Addressing Scheme in Relay System

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Venue:

Re: TGm SDD Section 15 Relay Support

Base Contribution:

This is the base contribution.

Purpose:

To be discussed and adopted by TGm for the 802.16m SDD

Background

- Addressing scheme in 16j
  - CID based forwarding
    - MAC PDU contains MS CID
    - DL MAP for relay link contains MS CID or RS basic CID
  - Tunnel based forwarding
    - Relay MAC PDU contains tunnel CID
    - DL MAP for relay link contains tunnel CID or RS basic CID
    - CID in each individual MPDU identifies the target MS
- Addressing scheme in 16m
  - A:MAP contains Station Identifier (to identify AMS)
  - MPDU contains Flow Identifier (to identify connection within the AMS)

Motivation

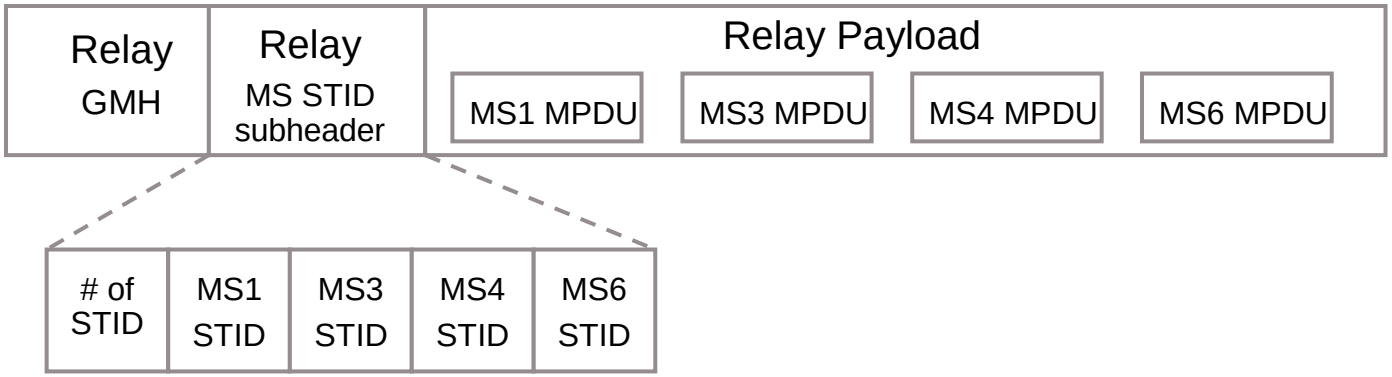
- CID based forwarding
  - If A:MAP IE on relay link contains Station Identifier for the ARS, then the access ARS cannot find out which AMS to send the MPDU since Station Identifier is not included in the MPDU.
  - Therefore A:MAP IE should contain Station Identifier of the MS.
- Tunnel based forwarding
  - The tunneling packet contains more than one MPDU for same or different AMS.
  - Different Flow identifiers are used to identify different tunnels between ABS and an access ARS.
  - What to put into the A:MAP IE in relay link?
    - Station Identifier for access ARS.
  - Since Station Identifiers for the AMSs are not included in each MPDU in the tunnel packet, how to carry Station Identifier for each AMS?

Proposed Solution

- Station Identifier information for each individual MAC PDU is included in the tunnel packet.
- DL direction
  - ABS includes the Station identifier of each MPDU that is mapped into the tunnel in the tunnel packet.
  - Access ARS uses it to generate A:MAP IE over the access link and doesn't include the Station identifier into the individual MAC PDU sent over access link.
- UL direction
  - Access ARS includes the Station identifier of each MPDU that is mapped into the tunnel in the tunnel packet.
  - ABS uses it to identify which AMS the MPDU belongs to.

MS STID Subheader

- A new subheader is defined only for relay link - AMS STID subheader.
- The AMS STID subheader included in the relay MAC PDU carries the list of station identifier associated with each MPDU in the tunnel packet
  - A reduced version of station identifier could be used.
- The order of station identifier list follows the order of individual MAC PDUs in the tunnel packet.



Proposed Text

Section 15: Relay Support

Section 15.4.2: Addressing

Each ARS is uniquely identified by a STID. When tunnel mode is used, each tunnel established between an ABS and an ARS is assigned with a unique FID. The tunnel connection is uniquely identified by the combination of ARS STID and the associated FID.

The STIDs for each individual MAC PDU carried in the tunnel packet is included in a subheader in the relay MAC PDU. The subheader has STIDs in a list format. The order of STID list follows the order of individual MAC PDUs in the tunnel packet.

The Access ARS uses the STID list carried in DL relay MAC PDU to generate A-MAP over the access link.

The ABS uses the STID list carried in UL relay MAC PDU to identify which AMS the MPDU belongs to.