



**ALLSEEN  
ALLIANCE**

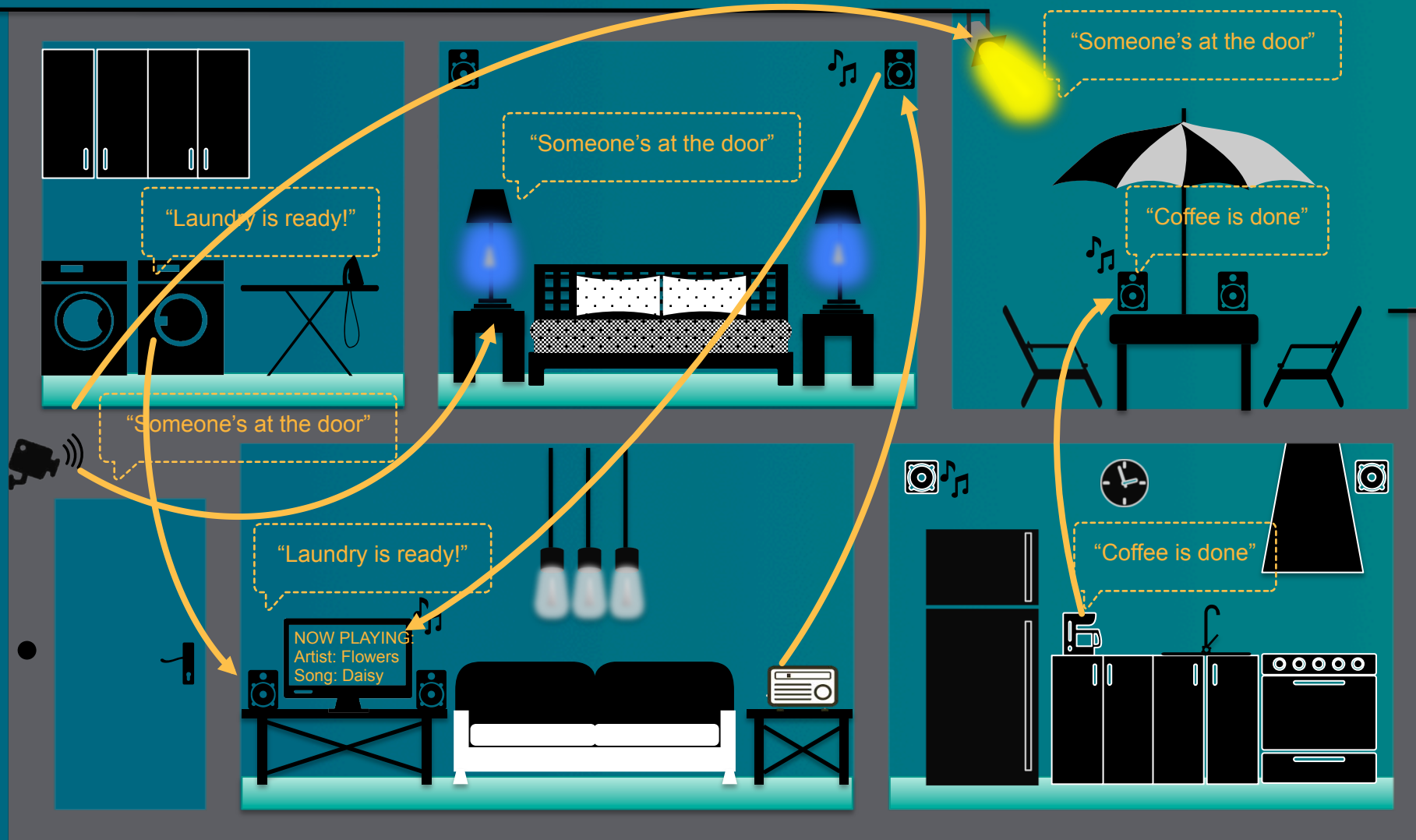
## **Gateway Agent Overview Presentation**

**Art Lancaster**

CTO Affinegy,  
AllSeen Alliance Board Member and  
Chair Gateway W.G.

September 8, 2014

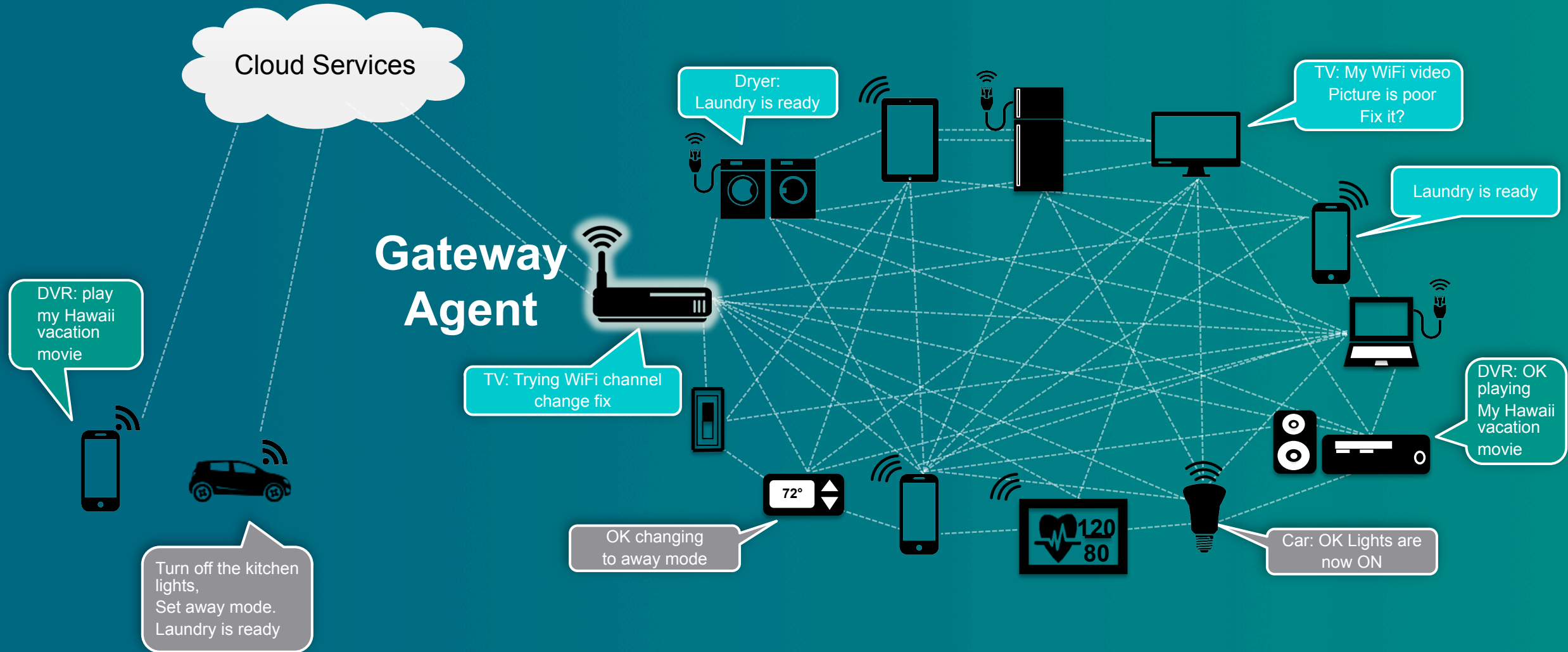
# Why the AllJoyn proximal network topology matters



Direct communication with the AllJoyn framework is fast, efficient, and secure.

No need to go out to the cloud to talk to the device right next to you!

# Gateway Agent – AllJoyn meets Cloud Services

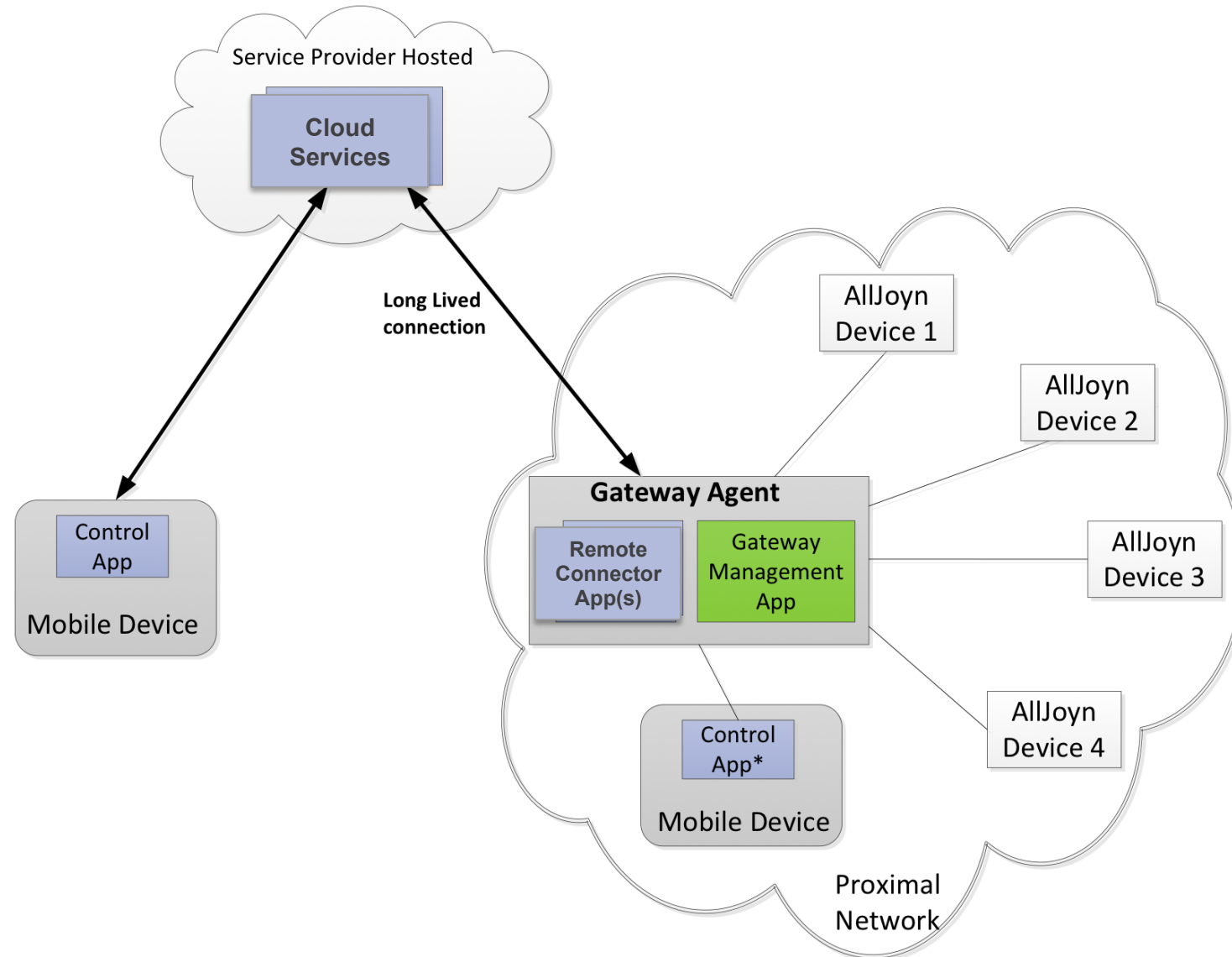


# AllSeen Gateway Agent

- A new gateway software application targeting automation hubs, home gateways, IP set tops, etc. – any always on hardware device in the proximal network
- Provides a standard and secure method for connecting AllJoyn devices and applications to cloud services, PAN technologies, other networks
  - Works with any Internet connection
  - Supports persistent remote connections without special firewall or port settings
  - Maintains AllJoyn security end-to-end
- Provides a new, managed and secure AllJoyn routing node for services providers and connected device services suppliers
  - Filters LAN AllJoyn traffic from WAN traffic – only traffic needed for the user's cloud or other remote services are passed through the gateway
  - Traffic is managed by Gateway Agent standard Service Profiles and a Standard AllSeen API
  - Architecture supports multiple independent cloud services in one gateway device with modular, plug-in Cloud Connectors

# Overall Architecture

- Gateway Agent
  - Gateway Management App
    - Embedded in gateway device
    - Management APIs for controlling the remote access and filtering for each cloud service to their included AllJoyn devices
    - Includes a TR-069 component for service provider remote provisioning management
  - Remote Connector App(s)
    - AllJoyn to Cloud (or other technology/network) Protocol connector
    - Installable and portable
    - One or more Connectors supported
- Control App
  - A add-on component for an AllJoyn mobile app to enable users to self-manage their cloud service connections



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

# Gateway Agent Control and Management Modes

- **Consumer Mode** – self-service local management
  - Enables a consumer user to self-manage their AllJoyn connections to cloud services
  - Services can be initially provisioned via a mobile app that includes the Gateway Control App
  - The Control App follows the Gateway Agent APIs to install its own Connector App and to manage its Service Profiles
  - Consumer must be at home when configuring their cloud service using Consumer Mode
- **Service Provider Mode** – secure remote provisioning management
  - Ideal for broadband service providers and for connected device services suppliers
  - Remote management implemented with TR-069a5 enhanced with XMPP
    - Proven, secure, high-scale NAT traversal, compliant with Broadband Forum and XMPP standards
  - Remote software installation and update management for both the Connector App(s) and the complete firmware of the hub or gateway device.
  - Remote management of the AllJoyn Services Profile and of the gateway/hub configuration
  - Can coexist with Consumer Mode, or can remotely block Consumer Mode

# Remote Connector App – AllJoyn to XMPP

- An XMPP Cloud Services Connector plug-in for the AllSeen Gateway Agent supporting its APIs and service profiles
- Relays local AllJoyn messages, to a remote AllJoyn application by wrapping these in XMPP sessions relayed via a standard XMPP server cloud service.
- Subscribers authenticate with their cloud service's XMPP (Jabber) IDs for both their mobile app and for their Gateway Agent XMPP Connector App.
- Supports XMPP standard stanzas: message/, presence/, IQ/ (info/query)
- Includes XMPP standard security user authentication and for channel encryption (XEP 3920)
- Implemented as a LUA script supporting OpenWRT and interfacing through the Gateway Agent API to its AllJoyn routing node



# Gateway Agent Open Source Code and Status

| Gateway Agent Component                                    | Details  | Status   | Contributor         |
|--|--|--|---------------------|
| 1. Gateway Management App                                  | Main management embedded app   | Code available in AllSeen GIT                      | Qualcomm            |
| 2. TR-069 client   | Service provider mode management client                              | Porting to AllSeen open source, available Oct.     | Affinegy            |
| 3. Connector App   | XMPP cloud to AllJoyn connector.                                     | Adding AllSeen gateway API support, available Oct. | Affinegy            |
| 4. Package manager   | Software installation manager for Connector Apps                     | Code available in AllSeen GIT Sept.                | Affinegy            |
| 5. Mobile Control App                                      | Android based mobile Control App                                     | Code available in AllSeen GIT                      | Qualcomm            |
| 6. Full Gateway Agent Release 1 – Reference implementation | Integrated full Gateway Agent in OpenWRT & developer cloud reference | Q4 2014  | Qualcomm & Affinegy |



# Cloud Services for Gateway Agent available from Affinegy

- Affinegy CHARIOT Server
  - High scale, proven TR-069 remote management ACS server deployed worldwide with millions of devices under management
  - XMPP server for high scale, persistent IOT services and management
  - Integrated with the Affinegy TR-069 ACS and Affinegy's Home and Business user portals
  - Provides IOT cloud services fully compatible with AllSeen Gateway Agent
- No cost developer hosted access available from Affinegy
- Commercial CHARIOT server licensing available from Affinegy, both hosted and installed options

# About Affinegy – CHARIOT Platform Overview

## Installation



### CHARIOT CAP

*Customer Activation Portal*

- Automated gateway & device provisioning
- TR-069 with DOCSIS provisioning

### CHARIOT Client

- Embedded management client
- Gateways, hubs, routers
- Latest TR-069 and XMPP standards

## Apps & Services



### CHARIOT Home CHARIOT Business

- Easy, self-service user experiences for home networks and IOT
- *All devices*: Wi-Fi and smart automation
- Mobile/Web apps
- Value added brand-able services portal
- Enterprise grade secure Wi-Fi
- Available for Homes and Small Businesses

## Support



### CHARIOT Care

- Remote care dashboard for devices and services
- Easy alerts and fixes for common service & connectivity problems
- Advanced diagnostics for LAN/WAN issues
- Web APIs for trouble ticket and back office systems

## Management



### CHARIOT Server

- Advanced remote MGMT server
- Supports millions of customers
- TR-069 ACS with IOT protocol enhancements
- Integral high scale database and quick reports
- Powerful Web APIs for OSS/BSS

## Analytics



### CHARIOT Insights

- Services usage
- Connected device ID
- Traffic consumption by type
- Current system demographics
- Issue histories and pareto analytics
- By customer and region statistics

# AllSeen Gateway Working Group Contributors

- Affinegy
  - Art Lancaster, CTO – contributor and W.G. chair
  - Committers: Josh Spain, Kevin Sandifer, Jim Howard
- Qualcomm
  - Shane Dewing, Senior Director Product Management – contributor
  - Committers: Tsahi Asher, Tali Messing, Benita Gupta, Josh Hershberg

# For More Information

- Art Lancaster – [alancaster@affinegy.com](mailto:alancaster@affinegy.com)
- Shane Dewing – [sdewing@qce.qualcomm.com](mailto:sdewing@qce.qualcomm.com)
- Tim Colleran – [tcollera@qca.qualcomm.com](mailto:tcollera@qca.qualcomm.com)
- AllSeen Alliance information at <https://allseenalliance.org/>
- AllSeen Gateway Workgroup Wiki –  
[https://wiki.allseenalliance.org/tsc/technical\\_steering\\_committee/proposals/gatewayagent](https://wiki.allseenalliance.org/tsc/technical_steering_committee/proposals/gatewayagent)