



Line Identification in NS Messages

Hongyu Li
Yizhou Li

July 2009



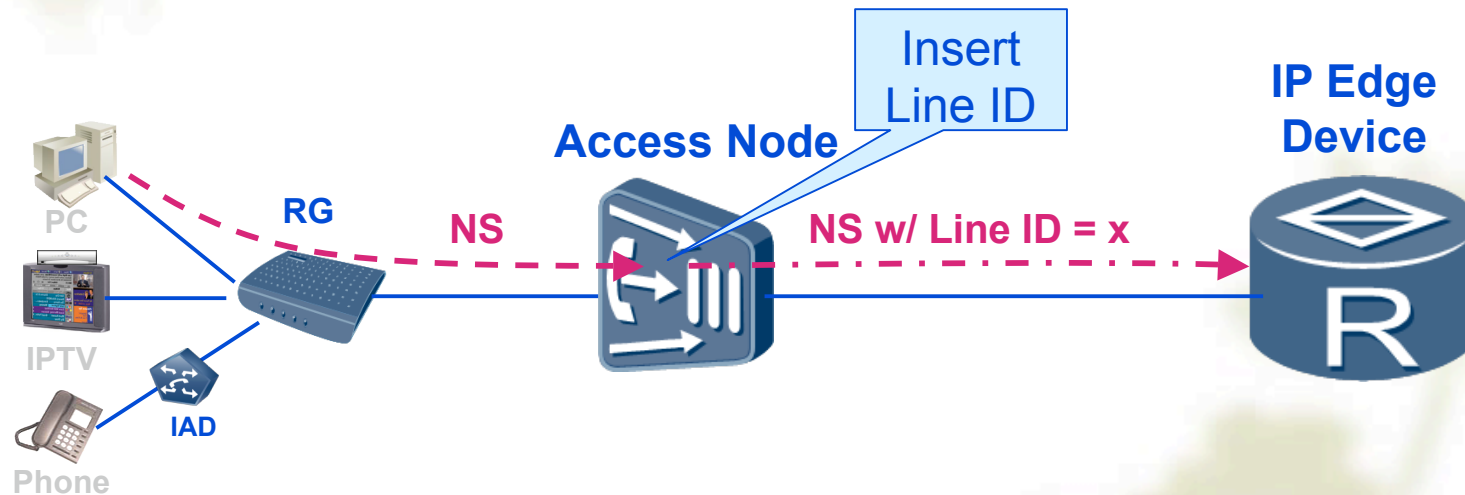
Why We Need It

- ❖ Broadband Forum's access network typically uses N:1 VLANs, which means multiple access ports/subscribers share a same VLAN but are still isolated on L2 (split-horizon)
- ❖ IP Edge device need to know where is a NS message is from for security
- ❖ VLAN ID is not a valid ID for IP Edge device to distinguish different ports/subscribers

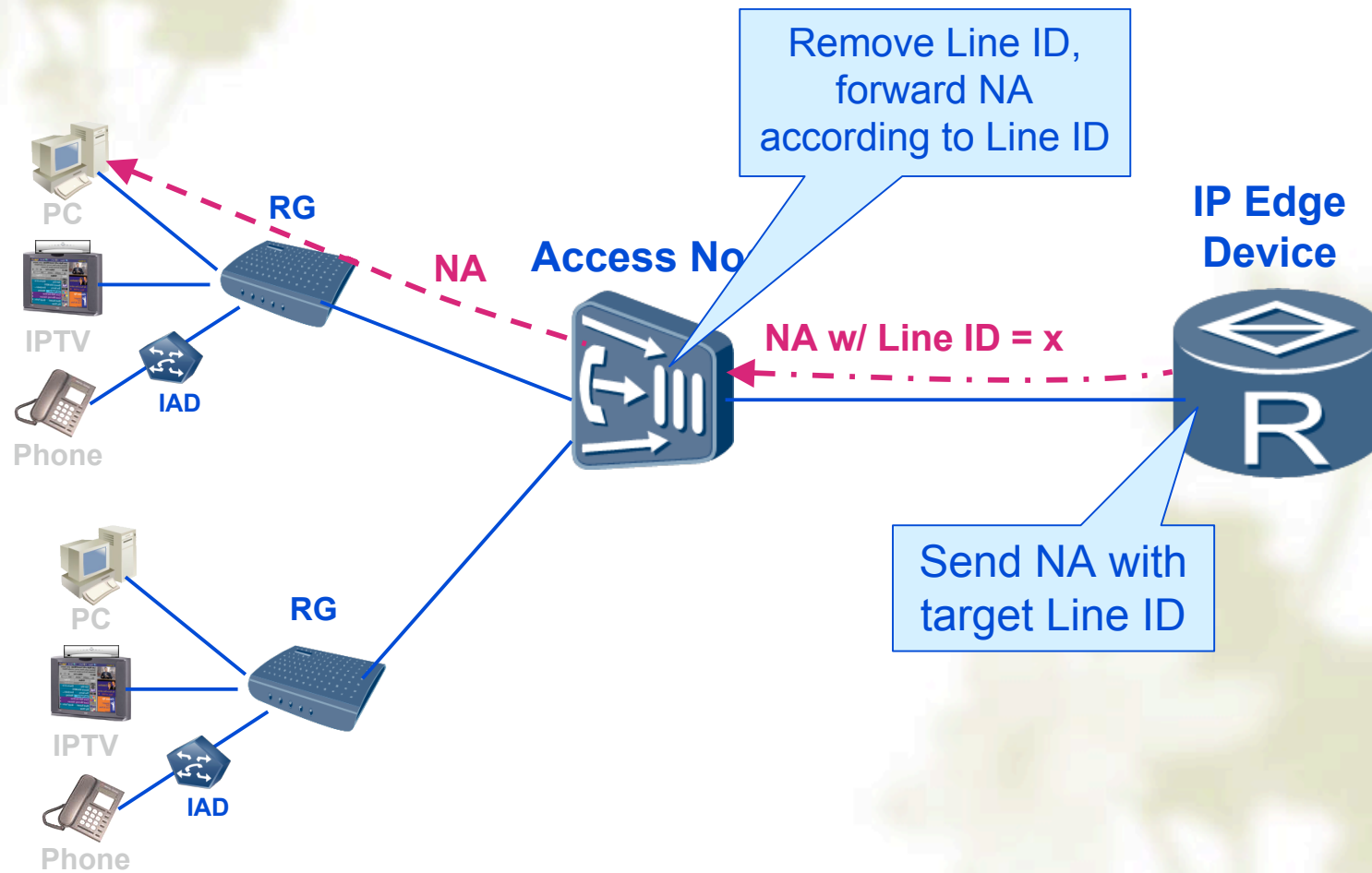
Proposed Solutions

- ❖ In a BBF network, location or line ID is generally a trusted identification of a port/subscriber
- ❖ Access nodes in an operator's network have subscribers' line info and are trusted
- ❖ Basic solution is:
 - ↪ Access Node inserts an option containing line ID where the NS message is received
 - ↪ IP Edge device retrieves the line ID from the option
- ❖ Enhanced solution is:
 - ↪ IP Edge device send NA message with an option carrying targeted line ID
 - ↪ Access Node doesn't multicast but forwards the NA message according to line ID, which is removed before forwarding

Basic Solution



Enhanced Solution



Line ID Option

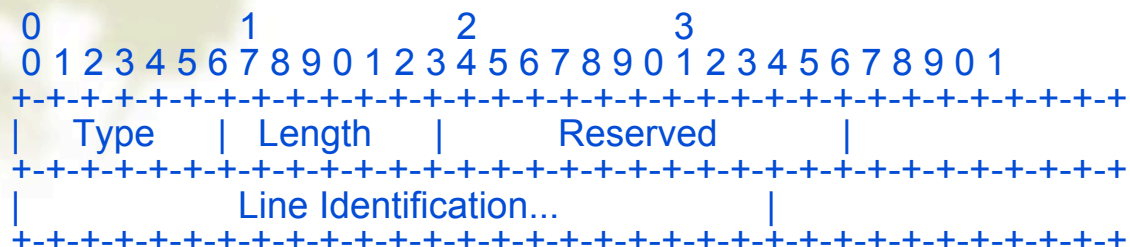


Figure 2: Line Identification Option

Type: 8-bit identifier of the type of option. To be determined by IANA

Length: 8-bit unsigned integer. The length of the option (including the type and length fields) in units of 8 octets.

Line Identification:

In a Neighbour Solicitation: Variable length data inserted by the Access Node describing the subscriber agent circuit identifier corresponding to the logical access loop port of the Access Node from which the NS was initiated.

In a Neighbour Advertisement: Variable length data inserted by NAS describing the subscriber agent circuit identifier corresponding to the logical access loop port of the Access Node on which the NA needs to be sent out.

Use Cases

- ❖ L2 RG with SLAAC for users behind
- ❖ L3 RG
- ❖ DAD-proxy on IP Edge device

Next Steps

❖ ?

