



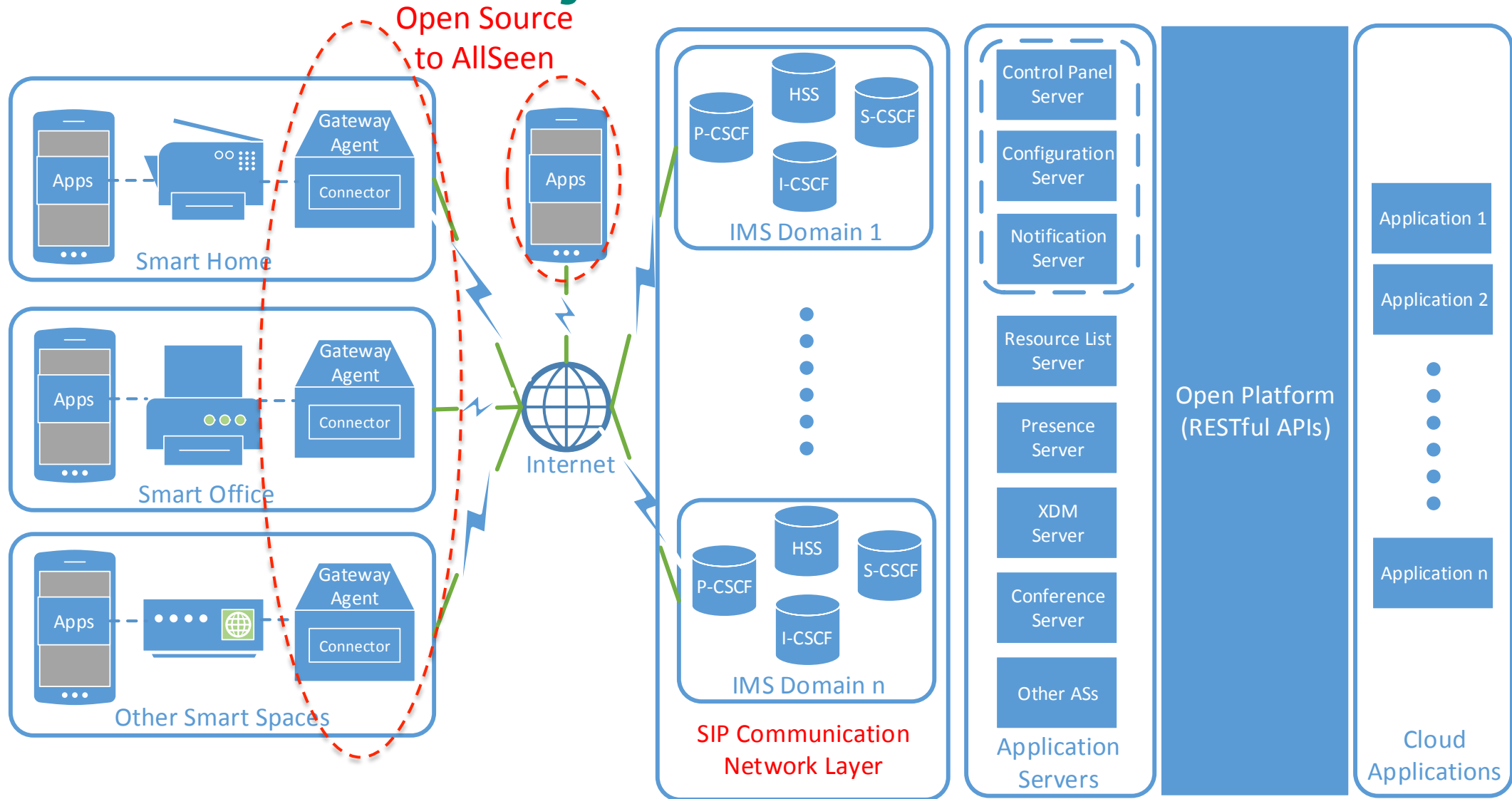
AllJoyn SIP End2End Connector Project Proposal

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AllJoyn SIP End2End Connector Project Proposal

- Objectives:
 - Establish a standard End2End mechanism for secure interoperability and interconnections among devices, applications, and cloud services.
 - Provide a fine-tuned session control layer which benefits service providers in terms of operation and maintenance.
 - Provide a standard way to scale both horizontally (unlimited access capabilities) and vertically (open platform for 3rd party cloud applications).
 - Enable AllJoyn devices/applications to connect to existing telecom networks like 3G/4G and even future 5G core networks and to interoperate with devices/applications in telecom networks.
- Based on the standard telecom protocol SIP (Session Initiation Protocol), we introduce a standard carrier-grade network layer called “SIP Communication Network Layer”.
- The SIP Communication Network Layer is composed of different IMS domains. The SIP End2End Connector is registered in one domain and can be accessible from other Connectors.

Project Architecture



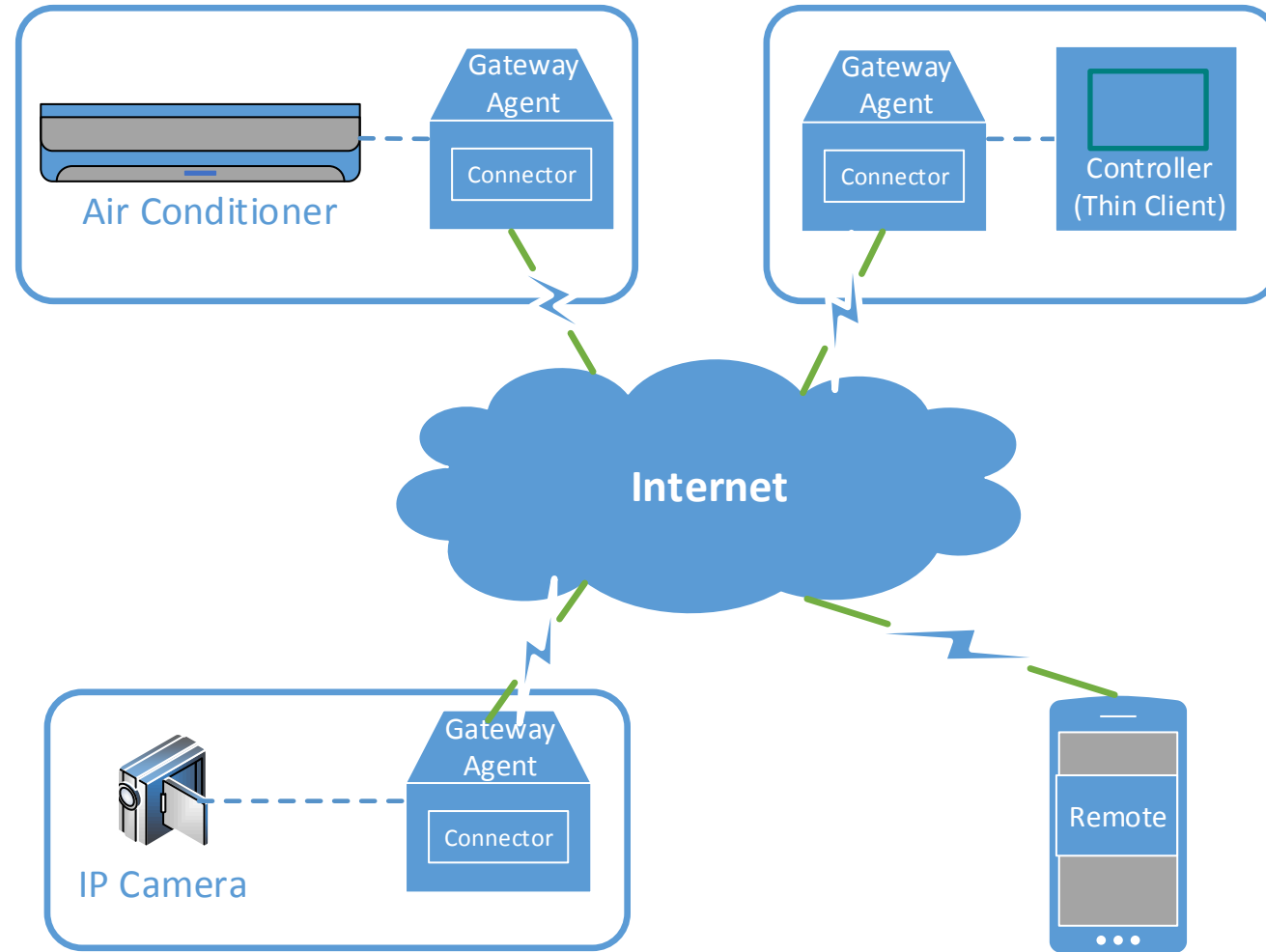
SIP Connector – How to Work

- AllJoyn to SIP
 - Encapsulate all AllJoyn messages in SIP MESSAGE messages, and no media sessions required
 - NAT traversal without STUN or ICE
- Long connection
 - Every SIP Connector has one single SIP account (with address like [sip:lyh@nane.cn](tel:sip:lyh@nane.cn), or <tel:+8613911331297>). Upon startup, the account will be registered with its home domain and keep in touch with cloud based upon SIP register mechanism (RFC3261)
- Extend About Service to cloud
 - PUBLISH advertised interfaces within About Service to IMS Presence Server, which in turn NOTIFY all subscribers of latest information of published interfaces

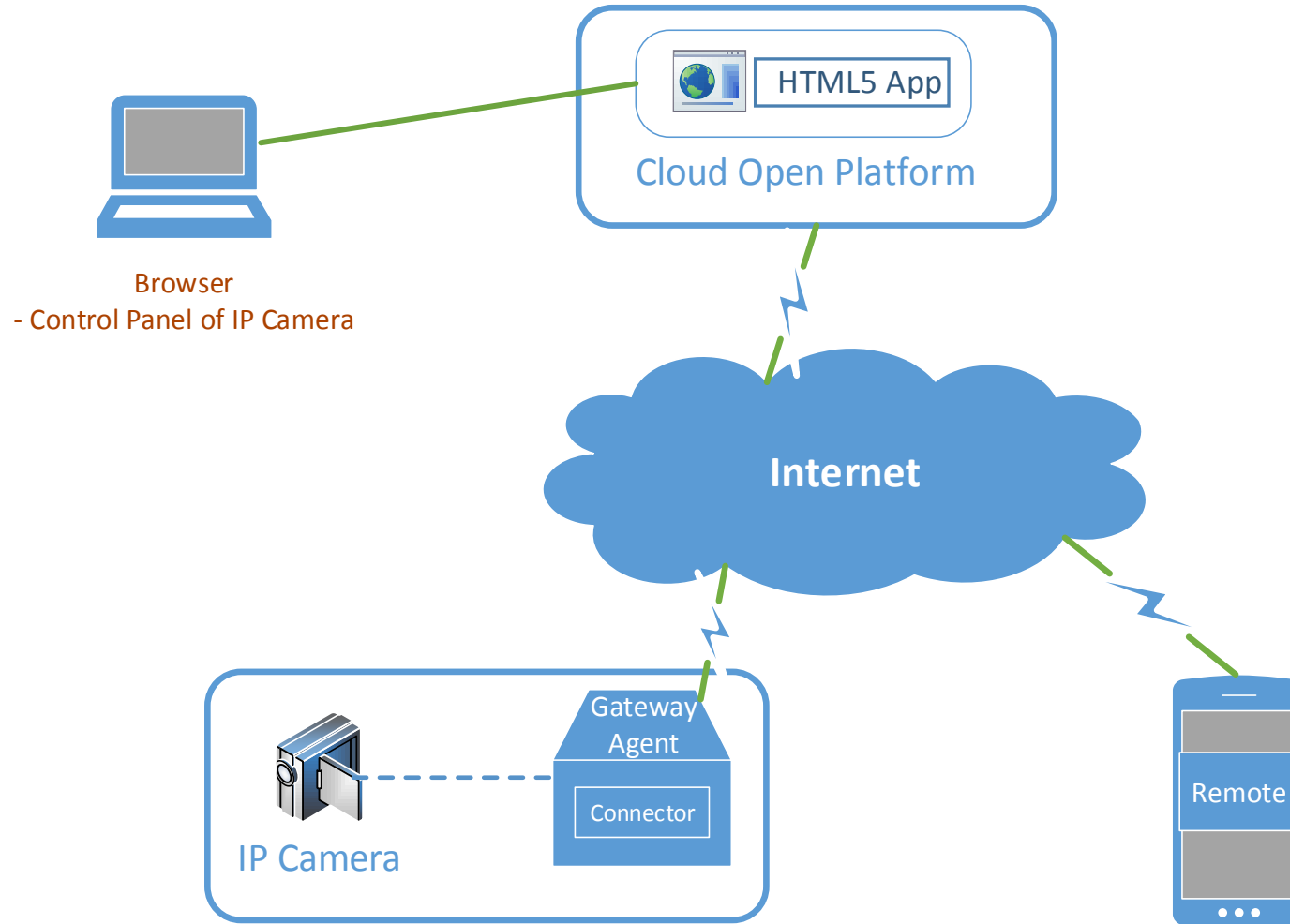
End to End Interoperations Transparently

- Devices to Devices Across WANs
 - Map of one device's services/interfaces to far-end network
 - Based on presence mechanisms of IMS network, services/interfaces/status can be published to cloud, and any Gateway Agent that subscribes to it can be notified of latest information of services/interfaces/status
 - For device apps developers, accessing far-end devices' interfaces is the same as accessing local proximal devices' interfaces, which we call '**Transparent Interoperations Across WANs**'
 - Carrier grade security guarantee
- Devices to Cloud Apps
 - Map of devices' services/interfaces to cloud, and vice versa
 - Mashup of internet services with AllJoyn enabled services/interfaces

Application Example 1 – devices to devices across WANs



Application Example 2 – devices to cloud app



Features and Benefits

- Features

- End2End interoperations in a standard way.
- 3rd party applications/extensions.
- Presence/Notification/Messages/QoS support out of box.

- Benefits

- Help manufacturers to extend their services to cloud very easily and quickly.
- Help developers to deploy and test their services very easily and quickly.
- Enable integrators only to focus on ideas of how to mush up different smart devices and applications, and to focus on marketing strategies, without worrying about implementation details.

Proposal Information


- Working Group: Gateway Working Group
- Staff - from Beijing HengShengDongYang Tech. Co.
 - Maintainer: Wei Ren
 - Committers: Wei Ren, Yongheng Luo, Nan Wang
- Dependencies:
 - Gateway Agent 14.12 (and 15.09 when available), AllJoyn Core 14.12 and newer
- Supported platforms:
 - Raspberry Pi 2, Windows 10, OpenWRT, Ubuntu 14.04, Android, iOS
- GIT repository “ajsipe2e”, Mail list: share Gateway Working Group mail list.
- Development Plan
 - First commit will be one month after the approval of the project. First release is planned to be in March 2016.
- We ask support from the TSC for approval of this project.

External Library Dependencies

Dependency	Description	License	URL
LIBXML2	XML C parser and toolkit	MIT License	http://www.xmlsoft.org
BOOST	C++ libraries	Boost Software License	http://www.boost.org



Thank you

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