



**ALLSEEN
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**Gateway Working
Group Proposal
Presentation**

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CTO Affinegy
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Gateway Working Group Proposal Objectives

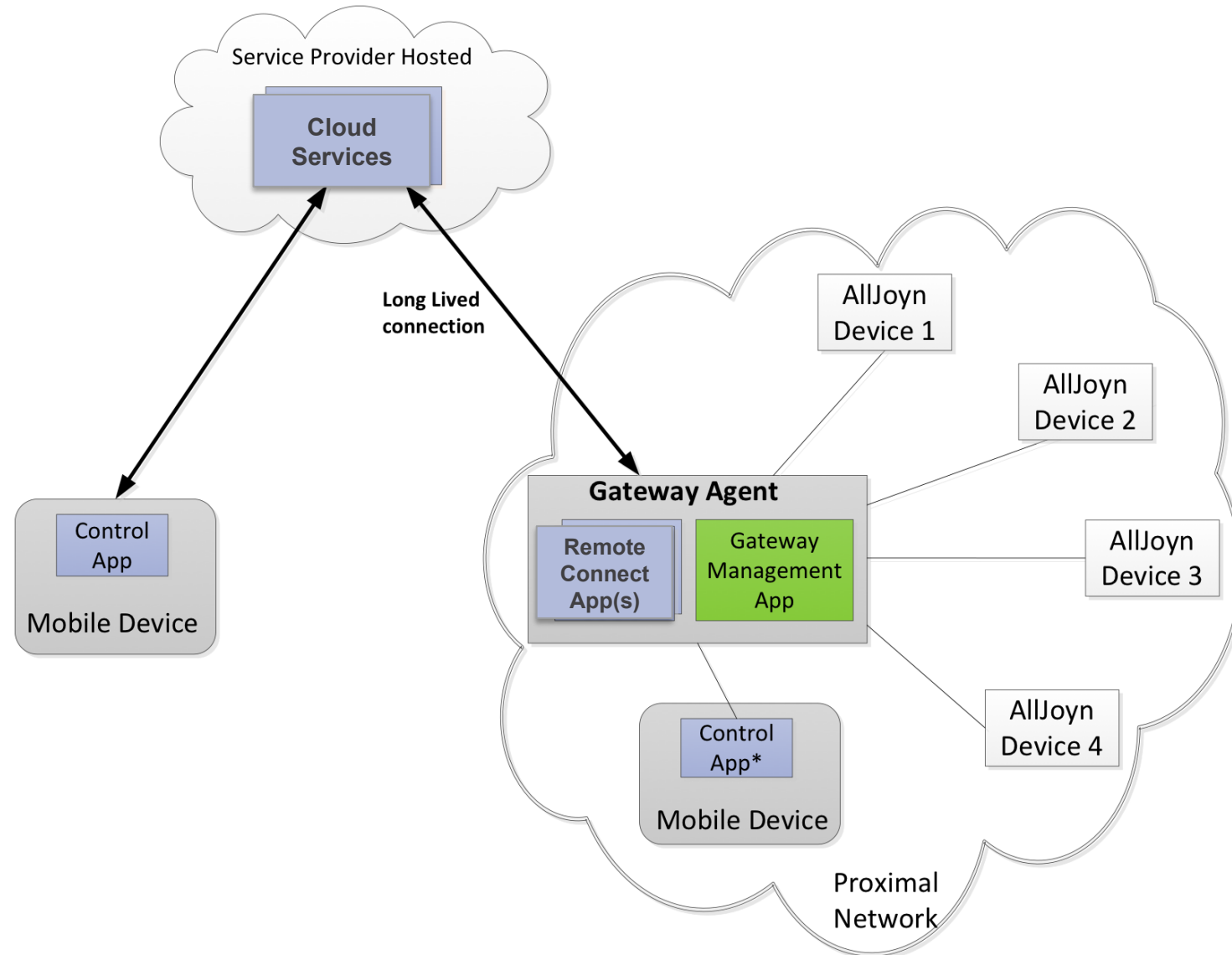
- Provide a standard and secure, remote access method for Alljoyn devices and applications
 - The remote access method should not require specific Internet firewall or port mapping configurations, so that it robustly supports most Internet connections
- Provide an extensible and standard means to connect AllJoyn devices to external/cloud services by providing:
 - A secure services discovery and provisioning node
 - Managed by the proximal network owner or with granted authority by a services provider
 - The external services to be provisioned through a hardened gateway node
 - Support multiple independent services providers – where the network owner has easy control of which are allowed to connect to the proximal network Alljoyn devices and applications.

Initial Contributors

- Affinegy
 - Art Lancaster, CTO – contributor and proposed as W.G. chair
 - Committers
 - Josh Spain, Director of Embedded Client Applications
 - Kevin Sandifer, Software Developer
 - Jim Howard, Sr. Software Developer
- Qualcomm
 - Shane Dewing, Senior Director Product Management – contributor
 - Committers
 - Tsahi Asher, Engineer Sr. Staff/Manager
 - Tali Messing, Engineer Sr.
 - Josh Hershberg, Engineer Sr. Staff

Overall Architecture

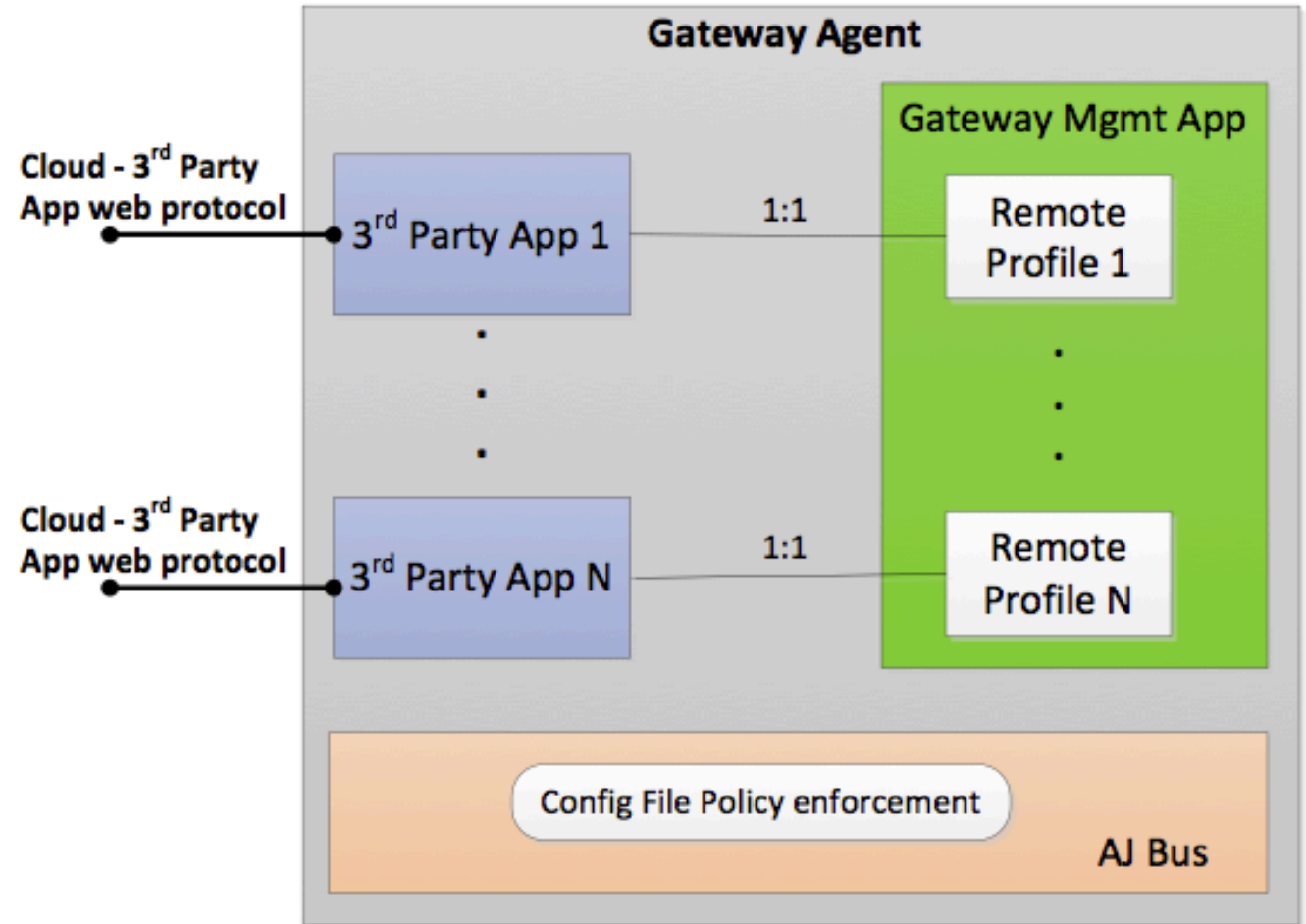
- Gateway Agent
 - Gateway Management App
 - Remote Connect App(s)
 - 3rd party apps connected to APIs of this W.G.
 - Reference implementation by this W.G. using existing standards for secure remote management and NAT traversal
- Control App
 - For the user to control the external applications



*Direct connections between Control App and AJ Devices are not shown for simplicity sake.

Remote Connection Profiles and Apps

- A Gateway Agent has a single Gateway Management app and one or more Remote Connection (third-party) apps.
- The Gateway Management app supports one or more remote profiles.
- Each remote profile gets associated with a single Remote Connection app.
- The architecture supports a 1:1 relationship between the remote profile and its Remote Connection app.
- The Gateway agent will include a secure means to manage the 3rd Party Apps installation, updates and deletion



Gateway Management Application

- AllJoyn profile management
 - Implements a secure AllJoyn Profile Management Interface `org.alljoyn.GWAgent.ProfileMgmt`. This is a generic interface independent of any service provider and exposes profile management functionality
- Secure interface for Remote Access (3rd party) Apps
 - Provides details for devices/apps/interfaces that have been configured for remote access to the third-party app and eventually to the cloud service
 - Since the Gateway Management app and third-party app are talking to the same AllJoyn bus, there is no need to establish an AllJoyn session between them
 - The Gateway Management app and third-party app register following WKNs with the AllJoyn bus and communicate with each other using these WKNs

Remote Access (3rd party) Applications

- Connection management with cloud service – persistent connection with protocol supported by the cloud service
- Data exchange with cloud service
 - Implements service provider-specific web protocol to exchange data with the cloud service for incoming and outgoing traffic to/from the proximal AllJoyn network.
 - This W.G. will provide a reference example implementation using standard implementations
 - XMPP / BOSH (XEP-0124) for efficient NAT traversal connections to AllJoyn devices/applications, extended with TR-069 for the addition of secure management control.
- Protocol translation between the external service's protocol with the AllJoyn format
- AllJoyn device access
- Supports the standard AllJoyn API and Service Frameworks
- App access connection status to the Gateway Management App
- Exposing one or more services to AllJoyn devices in the proximal network.

Control Application

- An AllJoyn-enabled application developed by the service provider or an affiliated entity, or the gateway provider
- The specific functions vary by the application but typically include:
 - User authentication to the service or services supported
 - AllJoyn Gateway Agent discovery by app name (there can be more than one in a proximal network)
 - UI for profile functions and Profile configuration
- This W.G. will provide a Mobile SDK and Sample Control Application

Initial Contributions Upon W.G. Formation

- Qualcomm Connect Experiences
 - High level design document that details a proposed architecture and design for the Gateway Agent
- Affinegy
 - Embedded C-library SDK for its Gateway management client with secure remote cloud management and NAT traversal technology
 - Hosted cloud server developer access supporting this reference example implementation

Project Plan

- Project creation, use cases and initial contributions and enhancements to core – on Gateway Working Group creation
- Aligned with an Alliance release for October 2014
 - Gateway Management App and new AllJoyn Interfaces
 - Mobile SDK and Sample Control App
 - SDK for Remote Access (3rd Party) App developers
 - Remote Access example reference implementation (XMPP/BOSH – TR-069) library

Thank you and Acknowledgements

- Special thanks to Shane Dewing and the QCE team for major contributions to the proposal and architecture design
- Thanks to TSC members