

An Open Source project building the framework for the Internet of Things (IoT)

February 2015





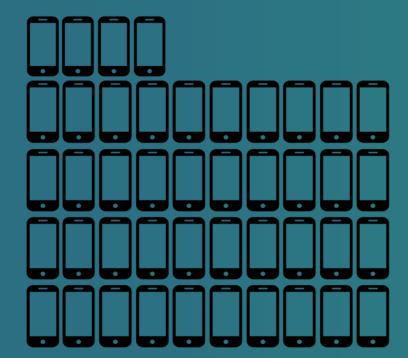
The AllSeen Alliance is a Collaborative Project at The Linux Foundation that enables the widespread adoption of billions of products working together in an interoperable "Internet of Everything" through the open AllJoyn framework, a thriving technical community and a vibrant ecosystem.

# www.allseenalliance.org

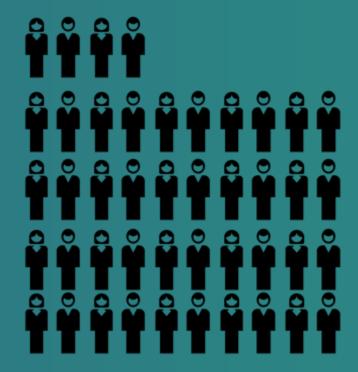
## Mobile – The largest technology platform

~3.7 billion unique subscribers

7.4B



7.2B



### Mobile is about to be dwarfed by the Internet of Everything...

A massive surge in connected things has already begun

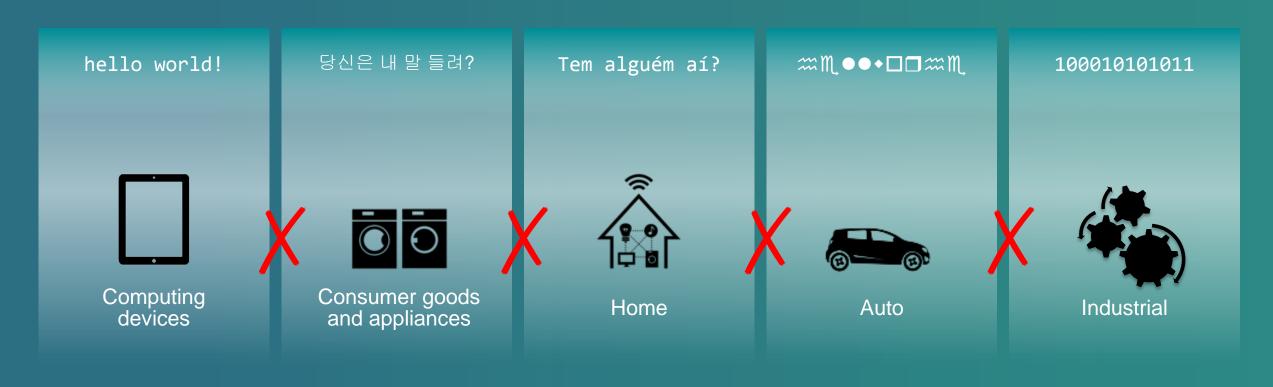


- By 2020, 40.9 billion things will be connected\*
  - Via Wi-Fi, wire line, cellular, and proximal networks
  - Benefiting billions of people worldwide
  - 75% of the growth between today and the end of the decade will come from non-hub devices
- IoT is Transforming:
  - Industry
  - Infrastructure
  - Media
  - Education
  - Work
  - Recreation
  - Family
  - Daily life

#### · A different app for every device. The Problem with the • Integration is difficult. · Devices can't interact locally. · Cloud connections abound. **Internet of Things Today** Rich scenarios can't easily be build. Security Lighting C Speaker B Security Camera App Camera Cloud Laundry Lighting C Cloud **Lighting E** Cloud Lighting B Cloud Cloud Lighting A Cloud F 00000 App Overload!

### Ubiquitous connectivity promises to make devices "smart"

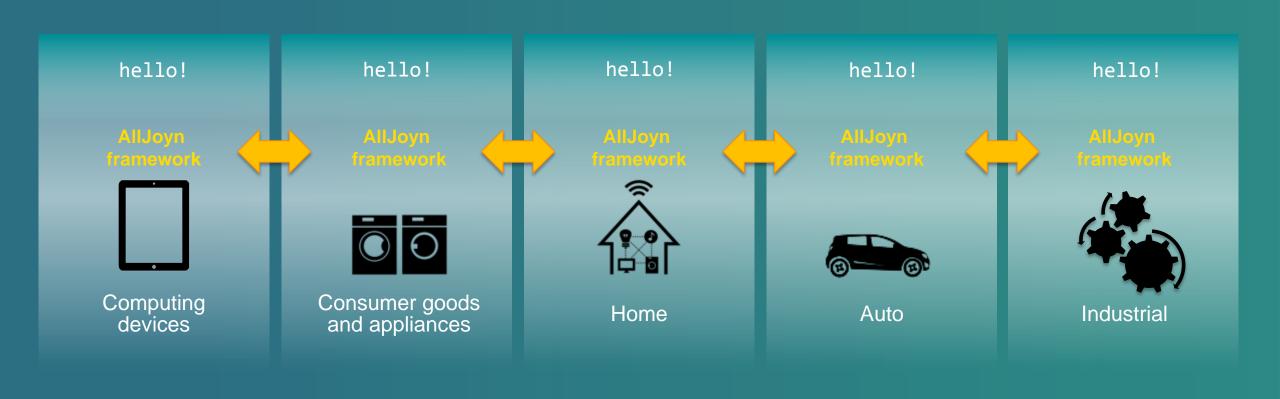
But <u>ONLY</u> if they speak the same language



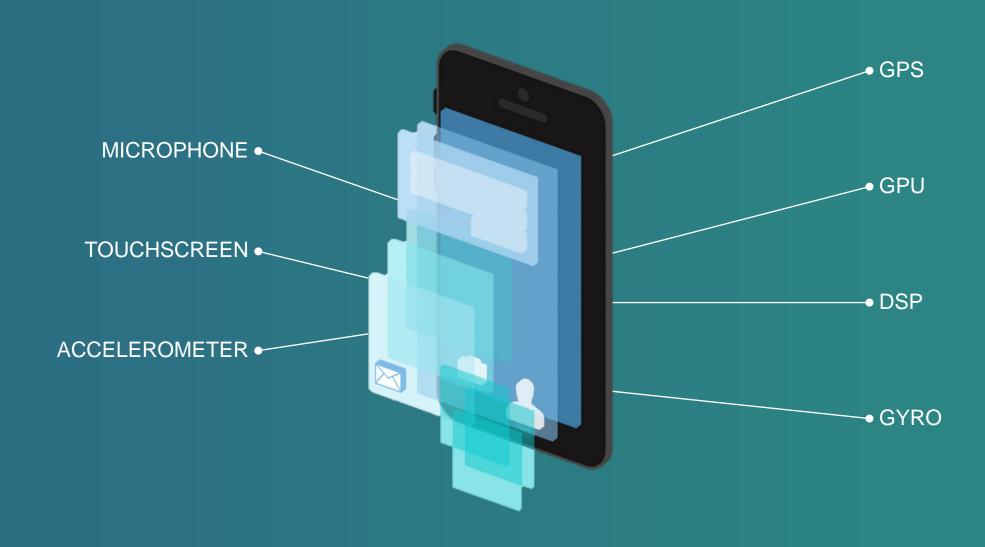
Devices that can't connect across brands, categories, and operating systems will be left out

# AllJoyn framework lets smart things work together

Connect, manage and interoperate across brands, categories, bearers, transports and OS



# Exposing smartphone APIs enabled new experiences that no one had ever thought of before

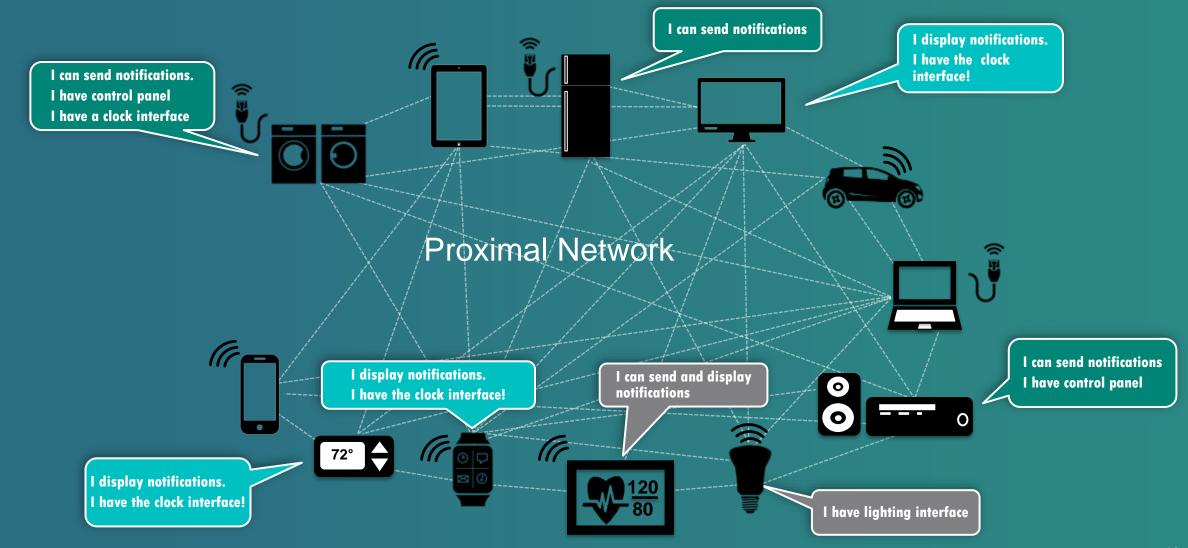


# The AllJoyn framework exposes the capabilities of connected devices in the much the same way.

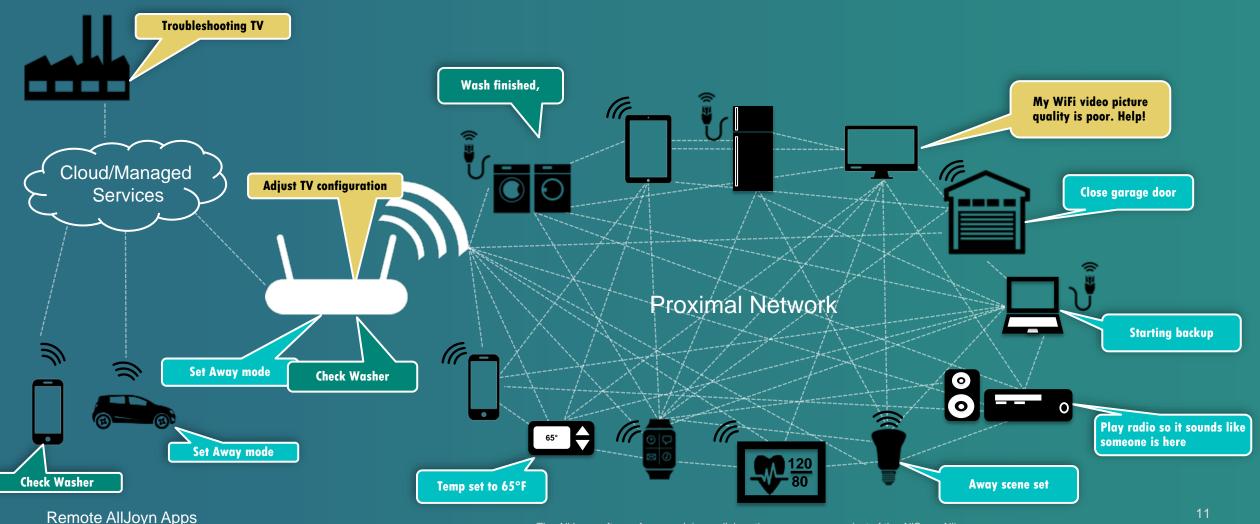
A single protocol allowing products and apps to expose their capabilities and interact with other devices and apps.



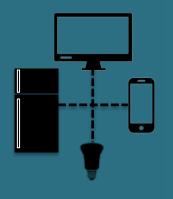
# AllJoyn enabled devices describe their capabilities via service interfaces on a virtual bus.



### AllJoyn Gateway Agent provides remote access, management and privacy controls for all AllJoyn enabled devices and apps



# The problems that AllJoyn solves... in an open interoperable way



DISCOVER nearby devices



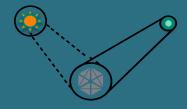
services running on those devices



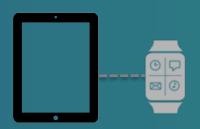
CONTROL devices near and far



remote and local



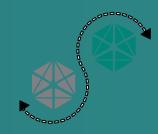
across OS, device & manufacturer



to devices coming and going



SPAN diverse transports

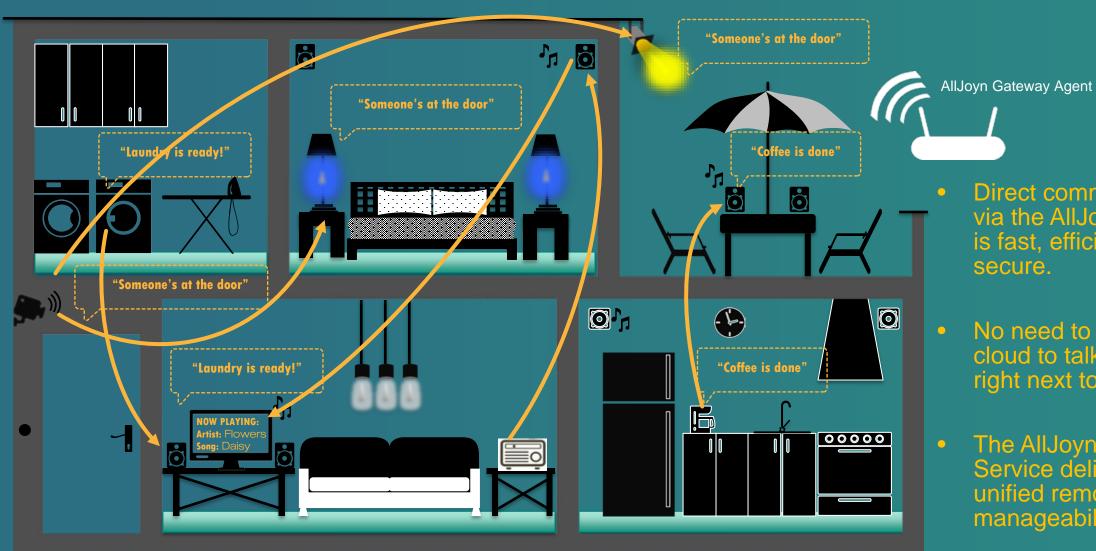


**EXCHANGE** information



against bad actors

# Why the AllJoyn proximal network topology matters



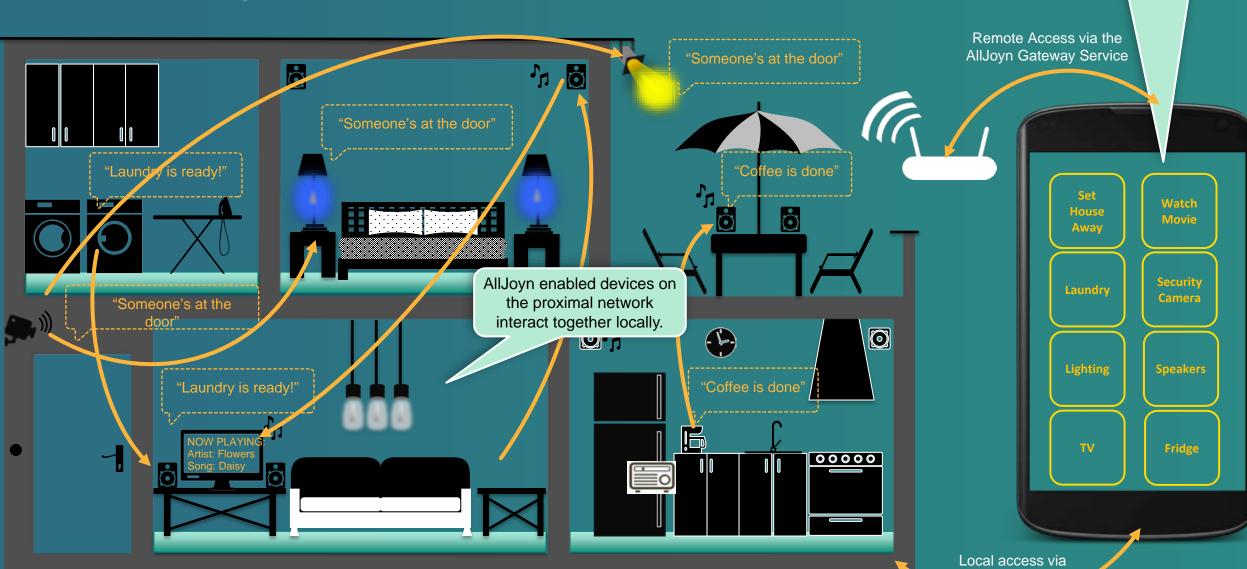
Direct communication via the AllJoyn framework is fast, efficient, and secure.

- No need to go out to the cloud to talk to the device right next to you!
- The AllJoyn Gateway Service delivers secure, unified remote access, manageability and privacy.

## The AllJoyn enabled use case

Rich App Ecosystem with a choice of apps that integrating many AllJoyn enabled devices into a unified experience.

AllJoyn directly



# Why The Internet of Things Has To Be Open Sourced



"Companies will win over Internet of Things not in the boardroom, but on the command line. The consortium that gets excellent code to market first, with a community that provides great documentation and an inviting atmosphere, will win. So far, only AllSeen has done that, with code available for download today."

Matt Asay VP Mobile at Adobe, via readwrite.com

### What is the AllSeen Alliance?

 A nonprofit consortium dedicated to enabling the widespread adoption of products, systems and services that support the Internet of Things through an open environment, vibrant ecosystem and thriving technical community.

• A **community** enabling hardware manufacturers and software developers to create interoperable products that can discover, connect and communicate directly with other devices, systems and services regardless of brand.

• The host and developer of the collaborative AllJoyn **open source project**, an industry-supported software and service framework.

### The AllSeen Alliance is:

The world's largest collaborative open source project targeted 100% on developing code for the Internet of Things.

120 plus member companies committed to developing interoperability standards for devices, applications, and services.

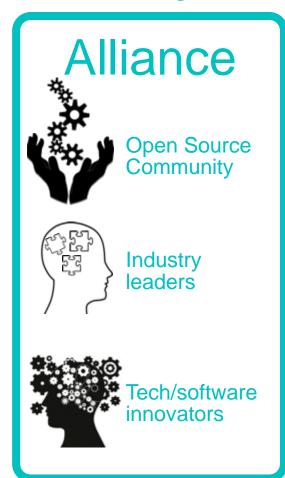
600,000 lines of member written code that powers millions of devices today.

## Why Build an Alliance?

- The Internet of Things is emerging
  - Things are getting smarter
  - Everything is getting connected
  - Wireless or wired, over a variety of protocols and bearers
- Still needed: A shared framework and common language for communication
  - Smart things need to be able to recognize, communicate, and interact with each other
  - Regardless of manufacturer, type of device, OS or embedded software, connectivity type, or compute resources available
- The Alliance's codebase is here and in real products today
  - Open source communication platform for the Internet of Things
  - Core System Services for any device/OS/HW/OEM
    - Onboarding, Notifications, Control Panel, Configuration, Audio, Lighting
  - Showcase applications speed development and customization
  - Creates new and exciting experiences with our environment and the things we use every day

### **Alliance and Objectives**

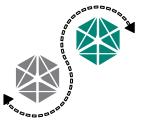
Supporting the Internet of Things through an open environment, vibrant ecosystem and thriving technical community.



Enable Vibrant Ecosystem Evolution of AllJoyn

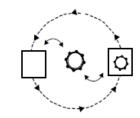
Evangelize

Contribute & Use



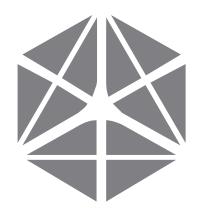






- To learn more about the AllSeen Alliance visit: www.allseenalliance.org
- To find out about participating in the AllSeen Alliance contact:
- Philip DesAutels, PhD <pdesautels@linuxfoundation.org>

### 2014 Collaboration Scorecard





37 total projects

20 active

7 new



### **Contributions**

70 individual contributors

13 companies

Over 2,700 contributions



### **Jira Tickets**

1,600 submitted

1,250 closed

330 open or in progress

### **Premier Members**

AllSeen Alliance: A collaborative project of the Linux Foundation























## **Community Members**

### AllSeen Alliance: A collaborative project of the Linux Foundation

- 2lemetry
- ADT Security Services
- Affinegy
- AT&T Digital Life
- Audio Partnership
- Beechwoods Software
- Beijing Winner Micro Electronics
- BLACKLOUD
- Bosch
- CA Engineering
- Canary
- Cisco
- Cloud of Things
- ControlBEAM
- D-Link
- Dawon
- dog hunter
- Domos Labs
- Euronics
- EXO U
- FengLian
- FirstBuild
- Fon

- ForgeRock
- Fortune Techgroup
- FreeWings Technologies
- GEO Semiconductor
- GeoPal Solutions
- Golgi
- Gowex
- Grid2Home
- Guangdong Pisen Electronics
- Harman
- Helium
- Honeywell
- HOUZE® Advanced Building Science
- HTC
- Hubble
- iControl Networks
- iiNet
- Imagination Technologies
- Innopia Technologies
- INSTEON
- Inteno Broadband Technology
  AB
- ISI Technologies

- Kii
- Legrand Group
- Lenovo
- LeTV
- LG Uplus
- LIFX
- LightFreq
- Lite-On
- Local Motors
- Lumen Cache
- M2Communication
- MachineShop
- MobilityLab LLC
- Modacom
- Musaic
- Muzzley
- NETGEAR
- Octoblu
- Organic Response
- Patavina Technologies
- Ping Identity
- Playtabase
- POWERTECH

- Quanta Computer
- Razer
- Red Bend Software
- Resin.io
- Sears Brand
   Mgmt..Corporation
- Shenzhen H&T Home Online Network Technology Co
- Sproutling
- Symantec
- TCL Corporation
- Tellient
- The Sprosty Network
- Things.Expert
- ThroughTek
- Tuxera
- Two Bulls
- Vedams
- VeriSign, Inc.
- Vestel Group
- Weaved
- wot.io

### **Sponsored Members**

### AllSeen Alliance: A collaborative project of the Linux Foundation

- Beijing University of Posts & Telecommunications
- Bonn-Rhein-Sieg University
- Brno University of Technology
- CableLabs
- CASS
- Duktape.org
- EnOcean Alliance
- Fundacio Technocampus Mataro-Maresme
- Korea Electronics Technology Institute
- MIT Enterprise Forum of Cambridge
- openHAB
- Politecnico di Milano
- Spanish Red Cross
- Telecommunications Industry Assoc. (TIA)
- Multiple individual members

### **Membership Benefits and Dues**

#### Members can:

- Chair a technical working group/project
- Serve as a committer

- Participate directly in Alliance event and speaking opportunities
- Benefit from and participate in Alliance PR and marketing efforts
- Co-chair the marketing committee or compliance and certification committee

#### **Premier Members**

- Designate one representative for the Board of Directors
- Designate one representative for the technical steering committee
- Initial 2 year commitment: fee for initial year is \$300K USD, annual fee thereafter is \$250K

#### **Community Members**

- Vote for 1 of 3 community Board of Directors seats
- Fee Structure varies by size of organization
  - 5000 employees = \$50K USD
  - 500-4999 employees = \$30K USD
  - 100-499 employees = \$10K USD
  - < 100 employees = \$5K USD</p>
  - Early-stage startup companies meeting specific requirements = \$500

#### **Sponsored Members**

- Available to any:
  - non-profit entity, association, governmental agency, academic entity, individual contributor
  - Sponsored membership is free

#### The AllSeen Alliance is open! Everybody can:

- Use the open source AllJoyn framework
- Participate in the community and technical working groups
- Join the mail lists
- Contribute to the project

## **Membership Value**

- Influence the direction of AllJoyn framework services and features
- Drive leadership for future enhancements and extensions that matter for your business
- Lead the development of strategic services that are key to optimizing your product experiences
- Guide feature sets in requirements documents and future technology roadmaps of AllJoyn framework through Working Groups, technical contributions and earning committer status
- Feature your AllSeen certified projects and applications at key industry events, website and marketing collateral
- Work together across company lines and industries
- Create the IOT market
- Engage and collaborate with the membership community to enhance your IoT roadmap
- Create products & apps secure in the knowledge that they will be interoperable in the future

### The Reaction Has Been Very Positive

THE WALL STREET JOURNAL.

#### Internet of Things Fans Form 'AllSeen' Alliance

How are things going to find each other once they are all connected? A lot of companies are discussing such questions these days, with some of them banding together in an effort ...



### For Qualcomm, a 'gift' to the Internet of things

... opening up AllJoyn to the community at large will spawn a booming industry of companies that will both contribute to its code and use it to develop products for the "Internet of things"



#### The Internet of things is coming on faster than ever, thanks to a new, huge alliance

The AllSeen Alliance, as it's called, will take on the monumental, innovation-accelerating task of creating and maintaining unified standards for device-to-device communication.



#### Sony commits to the AllSeen Alliance as did Electrolux

"The AllSeen Alliance is like train that is picking up steam as it signs Sony as a member on Tuesday after last week announcing top appliance maker Electrolux. The Alliance, which is promoting the AllJoyn notification standard for the internet of things, now has enough big names to act as a credible option for a smart home standard."

# Publicly announced support for products using

AllJoyn framework

### Products are already shipping https://allseenalliance.org/showcase

- Members are planning & releasing products
- Products launched for Consumer, Home, Commercial, Cloud



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ABOUT DEVELOPERS SHOWCASE CERTIFICATION NEWS & EVENTS

#### SHOWCASE OF PRODUCTS USING THE ALLJOYN SOFTWARE FRAMEWORK

Many AllSeen Alliance members and other companies are integrating the AlLoyn software framework into their products to highlight how smart things can discover, expose their capabilities and work together. The following showcases products that are publicly announced. More will be added soon. If you have a product that uses the AlUoyn software framework, please email info@allseenalliance.org! This opportunity is open to both members as well as non-members.

#### Automotive

- Local Motors Rally Fighter
- · planned: 'Local Motors Strati 3D printed car

- Dog Hunter's Linino Arduino Yun
- Microsoft Windows 10
- Qualcomm Atheros QCA4002/QCA4004 with ToE Wi-Fi Development Kit
- Octoblu's Octopi with Node is, AlLloyn, Cloud for Raspberry Pi
- Qualcomm AllPlay Click SDK

#### Lighting

· LIFX wifi, multi-color, energy efficient LED light bulbs

#### Mobile Apps

- AirSputnik by MobilityLabs
- AllPlay Jukebox by eMbience
- AllPlay Radio by eMbience
- AUPEO!
- DoubleTwist
- EXO U Collaborative Workspace
- · iHeartRadio
- MobileSputnik by MobilityLabs
- Muzzley
- Napster
- OleOleOla by Furia 7
- Panasonic Music Streaming
- Rhapsody
- \* soma fm
- Spotify
- Tuneln

Dason DNS Smart Wfi Plug (Model No. B300-WA, Services: Album vi4.06 Care, Control Panel, Notification (Producer).

Onboarding, Configuration) #111111

PowerTech APPSTRIGGER Smart Plug (Model No. R9P154, M9PG07, Services: Alloyn v14.02 Core, Control Panel, Notification

(Producer), Orboarding) ALEMEN

- Sharpe laren loT Cloudlet
- Smart Gateway platform by Qualcomm

Innopia Magic Cest (Model No. IMT - M370, Senices: AlLloyn V.4.06 Core, Control Panel, Notification (Consumer), Onboarding)

#### Sound Systems

- Gramofon by Fon
- . Lenco PLAYLINK
- Monster SoundStage
- Musaic Weeless HiFi System
- Panesonic SH-ALLIC Network Audio Connector (in-market: Europe, Model No. SH-ALLIC, Services: Allburi Vi 4.02 Core)
- Parusonic SC-ALI3 Wareless Speaker System (in-market: Europe, Model No. SC-ALI3, Services: Alloyn'v14.02 Core)
- Parasonic SC-ALL8 Wireless Speaker System (in-market: Europe, Model No. SC-ALL8, Services: AlLloyn'v14.02 Core)
- Ouslcomm ABPlay

#### - TVs

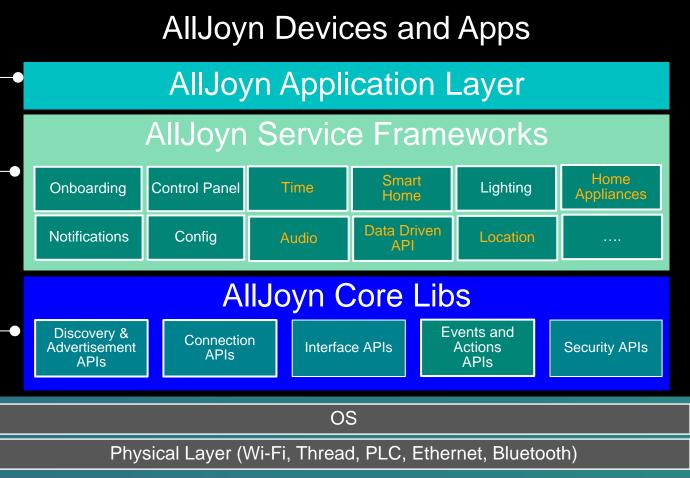
- LG OLED TV EC9800 9300 series (in-market, Model No. EC9800 9300 series, Services: Alloyn'v3.4 Core, Notification
- LG 79" CLASS (78.5" DIAGONAL) 2160P SMART W/ WEBOS 3D ULTRA HD 4K TV (n-market, Model No. UB9800 8500 series, Services: AlJouriv3.4 Core, Notification (Consumer))
- LG ULTRA HD TV 105" UC9 (in-market, Model No. UC9 series, Services: Alloyn'v3.4 Core, Notification (Consumer))
- LG ULTRA HD TV UC9700 ~ 8900 series (in-market, Model No. UC9700 ~ 8900 series, Services: Albuniv3.4 Core, Notification
- LG CINEMA 3D SMART TV FHD 49" LB8700 (in-market, Model No. LB8700 ~ 6300 series, Services: AlJoyn'v3.4 Core, Notification (Consumer))
- LG John Levis TV JL9000 (in-market, Model No. JL9000 series, Services: Albaniv3.4 Core, Notification (Consumer))

# Architecture

## AllJoyn Software Framework: High-level architecture

### AllJoyn App Layer Defines the User experience AllJoyn Service Frameworks Interoperable, cross-platform Onboarding modules for common loE functionality **Notifications** Defines common interfaces between devices AllJoyn Core Libs

- Provides ability to find and connect to devices to do interesting things.
- Core libraries interact with the AllJoyn Router
- Provides access control and encryption



### AllJoyn Gateway

- Remote access
- Remote management
- Privacy controls

### AllJoyn Router

- Manages communications between devices and apps
- Dynamic network management

### Two Versions of the AllJoyn Framework To Choose

#### Standard App Layer Thin Apps Standard Apps Thin App Layer App dev or OEM writes this App Dev or OEM writes this App Layer App Layer AllJoyn Thin Service AllJoyn Standard Service Frameworks Frameworks Thin Core Libraries C bindings, runs on RTOS Thin Apps using Thin Core Standard Core Libraries AllJoyn Standard AllJoyn Thin Core requires an AllJoyn Router Multiple bindings, runs on HLOS in the network Core Libs Libs AllJoyn AllJoyn **HLOS RTOS** Router Gateway Physical Layer (Wi-Fi, Thread, PLC, Ethernet, Bluetooth)

#### AllJoyn Router

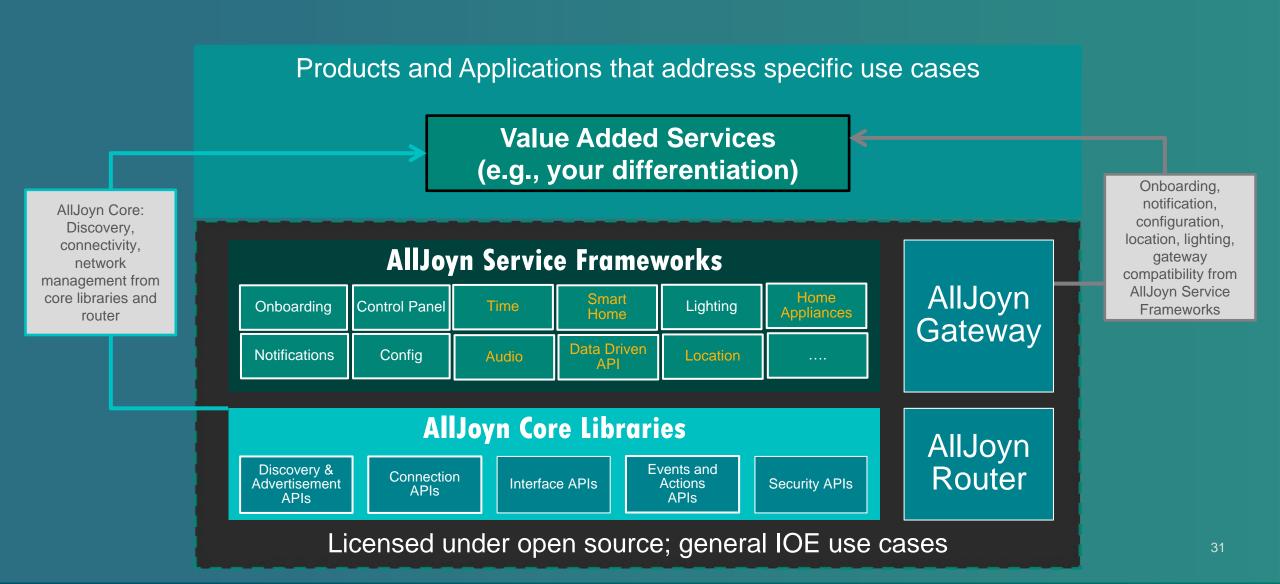
 AllJoyn Router can be bundled with a Standard App or run standalone

#### AllJoyn Gateway

Standalone or bundled

### Open source building blocks for value added services

Use AllJoyn Core Library and Service Frameworks to create differentiated offerings



### **AllJoyn Mesh of Stars**

**Spans Network Transports** 

### **Bridges**

Interconnect transports

### Router nodes

- Discovery/advertising
- Presence/session-management

App

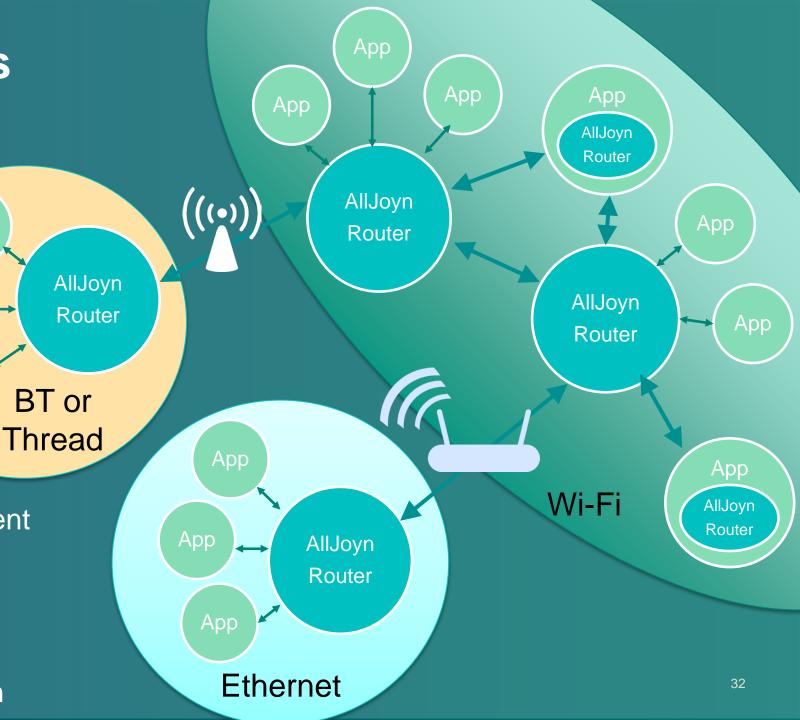
App

App

Publish/subscribe support

#### Leaf nodes

- Application code
- Authentication and encryption



# IP Policy

### **Disclaimers**

- This is not intended as legal advice so, as always, when dealing with IP Policies you should consult your legal counsel for advice in your circumstances.
- As with any other standards organization or open source software project, the AllSeen Alliance cannot bind companies that are not using AllSeen Alliance code or participating in the Alliance's ecosystem to any IP Policy.

### **IP Policy Overview**

- This IP framework is designed to enable contribution to AllJoyn under clear terms and to facilitate broad adoption of AllJoyn in products meeting the interoperability goals of the certification program.
- In simple terms, the IP policy states that if you use a 'compliant base implementation' of the AllJoyn code, and then certify your product as 'AllSeen Certified', you are good to go with a strong 'patent pledge' from all of the AllJoyn contributors.
- IP Policy <a href="https://allseenalliance.org/about/governance/ip-policy">https://allseenalliance.org/about/governance/ip-policy</a>
- Blog post overview <a href="https://allseenalliance.org/news/blogs/2015/01/simple">https://allseenalliance.org/news/blogs/2015/01/simple</a>

## Structure of the IP Policy

- 1. The Alliance will continue to use the permissive ISC License for copyrights <a href="http://opensource.org/licenses/ISC">http://opensource.org/licenses/ISC</a>.
- 2. Contributors now make a patent pledge not to assert any of their patents practiced in their contribution against an Alliance-certified implementation of AllJoyn (see "Compliant Base Implementation" in the policy).
- 3. The policy includes a patent pledge termination provision to create a selfpolicing community and to deter companies involved in developing and using AllSeen code from asserting patents against compliant base implementations.

#### Certification

- The 'AllSeen Certified' certification program defines the code, compliance and interoperability requirements that must be satisfied by a product.
- To be certified, a product must be based on specific versions of the AllJoyn code identified in the Compliant Base Implementation
- 'AllSeen Certified' certification is required to gain the benefits of the patent pledge in the IP Policy
- Phase one 'Designed for AllSeen'
  - Self certification <a href="https://allseenalliance.org/allseen-alliance-certification">https://allseenalliance.org/allseen-alliance-certification</a>
- Phase two 'AllSeen Certified'
  - Final details under development <a href="https://wiki.allseenalliance.org/compliance/overview">https://wiki.allseenalliance.org/compliance/overview</a>
  - This is the certification level required to gain the benefits of the IP Policy

#### Find out More

#### For More Information





- Alliance Wiki: https://wiki.allseenalliance.org
  - Documents, downloads, and developer tools
  - Source Code, release overviews, roadmaps
  - Training & Service Framework details
  - Working Groups, New Proposals & meeting minutes
- Forums: https://ask.allseenalliance.org/questions
- Certification: https://allseenalliance.org/certification
- Releases & Roadmaps: https://wiki.allseenalliance.org/release/overview
- Public Mail Lists: https://lists.allseenalliance.org/mailman/listinfo
- Showcase: https://allseenalliance.org/showcase
- Monthly Newsletter: https://allseenalliance.org/news-andevents/newsletters

#### Marketing/PR

- AllSeen Alliance Blog <a href="https://allseenalliance.org/news-and-">https://allseenalliance.org/news-and-</a> events/blogs
  - blog from members to showcase member diversity and thought leadership in the community.

 Monthly newsletter <a href="https://allseenalliance.org/news-and-">https://allseenalliance.org/news-and-</a> events/newsletters

AllSeen Alliance

Get a technical deep dive on AlUoyn from AlSer

aboration to make if for a reality bit ly Tokin-Ft via ill-redo

- continue to showcase the success of the Alliance
- PR / Speakerships

 to assert thought leadership to demonstrate the pervasiveness and relative maturity of AllSeen

to alternative efforts.

Social media

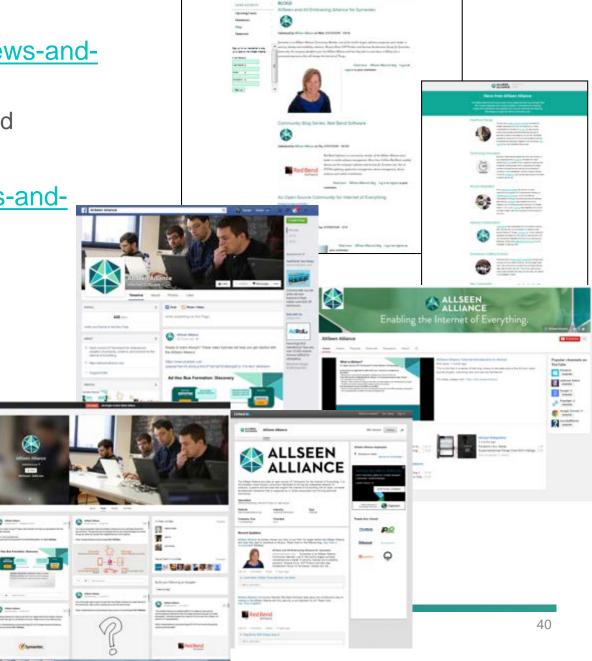












# The AllSeen Alliance is creating the Internet of Everything... Will You Participate?

Please contact
Philip DesAutels or Brett Preston
for questions and next steps:
pdesautels@linuxfoundation.org
bpreston@linuxfoundation.org

AllSeenAlliance.org



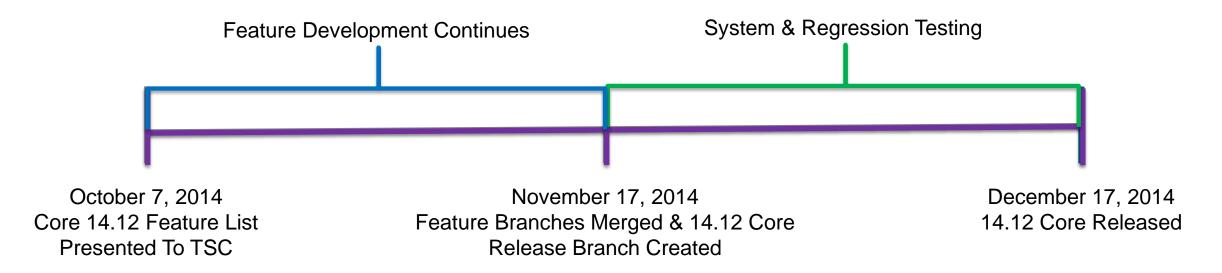
#### Release Roadmap

#### Software Releases (core + base services)

- Three releases in 2014: 14.02, 14.06 and 14.12. 2 Releases in 2015: 15.04 and 15.10
- 6 month release cadence for "core" and Base Services.
  - More time for feature development and testing between releases
  - Give working groups flexibility about when to release code based on a specific core release
- Release 14.02
  - First AllSeen Alliance release mostly stability and bug fixes
- Release 14.06
  - Added ECC-based authentication algorithms
  - Migration to MDNS for discovery
  - Events and Actions support
- Release 14.12
  - First major collaboration on core
- Release 15.04
  - Extending the security model

#### Core release 14.12

- Collaborative effort between QCE, Technicolor, Microsoft and others...
  - First major collaboration on AllJoyn core!
- Features include
  - UDP transport for router-node to router-node communication
  - Improved support and optimizations for publish/subscribe use cases





It isn't just code contributions!

#### **Working Group Participation**

- Working Group calls are open and usually recorded
  - Download recording and presentations
  - Catch up on the technical discussion
  - -Great good way to learn where you might be able to contribute
- Project maintainers welcome technical input
  - Quality and completeness of interface definitions
  - Consistency of APIs
  - Feedback is most useful before coding begins

#### **Working Groups**

- Analytics and Telemetry
- Base Services
- Compliance and Certification (C&C)
- Connected Lighting
- Core Working Group
- Data-Driven API
- Developer Tools
- Gateway Agent
- Smart Home
- Location Based Services

Seven of these are working groups that formed since the Alliance started!

#### Many Ways To Participate and Collaborate

- Contribute code to existing projects
- Critical code review
- Propose new projects around a center of interest, expertise, or need
- Testing, testing, testing
- Build automation and documentation
- Listen in and provide feedback in Working Group Meetings
- Sponsor and participate in hackathons

#### Contribute to existing projects

- Sample programs
  - Developers always appreciate well document sample code
  - A way to contribute without fear of breaking anything
- Test code
  - Test coverage is always a challenge more tests → better quality releases
  - Stress tests
- Implement new language bindings for core and service APIs
  - Python
  - Go
  - Ruby
  - Swift

#### **Code review**

- Critical review for security vulnerabilities
  - Buffer overflow
  - Unsafe access and uninitialized values
  - Use of dangerous constructs.
- Best practices
  - Clean understandable API design
  - Well structured modular code
  - Code comments and other documentation
- Performance, stability, scalability
  - Thread-safeness
  - Algorithms

#### File Jira tickets!

#### Some Ideas for Project Proposals

- Automotive
  - Green field opportunity for member companies to show leadership
- Services for describing and discovering indoor location
  - Maybe a manageable project for a smaller team
- Home Appliance Services
  - Generic functionality that crosses device categories
  - Functionality for specific appliance categories
- Energy management
  - Mapping existing protocols e.g. SEP2.0 into AllJoyn
- Integrate new transports into core
  - Thread, Zigbee, Z-Wave, etc.

#### **Testing**

- Test resources are always in short supply
- The more testing better quality the release
  - Download build test master and feature branches
  - -If you want to know where the need is ask the project maintainers
- If you find issues file Jira tickets
  - A bug not found will be a bug not fixed

#### **Build Automation and Documentation**

- We need people with experience with build automation
  - Jenkins Automated build system
  - Jira Bug and issue tracking
  - GIT Source code control
  - Gerrit Code review and process automation allseen-infrastructure@lists.allseenalliance.org.
- And documentation:
  - Keeping technical documentation up to date
  - Help with organization of the WiKi
     allseen-tech-documentation-website@lists.allseenalliance.org

## Collaboration Highlights

#### **Lighting Service Framework**

- Collaborative development effort between LIFX and QCE
- Release 1.0 on November 15<sup>th</sup> 2014
- Release included:
  - Lamp Service
  - Lighting Controller Service
  - Sample Applications for Android and iOS

#### **Gateway Agent**

- Collaborative development effort between Affinegy and QCE
- First release based on 14.06 core scheduled for December 2014
- Release includes:
  - Gateway Management App
  - TR-069 client
  - XMPP connector plug-in
  - Package manager
  - Control application (Android)
  - Reference implementation for OpenWRT

#### **Security 2.0**

- Four-way collaborative effort between Microsoft, QCE, Technicolor, and Symantec
- Provides fine-grained control of operations devices are permitted to perform
  - End-to-end encryption
  - Permission rules used ECC and signed manifests allow/deny access
- Architecture finalized and high-level design completed October 2014
  - Coding underway and contributions being submitted
- Security Manager
  - Service to provide support for key management and permission rule

### The AllSeen Alliance is creating the Internet of Everything... Will You Participate?

Please contact
Philip DesAutels or Brett Preston
for questions and next steps:
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AllSeenAlliance.org



### **Thank You**

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