ALLSEEN ALLIANCE

Technical Steering Meeting

January 20, 2015

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Reminder:

This call is being recorded

Agenda

1. Approve minutes from previous meeting
2. 14.12a status
3. Interface Review Board Vote
   - Vote for Dave Thaler from Microsoft as an additional volunteer
4. Working group assignments - Recap
   - Vote for Dave Diplock as committer for base services WG
5. Request to revisit TSC meeting times
6. Interoperability Test Procedures

14.12a Status

14.12a Status

- 14.12a currently will include
  - UDP updates
  - Misc fixes
- Status Update
- JIRA Dashboard online
  - https://jira.allseenalliance.org/secure/Dashboard.jspa?selectPageId=10601

Interface Review Board Vote

Interface Review Board Vote

- Vote for Dave Thaler from Microsoft as an additional volunteer

Working group assignments - Recap

Working group assignments and committers

- Marcello Lioy
  - Assumed role as chair for Core WG
- Greg Burns
  - Assumed role as chair for Base Services WG
- Vote to approve Dave Diplock as committer on base services
  - Staff engineer at Qualcomm Connected Experiences
  - Has been contributor on based services and connected lighting
  - Dave is already a committer on Connected Lighting WG

Request to revisit TSC meeting times

Request to revisit TSC meeting times

- TSC meetings are held weekly for one hour alternating (by the week)
  - Mondays at 9:00pm Pacific Time
  - Tuesdays at 6:00am Pacific
- There is a request to move the Tuesday meeting time to 7am Pacific Time
- Feedback as to times and days of the meetings is encouraged

Interoperability Testing

Certification Testing

Certification testing is composed by:

- **Conformance Testing**: Testing performed using the Conformance Test Tool to verify the compliance of an AllJoyn implementation with AllJoyn interface definitions.

- **Interoperability Testing**: Testing performed according to AllSeen Alliance Interoperability test cases to verify that an AllJoyn implementation can interoperate with other AllJoyn devices.

Conformance Test Tool

AllJoyn Implementation

Interoperability Test Beds

Conformance versus Interoperability Testing

Why Conformance Testing?

- Devices from different OEMs conforming to the same Interface Definitions have a higher likelihood of interoperability, but this is not guaranteed
- Different OEMs can independently make implementations using the same AllJoyn framework with higher assurance of product interoperability

Why Interoperability Testing?

- The ultimate objective is that independent implementations using the same AllJoyn framework interoperate
- Conformance testing improves the chances of interoperability while interoperability testing checks at a user level if interoperability has been achieved

Interoperability Testing

- A method for determining to what extent two or more AllJoyn implementations function together for some range of features, services and use cases over specific scenarios
- Interoperability testing has to be performed assessing the end-to-end services operation across two or more products
- But, interoperability testing shall focus on interoperable interfaces, not on internal functional behavior
- More assurance of interoperability of a device is achieved by means of:
  - Testing as many pairings of this device with other devices as possible
  - Testing pairings of this device with devices from different OEMs (avoiding the repetition of OEMs)

Causes of Interoperability Problems

- Interface Definitions & Developer Guides
  - Errors and ambiguities in Interface Definitions and Developer Guides
- Implementations
  - Human errors, e.g. programmer errors when integrating the AllJoyn framework
  - Modifications to the AllJoyn framework
  - Different interpretations of the Interface Definitions and Developer Guides
  - Different choice of options allowed by the Developer Guides
- Technology
  - Wi-Fi networks might use different traffic transport techniques
  - Physical device compatibility problems
  - Physical device configuration problems

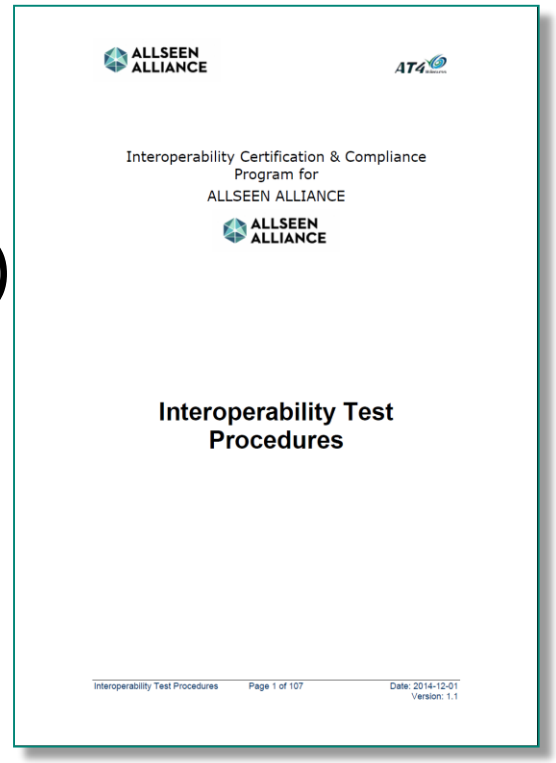
Interoperability Testing Concept

	Ref. Device	A.P.	DUT
Interoperability with Device 1			
Interoperability with Device 2			
Interoperability with Device 3			

Interoperability Test Procedures

Interoperability Test Procedures

- Testing Performed according to Interoperability Test Procedures document
- Runs against reference devices (certified, if available)
- Each interoperability test case is performed against several reference devices
- A Test Bed is a set of reference devices that are used in one or more test cases (depending on the services supported by the devices)
- Several Test Beds are used to cover all the Test Procedures,



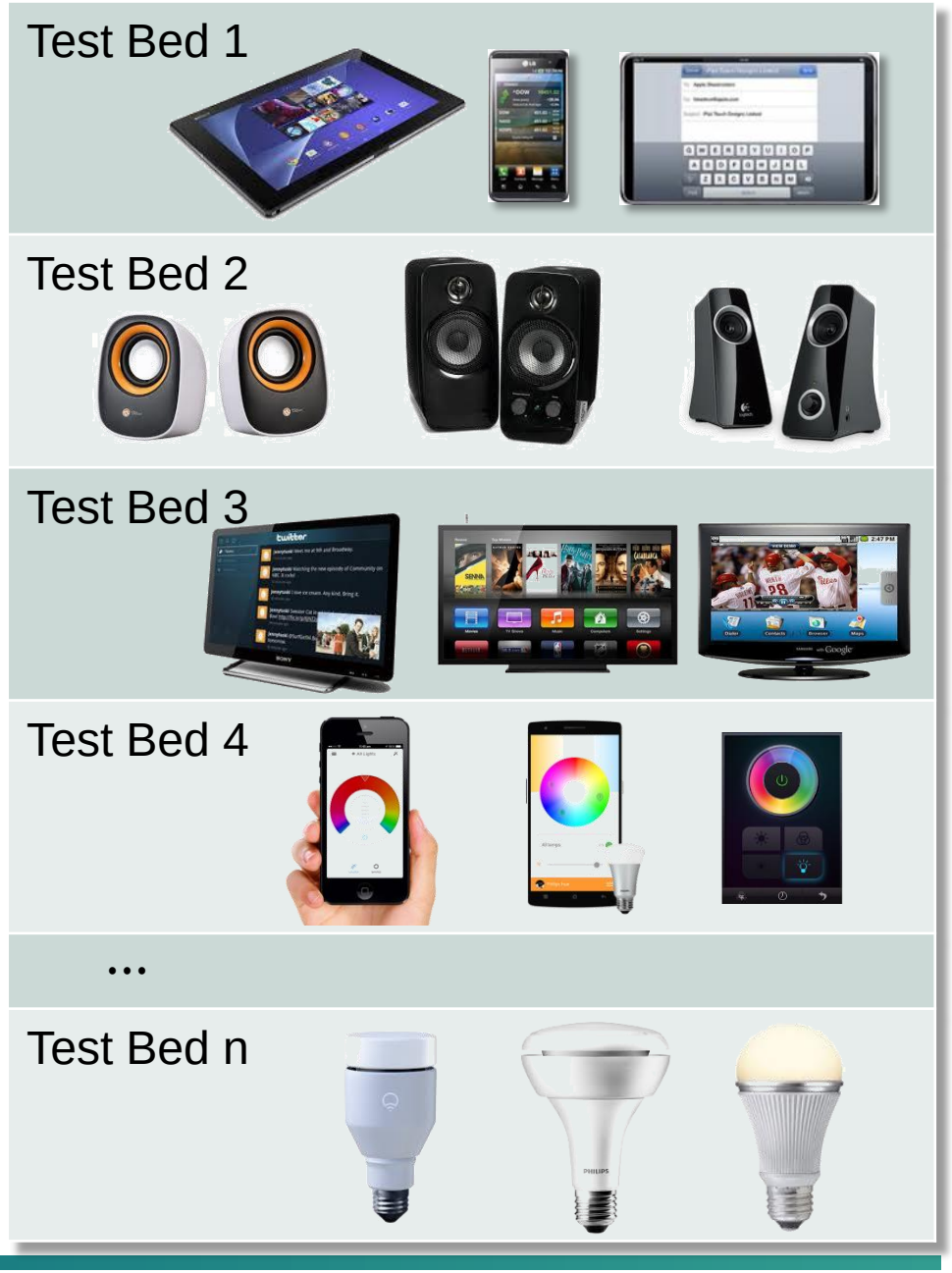
Interoperability Test Environment

Test environment includes the following elements:

Device Under Test (DUT)	A Wi-Fi Access Point (personal AP)	A Test Bed: group of reference devices to interoperate with the DUT in the specific test cases

Interoperability Test Beds

- Each Test Bed includes reference devices to execute one or more test cases of one service
- In general, reference devices belonging to one Test Bed are similar and support the same services
- Reference devices are classified by different categories supporting specific service functionalities



Interoperability Reference Device Categories

Different reference device categories are defined to cover each group of requirements for testing the associated service framework:

- Category 1 (*About*)
- Category 2 (*Configuration*)
- Category 3 (*Onboarding*)
- Category 4.1 (*Control Panel Controller*)
- Category 4.2 (*Control Panel*)
- Category 5.1 (*Notification Consumer*)
- Category 5.2 (*Notification Producer*)
- Category 6.1 (*Audio Source*)
- Category 6.2 (*Audio Sink*)
- Category 7.1 (*Lighting Controller*)
- Category 7.2 (*Lamp Service*)

More categories will be required when new Services are defined

Reference Device Selection: Golden Units

Reference Devices selected for interoperability testing have to fulfill some requirements to be used for Certification Testing:

- It is preferable that the device is AllSeen certified
- The device has to fulfill the requirements of, at least, one category
- Device interoperability has been tested in one or more plug-fests with no less than four devices with the following characteristics:
  - At least, two different OSs
  - At least, two different form factors (e.g. tablet and mobile phone)
  - At least, two different OEMs

Reference Device Selection Example: Category 7.1

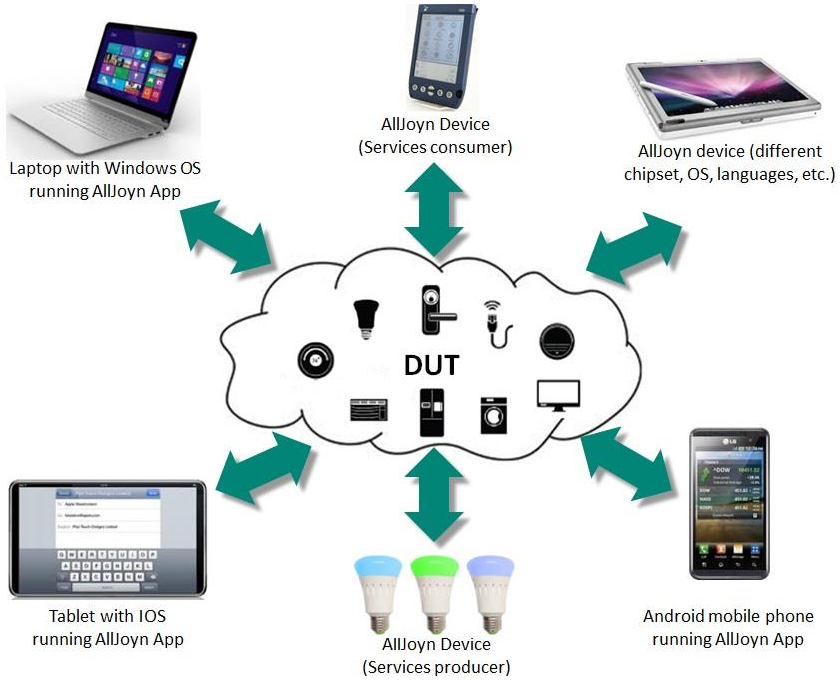
Specific requirements for a Category 7.1 (Lighting Controller) device:

- It shall include a display with a GUI (i.e. mobile phone, tablet, etc.)
- The functionality can be provided by an external App installed
- It shall support Lighting Controller Service
- It shall provide user interface to perform the following actions:
  - Switch on and off a lamp and display current status
  - Display and modify lamp hue
  - Display and modify lamp saturation
  - Display and modify lamp color temperature
  - Display Lamp information provided by LampDetails interface
  - .....

Interoperability Test Cases

Interoperability Test Cases

First release of Interoperability Test Procedures includes the following test cases:



Service	Test Cases
About:	3
Configuration Service:	8
Onboarding Service:	7
Control Panel Service:	3
Notification Producer Service:	1
Notification Consumer Service:	3
Audio Service (Audio Sink):	7
Audio Service (Audio Source):	7
Lighting Service:	13
Total:	**52**

Interoperability Test Cases per Service Example

- Audio Service (Audio Sink):
  - IOP_AudioSink-v1-01. Audio Media types
  - IOP_AudioSink-v1-02. Synchronized audio Playback on one sink
  - IOP_AudioSink-v1-03. Synchronized audio Playback on several sinks
  - IOP_AudioSink-v1-04. Pausing playback
  - IOP_AudioSink-v1-05. Stopping (flushing) playback
  - IOP_AudioSink-v1-06. Setting mute state
  - IOP_AudioSink-v1-07. Volume control

Interoperability Test Case Description

Test Case description:

- Test Procedure Identifier
- Test Case Title
- Test Purpose
- Applicability
- Test Bed
- Initial Conditions
- Test Procedure
- Pass/Fail Criteria

Test procedure id	**IOP_Onboarding-v1-02**
Test case Title	DUT Offboarding
Test purpose	Verify that the DUT can be offboarded by other AllJoyn device
Applicability	Devices supporting Onboardee functionality (Onboarding Service Framework)
Test Bed	- At least one 'Category 3' TBAD: TBAD1.
Initial Conditions	TBAD1 is switched off. DUT has already been onboarded and connected to the personal AP.
Test Procedure	1. Switch TBAD1 on. 2. Connect TBAD1 to the AP network if it is not connected yet. 3. Establish an AllJoyn connection between the DUT and TBAD1 if is not established automatically. Command TBAD_1 to onboard the DUT if required. 4. Command TBAD1 to offboard the DUT.
Pass Fail Criteria	Step 4: DUT is offboarded

Interoperability Test Cases Complete List

- About:
  - IOP_About-v1-01. Reception of About Announcement
  - IOP_About-v1-02. Reception of ‘GetAboutData’ information
  - IOP_About-v1-03. Support of DeviceIcon Object
- Configuration Service:
  - IOP_Config-v1-01. Verify that Config interface is included in the About Announcement
  - IOP_Config-v1-02. Get Configuration
  - IOP_Config-v1-03. Update DUT configuration
  - IOP_Config-v1-04. Perform DUT Factory Reset
  - IOP_Config-v1-05. Update DUT configuration using different supported languages
  - IOP_Config-v1-06. Modify DUT configuration using unsupported languages
  - IOP_Config-v1-07. Perform DUT Restart
  - IOP_Config-v1-08. Reset Configuration
- Onboarding Service:
  - IOP_Onboarding-v1-01. Onboarding Service framework supported
  - IOP_Onboarding-v1-02. DUT Offboarding
  - IOP_Onboarding-v1-03. DUT Onboarding
  - IOP_Onboarding-v1-04. DUT Onboarding without proper authentification
  - IOP_Onboarding-v1-05. DUT Onboarding with incorrect WIFI configuration data
  - IOP_Onboarding-v1-06. DUT Onboarding, use of GetScanInfo method
  - IOP_Onboarding-v1-07. Onboarding after changing passcode

Interoperability Test Cases Complete List

- Control Panel Service:
  - IOP_ControlPanel-v1-01. Control panel interface announcement
  - IOP_ControlPanel-v1-02. Retrieving widgets parameters values
  - IOP_ControlPanel-v1-03. Control Panel Interface use of widgets
- Notification Producer Service:
  - IOP_Notification-v1-01. Sending Notifications
- Notification Consumer Service:
  - IOP_Notification-Consumer-v1-01. Receiving Notifications inside and outside the TTL period
  - IOP_Notification-Consumer-v1-02. Handling different types of Notification messages
  - IOP_Notification-Consumer-v1-03. Display different languages messages
- Audio Service (Audio Sink):
  - IOP_AudioSink-v1-01. Audio Media types
  - IOP_AudioSink-v1-02. Synchronized audio Playback on one sink
  - IOP_AudioSink-v1-03. Synchronized audio Playback on several sinks
  - IOP_AudioSink-v1-04. Pausing playback
  - IOP_AudioSink-v1-05. Stopping (flushing) playback
  - IOP_AudioSink-v1-06. Setting mute state
  - IOP_AudioSink-v1-07. Volume control

Interoperability Test Cases Complete List

- Audio Service (Audio Source):
  - IOP_AudioSource-v1-01. Getting Audio Media types
  - IOP_AudioSource-v1-02. Command audio Playback on one sink
  - IOP_AudioSource-v1-03. Command audio Playback on several sinks
  - IOP_AudioSource-v1-04. Command playback pause
  - IOP_AudioSource-v1-05. Command playback stop
  - IOP_AudioSource-v1-06. Command mute state
  - IOP_AudioSource-v1-07. Command Volume control
- Lighting Service:
  - IOP_LSF_Lamp-v1-01. Switching on/off the DUT lamp
  - IOP_LSF_Lamp-v1-02. Providing Lamp details
  - IOP_LSF_Lamp-v1-03. Modify Lamp Hue
  - IOP_LSF_Lamp-v1-04. Modify Lamp Saturation
  - IOP_LSF_Lamp-v1-05. Modify color temperature of a Lamp
  - IOP_LSF_Lamp-v1-06. Modify Lamp brightness
  - IOP_LSF_Lamp-v1-07. Modify Lamp parameters in a multi-lamp environment, joining an existing group
  - IOP_LSF_Lamp-v1-08. Modify Lamp parameters in a multi-lamp environment, other lamps joining the group
  - IOP_LSF_Lamp-v1-09. Behavior after switching on and off
  - IOP_LSF_Lamp-v1-10. Pulse Effects
  - IOP_LSF_Lamp-v1-11. Transition Effects
  - IOP_LSF_Lamp-v1-12. Simultaneous Effects
  - IOP_LSF_Lamp-v1-13. Handling lighting scenes

Thank You

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