OARS: Operator-Assisted Relay Services Architecture

(https://tools.ietf.org/html/draft-wang-tram-oars-00)

Aijun Wang (Speaker) (China Telecom)

Bing Liu (Huawei)

J.Uberti(Google)

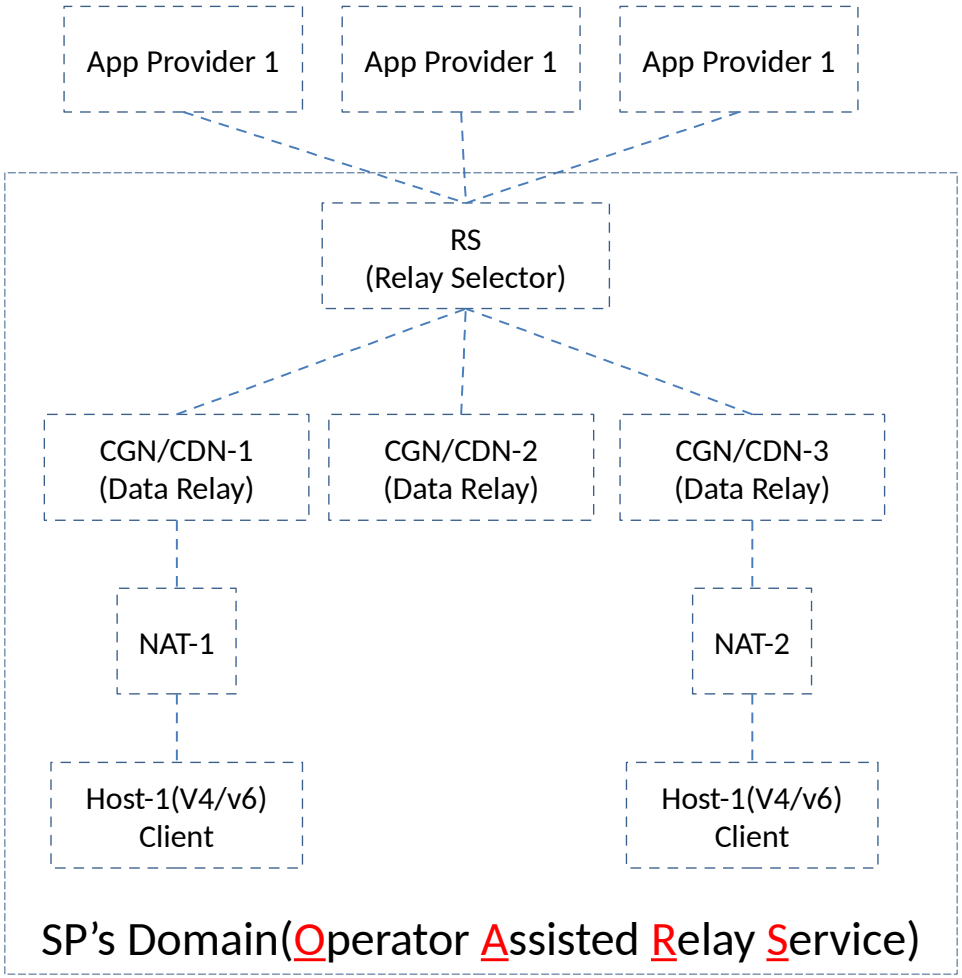
IETF 96@Berlin, July 18 2016

Why we proposed a new architecture

- We’ve been exploring:
  - Service Providers might provide TURN relay service to their cust omers (mostly ICPs, Application Providers)
  - Utilize the already deployed CGN/CDN devices as TURN servers
  - Minimum changes to the exist CGN/CDN devices.
  - SDN technologies and architecture are emerging.
- But we found it was complex
  - Every CGN (TURN server) needs reserve and plan Address/Port, which is a big burden for SPs, especially there are many CGN dev ices deployed in a distributed manner
  - Signaling is complex: ICE-based interaction; different processing for UDP, TCP and v4-v6 communication
  - So many CGN devices can hardly directly open to customers

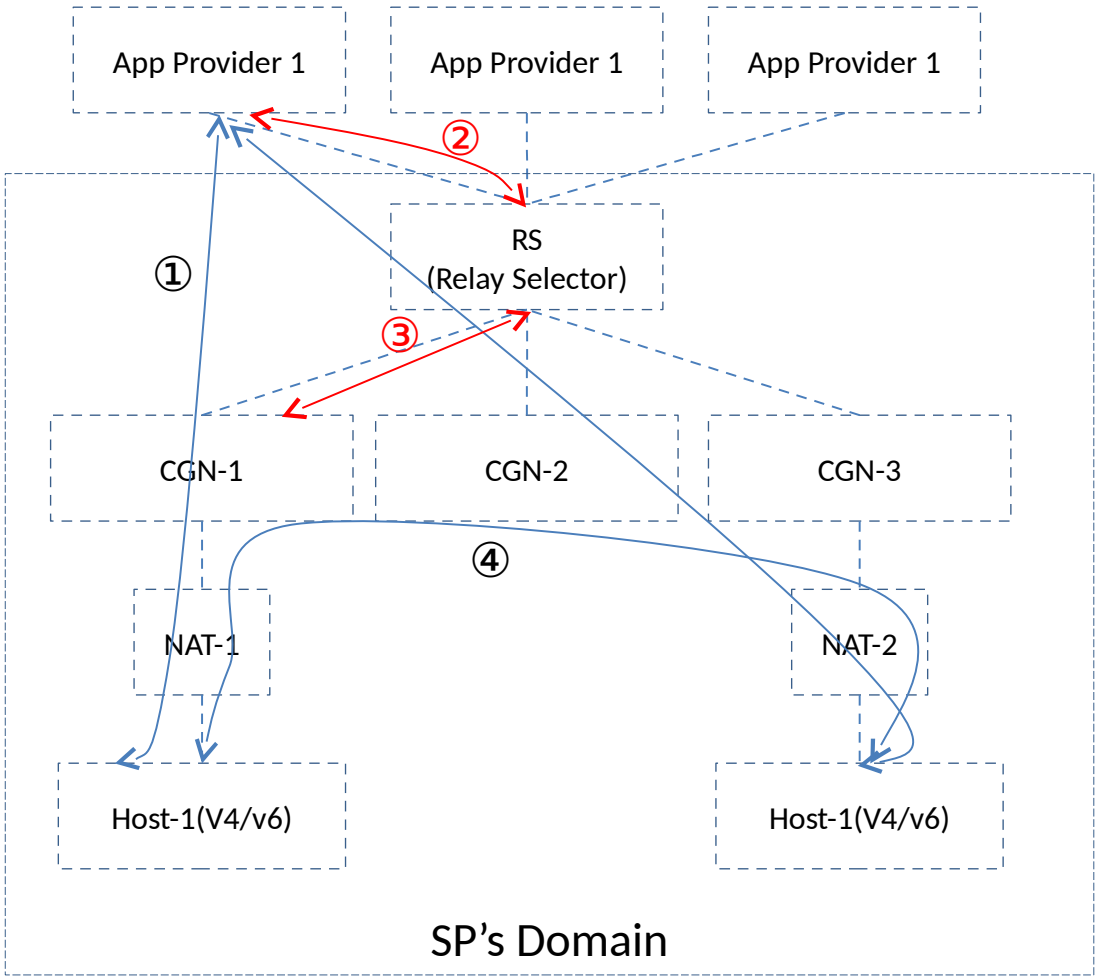
OARS Architecture (Updated since last meeting)

- Architecture
  - RS—Relay Selection
  - CGN/CDN—Data Relay
  - Client---Connection Initial
- Reduce the complexity
  - Relay(CGN/CDN) needs not allocate different relay address for clients, as that in TURN.
  - Signaling procedures are significantly simplified, compared with TURN.
  - Restful interface(from RS) is easier for use by App provider.
- So that
  - SPs can easily integrate the relay functions into distributed devices such as CGN/CDNs.
  - SPs can easily provides data relay service to ICP/App Provider via RESTful Interfaces



Communication Procedures

1. Clients register to their App server, and gets the RS address, get their reflective addresses to RS(REFLX_RS) and report them to App server
2. App server sends REFLX_RS pair to RS, let RS select one optimal relay device to relay data.
3. Clients get their reflective addresses to Relay (REFLX_Relay) and report them to RS, RS form COUPLE packet and send it to the selected CGN devices.
4. Clients send TCP/UDP packet via the selected CGN device, CGN device relay the data based on the table built by COUPLE command.



Core difference points between TURN and OARS

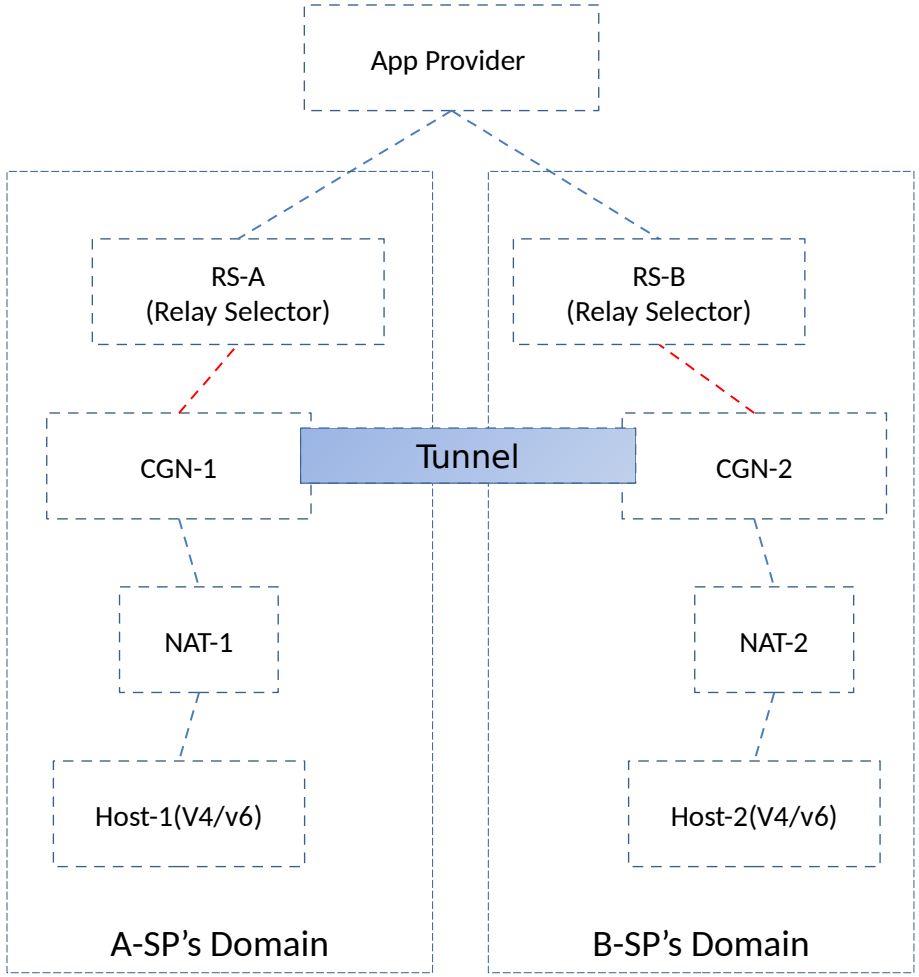
	TURN	OARS
Relay Address Allocation	Different for every client	Same for every client under one Relay.
TCP/UDP Data Relay	Different Signaling Process and Data Transfer Procedure	Same Signaling Process and Data Transfer Procedure
Relay Selection Decision	Done by every client	Done by Relay Selector which has whole system view
Necessary Signaling	8 (Binding/Allocate/Send/Data/ChannelBind/Connect/ConnectBind/ConnectAttempt)	2 (Binding/Couple)

Relationship with TURN

- OARS is NOT intended to be a full alternative o f TURN
- We consider it as a complementary solution fo r SP-Public-Relay-Service

Communication Procedures Under different SP Domain

1. When communication clients located in different SP's domain, the App provider can select one of RS to finish the "relay selection" function.
2. Even better is to let the RS in different SP' domain select their prefer relay device, and build tunnel between two relay devices
3. Detail procedure will be provided in further version of this draft.



Next Steps

- Feedbacks are welcomed
  - Especially from ICP perspective
  - Also from ISP/CDN provider perspective
- A useful work? Possibly added to the charter?

Comments?

Thank you!

wangaj@ctbri.com.cn
leo.liubing@huawei.com
justin@uberti.name
IETF96@Berlin