



C&C updates

C&C Committee and WG

March 26th 2015





Summary

- | | |
|----------------------------------|-------|
| 1. Certification Program | Ram |
| 2. Interoperability Testing | AT4 |
| 3. Certification Tool/Admin Tool | AT4 |
| 4. C&C Requirements for WGs | Telis |



Certification Program

Ram Jeyaraman

Certification Goals

- Create an ecosystem of certified devices in the marketplace that have a high-likelihood of interoperating with each other
- Certification is NOT an enforcement program. It is a choice based on implicit trust amongst parties involved

Certification Program SHOULD

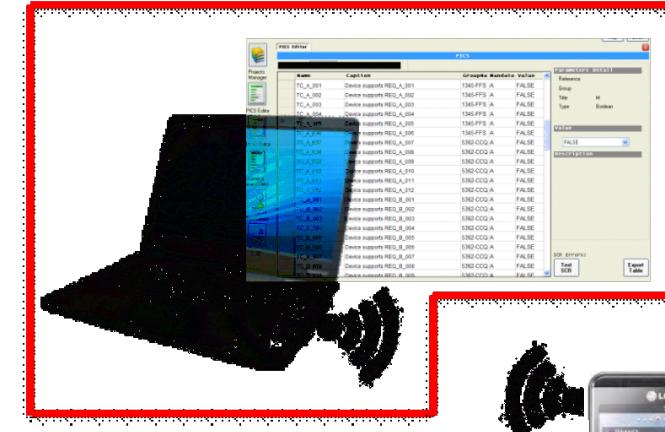
- **Add Value**
 - Certified products benefit from the patent pledge (as described in the IP Policy) and interoperability testing. Interoperability testing significantly raises the likelihood of certified products interoperating with each other
- **Offer Reasonable Costs**
 - Cost should generally be reasonable and affordable
- **Be Practical for OEMs**
 - Be practical and not onerous. Strike a fine balance between agility (genuine need of OEMs to release products or updates quickly) and rigor (ensuring certified products are interoperable)

Certification Testing Types

Certification testing is composed of:

- **Conformance Testing**: Performed using the ***Conformance Test Tool*** to verify the compliance of an AllJoyn implementation with AllJoyn interface definitions.
- **Interoperability Testing**: Performed with ***Reference Devices*** to verify that an AllJoyn implementation can interoperate with other AllJoyn devices.

Conformance Test Tool



AllJoyn Implementation

Reference Devices



Testing Laboratory Options

- **3rd Party Lab(s)**

- Independent ISO certified 3rd party lab(s) authorized by AllSeen to perform testing
 - Auditable by AllSeen Alliance
 - Works with AllSeen Alliance to verify results

- **OEM Lab(s)**

- Must be authorized by AllSeen Alliance
 - Expected to have same level of certification as any 3rd Party Lab
 - Auditable by AllSeen Alliance
 - Works with AllSeen Alliance to verify the results

Product Categories

- **End Product**

A product including AllJoyn functionality intended to be sold to the final customer and subject to AllSeen certification

- **Module**

A product with AllJoyn functionality that can be embedded in another Product Integration
A Module can be AllSeen Certified on its own allowing Product Integrations reuse the Module certification process

- **Integrated Product**

A product that embeds an already certified Module, or another certified End Product, to create a new End Product

Certification Categories

- **New Product**

A new product Certification is the first AllSeen certification for a product of any category

- **Product Update**

Certification of a new release of an already certified product with a modification compared to the certified product

- **Product Variant**

Certification of a new product with software and/or hardware set of modifications from an already certified product from which some certification testing could be reused

- **Product Re-branding**

Certification of a product whose differences related to an already certified product affect the branding of the product, upper applications, packaging and cosmetics

Certification Recommendations

- **Non-functional changes to a Certified Product (End Product or Module)**
 - Nature of change: non-functional changes (e.g. changes to color, battery, buttons)
 - Testing requirement: Testing is not required
- **Device Identification Attribute changes to a Certified Product (End Product or Module)**
 - Nature of change: Changes to product name, model number, or system ID
 - Testing requirement: Testing is not required. But OEM must update the device certificate through AllSeen Alliance

Additional Testing Options (being considered)

- In cases where it is not feasible to ship products to an Authorized Laboratory, the possibility of remote testing (via VPN) is being considered.
- In cases where certified reference devices are not available on the market (due to the lead time in adoption), the use of certified simulators is being considered.

Timeline (for initial roll out)

- May 2015: Conformance Test Tool
- July 2015: Certification Administration Web Tool (adjunct to Conformance Test Tool)
- September 2015: 3rd Party Lab with interop testing infrastructure



Interoperability Testing

AT4 Wireless

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)

Interoperability Testing Concept

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

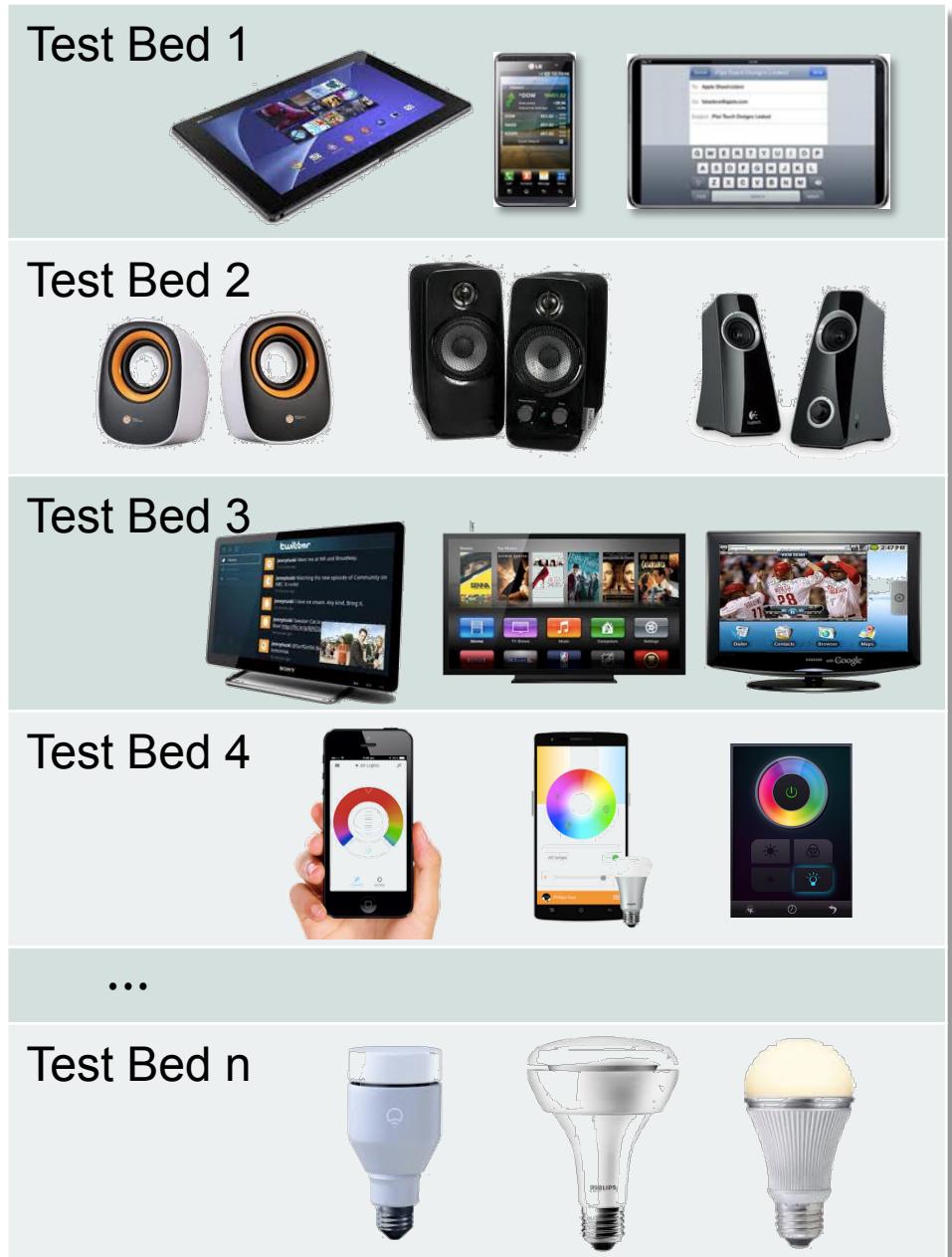
Interoperability Testing Location

- IOP testing needs to be performed in an **AllSeen authorized laboratory**
 - Third Party test laboratory
 - OEM laboratory (same requirements than for a 3rd party laboratory).



Interoperability Test Beds

- A Test Bed is a set of Reference Devices that are used in one or more test cases
- Reference devices belonging to one Test Bed are used to test an specific service
- Reference devices are classified by different **categories** supporting specific service functionalities



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





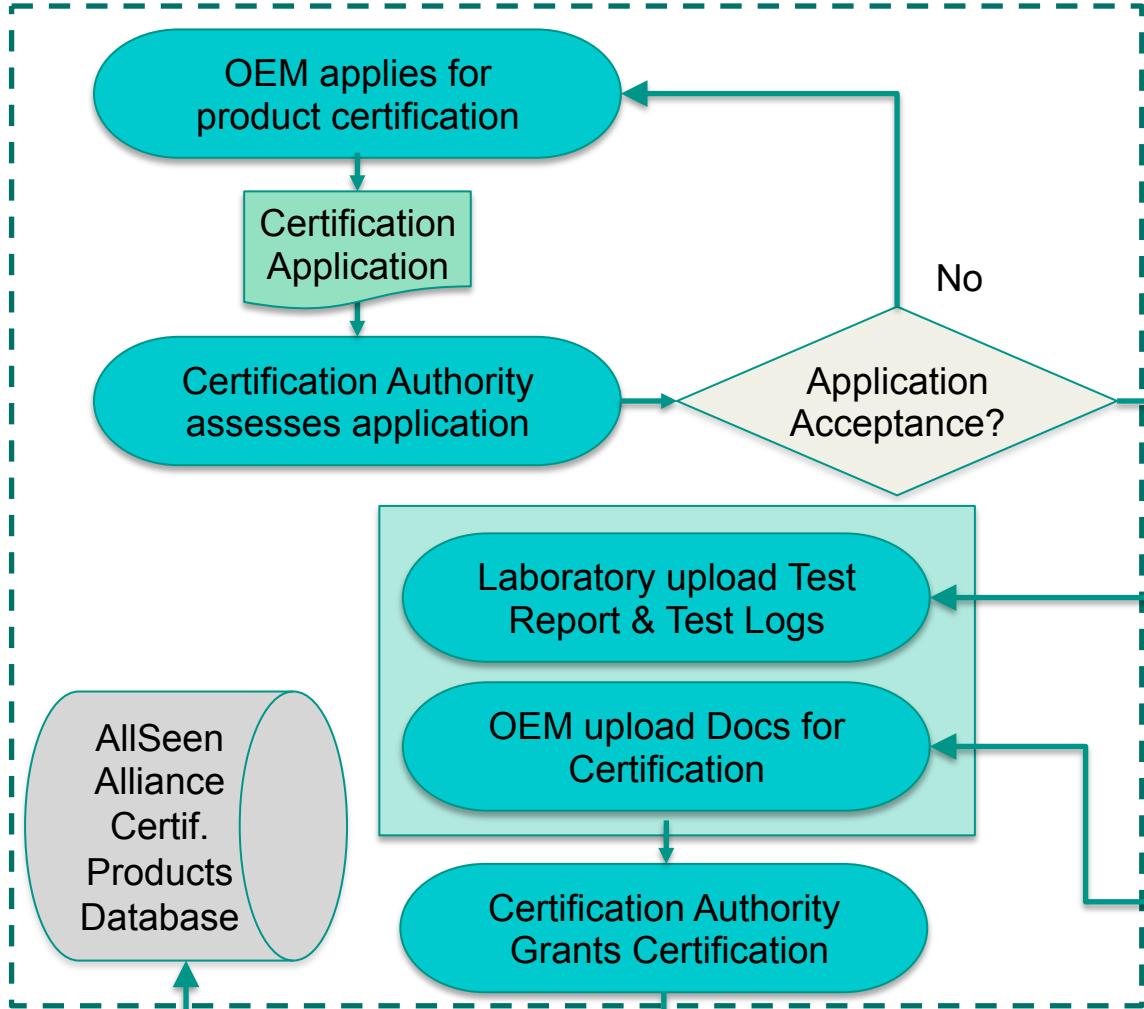
Certification Tool/Admin Tool

AT4 Wireless

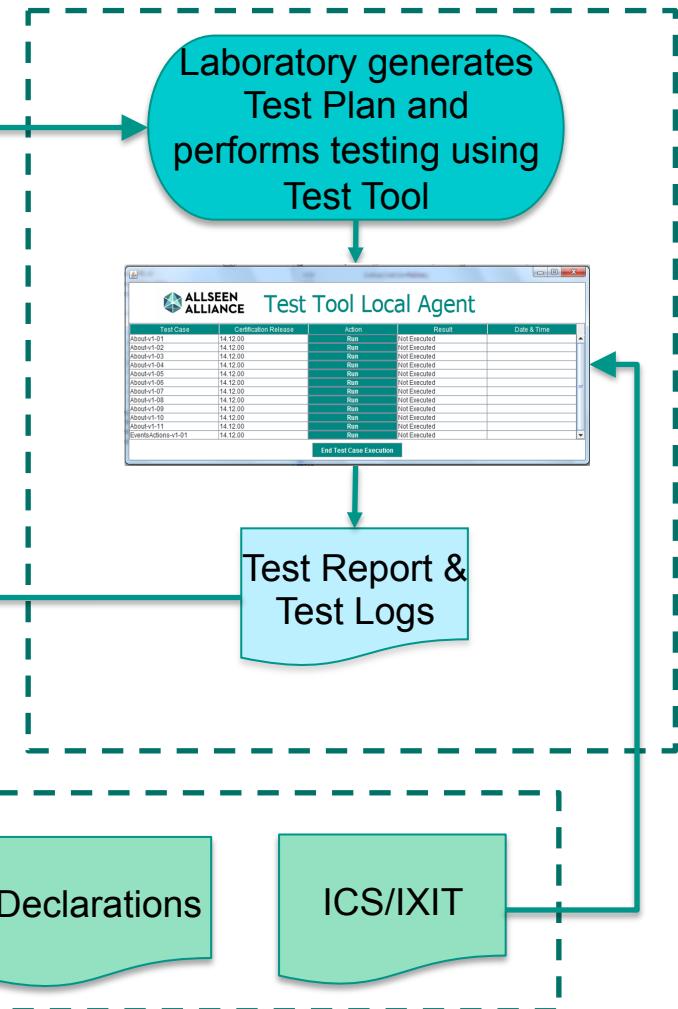
1. Product Certification Process
2. Certification Administration Web Tool (CAWT)
3. Certification Test Tool (CTT)
4. Interfaces between CAWT and CTT
5. Schedule

1. Product Certification Process

Certification Administration Web Tool



Certification Test Tool



2. Certification Administration Web Tool

The CAWT is a Web application that includes the following main functionalities:

Certification Applications Handling

Handle AllJoyn Products
Certification lifecycle
(except testing)

Certified Products Registry Handling

Maintenance and consult of all
certified products details

2. CAWT. Certification Application Request Handling



Certification Application Web Tool

User: Name Surname [Logout](#)



Certification Applications

CERTIFIED PRODUCTS

MANUFACTURERS

CERTIFICATION BODIES /
AUTHORIZED LABS

USER PROFILE

CERTIFICATION
APPLICATIONS

PENDING TASKS

FILTERING CRITERIA:

Name: <input type="text"/>	Model: <input type="text"/>	Code: <input type="text"/>	
Product Category: <input type="text" value="-- All --"/>	Certification category: <input type="text" value="-- All --"/>		
Certification Release: <input type="text" value="-- All --"/>	State: <input type="text" value="-- All --"/>		
Creation date: From <input type="text"/>	To: <input type="text"/>	Clear	Search

Click on one certification application for more detail:

CODE	NAME	MODEL	PRODUCT CATEGORY	CERTIF. RELEASE	CERTIFICATION CATEGORY	DATE	STATE
CRI.001	APPSPOWER Smart Plug	R9P154, M9PG07	End Product	14.02	New Product	2014-01-23	Request pending for approval
CRI.063	Lighting Connectivity Module	LCM1V4	Module	14.06	New Product	2014-02-24	Pending for documentation
CRI.088	LIFX A19 White	BUL-11-A19E26-W	Product Integration	14.06	Product Variant	2014-03-13	Pending for final approval

New



[17.c]

Manufacturer User

2. CAWT. Certified Products

CERTIFIED PRODUCTS

MANUFACTURERS

CERTIFICATION BODIES / AUTHORIZED LABS

USER PROFILE

CERTIFICATION APPLICATIONS

PENDING TASKS

FILTERING CRITERIA:

Name: Model:

Manufacturer: -- All --

Product Category: -- All --

Service Framework: -- All --

Certification Release: -- All --

Geographical Area: -- All --

Certification date: From

To:

Clear

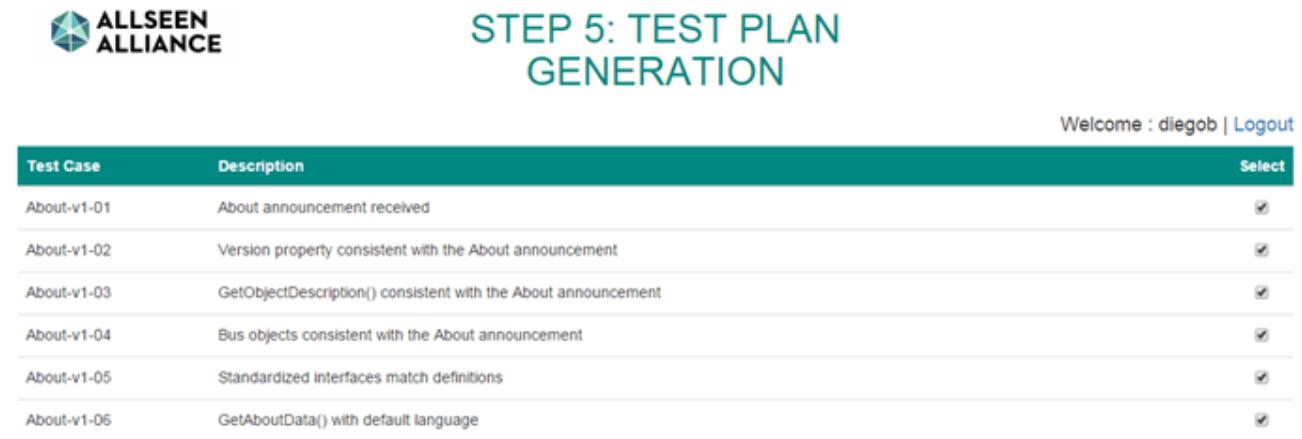
Search

Click on one certified product for more detail:

NAME	MODEL	CATEGORY	CERTIF DATE	MANUFACT.	CERTIF. RELEASE	SERVICE FRAMEWORK	GEOG AREA
APPSPOWER Smart Plug	R9P154, M9PG07	End Product	2014-10-03	POWERTECH INDUSTRIAL CO.,LTD	14.02	Control Panel Onboarding	ASIA
Lighting Connectivity Module	LCM1V4	Module	2014-09-30	Lifi Labs Inc.	14.06	Onboarding Configuration Lighting	Europe
LIFX A19 White	BUL-11-A19E26-W	Product Integration	2014-12-03	Lifi Labs Inc.	14.06	Onboarding Configuration Lighting	Europe

3. Certification Test Tool

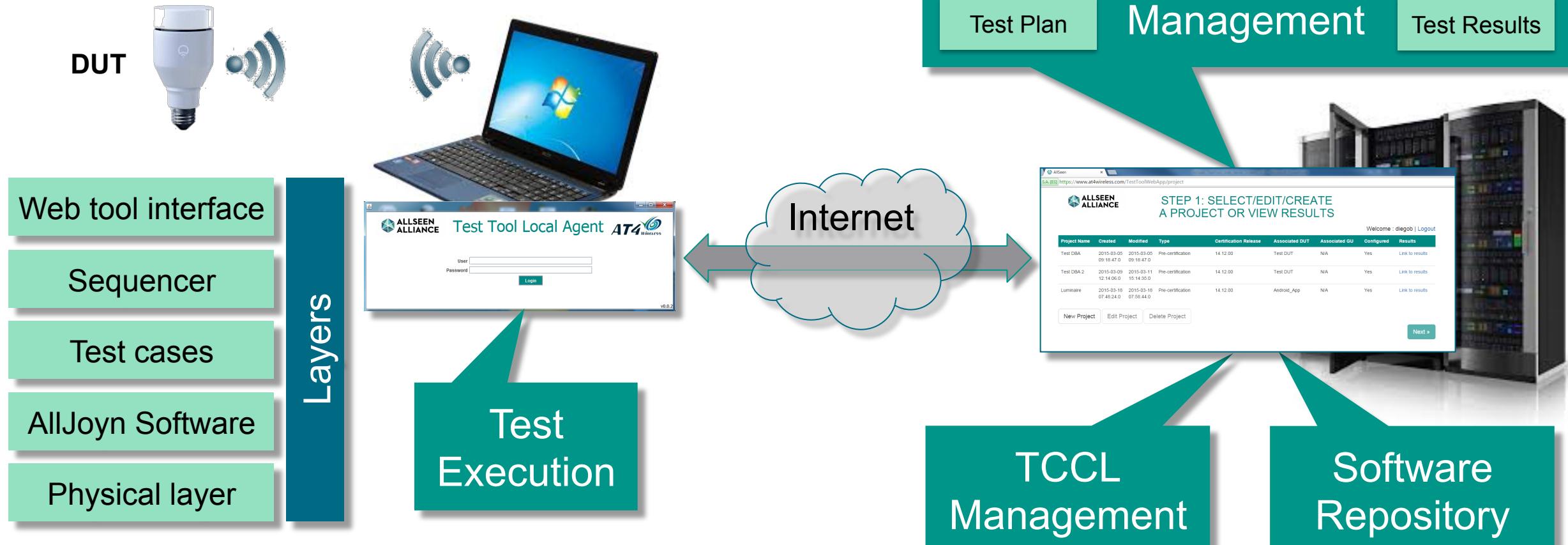
- Performs Conformance Testing
- Guides user to perform Interoperability Testing
- Verifies the correct implementation of the AllJoyn features and service frameworks
- Private domain, access required
- Executes in an automatic way
- Stores test results and testing evidences
- Created for Product Certification but also suitable for product development verification and pre-certification testing



The screenshot shows a web-based application for test plan generation. At the top left is the AllSeen Alliance logo. To the right, the title "STEP 5: TEST PLAN GENERATION" is displayed in blue. In the top right corner, there are links for "Welcome : diegob" and "Logout". A table below lists six test cases, each with a "Select" checkbox in the far right column. The test cases are:

Test Case	Description	Select
About-v1-01	About announcement received	<input checked="" type="checkbox"/>
About-v1-02	Version property consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-03	GetObjectDescription() consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-04	Bus objects consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-05	Standardized interfaces match definitions	<input checked="" type="checkbox"/>
About-v1-06	GetAboutData() with default language	<input checked="" type="checkbox"/>

3. Certification Test Tool



Test Tool Local Agent

Test Tool Web Server

3. CTT. Test Tool Web Server. Project Management

- Project Identification, Versioning and Results.
- Device Under Test (DUT) identification.
- Golden Unit identification (for Interoperability Projects).
- Fill in ICS, IXIT and General Parameters.
- Run Static Conformance Review (SCR) to check ICS integrity.
- Test Plan generation (Conformance and/or Interoperability Test Cases).
- Test Results Management.

3. CTT. Test Tool Web Server. Project Management



STEP 1: SELECT/EDIT/CREATE A PROJECT OR VIEW RESULTS

Welcome : diegob | [Logout](#)

Project Name	Created	Modified	Type	Certification Release	Associated DUT	Associated GU	Configured	Results
Test DBA	2015-03-05 09:18:47.0	2015-03-05 09:18:47.0	Pre-certification	14.12.00	Test DUT	N/A	Yes	Link to results
Test DBA 2	2015-03-09 12:14:06.0	2015-03-11 15:14:35.0	Pre-certification	14.12.00	Test DUT	N/A	Yes	Link to results
Luminaire	2015-03-18 07:48:24.0	2015-03-18 07:58:44.0	Pre-certification	14.12.00	Android_App	N/A	Yes	Link to results

[New Project](#)[Edit Project](#)[Delete Project](#)[Next »](#)

Project Identification, Versioning and Results.

3. CTT. Test Tool Web Server. Project Management



STEP 3: CONFIGURE YOUR ICS

Welcome : diegob | [Logout](#)

Core Interface		Notification	
ID	Name	Description	Value
1	ICSCO_DateOfManufacture	Support of About Interface GetAboutData method DateOfManufacture data field	<input type="button" value="true ▾"/>
2	ICSCO_HardwareVersion	Support of About Interface GetAboutData method HardwareVersion data field	<input type="button" value="true ▾"/>
3	ICSCO_SupportUrl	Support of About Interface GetAboutData method SupportUrl data field	<input type="button" value="false ▾"/>
4	ICSCO_IconInterface	Support of Icon Interface	<input type="button" value="false ▾"/>

[« Back](#) [SCR](#) [Next »](#)

ICS Configuration

3. CTT. Test Tool Web Server. Project Management



STEP 5: TEST PLAN GENERATION

Welcome : diegob | [Logout](#)

Test Case	Description	Select
About-v1-01	About announcement received	<input checked="" type="checkbox"/>
About-v1-02	Version property consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-03	GetObjectDescription() consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-04	Bus objects consistent with the About announcement	<input checked="" type="checkbox"/>
About-v1-05	Standardized interfaces match definitions	<input checked="" type="checkbox"/>
About-v1-06	GetAboutData() with default language	<input checked="" type="checkbox"/>
About-v1-07	GetAboutData() with each supported language	<input checked="" type="checkbox"/>
About-v1-08	GetAboutData() without a specified language	<input checked="" type="checkbox"/>
About-v1-09	GetAboutData() for an unsupported language	<input checked="" type="checkbox"/>
EventsActions-v1-01	Description tag existence in introspection XML and identical XML across different description languages	<input checked="" type="checkbox"/>
Notification-Consumer-v1-01	Basic text messages	<input checked="" type="checkbox"/>
Notification-Consumer-v1-02	Multiple languages	<input checked="" type="checkbox"/>

Test Plan Generation

3. CTT. Test Tool Web Server. Project Management



TEST CASES RESULTS FOR "Test DBA"

Welcome : diegob | Logout

Name	Description	Date and Time Execution	Certification Release	Final Verdict	Full Log
About-v1-01	About announcement received	2015-03-05 09:42:15	14.12.00a	FAIL	Link to log file
About-v1-02	Version property consistent with the About announcement	2015-03-05 09:43:10	14.12.00a	FAIL	Link to log file
About-v1-03	GetObjectDescription() consistent with the About announcement	2015-03-05 09:43:15	14.12.00a	FAIL	Link to log file
EventsActions-v1-01	Description tag existence in introspection XML and identical XML across different description languages	2015-03-05 09:44:16	14.12.00a	FAIL	Link to log file
About-v1-01	About announcement received	2015-03-05 10:21:54	14.12.00a	FAIL	Link to log file
EventsActions-v1-01	Description tag existence in introspection XML and identical XML across different description languages	2015-03-05 10:28:39	14.12.00a	FAIL	Link to log file
About-v1-01	About announcement received	2015-03-09 12:37:49	14.12.00a	FAIL	Link to log file
About-v1-01	About announcement received	2015-03-10 10:43:02	14.12.00a	FAIL	Link to log file
About-v1-01	About announcement received	2015-03-10 10:50:03	14.12.00a	FAIL	Link to log file
About-v1-01	About announcement received	2015-03-10 10:50:54	14.12.00a	FAIL	Link to log file

Test Cases Results

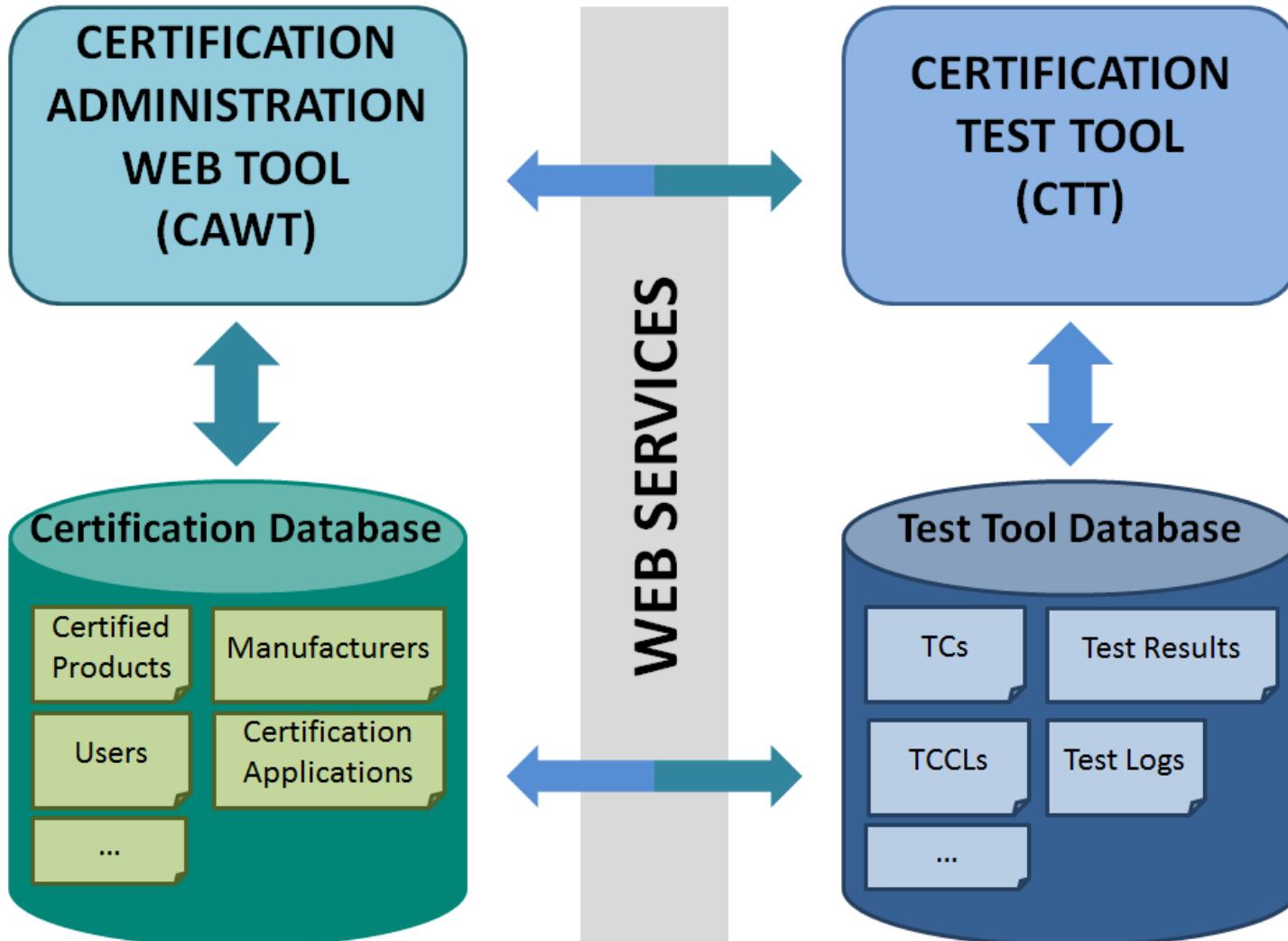
3. CTT. Test Tool Local Agent

- The Test Tool Local Agent is downloaded from the Test Tool Web Server.
- Local application installed on a Windows computer.
- Contains the software modules responsible for executing the Test Cases.
- Communicates with the Test Tool Web Server to download the project testing information (Test Plan, ICS/IXIT, etc.).
- Executes test cases according to the Test Case Specifications.
- Uploads Test Results to the Test Tool Server to be managed and stored.

3. CTT. Test Tool Local Agent

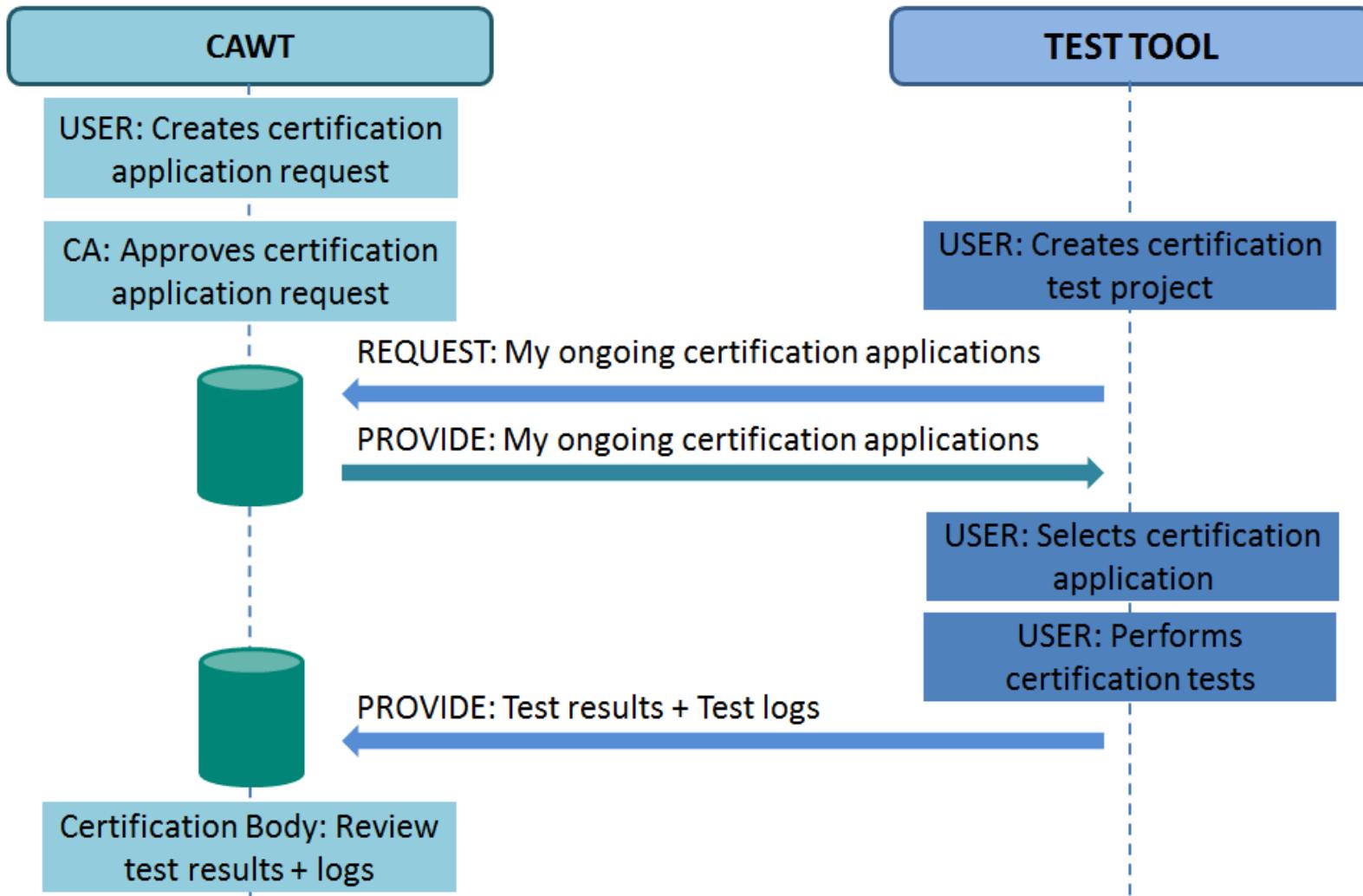
- Developed in JAVA .
- Will be fully verified under Windows 7 and Windows 8 OS.
- Wi-Fi will be the physical layer for communicating with the DUT.
- Fully support of Conformance testing.
- Interoperability testing:
 - Step by step guide to support the test operator during the execution of the interoperability Test Plan.
 - Test Results management.

4. CAWT and CTT Communication

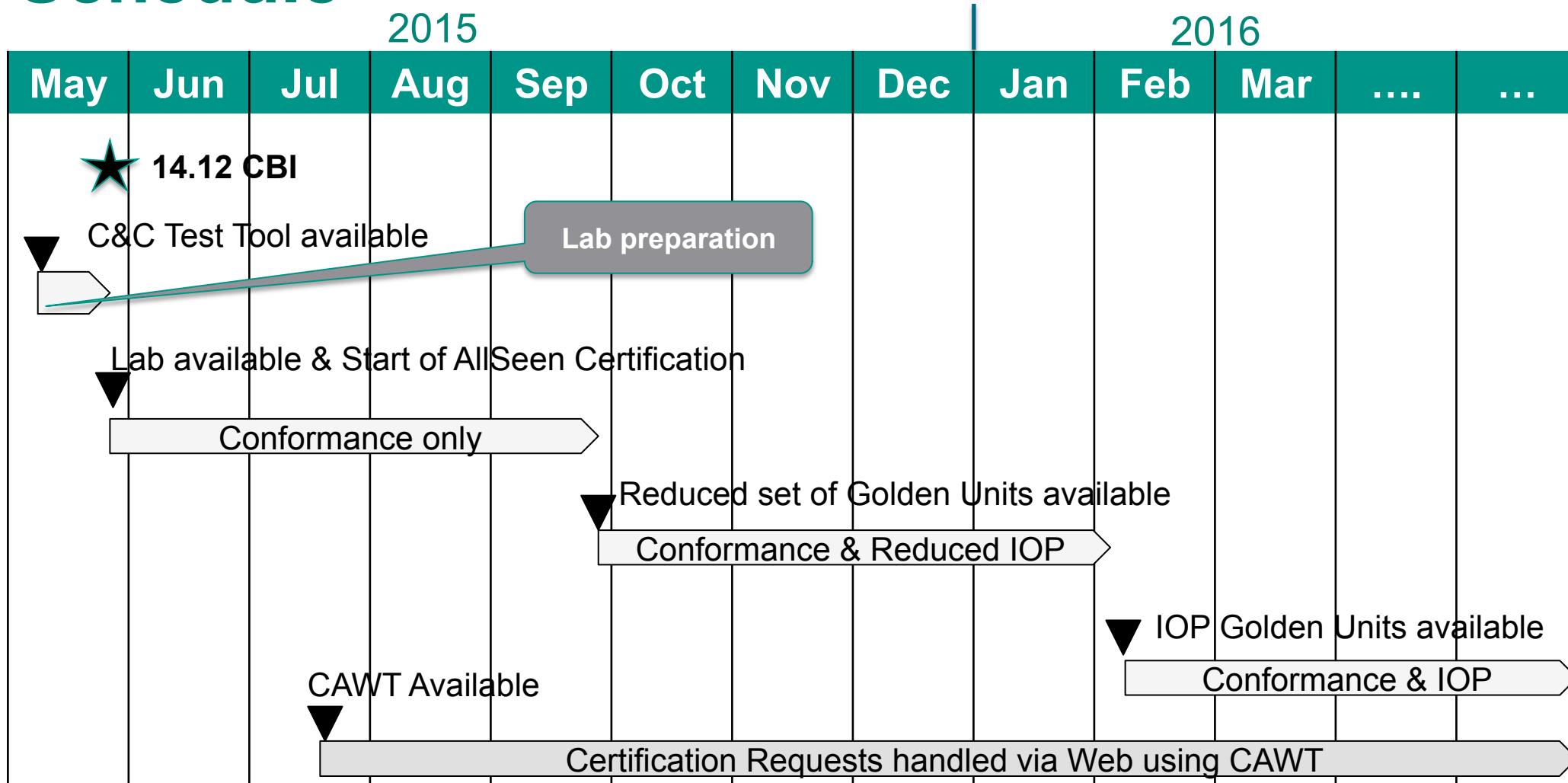


4. CAWT and CTT Communication

Certification Test Project



5. Schedule

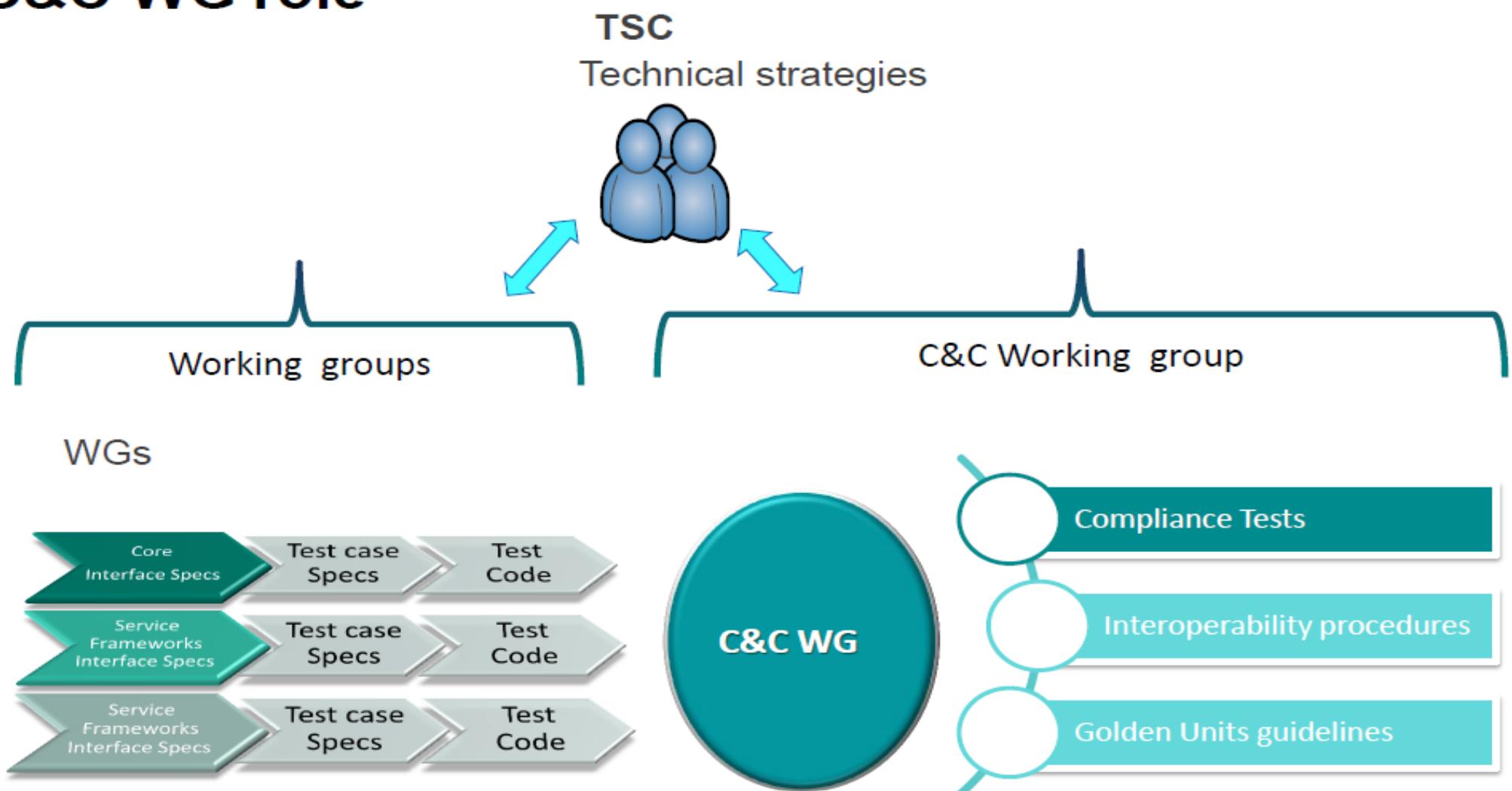




C&C Requirements for WGs

Telis Kaleas

C&C WG role



C&C Requirements for WGs

The Committer or Contributor of Core (About...)and each Service Framework (Config, Control Panel, Notifications, Lighting, etc...) MUST Provide to C&CWG:

- *The source code of the new (or updates) of Core and Service Frameworks*
- *Interface Definitions associated with the Core Interfaces or Service Framework Interface Definitions approved by IRB (<https://wiki.allseenalliance.org/interfacereviewboard>)*
- *Test Case Specs which are written against the Interface Definition of the Service Framework*
- *Provide Test Code implementing the Test Case Specs (in the future test code will be implemented from third party)*
- Send documents to the [Certification and Compliance \(Technical\) mail list](#).
- Allow 2 weeks lead time for C&C WG to approve the Test Case Specs.
- Documents MUST be approved by C&CWG BEFORE a product can be certified
- Test Case Specs and Review Docs template can be found here:
https://allseen.causewaynow.com/wg/CC_WG/document/folder/14