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| Re: | Working Group Letter Ballot #39a on IEEE P802.16q/D2 | |
| Abstract | This contribution clarifies operations for network topology acquisition. | |
| Purpose | To discuss and adopt the proposed texts in IEEE P802.16q draft | |
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# Operations for Network Topology Acquisition

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# Introduction

This contribution proposes some changes to clarify the operations for network topology acquisition such as transmission of MOB\_NBR-ADV message and exchange of scanning messages.

# Proposed Texts

----------------- Start of the text proposal --------------------------------------------------------------------------------------

[*Change the texts in subclause 17.2.1.1 as follows:*]

**17.2.1.1 Network topology acquisition**

**17.2.1.1.1 Network topology advertisement**

~~A BS shall periodically broadcast the system information of the neighboring BSs using an MOB\_NBR-ADV message. A broadcast MOB\_NBR-ADV message shall not include information of neighbor Closed Subscriber Group (CSG) SBSs.~~

A BS shall periodically broadcast the system information of neighboring BSs using a MOB\_NBR-ADV message. A broadcast MOB\_NBR-ADV message shall not include information of neighbor SBSs with CSG-Closed or CSG-Open subscription type. The broadcast MOB\_NBR-ADV message may not include the system information of neighboring SBSs to decrease a size of the broadcast MOB\_NBR-ADV message. In this case, the MOB\_NBR-ADV message shall include Neighbor FA information TLV to provide the information required for an MS to scan the neighbor SBSs deployed on a different frequency.

~~A serving BS may unicast a list of accessible neighboring SBSs through the MOB\_NBR-ADV message. The accessible SBSs may contain CSG-closed SBSs serving CSGs to which the MS belongs to, and CSG-open SBSs. The MS may request the accessible SBS list from the BS by sending the MOB\_SCN-REP message.~~

If a serving BS receives from an MS a MOB\_SCN-REP message that contains Neighbor Request TLV, the serving BS shall provide system information of accessible neighboring SBSs by unicasting a MOB\_NBR-ADV message. The subscription type of the SBSs in the unicast MOB\_NBR-ADV message determined according to the values of Request SBS subscription type TLV and CSGID TLV in the MOB\_SCN-REP message.

**17.2.1.1.2 MS scanning neighbor SBSs**

For neighbor SBSs, an MS performs the scanning procedure as per 6.3.20.1.2 with exceptions described in this subclause. ~~An MS may scan SBSs according to the neighbor FA information TLV included in the broadcast MOB\_NBR-ADV message.~~ If Neighbor FA information TLV is included in a MOB\_NBR-ADV message, an MS scans the neighbor SBSs deployed on a different frequency using FA index and Preamble index range indicated by the Neighbor FA information TLV. ~~In addition, an MS may scan allowed SBSs based on the CSG white list, which may include the absolute or relative location information of the CSG SBS, such as the GPS information or BSID of the overlay BS, respectively. Based on location information and/or speed, the MS may initiate the scanning procedure (see 6.3.20.1.2). For example, the MS may use the absolute or relative location information of the CSG SBS to initiate scanning when the distance between the MS and the CSG SBS is less than a pre-configured threshold or the MS detects the overlay BS. Details of the threshold configuration are vendor specific and outside the scope of this specification.~~ If an MS supports a CSG white list that contains the absolute or relative location information of SBSs with CSG-Closed or CSG-Open subscription type, the MS determines when it starts scanning for the SBSs with CSG-Closed or CSG-Open subscription type based on the location information in the white list.~~The MS may request an additional scanning opportunity by sending MOB\_SCN-REQ including the detected preamble index and FA information. Upon reception of the MOB\_SCN-REQ, the BS shall respond with an MOB\_SCN-RSP, which may include a neighbor-accessible SBS list based on the preamble index and FA information.~~ If the MS needs more scanning opportunity for the detected SBSs, it transmits a MOB\_SCN-REQ message with identifiers of each detected SBSs to a serving BS. If BSID of a detected SBS is not in the MOB\_NBR-ADV message, the MOB\_SCN-REQ shall include Recommended SBS information TLV to identify the SBS. Otherwise, the MOB\_SCN-REQ message shall include BSID of the SBS. Upon reception of the MOB\_SCN-REQ message, the BS shall respond with a MOB\_SCN-RSP message, which includes a list of neighbor SBSs recommended to be scanned. If BSID of the recommended SBS is not in the MOB\_NBR-ADV message, the MOB\_SCN-RSP shall include Recommended SBS information TLV to identify the recommended SBS. Otherwise, the MOB\_SCN-RSP message shall include BSID of the recommended SBS.

~~When the MS has to scan the SBSs belonging to a CSG, the MS may provide the desired CSGID(s) in the MOB\_SCN-REQ message to the serving BS. The serving BS responds with a list of BSs, addressed by full BSID belonging to the requested CSGID(s), with BS’s FA, preamble index, in the MOB\_SCN-RSP message.~~

If the MS prefer to scan accessible SBSs with CSG-Closed or CSG-Open subscription type, the MS provides the desired CSGID(s) in the MOB\_CN-REQ message to the serving BS. The serving BS responds with a list of SBSs belonging to the requested CSG(s) in the MOB\_SCN-RSP message.

~~The BS may send an unsolicited MOB\_SCN-RSP for the MS to scan the SBS.~~

The BS shall send an unsolicited MOB\_SCN-RSP for the MS to scan the SBS for the purpose of load balancing.

After scanning and identifying the existence of any SBSs, the MS may report FA, preamble index or BS IDs and measurement results according to the Trigger conditions included in the DCD message by sending MOB\_SCN-REP. The MOB\_SCN-REP may contain a neighbor request TLV. If the BS receives the MOB\_SCN-REP that contains the neighbor request TLV, the BS unicast a~~an~~ MOB\_NBR-ADV message that includes ~~a~~ system information of neighbor SBSs indicated by the neighbor request TLV in the MOB\_SCN-REP.

----------------- End of the text proposal --------------------------------------------------------------------------------------