ALLSEEN ALLIANCE

Technical Steering Meeting

October 28, 2014

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Reminder:

This call is being recorded

Agenda

1. Approve minutes from previous meeting
2. Topics for TSC face-2-face at Alliance Summit
3. Vote on Lighting App Proposal
4. C&C Requirements for WGs
5. AllJoyn.js Status Update

TSC F2F Topics

Some ideas for the F2F

- Opportunity to have to in depth discussion around
  - Workgroup and Project Workflow
  - Workgroup structure
  - Hackfests and developer outreach
  - Roadmap and priorities
  - What are we doing right and what are we doing wrong?
  - Other thoughts and ideas

Vote on Lighting App Proposal

Lighting Apps Proposal Summary

- Container project for Android and iOS sample applications that interact with the Lighting Service Framework,
- One place to go to find LSF applications
- Proposed Project Name and Working Group
  - lighting/apps.git
  - Will reside in the existing Connected Lighting WG
- Release date
  - Code is ready to be submitted on project approval

C&C Requirements for WGs
Telis Kaleas

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 (Email of the location))*
- *Interface Definitions associated with the Core Interfaces or Service Framework Interface Definitions*
- *Test Case Specs which are written against the Interface Definition of the Service Framework*
- *Provide Test Code implementing the Test Case Specs*

- Send documents to the Certification and Compliance (Technical) mail list.
- Allow 2 weeks lead time for C&C WG to approve documents
- Documents MUST be approved by C&CWG BEFORE a product can be certified with that service framework
- Interface definition and Test Case Spec templates can be found here: https://wiki.allseenalliance.org/compliance/overview

AllJoyn.js Status Update

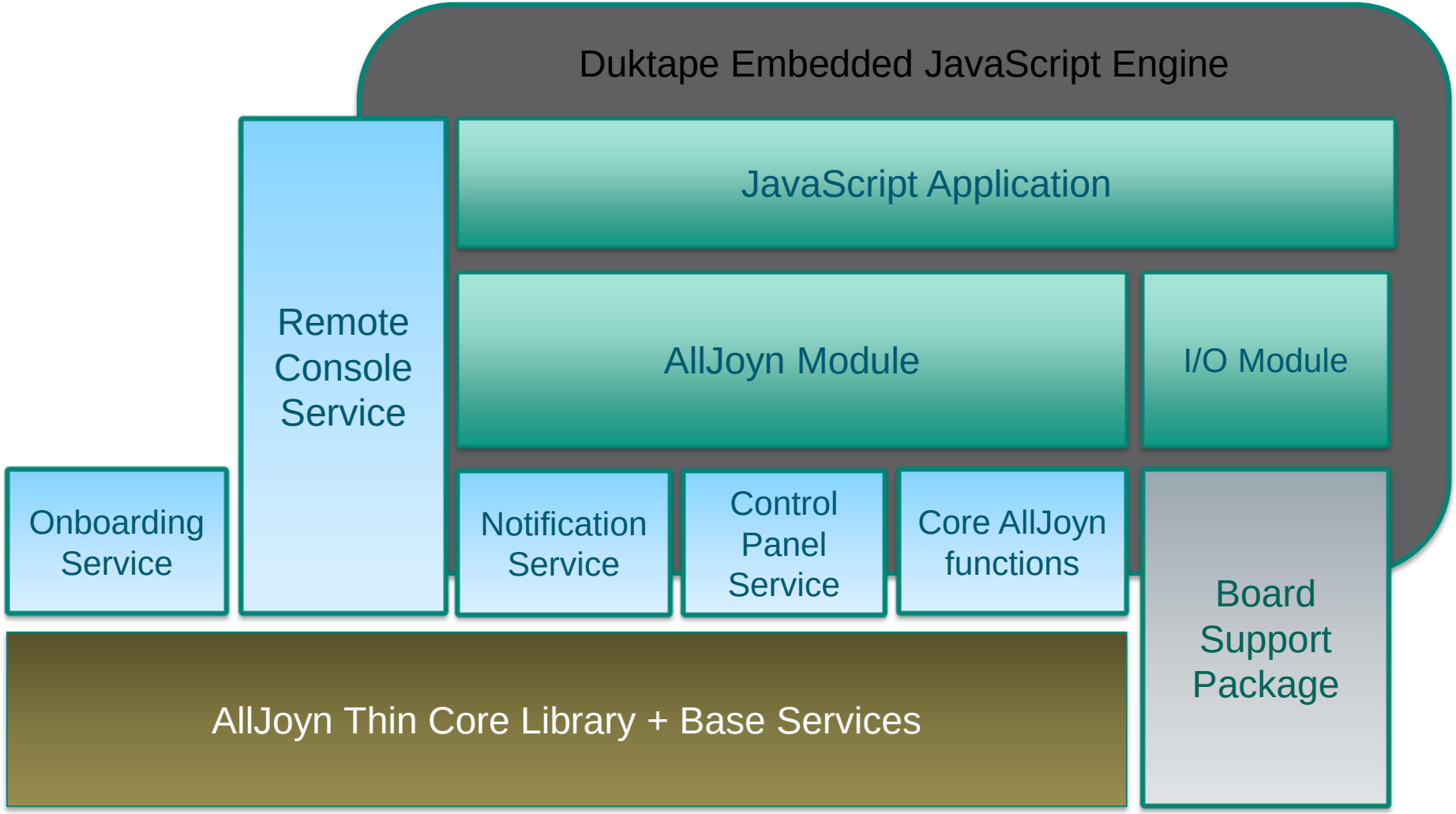
Alljoyn.js Update

- Code available for download from Alliance git repo
  - https://git.allseenalliance.org/cgit/core/alljoyn-js.git/
- Builds and runs on Windows, Linux, and Mac
  - Some code pushed for ST Micro “Discovery” board but not fully functional.
  - Getting started and other documentation can be found here:
    https://git.allseenalliance.org/cgit/core/alljoyn-js.git/tree/doc/html
  - Deep-dive presentation is available here:
    https://wiki.allseenalliance.org/_media/training/programming_alljoyn.js.pdf
- Requires an AllJoyn routing node on same CPU or elsewhere on the network

What is AllJoyn.js?

- AllJoyn.js combines the AllJoyn Thin Core Library (AJTCL) and base services with “duktape” an open source small-footprint ECMAScript 5.0-compliant runtime engine.
  - For more information on “duktape” see www.duktape.org
- A set of JavaScript APIs provide an easy to use abstraction layer over the AllJoyn core, base services, and the device I/O peripherals.
- The combined implementation is targeted at microcontrollers having a minimum of 128K RAM (preferably 256K for “real applications”) and 500K Flash.
- Also designed to run on Linux, Windows, and OS X
- Includes a “console” service for installing scripts and debugging application code.

Alljoyn.js Architecture



Console Service

- An AllJoyn service that runs alongside the JavaScript app
  - Functionality is exposed as an AllJoyn interface
  - AllJoyn.js source tree includes a command line console client
- Provides remote access to running JavaScript application
  - OTA flashing of new JavaScript applications
  - Execute JavaScript code on target in real-time
  - Logging of output from JavaScript `print()` and `alert()` functions
  - Displays notifications from running JavaScript program

Programming model

- 100% event driven.
  - No threading, no blocking calls
- Functions registered with the AllJoyn object (AJ) are called when various AllJoyn events happen:
  - AllJoyn bus attachment events:

    `onAttach onDetach`
  - AllJoyn messages:

    `onSignal onMethodCall onPropSet onPropGet onPropGetAll`
- Functions can be registered with one-shot and interval timers

  `setTimeout clearTimeout setInterval resetInterval clearInterval`
- Functions can be registered to be called on input and output triggers
  - `setTrigger`

Interface and Object definitions

- A definition is required for the interfaces and objects used by an AllJoyn.js application.
- These definitions supply essential information required to send and receive signals, make and handle method calls, and access properties.

```
AJ.interfaceDefinition[‘test.InterfaceA'] = {
    mySignal:{ type:AJ.SIGNAL, args:[’s’] },
    myProperty:{ type:AJ.PROPERTY, signature:’u’ },
    myMethod:{ type:AJ.METHOD, args:[‘i’, ‘i’], returns:[’i’] }
};

AJ.interfaceDefinition[‘org.example.Interface2’] = {
     /* signals, methods, and properties */
};

AJ.objectDefinition['/myApp'] = {
    interfaces:[‘test.InterfaceA’,‘org.examples.Interface2’]
};
```

Service Discovery

- AJ.findService()
  - Takes two arguments: an interface name and the callback function to be called when the service has been found.
  - If the second argument is omitted, discovery of specified interface is canceled.
  - If the required service is discovered, the callback function is called with a service object that provides information about the discovered service.

Accepting remote connections

- To explicitly accept or reject a connection from a remote peer, register the “onPeerConnected” callback function.
  - Return *true* to accept the connection or *false* to reject it

```
AJ.onPeerConnected = function(peer) {
    connectedPeer = peer; // Save the service object
    return true;          // Accept the connection
}
```

  - The argument to the callback function is a service object.
    - Use the service object to send signals and make method calls to the connected peer.
- When no “onPeerConnected” callback registered:
  - AllJoyn.js will automatically accept all connections
    - Note: The Application will not have access to a service object that is needed to send signals or make method calls to the remote peer.

Base service integration

- AllJoyn.js currently integrates with four base services:
  - Onboarding – gets a device onto a Wi-Fi network
  - Configuration – sets up authentication credentials, friendly name, etc.
  - Notification – send text messages for human consumption
  - Control Panel – a generic UI toolkit
- Onboarding and Configuration are mostly transparent to JavaScript applications.
  - Some parameters from the Configuration service can be read and set
- AllJoyn.js implements APIs to support Notification and Control Panel services.

Code Samples

Send a notification on GPIO interrupt

```
var pbA = IO.digitalIn(IO.pin[8], IO.pullDown);
var pbB = IO.digitalIn(IO.pin[9], IO.pullDown);

AJ.onAttach = function()
{
    pbA.setTrigger(IO.fallingEdge, function() {
        AJ.notification(1, "Button A pressed").send(200); });

    pbB.setTrigger(IO.risingEdge, function() {
        AJ.notification(0, "Button B released").send(200); });
}

AJ.onDetach = function()
{
    pbA.setTrigger(IO.disable);
    pbB.setTrigger(IO.disable);
}
```

Controlling LED flash rate

```
var cp = AJ.controlPanel();

var c1 = cp.containerWidget(cp.VERTICAL, cp.HORIZONTAL);
var rate = c1.propertyWidget(cp.SLIDER, 500, "Flash rate:");
rate.range = { min:20, max:1000, increment:50, units:"msec" };

var led = IO.digitalOut(IO.pin[0]);

var blinky = setInterval(function(){led.toggle();}, rate.value);

rate.onValueChanged = function(val) { resetInterval(blinky, val); }

AJ.onAttach = function() { cp.load(); }
```

AllJoyn.js Workshop at Alliance Summit

- Afternoon of the second day
- Tutorial and opportunity to get hands-on and write some AllJoyn code
- Good way to become quickly familiar with the AllJoyn concepts
- Hope you will be able to join in!

Thank You

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