IoT DDoS usecases
draft-faibish-iot-ddos-usecases-00

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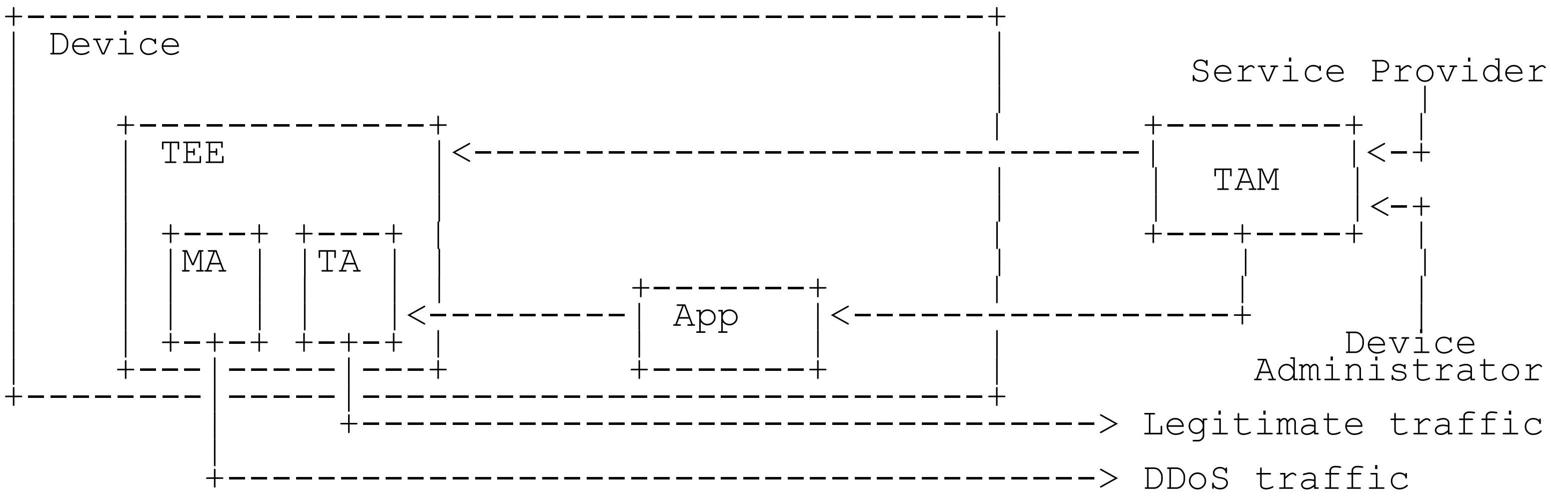
IoT DDoS use cases

- The IoT can be used by hackers to start DDoS attacks either by:
  - Generating random traffic
  - Reflecting and or amplifying traffic
- There are 3 ways to connect IoT devices to outside the TA
  - Connected directly to the TAM
  - Connected via a TEEP broker
  - Connected using TEE and multiple TAM’s

IoT DDoS use cases

- Can TEEP address/prevent such attacks? Is this in TEEP charter?
- Types of attacks
    - Generate random traffic packets instead of data sent to operator or cloud
    - Reflect or amplify network traffic
    - Using man-in-the-middle to insert malware generating traffic
    - Use legitimate traffic at much higher volume to flood the network
    - Can be triggered by a signal from operator or during the code upgrade

Use case 1: Upgradable OS less IoT devices



Device

Service Provider

TEE

TAM

MA

TA

App

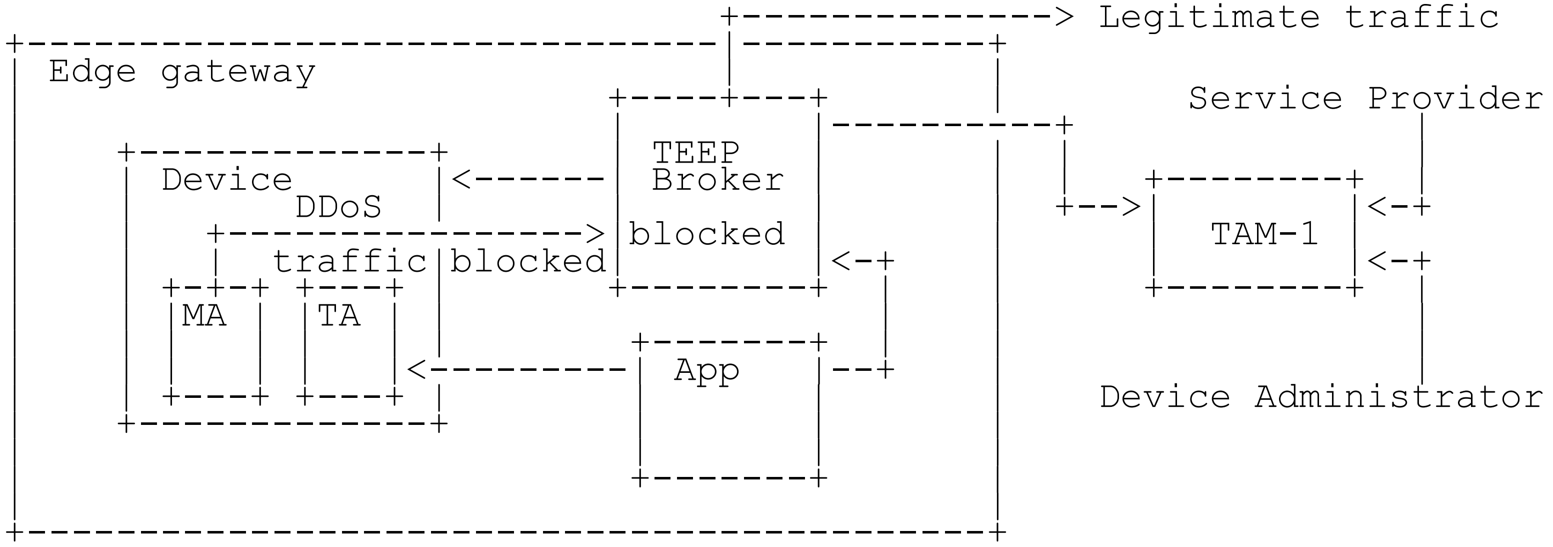
Device Administrator

Legitimate traffic

DDoS traffic

- Assumptions for the use case:
  - Device allows SW upgrades
  - Device is transmitting data back to the service provider or public cloud
- Attack opportunities:
  - Can be externally triggered to transmit random packets or amplified data to SP
  - Can be internally triggered by time

Use case 2: IoT devices connected to gateway



Legitimate traffic

Edge gateway

Service Provider

TEEP Broker

Device

DDoS traffic

blocked

blocked

TAM-1

MA

TA

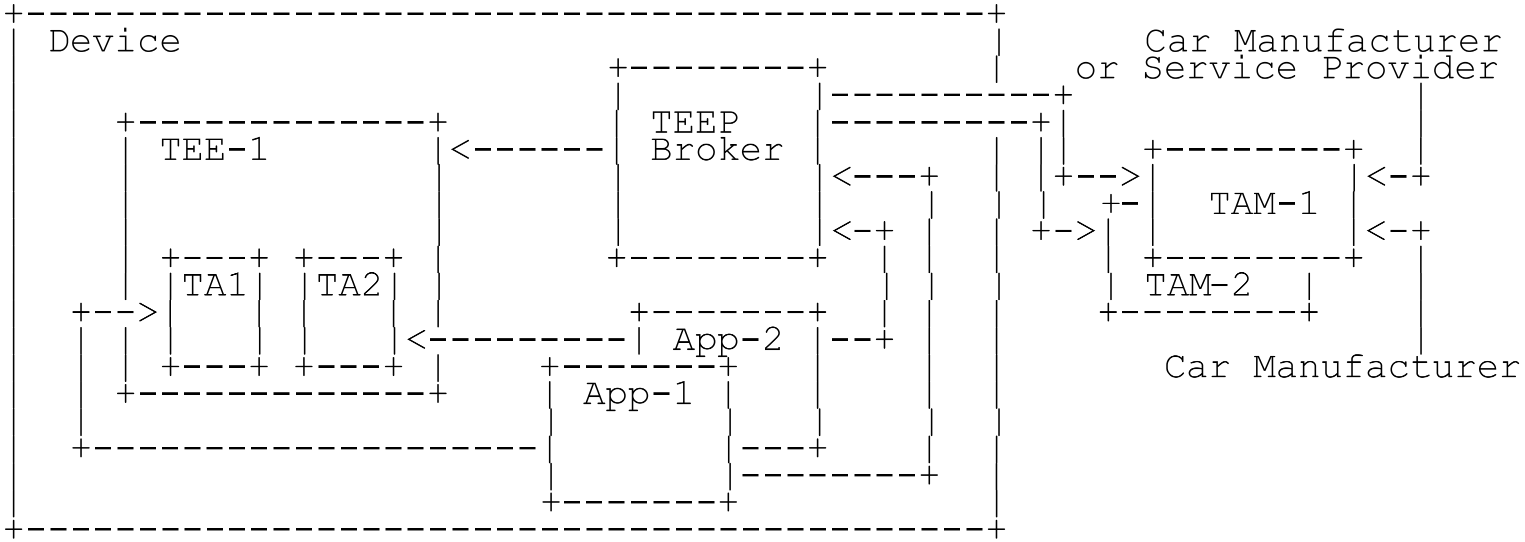
App

Device Administrator

- Assumptions for the use case:
  - Device receives SW updates secured via the edge server
  - Device is transmitting data outside the service provider or public cloud

- Attack opportunities:
  - Can be internally triggered by time to transmit random packets unfiltered by gateway
  - Can be triggered to transmit amplified legitimate traffic

Use case 3: Smart IoT devices with rich OS



- Assumptions for the use case:
  - Device allows SW upgrades
  - Device is transmitting data back to the service provider or public cloud
- Attack opportunities:
  - Can be externally triggered to transmit random packets or amplified data to SP
  - Can be internally triggered by time

Specific Examples

- Use cases 1: IoT sensors and meters, health monitors, weather monitors, traffic controllers, public cameras
- Use cases 2: home security and management systems, smart buildings systems, smart cities and smart clouds, hospital servers
- Use cases 3: smart cars, smart air quality sensors, buildings security systems
- Non-use cases: small appliances with no OS, IoT devices not-connected (used for simple functions: garden irrigation, lights, thermostats)

TEEP WG asks

- Should TEEP WG address these use cases in the architecture draft
- Is TEEP the right security protocol against DDoS
- Should this draft be part of TEEP WG
- Does TEEP WG need more detailed protocol implementation
- Ready to adopt as TEEP WG document?