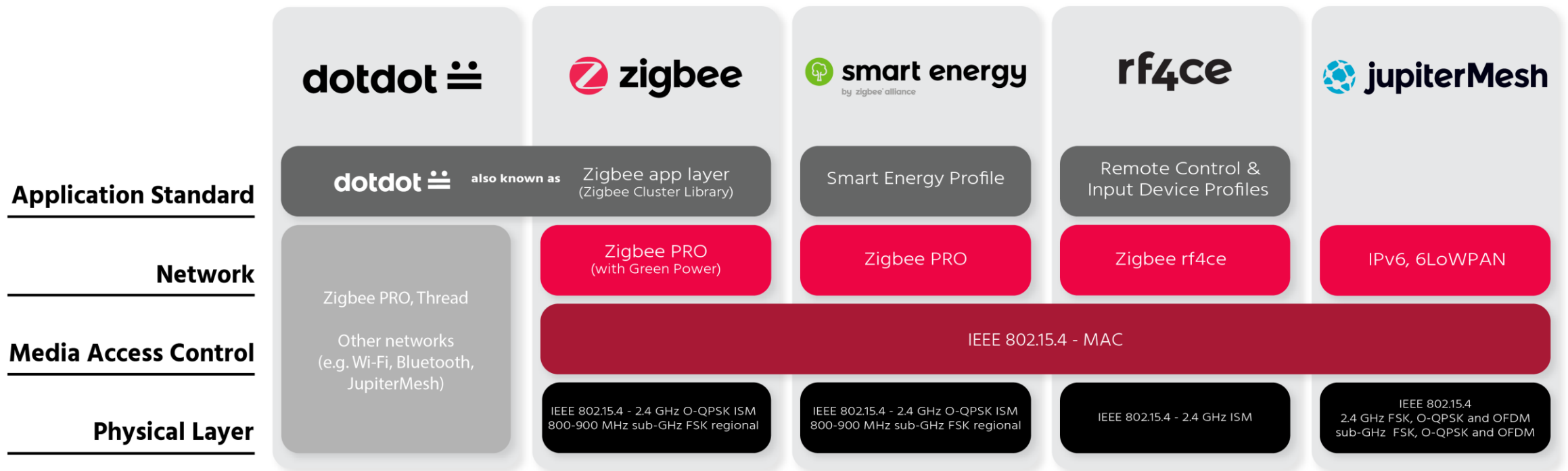
Download the full report at:

<https://onworld.com/zigbee/execsum>

The Technology

The Alliance Family of Technologies

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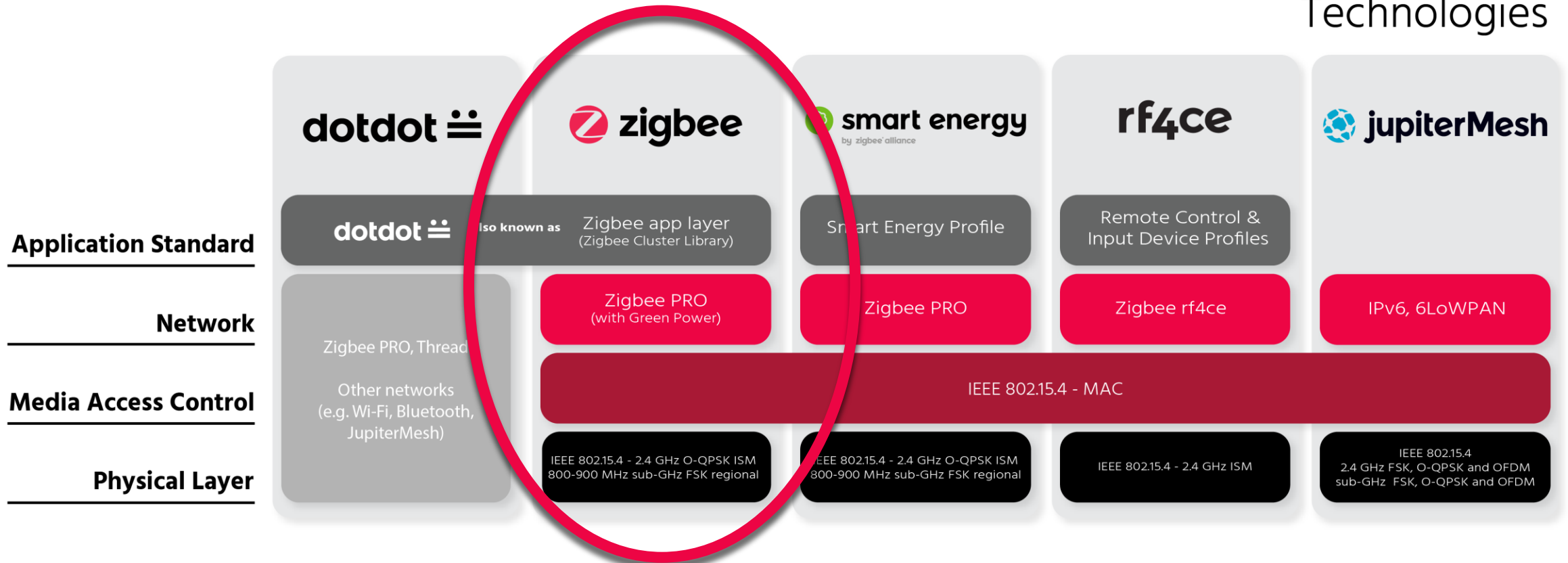
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Zigbee: The standard for the IoT

Also known as “Zigbee 3

Watch zigbee3.0 video: [Zigbee consolidation](#)

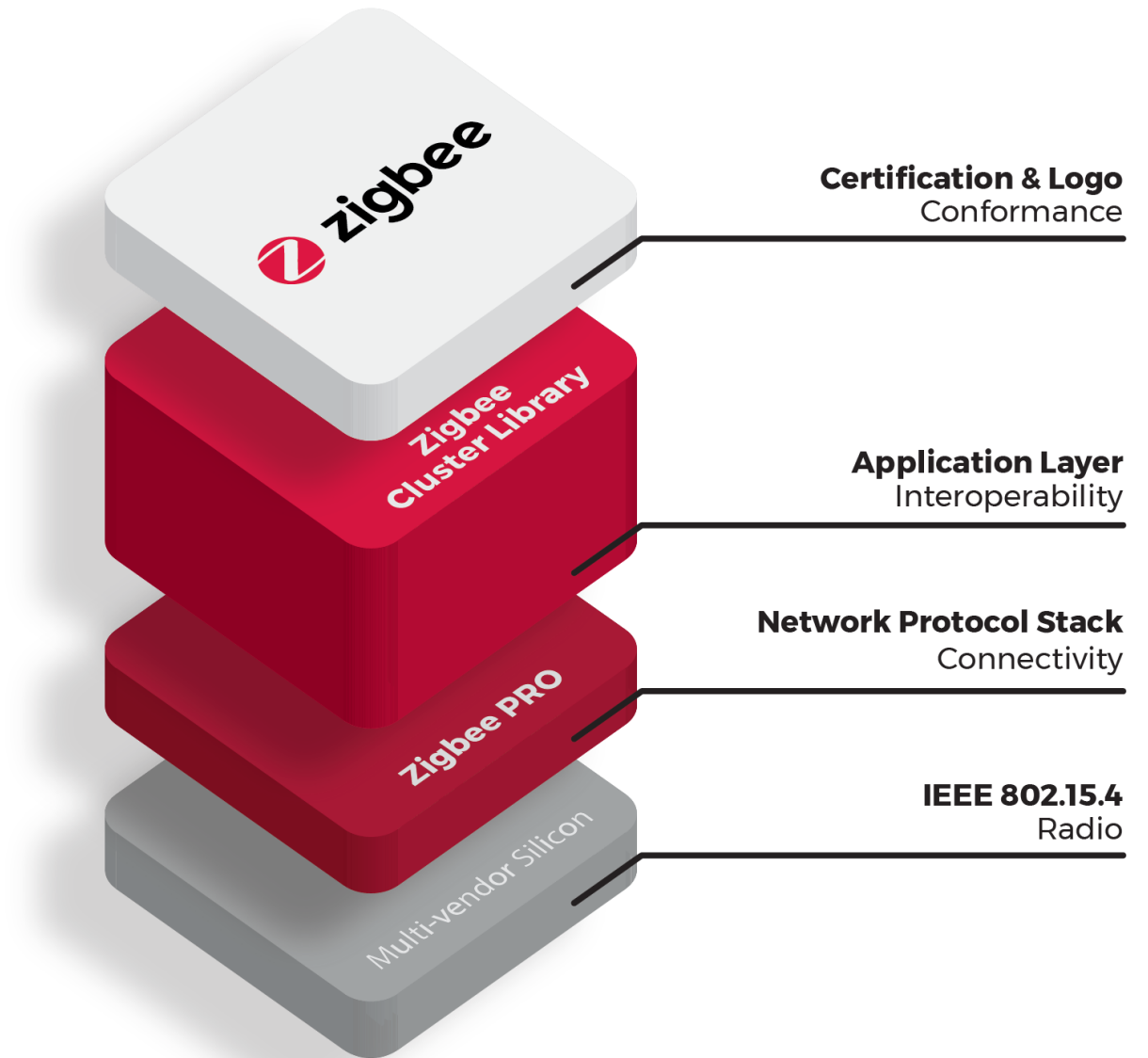
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Zigbee is the only complete IoT solution — from mesh network to the universal language that allows smart objects to work together.

Zigbee increases choice and flexibility for users and developers, and delivers the confidence that products and services will work together through standardization and testing of all layers of the stack.





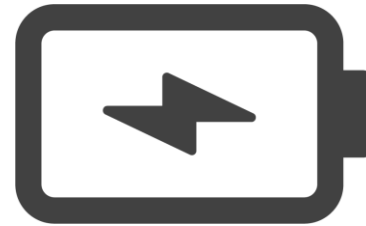
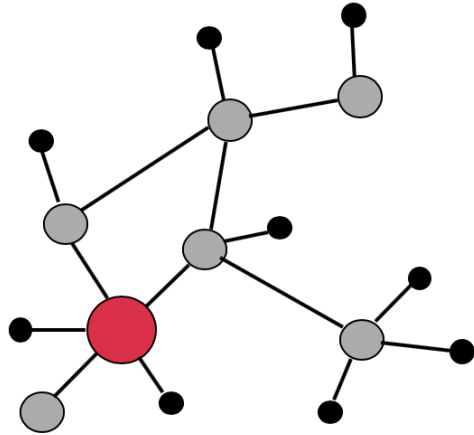
Why Zigbee?

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Why Zigbee is leading the industry



Security & Safety
HVAC
Lighting
Retail
Sensing
Commissioning
Energy metering
Appliances
Telecommunication



**Flexible
self-organizing mesh**

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+

**Ultra
low-power
/
Battery Less
device**

+

**Library of
applications**

Applications

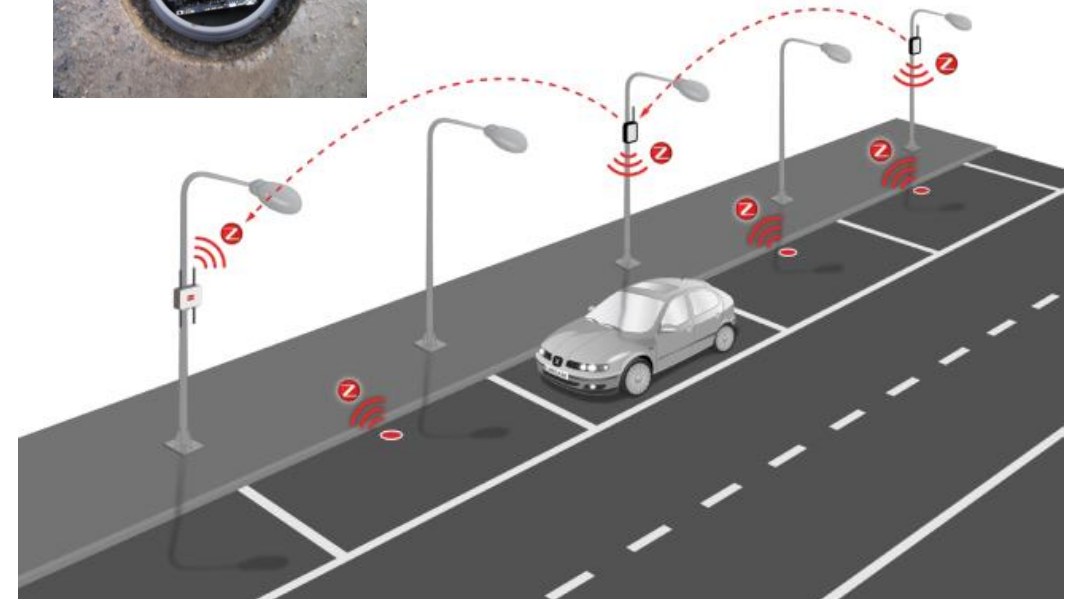


**Aria Hotel City Center,
Las Vegas:**
+ 100,000 Zigbee
devices



GM Spring Hill Plant:
28,773 connected lights,
20 million square feet

Hampshire City Council, Hampshire UK:
90,000 connected street lights



Zigbee PRO

(the networking stack in Zigbee technology)

Zigbee PRO 2017 – Our wireless mesh network technology

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Green Power Feature of Zigbee PRO

- Green Power is a feature of Zigbee PRO networks.
- It integrates battery-less (energy harvesting-based) or lifelong battery-operated devices into the Zigbee network.
 - Key benefit: Adds nodes/devices to the network that are virtually completely maintenance-free
- Green Power adds green capability to Zigbee by eliminating battery usage and waste.
- Read the full white paper: <http://www.Zigbee.org/Zigbee-for-developers/Zigbee/>



**The Alliance has
made building Zigbee
devices easy**

Building a Zigbee device



1. Development

Zigbee Compliant Platforms

- **More than 2,500 Zigbee products** have been built and certified on our Compliant Platforms.
 - Includes 250 manufacturers using Zigbee standards for smart home, smart building, and connected city
- **More than 20 Compliant platforms** to choose from that support Zigbee & wide industry support
- **Silicon from eight major vendors** now certified, with many more module, software and integration support members ready to help product developers build Zigbee products



1. Development

Technical Specifications

Solution	Description
Network Protocol	Zigbee PRO 2015 (or newer)
Network Topology	Self-forming, Self-healing MESH
Network Device Types	Coordinator (routing capable), Router, End Device
Network Size (# of nodes)	Up to 65,000
Radio Technology	IEEE 802.15.4-2011
Frequency Band / Channels	2.4 GHz (ISM band) 16-channels (2 MHz wide)
Data Rate	250 Kbits/sec
Security Models	Centralized (with Install Codes support) Distributed
Encryption Support	AES-128 at Network Layer AES-128 available at Application Layer
Communication Range (Average)	300+ meters (line of sight) 75-100 meters indoor
Low Power Support	Sleeping End Devices Zigbee Green Power Devices (energy harvesting)
Legacy profile support	Zigbee 3 devices can join legacy Zigbee profile networks. Legacy devices may join Zigbee 3 networks (based on network's security policy)
Logical device support	Each physical device may support up to 240 end-points (logical devices)

2. Testing

The Zigbee Test Harness

The Test Harness is an affordable way to enable product developers to check the functionality of their implementations before starting the official testing process.

This brings a common test platform to all labs, and is available to members



2. Testing

Authorized test service providers

Zigbee devices can be tested at any of its five authorized test service providers, at any of their worldwide locations



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3. Certification

Certification Programs

After testing, the Zigbee Alliance will review submissions.

Approved devices will then be able to display the Zigbee Certified logo, and **join the global ecosystem of half a billion Zigbee devices with confidence that the device will be interoperable.**



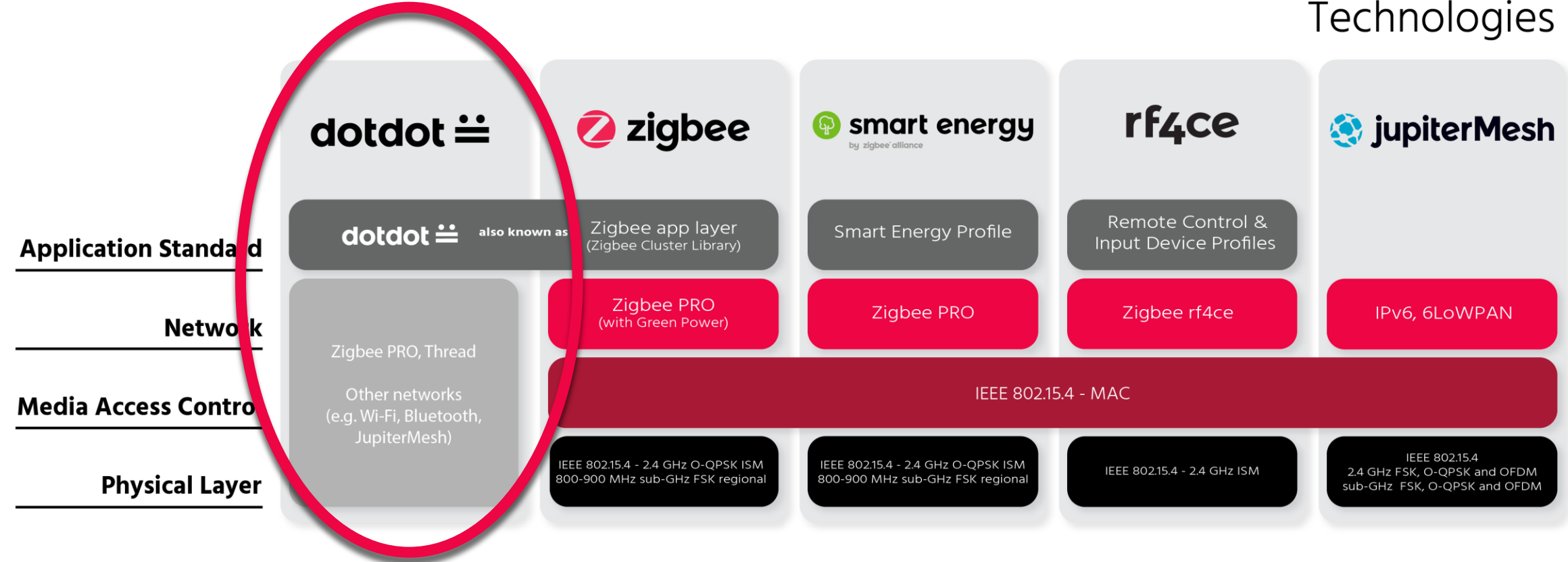
dotdot

**Dotdot: our universal
application layer**

Dotdot: The standard for the IoT application layer

see dotdot Video. dotdot video

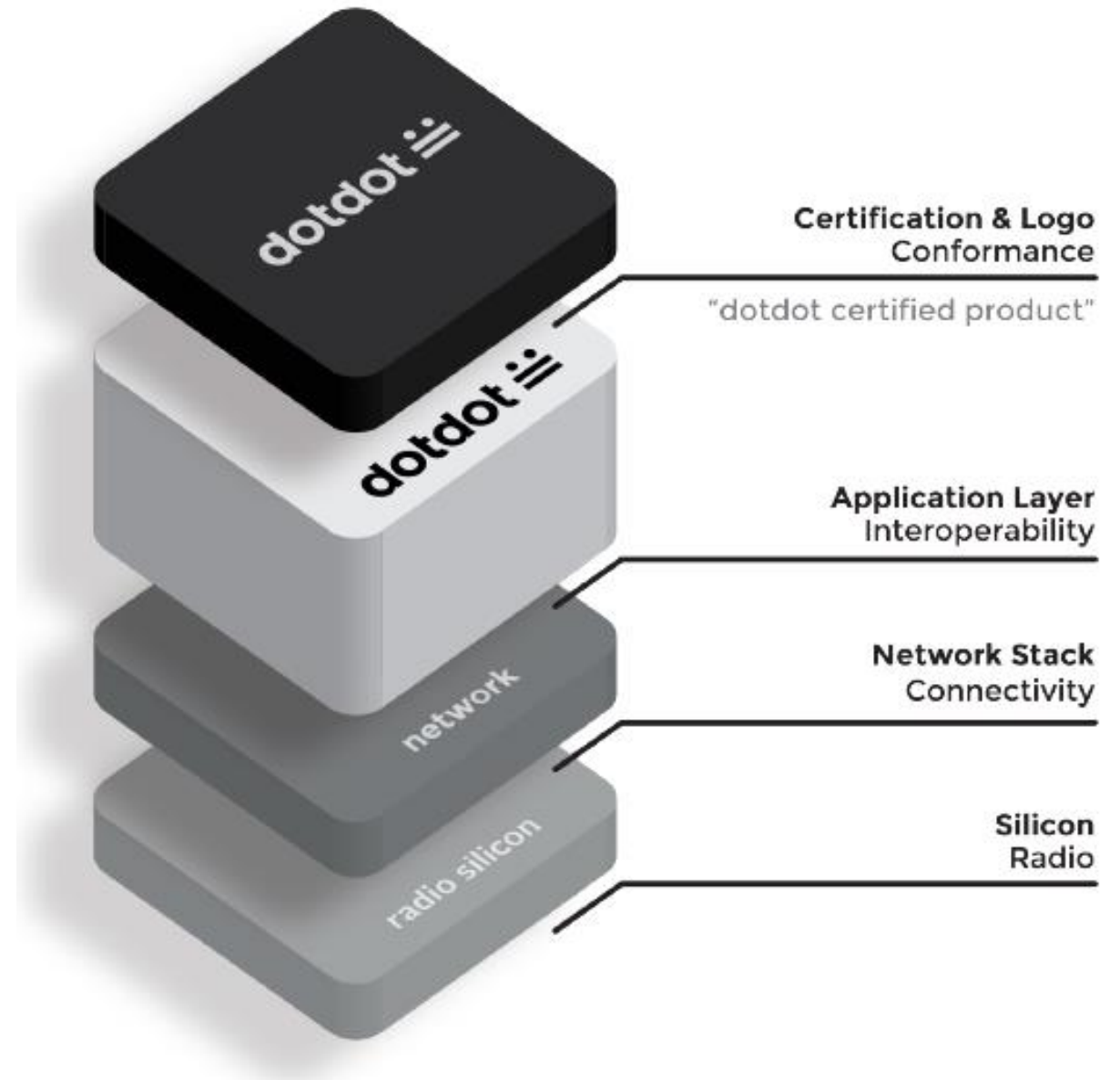
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Dotdot is the first open, interoperable, certified application layer that can run over any network.

Based on our Zigbee Cluster Library, it comes to market with maturity and an ecosystem of suppliers, manufacturers, and experts.

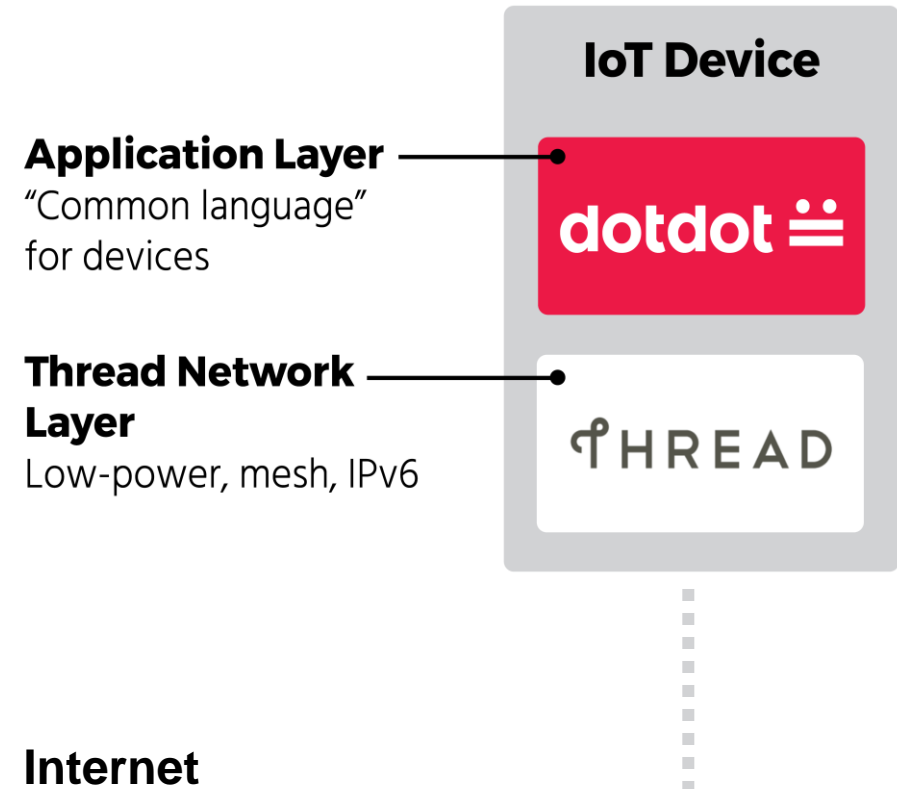


Dotdot + Thread

The first open, interoperable device language running over an Internet (IP) based network.

Open, universal protocols like HTTP over IP unlocked and accelerated innovation on the Internet.

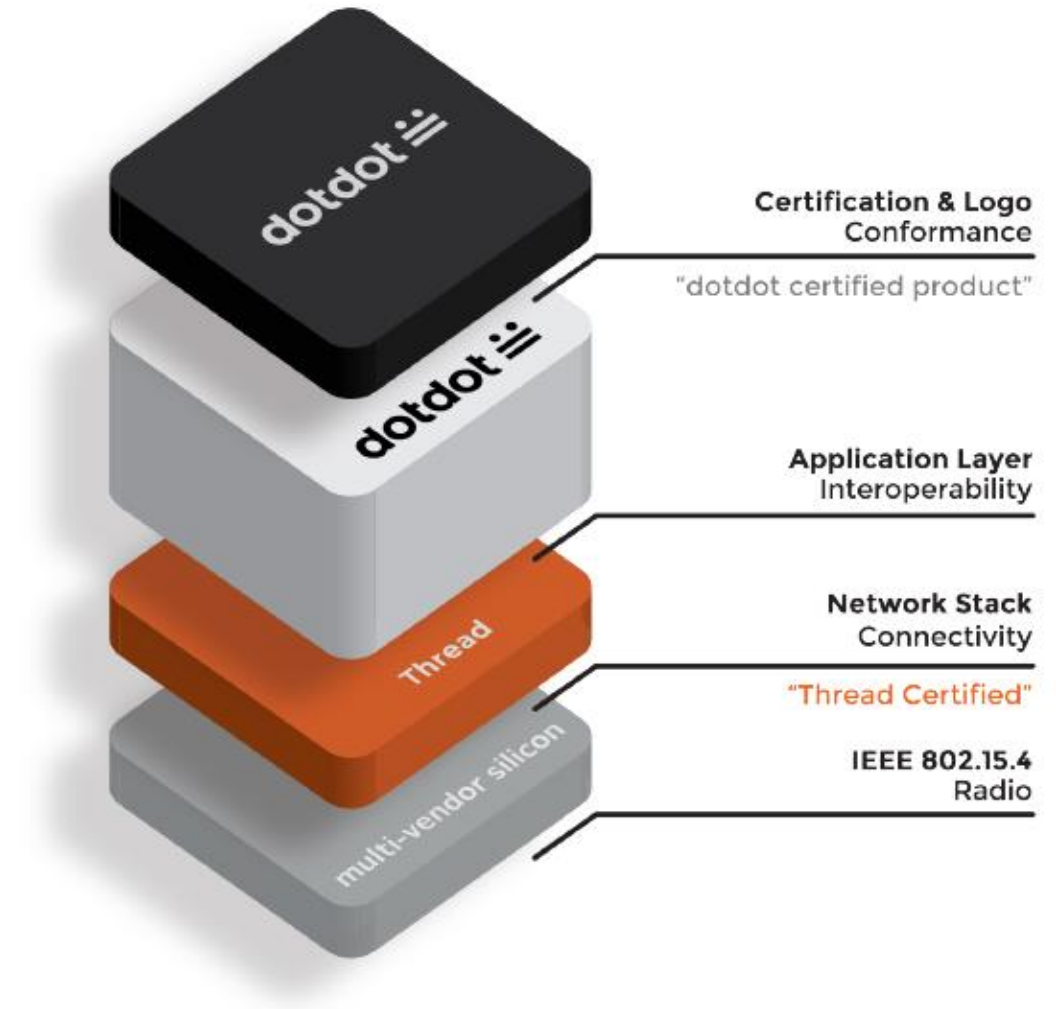
Dotdot's common device language over Thread's IP network brings this foundation for innovation to the Internet of Things.



Dotdot + Thread

The Dotdot over Thread Specification was released December 2017.

Certification opens January 2019.

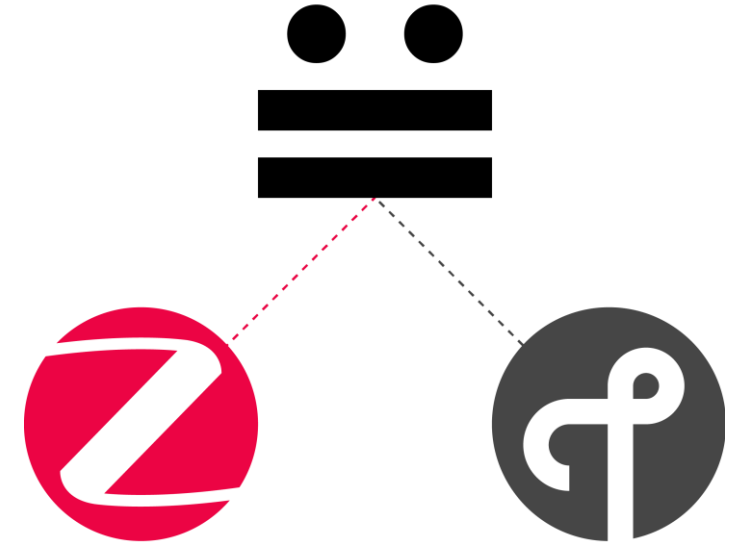


Dotdot + Thread

Start connecting the dots

Our members are working together to achieve this roadmap, through technical work, joint marketing, tradeshow demos, and events.

Join the Zigbee Alliance and Thread Group, learn about Dotdot + Thread, participate in demos, and see how others in your market are planning their roadmaps around Dotdot + Thread.



Dotdot Effort Announced

Dec 2016

Dotdot over Thread Certification
Program Open

January 2019

Dotdot over Thread
Specification Released, Demos
at CES

Additional networks added
2019

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Our Certification Programs

Certification for New Devices

This path is for new products that haven't previously been Certified. They are put through a rigorous testing phase carried out by [authorized testing service providers](#) that ensure products are designed to Zigbee specifications. This path is required for all new product entries seeking Certified status. The following technologies have live Certification programs. It is available for:

- Zigbee
- Smart Energy
- Green Power
- Rf4ce
- Zigbee PRO
- Dotdot + Thread coming soon!

Certification by Similarity

This path allows members to certify a product based on its similarity to a product that the same member has already certified. Member companies seeking Certification by Similarity can apply for testing exemption and if approved, move directly to the certification submission stage. This is a nice way for derivative products to get to market faster by piggybacking on the Certification of original products that are the same in functionality and makeup, while allowing minor changes.

Certification Transfer Program

The [Certification Transfer Program](#) enables Certifications between companies. The program allows Zigbee Alliance Participant and Promoter members to offer their Certified Products to customers (members and non-members) for re-branding and non-functional modification while maintaining those products' Certified status. The original vendor (a Participant or Promoter) simply registers their Certified Product with the program, and their customers (another member, or a new company entering the market) may apply to receive a

What can we do together?

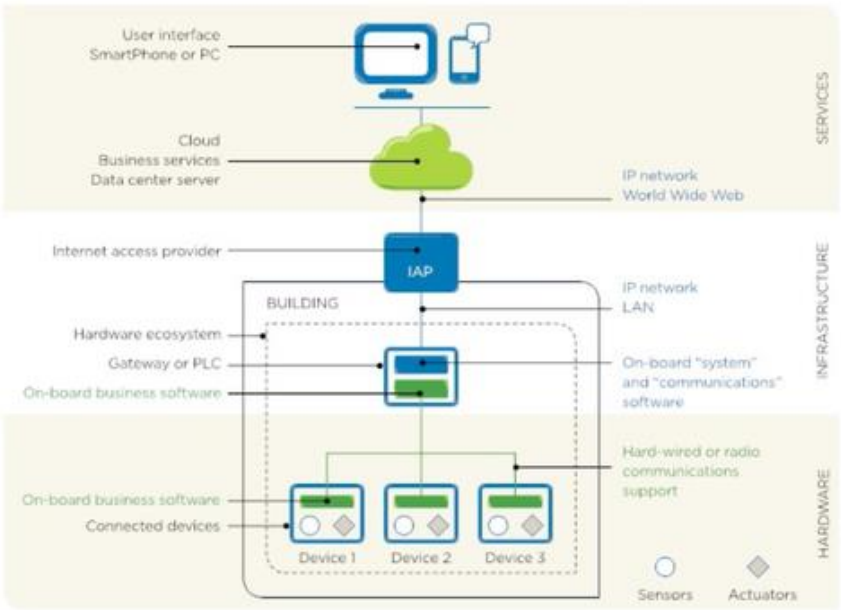
BICSI & zigbee

- **Keys of success for any solutions are Open Standard, interoperability, certification and reliability**
- **Smart Building (SB), Smart Office (SO), Smart Home (SH) are real today**
 - This is a first step to go the Smart city
- **The trend is to delete vertical wire in the walls**
 - “Last meters” are becoming wireless and devices should be battery less powered
- **However IP and structured cabling system is needed for the backbone.**
 - ISO / IEC 11801-6 and ANSI / TIA 862-B define how structured cabling for Services delivery shall be.
- **Zigbee is an existing wireless standardized solution for control and commands, based upon IEEE 802.15.4 standard.**
- **Working together should allow**
 - To illustrate what a SB, SO, SH could be
 - To train people to install a wireless mesh network based on IEEE802.15.4

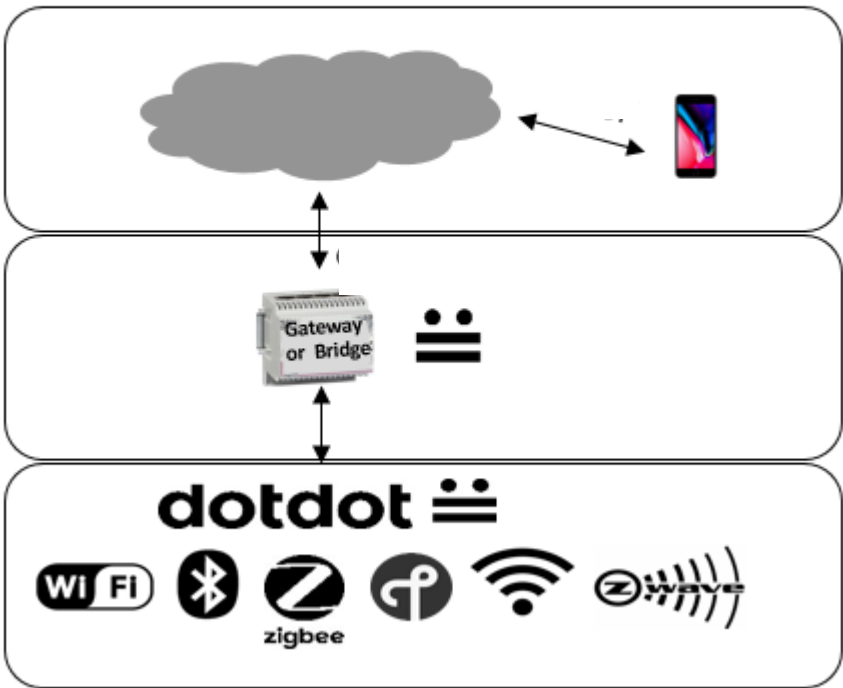
BICSI – SBA – ZIGBEE INTERACTION



Promotion
Training
Certification
Etc...



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Resources

Alliance Resources

Zigbee

- Webinar Slides: [Introducing Zigbee 3.0](#)
- White Paper: [Zigbee Green Power](#)
- White Paper: [Securing the Wireless IoT](#)
- White Paper: [Zigbee Interoperability](#)

Dotdot

- Blog: Delivering on the Promise of the IoT with Dotdot + Thread
 - [Part 1](#)
 - [Part 2](#)
- Blog: [The Path to Dotdot starts with Zigbee](#)
- Webinar: [How Dotdot + Thread Brings the Internet to the Internet of Things](#)

Smart Energy

- Visit our web page for the latest standard

Questions?

- For technical questions, marketing questions, or questions regarding membership, please contact help@zigbee.org

www.zigbee.org

THANK YOU !

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