Project	IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>
Title	Transmission using station CID
Date Submitted	2007-03-15

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Re:	Call for Technical Comments and Contributions regarding IEEE 802.16j
Abstract	Provide a method for streamlining MPDU transmission and reducing overhead
Purpose	To amend the text of baseline document for Section 6.3.3.8.2 and Section 6.3.2
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Transmission using station CID

Purpose

In 802.16j, tunnel based forwarding is introduced. Proposed is an alternative method for transmission of MPDUs. This method proposes using destination/source basic CID based forwarding, and enables source-based QoS control may be employed. This method takes advantage of the a priori knowledge RS has regarding forwarding. This knowledge comes from the fact that during SF setup intermediate RSs keep a routing table, which includes the corresponding next hop RS identity for each SF.

Using this scheme, for DL data forwarding, MR-BS can include the destination RS basic CID and QoS info in the relay MAC header. The intermediate RS can schedule the transmission of this PDU based on QoS information along with the received PDU and identify the next hop RS based on the routing table; for UL, the access RS includes its source CID and QoS information in the relay MAC header. The intermediate RS shall make the corresponding process like that for DL.

This scheme provides the following benefits:

- lower signaling overhead – the signaling overhead regarding the tunnel setup, tunnel binding to a path (including tunnel and QoS population) can be significantly reduced
- Much less storage space for routing table/QoS profile in intermediate RS – size of the routing/QoS profile table is much less
- Very simpler process of intermediate RS – intermediate RS can simple process QoS information from sender to decide scheduling. An intermediate RS doesn't need to be populated and keep any information such as tunnel CID and associated QoS profiles

The purpose of this contribution is to amend text for Section 6.3.3.8.2 "Transmission using station CID" and Section 6.3.2 "MAC PDU Formats" in order to provide a method for streamlining MPDU transmission and supporting QoS.

Amendment Text

Add the following text to Section 6.3.3.8.2 "Transmission using station CID"

For this type of data forwarding, the routing table in intermediate RS shall simply include the destination RS CID and the corresponding next hop RS identity. Intermediate RS's may concatenate MPDUs from various CID's in the same PHY burst when those CID's share the same next hop (from viewpoint of transmitting intermediate RS).

For DL data forwarding, the MR-BS can include the destination RS basic CID and QoS info in the relay MAC header. The intermediate RS can schedule the transmission of this PDU based on QoS information along with the received PDU and identify the next hop RS based on the routing table; for UL, the access RS includes its source CID and QoS information in the relay MAC header. The intermediate RS shall make the corresponding process like that for DL.

Add the following text to the end of 6.3.2.1.1 (DL), please refer to C802.16j-07_198r2

For data forwarding using the access basic CID based routing, the CID field in relay MAC header shall be the basic CID of the access RS. For DL, this field is equivalent to a destination identity.

For relay MPDU with payload, the bit #3 (fourth MSB in the header) in the first byte of relay MAC header is used as "Source QoS control". If this bit is set, the QoS subheader is included and this subheader immediately follows the generic relay MAC header.

For data forwarding using T-CID, when relay MPDU with payload for multicasting transmission, the bit #4 (5th MSB in the header) in the first byte of relay MAC header is used as "Ownership type". If this bit is set, the intermediate RS shall read the payload to accomplish its multicast transmission.

Add the following sublclasue 6.3.2.1.11.1

6.3.2.1.11.1 QoS subheader (DL)

If "Source QoS control" bit in generic relay MAC header is set, a QoS subheader presents in the Relay MAC PDU and will be the first subheader in the relay MPDU. This subheader is used for source QoS control and is inserted by the station which creates a Relay MPDU. Such a station can be MR-BS for DL data transmission or an access relay station for UL data relay. The QoS subheader is shown in Table XXX.

Table XXX: QoS Subheader Format

Syntax	Size	Notes
QoS Subheader	8	TBD

Add the following text to the end of 6.3.2.1.2 (UL), please refer to C802.16j-07_198r2

For data forwarding using the access basic CID based routing, the CID field in relay MAC header shall be the basic CID of the access RS. For UL, this field is equivalent to a source identity.

For relay MPDU with payload, the bit #5 (sixth MSB in the header) in the first byte of relay MAC header is used as "Source QoS control". If this bit is set, the QoS subheader is included and this subheader immediately follows the generic relay MAC header.

For data forwarding using T-CID, when relay MPDU with payload for multicasting transmission, the bit #6 (7th MSB in the header) in the first byte of relay MAC header is used as "Ownership type". If this bit is set, the intermediate RS shall read the payload to accomplish its multicast transmission.

Add the following sublclasue 6.3.2.1.12.1

6.3.2.1.12.1 QoS subheader (UL)

If "Source QoS control" bit in generic relay MAC header is set, a QoS subheader presents in the Relay MAC PDU and will be the first subheader in the relay MPDU. This subheader is used for source QoS control and is inserted by the station which creates a Relay MPDU. Such a station can be MR-BS for DL data transmission or

an access relay station for UL data relay. The QoS subheader is shown in Table XXX.

Table XXX: QoS Subheader Format

Syntax	Size	Notes
QoS Subheader	8	TBD