Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**Proposed Text for Network Topology Advertisement for IEEE 802.16m SDD**
Date Submitted	**2009-01-05**
Source(s)	Seongwon Oh E-mail: avatar5@posdata.co.kr Yerang Hur yehur@posdata-usa.com Hyung-Joon Jeon hjjun@posdata.co.kr Kyounghwan Lee khlee@posdata-usa.com POSDATA
Re:	TGm SDD: IEEE 802.16m-08/052: Call for Comments and Contributions on Project 802.16m System Description Document (SDD) 10.3.1.1 Network Topology Advertisement
Abstract	This contribution provides SDD text for HO section.
Purpose	For discussion and adoption of network topology advertisement in IEEE 802.16m SDD
Notice	*This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups*. It represents only the views of the participants listed in the "Source(s)" field above. It is offered as a basis for discussion. It is not binding on the contributor(s), who reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.
Patent Policy	The contributor is familiar with the IEEE-SA Patent Policy and Procedures: <http://standards.ieee.org/guides/bylaws/sect6-7.html#6> and <http://standards.ieee.org/guides/opman/sect6.html#6.3>. Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and <http://standards.ieee.org/board/pat>.

Proposed Text for Network Topology Advertisement for IEEE 802.16m SDD

Seongwon Oh, Yerang Hur, Hyung-Joon Jeon, Kyounghwan Lee

POSDATA

1. Introduction

For the end user, mobility is one of the truly distinctive values that wireless system offers, and handover is one of the essential features of mobility. To support mobility, ABS periodically broadcasts the network topology information using Neighbor Advertisement message.

2. Problem Statement

The size of MOB_NBR-ADV message in 16e legacy system is very large comparing with neighbor advertisement message of other air-link interface standards. The reason for this is as follows:

1) The use of TLV format is good in terms of extensibility and flexibility, but poor in terms of transmission efficiency.
2) For octet alignment of message encoding, the minimum size of parameter is nibble.
3) The principal purpose of broadcasting MOB_NBR-ADV message is supporting MS to search neighbor BSs. However, too many parameters are included in this message for the purpose of supporting fast HO and association procedure.

As MOB_NBR-ADV message is encoded with the most robust MCS level in most cases, efficiency of the message encoding is important for enhancing overall system performance. Moreover, inefficiency is proportional to the number of neighbor BSs included in the message.

3. Proposal for Efficient Network Topology Advertisement

To mitigate inefficiency of network topology advertisement, we propose 16m Neighbor

Advertisement message is encoded considering followings:

1) The Neighbor Advertisement message includes the minimum number of items indispensable for scanning neighbor BSs and HO initiation.

2) The items necessary for HO preparation, execution and cancellation are not included in the Neighbor Advertisement message. Instead, these items will be included in a unicast control signaling message (e.g. HO command control signaling) transmitted by serving ABS.

3) Remove the relationship between Neighbor Advertisement message transmitted by serving ABS and DCD/UCD message transmitted by target BS.

4. Proposed Text for SDD

[Insert the following text into SDD Section 10.3.1.1]

-- Text Start --

10.3.1.1 Network topology advertisement

A ABS periodically broadcasts the system information of the neighboring ABSs using Neighbour Advertisement message. The ABS formats Neighbour Advertisement message based on the cell types of neighbor cells, in order to achieve overhead reduction and facilitate scanning priority for AMS. **Neighbour Advertisement message includes minimum information indispensable for scanning neighbor BSs and HO initiation. Other HO related information not required for MS initiating HO is included in a unicast control signaling message transmitted by serving ABS when ABS initiates HO or transmitted in response to the AMS request of HO when AMS initiates HO.** Neighbour Advertisement message does not include information of neighbor femto cells. Special handling of neighbor information of femto cell is described in section 10.3.3.

A serving ABS may unicast the MOB_NBR-ADV message to a AMS.
-- Text End --

5. References

[1] IEEE 802.16m-08/003r6, "IEEE 802.16m System Description Document [Draft]"