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Technical Steering Meeting

November 17, 2014

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**This call is being
recorded**



Agenda

1. Approve minutes from previous meeting
2. Security Sub-Committee Proposal
3. Home Appliances & Entertainment (HAE) Service Framework Proposal
4. Bluetooth Low Energy Transport Update
5. Interface Review Board Proposal



Security Sub-Committee Proposal

Brian Witten - Symantec

Should AllSeen form a “Security Sub-Committee” under the Technical Steering Committee (TSC)?

- Why consider doing a Security Sub-Committee (SSC)?
 - As workgroups release “high visibility” releases, mistakes on security can damage confidence in and credibility / image of the AllSeen/AllJoyn Alliance/Project as a whole.
 - It’s not clear how projects are thinking about security.
 - More security due-diligence is needed in architectural design review (early in project, defining interfaces) and implementation/code-review
 - Proactive detection of architectural flaws at design can save a ton of work and save re-work.
 - The process and security policy both need to avoid being too heavy.
 - The process needs to be automated where possible.
 - Manual labor (like adding extra Code Reviews for each contribution) is extremely difficult to staff

What should the Security Sub-Committee (TSC/SSC) do and/or “not” do? (1 of 2)

- CANNOT let it be a few security “gurus” dictating policy from on high.
- Instead, could be a council chosen from the “security” champions from each project
 - (Security Guru’s can offer advice / opinions, but only the appointees from respective projects vote.)
- CANNOT be allowed to become a weighty process that slows things down.
- Could be a “checkpoint” going from “incubation” to “official project”
 - Maybe also a checkpoint before spending marketing resources / PR to publicize any release.
 - NOTE: process for "How a Project Goes from Incubation to Full Project" is still undefined from the TSC.
- Should reach out to Linux Foundation to see how other open-source bodies manage security.
- Should provide the AllSeen community guidance on expected best practices, baseline security policies, and
- Needs to catch both architectural / model / assumption level mistakes, as well as unsafe coding practices. (“Checkpoints” could be a good time for a security architectural review.)

What should the Security Sub-Committee (TSC/SSC) do and/or “not” do? (2 of 2)

- CANNOT review every line of code, but should help projects identify security critical code for more careful review (ECC, certificate validation, security manager, etc.)
- Could be sure that automated code review continues and improves over time. Specifically, should define a process to track 3rd party code, particularly in light of OpenSSL vulnerabilities.
- Should work with Certification & Compliance Workgroup to define security compliance requirements, including automated and independent manual code review.
- Should define a process of what needs to be done when exploits are found in AllSeen code.
- *Other ideas, suggestions, constraints, and/or concerns?*

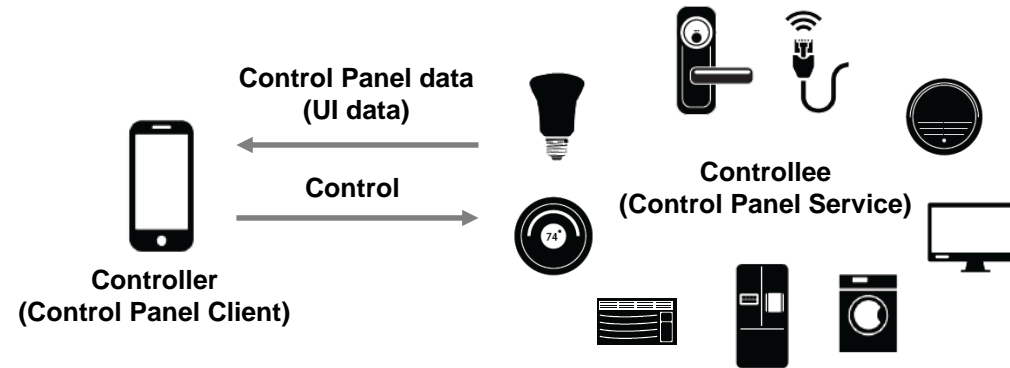


Home Appliances & Entertainment (HAE) Service Framework Proposal

Haier and LG Electronics

Motivation

- Control Panel Service Framework
 - Controllee exposes its UI using the framework
 - Controller renders the UI and control the controllee based on UI input by a user
 - Similar to Web Server ↔ Browser concept
 - Very generic and extensible framework !



- But, it has some limitations
 - Control & monitoring is only possible when a user see the controller screen
 - Exposed functionalities for the same type of device may differ by vendors
 - Not easy to accommodate a variety of controller screens with a single control panel UI data (Smart Watch/Phone/Tablet/Laptop and TV, etc)

HAE* Service Framework

* Home Appliances and Entertainment (devices)

Why is it important ?

Purpose

- Develop standard AllJoyn interfaces for controlling and monitoring Home Appliances and Entertainment devices
- On top of this, build creative and innovative IoT services by combining other existing or to be defined AllJoyn service frameworks.
(Notifications, event/action, smart home service framework, gateway agent service framework, lighting service framework, living scenario, etc)

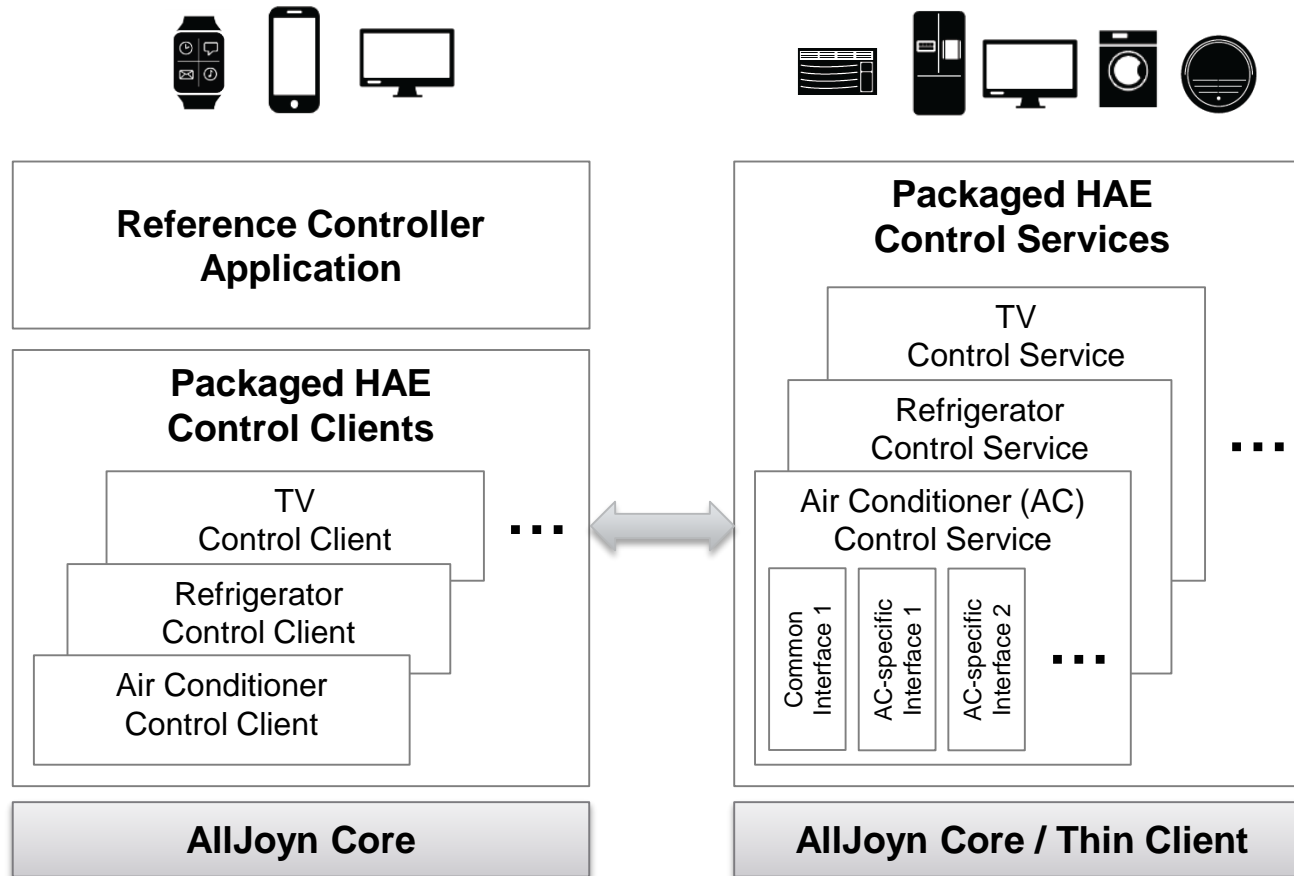
Benefit

- Cross-vendor interoperability
- Background control & monitoring
- Identical user experience across devices from different vendors thanks to the identically exposed device capability
- Tailor-made UI for each controller screen

HAE* Service Framework

* Home Appliances and Entertainment (devices)

Overall Architecture



- One control service / client pair per HAE device
- Provide packaged HAE control services / clients
- For each HAE device, only the corresponding control service will be implemented by using a build option
- For controller applications, controllable devices are up to developers' choice

Scope of Project

- Scope of devices under this project
 - Will be limited to only Home Appliances and Entertainment devices
 - Version 1.0 will include Air Conditioner, Air Cleaner, Air Quality Monitor, Oven, Refrigerator, Robot Vacuum, Washer and TV.
- For each HAE device, a minimum set of common operations and parameters across devices from different vendors will be specified
 - Vendor-specific extensions will be allowed without raising any interoperability issue
- Standard AllJoyn interfaces will be developed for each HAE device
 - Some interfaces can be commonly used for various HAE devices
- The project will deliver a common implementation for HAE service framework into the open source

Dependencies, Project Name, Working Group

- Dependencies
 - AllJoyn Core and Base services such as About interface
- Proposed Project Name
 - Proposed name for the project : “HAE Service Framework”
 - Proposed name for the git repository : “device_services/hae”
- Proposed Working Group
 - For future extensibility, formation of a new working group called “Device Services” is proposed
 - Starting with HAE service framework as an initial project, new categories of devices can be added by proposing new projects under the same working group

Committers and Contributors

- Maintainer
 - TBD
- Committers
 - Haier, LGE¹⁾, BUPT²⁾ teams
 - Open to any interested party
- Contributors
 - Haier, LGE, BUPT teams
 - Open to any interested party

► After project approval, team formation and detailed project planning will follow soon.

1) LG Electronics

2) Beijing University of Posts and Telecommunications

Initial Contribution & Project Plan

- Initial Contribution
 - Device model for Haier air-related appliances
 - Example AllJoyn interface specifications for LG HAE devices
- Project Plan
 - High-level system description document : December 2014
 - AllJoyn interface specifications : February 2015
 - High-level design (HLD) documents for foundational components : March 2015
 - Foundational component implementations for Linux : June 2015
 - Certification test suite : August 2015
 - Reference controller applications for Android & iOS : September 2015
 - First official release : September 2015



Bluetooth Low Energy Transport Update

Brian Gix, QCE

Why Bluetooth LE

- The *Low Energy* in BTLE is due to the Asymmetric relationship of its *peers*.
- Devices not (as) concerned with power consumption are Always On / Always Ready
- A *Low Energy* device is allowed be offline, drawing little or No power when not needed.

Why Bluetooth LE

- In the **Internet of Things**, devices that would deploy BTLE include button-cell powered sensors that are infrequently called into action.
 - Includes devices that need to check-in with a Routing Node only once every few minutes, hours or days.
 - The remaining time is spent offline in low-power or powered-off mode
- The Low Energy device can check in On Demand
 - A hardware trigger such as a window or door opening
- or Periodically

E.g. every 10 minutes to report an ambient temperature reading.

Bluetooth LE: Limitations

- The actual data pipe while **Online** is comparatively slow compared to other transports:
 - ~**15000 bps**
- Asymmetry means that the Peripheral can at any time immediately start transactions with the Routing Node
 - but if the Peripheral is **Offline**, it can take minutes/hours/days for Routing Node initiated transactions towards peripheral.
- Because of Speed and Asymmetry, we believe it is inappropriate to use transport for anything except as a transport between a Routing Node and a Thin Client.

Bluetooth LE: State of the Feature

- Feature Branches currently exist in the AllJoyn Core & AJTCL repos under git branch: feature/btle-transport
- AllJoyn Core functional for Linux (Test Platform Ubuntu 12.04) and has been tested with commercial BT v4.0 radios from Qualcomm and Broadcom.
 - Requires BlueZ v5.24, and download of an AllJoyn Plugin from codeaurora.org
- AllJoyn Thin Client functional on Arduino DUE with a Nordic Semiconductor BLE shield.
 - Requires download of Nordic BLE SDK, with some modifications for DUE support and AllJoyn UUID
- Protocol based on existing SLAP, using a GATT based UART-like service (Tx/Rx only). BTSIG Compliant.
- Baseline currently expects AJTCL to be “Always Online”, but this **will** change

Bluetooth LE - Work under way

- SLAP assumes Always Connected (as over a UART)
 - Adding OFFLINE control messages to protocol:
 - OFFL <sec> -- AJTCL advisory notification to go Offline for (u32 seconds)
 - OFFC <sec> -- (soft) Rejection, asking for an offline delay of (u32 seconds)
 - OFFR <sec> -- (soft) Acceptance, with a request for fewer (u32 seconds)
 - Basic Proof of concept testing complete, with AJTCL going offline, returning to send Signals on demand, or periodically if no TCL→Routing node signals are pending.
 - AJTCL not bound by these times. Can come back early, or at most after its own advisory amount.
 - **System review** to be performed to assess how always-on CORE clients handle “Sleepy” devices, which spend more time Offline than Online.

Bluetooth LE – Next Platforms

- openWRT
 - We believe that having a BTLE-Transport in an Access Point is of particular importance for Home automation
 - **This effort has just started.** As a Linux based OS, not seen as a big hurdle
- Smartphones
 - Primarily to handle “on body” sensors.
 - Not yet started



Interface Review Board Proposal

Dominique Chanet

Qeo LLC, a subsidiary of Technicolor SA

Proposing the Interface Review Board.

- A committee that oversees the various interfaces that are designed in the Working Groups
- First (important!) job: lay down the ground rules and conventions for interface design
- Assists WGs in defining their interfaces, and in evolving them over time
 - to be involved from early on in the WG process
- Must have a deciding vote in whether an interface definition is ready for standardization.

Many practicalities to be decided.

- Who will man this committee?
Calling for volunteers!
- How large will it be?
Let's start with 5 or 6 people.
- Voting procedures?
Proposal:
 - At least 2 members of the IRB must review an interface and approve.
 - Having more reviewers is optional.
 - In case of contention, majority vote decides.
- Service guarantees
Proposal: Interface review phase comes before C&C test spec review, feedback guaranteed within 2 weeks.

Going forward

- Volunteer solicitation phase starts now. Announce your candidacy on the TSC mailing list.
- Next week, final vote on the formation of the IRB
 - Names of the IRB volunteers will be presented prior to vote.
- IRB will draft interface guidelines by year's end
 - To be presented and voted upon by the TSC
 - Interface guidelines will be updated as needed, following technical evolutions (interface versioning, extensions to Introspection XML format, ...)
- From 2015 onward, interface standardisation is governed by the IRB.



Thank You

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