

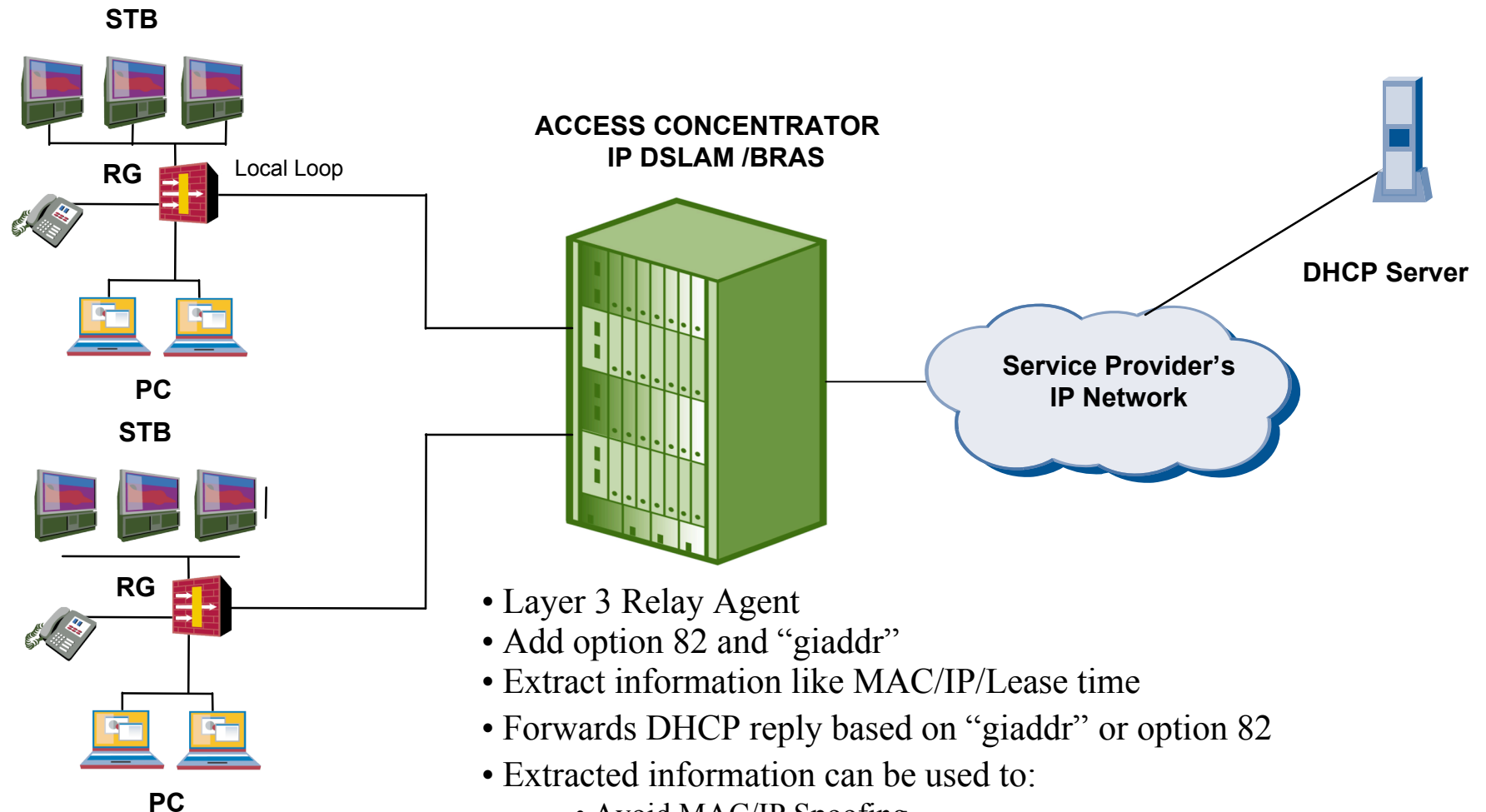
Extension of DHCP LEASEQUERY in
Bridging/Switching networks
draft-joshi-dhc-lease-query-ext-00.txt
DHC Working Group

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Agenda

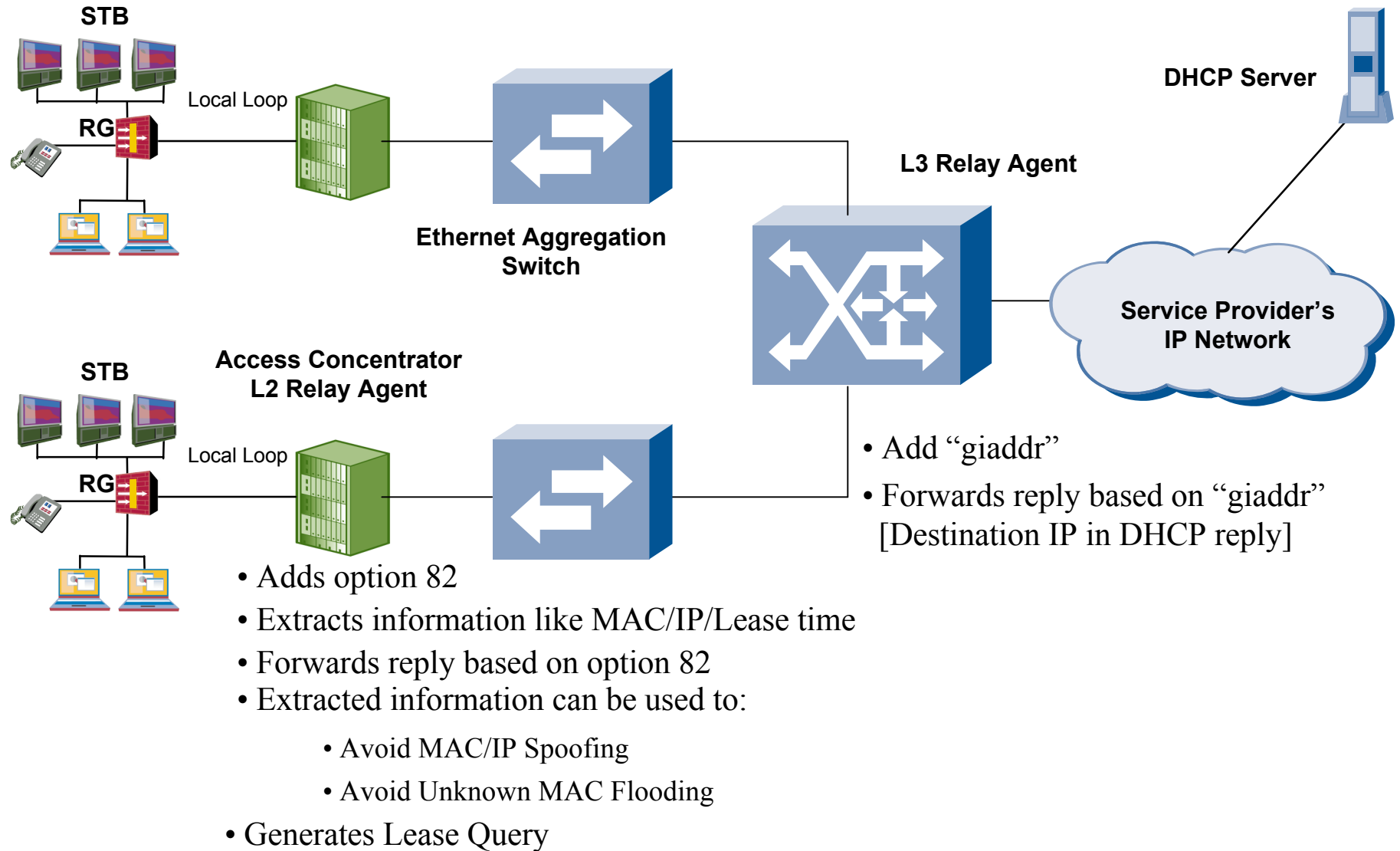
- RFC 4388 for Layer 3 Access Network
- Proposed Extension of RFC 4388 to Layer 2 Access Networks
- Open Issue
- Next Step

RFC 4388 for Layer 3 Access Network



- Layer 3 Relay Agent
- Add option 82 and “giaddr”
- Extract information like MAC/IP/Lease time
- Forwards DHCP reply based on “giaddr” or option 82
- Extracted information can be used to:
 - Avoid MAC/IP Spoofing
 - Enhance Security by avoiding ARP generation
- Generates DHCP Lease Query

Extension of RFC 4388 to Layer 2 Access Networks



Proposed Extension of RFC 4388 to Layer 2 Access Networks

- **Proposed changes in Access Concentrator :**
 - Generates and Broadcasts DHCPLEASEQUERY message.
 - Does not set 'giaddr' in DHCPLEASEQUERY message.
- **Proposed changes in Layer 3 Relay Agent :**
 - While relaying a DHCPLEASEQUERY message, Layer 3 Relay Agent must set the 'giaddr' field in DHCPLEASEQUERY message to the address of interface on which DHCPLEASEQUERY was received.
 - While generating a DHCPLEASEQUERY message, Layer 3 Relay Agent must set the 'giaddr' field to the IP address of interface connected to the DHCP server.
 - Layer 3 Relay Agent should forward the reply of DHCPLEASEQUERY message based on the destination IP address in the DHCP reply.
- **No changes are proposed in DHCP Server**

Open Issue

- Layer 3 Relay Agents broadcast DHCP replies to Access Concentrators.
- All the Access Concentrators connected to that broadcast domain processes these replies even if it does not belong to them.

- **Using a new option in LEASEQUERY message:**
 - L2 Relay Agent will add a new option 'Access-Concentrator-MAC' in DHCPLEASEQUERY message.
 - Server should echo this option in the DHCP reply.
 - L3 Relay Agent can use this to unicast the reply.

- **Using new sub-option in option 82:**
 - Add a new sub-option 'Access-Concentrator-id' to the Option 82 which is included in all the DHCP messages relayed by Access Concentrator.
 - L3 Relay Agent can use this option to unicast the reply.
- **Disadvantages:**
 - Issues if MAC address of an Access Concentrator changes dynamically.
 - Server would need to maintain more data.

Next Step

- PoC implementation
 - A minimal PoC implementation is done and being verified.
- More review in WG mailing list.
- Working group item?

Thanks!