



# Parental Control Home Gateway

Company needed to build a Plug-Play device which redirects all the outward IP traffic in home network to a predefined DNS server hosted in cloud

**Project Period:** Ongoing

**Team Size:** 4 members

**Protocols Used :** ARP, HTTPS, MQTT, HTTP

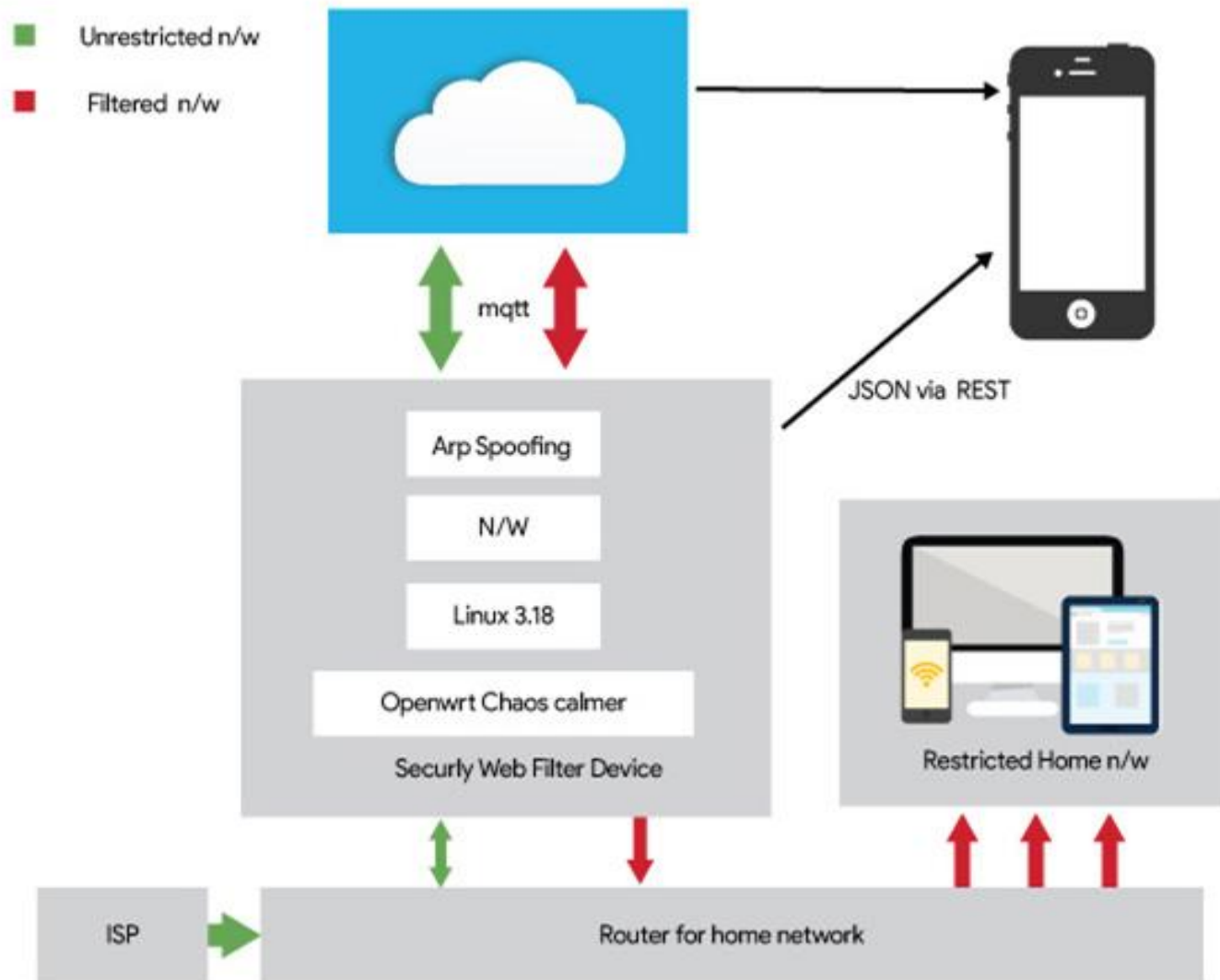
## Challenge

- Develop end-to-end architecture for the IoT/Home Automation Solution
- Multi vendor Hardware support.

## Outcome

- Simple and reliable filtering product for secure browsing at home.
- Arp-Spoofing Application which manipulates the host machine arp-cache table for sending all the home network packets to the hosted DNS in cloud
- GadgEon architected the full system from end node (Atheros based AR9331 SoC ) to Cloud Application and MobApp (for device management)

# Parental Control Home Gateway - Architecture



## Tools / Technology Used

### Cloud

- AWS IoT, API Gateway
- AWS Lambda , RDS, SNS , S3, CloudWatch

### Device

- ARP-Spoofing , MQTT , HTTPS

### MobApp

- MVC architecture , MMLanScan

### Testing

- Jmeter, Owasp.

## WHAT DID GADGEON DO?

## PLATFORMS/ TECHNOLOGIES USED

Architecture for complete system including parental control device ,Cloud and Mobile App targeted for the Home Automation / IOT domain

Requirements Gathering & Analysis, Use cases, Architecture development, identification of functional components.

Device firmware for Atheros based SOC

Openwrt Chaos Calmer version (15.05.1), Arp-Spoofing Application, MQTT for cloud communication, HTTP REST API's for MobApp communication , Firmware upgrade support from Cloud and MobApp

Cloud server

- a) Cloud server hosted in Amazon. AWS IoT for communication with Hub over MQTT and HTTP. AWS API Gateway for communication with the mobile App.
- b) AWS Lambda is used as a server less compute service that runs code in response to events and automatically manages the compute resources required.
- c) Amazon SNS messaging service is used to send notifications to Apple iOS
- d) Postgresql database is used for storage

iOS Mobile App design and development for controlling and managing the device

MVC architecture, real-time notifications using FCM, REST API for direct configuration of the device, Followed the recommended design patterns from Apple.

# THANK YOU

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