TURN-Lite: A Lightweight TURN Architecture and Specification

(draft-wang-tram-turnlite-01)

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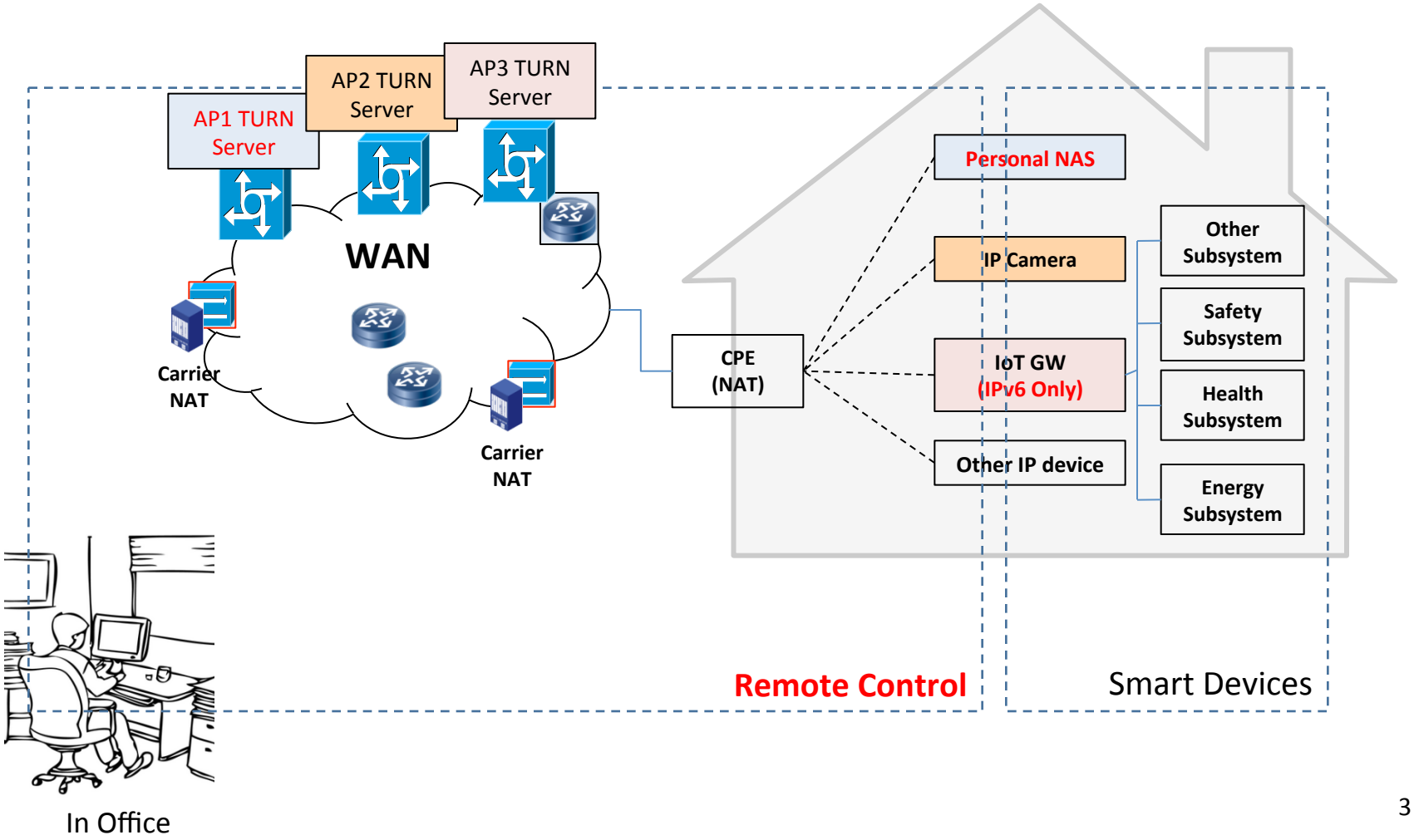
Motivation

- **Application/Content Providers Need to Deploy TURN servers individually, which is a big burden**
  - dealing with large amount of relaying traffic
  - centralized TURN servers might cause inefficient traffic path
  - TURN servers need to reserve a large amount of relay addresses
- **Dedicated Solutions for Different Requirements, which causes implementation complexity**
  - TCP-based client-to-client communication, see [RFC6062]
  - IPv6 client-to-client communication, see [RFC6156].
  - Host mobility, see [I-D.wing-tram-turn-mobility].

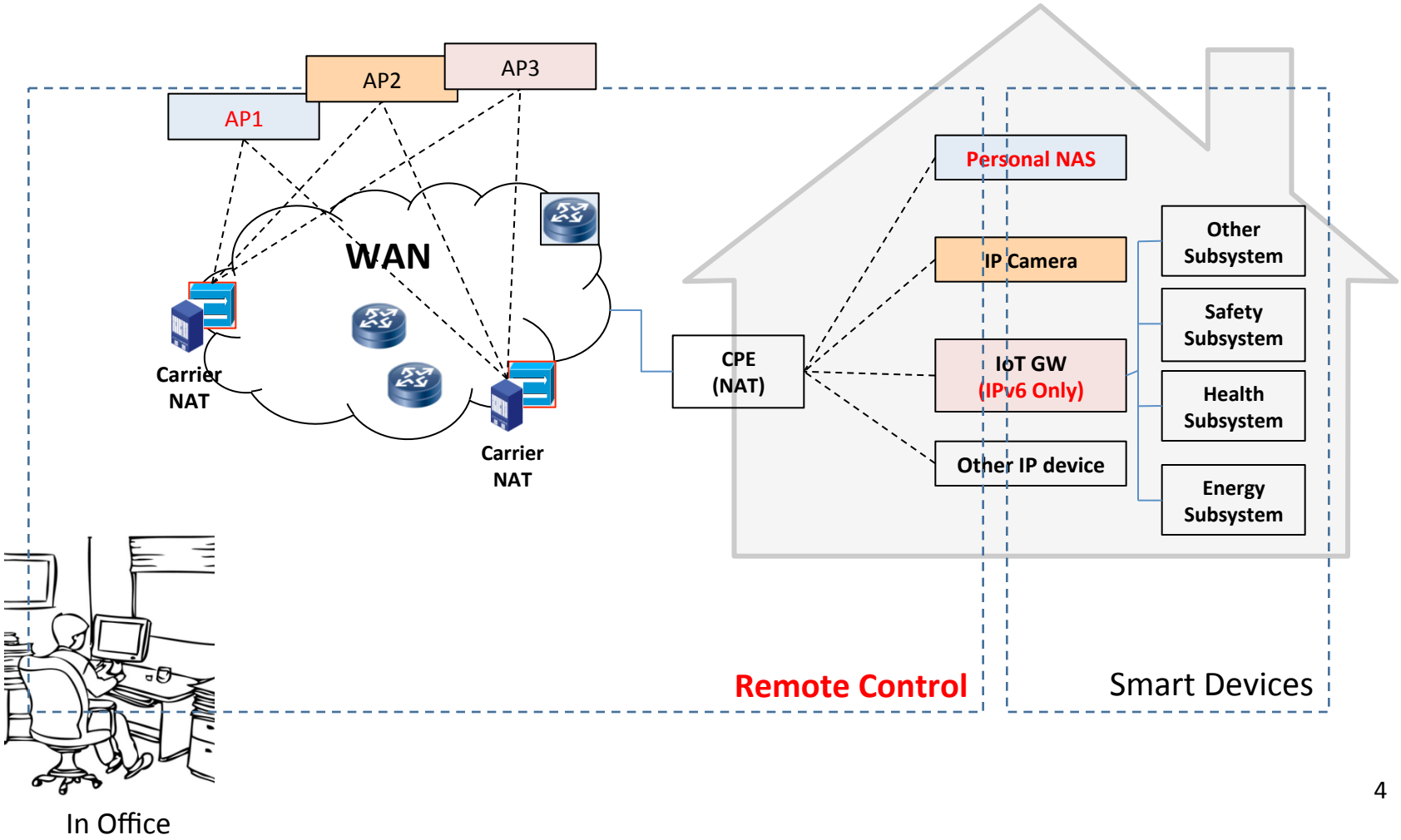
Current Architecture

1. Every Application/Content Provider deploy its TURN Server respectively.
2. All of the traffic must go through the TURN Server in AP's networks.
3. Every AP must deal with the work of IPv4/IPv6 packet translation, TCP/UDP Hole Punching etc.

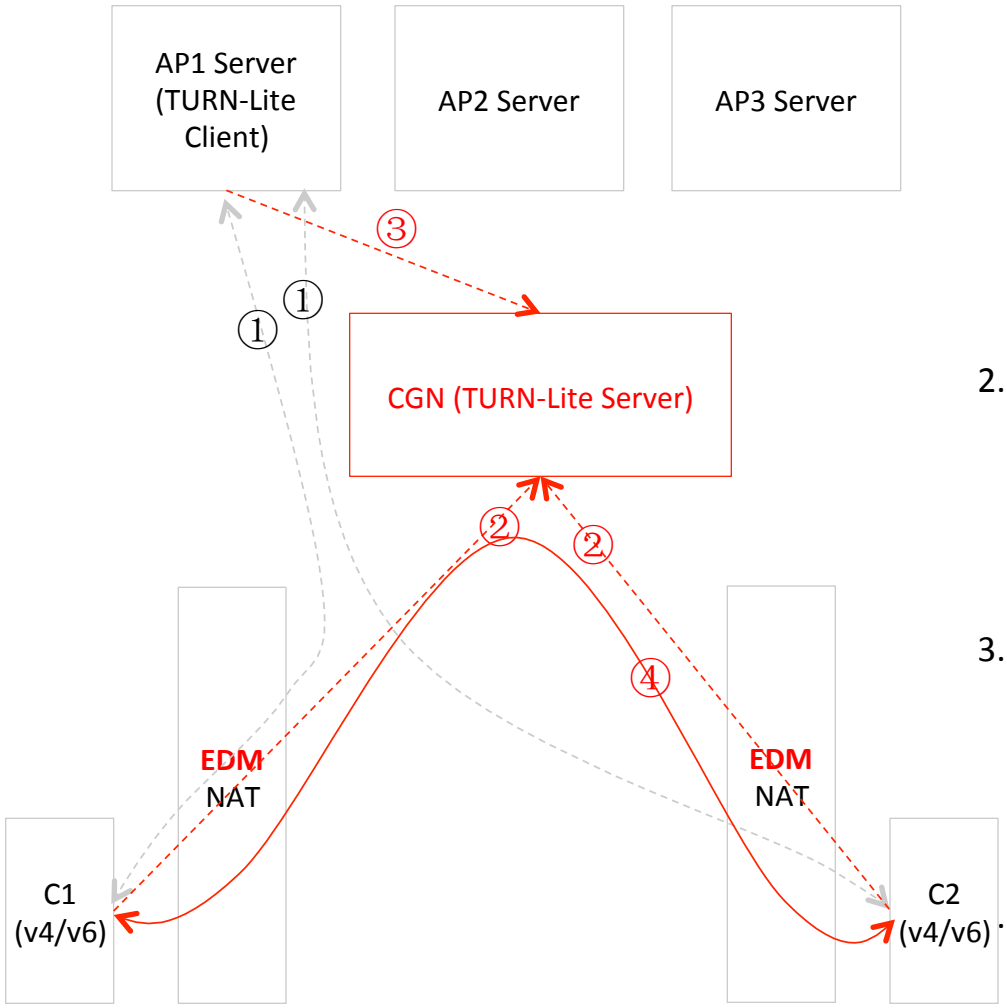


TURN-Lite Architecture Proposal

1. Use the distributed CGN devices as the traffic relay server for communication between two hosts that behind NAT or that in different address family.
2. The Application/Content Providers need only dealing with signaling exchange with the hosts(app clients), including exchanging the reflex addresses of the communication hosts, the protocol (TCP/ UDP) they are using and address family they belong to .etc.



Key Process of TURN-Lite



1. Host C1 and C2 register to their server AP1. C1 tells CP1 server that it wants to communicate with C2 ; CP1 Server selects the appropriate relay device (CGN), and tells C1/C2 the well-know CGN relay address. (C1/C2-AP1 Server communication might be though application private protocols)
2. C1/C2 sets up the TCP/UDP connection to the CGN relay address, and gets their reflex addresses respectively. (i.e. Punching holes in their NATs to the CGN relay address)
3. AP1 Server gets the reflex transport address of C1/C2, and send the binding between the two addresses to the TURN-Lite server (CGN) by the new defined “Couple” operation.
   The TURN-Lite server builds the relay forwarding table upon the “Couple” request. Then C1 and C2 will communicate with each other via the TURN-Lite server.

TURN-Lite Features

- Lightweight implementation for application/ content providers
- Utilization of ISP infrastructure for better traffic forwarding
- Support of Symmetric NAT Traverse
- Native Support of Host Mobility
- Less Relay Address Resource Consumption
- Simplified Procedures

Next Steps

- Feedbacks are welcomed
  - from ICP perspective
  - from ISP perspective
- A useful work? Possibly added to the charter?

Comments?

Thank you!

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