Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Proposal for adding MS/SS IP address to Mobile MIB**
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Re:	Contribution on IEEE 802.16i
Abstract	This contribution proposed to add MS/SS IP Address to Mobile MIB, which will help NMS to manage MS/SS through direct mode or proxy mode conveniently.
Purpose	Adoption
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Proposal for adding MS/SS IP address to Mobile MIB

HUAWEI Technologies.

Introduction

With mobility feature is introduced in IEEE802.16e, there are two modes of MS/SS management requirements. One is direct mode, another is proxy mode.

For direct mode, MS/SS will be accessed by NMS directly through IP connection. So NMS needs to know MS/SS's IP address whenever MS/SS is registered.

For proxy mode, BS will act as a proxy. With the moving of MS/SS, its IP address may also be changed frequently. In this scenario, it's not required for NMS cares about the MS/SS's IP address. BS needs to know the map information between MS/SS characterized Identifier such as MS/SS MAC address and corresponding MS/SS's IP address whenever MS/SS's IP changed.

This contribution proposes to add SS IP address related node to mobile MIB which can help convenient communication between NMS and MS/SS .

Proposed Text Changes

Add the following description into 16i

X.X BS Management

X.X.1 BS proxyTable

In the scenario for BS acts as front-end proxy that routes SNMP message to SS or MS, NMS not need to care SS or MS IP address.
NMS will send BS SS or MS's MAC address to specify SS or MS to be managed. In BS, a proxy table is required to map SS or MS's MAC address to corresponding SS or MS's IP address.

SS or MS MAC Address	SS or MS IP Address

Figure x – BS proxyTable

X.X SS and MS Management

For direct mode management, SS or MS need to notify NMS whenever they got IP address. There are two ways to report SS IP address:

    1.After SS registered to the network and got the IP address, SS reports the SS IP address directly to NMS through SS trap MIB.

    2.After SS registered to the network and got the IP address, BS reports the SS IP address directly to NMS through BS trap MIB.

For proxy mode management, SS or MS need to communicate with NMS through BS.

[Add text in ASN.1 Definitions of 802.16e MIB for SNMP as the following]

For direct mode management, there are two ways to report SS IP address:

1. After SS registered to the network and got the IP address, SS reports the SS IP address directly to NMS through SS trap MIB.

wmanIfSsDhcpSuccessTrap NOTIFICATION-TYPE
OBJECTS {ifIndex,
wmanIfSsIPAddr,
wmanIfSsMacAddress}
STATUS current
DESCRIPTION
"An event to report a successful Handshake to establish IP
connectivity."
::= { wmanIfSsTrapPrefix 3 }

wmanIfSsNotificationObjectsEntry OBJECT-TYPE
SYNTAX WmanIfSsNotificationObjectsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table provides one row for each SS that has
generated traps, and is indexed by ifIndex."
INDEX { ifIndex }
::= { wmanIfSsNotificationObjectsTable 1 }

wmanIfSsNotificationObjectsEntry ::= SEQUENCE {
wmanIfSsIPAddr InetAddressType,
wmanIfSsMacAddress MacAddress,
wmanIfSsUnknownTlv OCTET STRING,
wmanIfSsDynamicServiceType INTEGER,
wmanIfSsDynamicServiceFailReason OCTET STRING,
wmanIfSsRssiStatus INTEGER,
wmanIfSsRssiStatusInfo OCTET STRING}

wmanIfSsIPAddr OBJECT-TYPE
        SYNTAX InetAddressType
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "The IP address of the SS generating the trap."
        ::= { wmanIfSsNotificationObjectsEntry 1 }

2. After SS registered to the network and got the IP address, BS reports the SS IP address directly to NMS through BS trap MIB.
[Add text in ASN.1 Definitions of 802.16e MIB for SNMP as the following]

wmanIfBsSsRegistrerTrap NOTIFICATION-TYPE

OBJECTS {wmanIfBsSsNotificationMacAddr,

wmanIfBsSsNotificationIPAddr,

wmanIfBsSsRegisterStatus}

STATUS current

DESCRIPTION

"An event to report SS registration status."

::= { wmanIfBsTrapPrefix 5 }

wmanIfBsSsNotificationObjectsEntry ::= SEQUENCE {
wmanIfBsSsNotificationMacAddr MacAddress,
wmanIfBsSsNotificationIPAddr InetAddressType,
wmanIfBsSsStatusValue INTEGER,
wmanIfBsSsStatusInfo OCTET STRING,
wmanIfBsDynamicServiceType INTEGER,
wmanIfBsDynamicServiceFailReason OCTET STRING,
wmanIfBsSsRssiStatus INTEGER,
wmanIfBsSsRssiStatusInfo OCTET STRING,
wmanIfBsSsRegisterStatus INTEGER}

wmanIfBsSsNotificationIPAddr OBJECT-TYPE
        SYNTAX InetAddressType
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "The IP address of the SS, reporting the notification."
        ::= { wmanIfBsSsNotificationObjectsEntry 3 }

WmanIfBsRegisteredSsEntry ::= SEQUENCE {
wmanIfBsSsMacAddress MacAddress,
wmanIfBsSsIPAddr InetAddressType,
wmanIfBsSsBasicCid WmanIfCidType,
wmanIfBsSsPrimaryCid WmanIfCidType,
wmanIfBsSsSecondaryCid WmanIfCidType,
wmanIfBsSsManagementSupport INTEGER,
wmanIfBsSsIpManagementMode INTEGER,
wmanIfBsSs2ndMgmtArqEnable TruthValue,
wmanIfBsSs2ndMgmtArqWindowSize INTEGER,
wmanIfBsSs2ndMgmtArqDnLinkTxDelay INTEGER,
wmanIfBsSs2ndMgmtArqUpLinkTxDelay INTEGER,
wmanIfBsSs2ndMgmtArqDnLinkRxDelay INTEGER,
wmanIfBsSs2ndMgmtArqUpLinkRxDelay INTEGER,
wmanIfBsSs2ndMgmtArqBlockLifetime INTEGER,
wmanIfBsSs2ndMgmtArqSyncLossTimeout INTEGER,
wmanIfBsSs2ndMgmtArqDeliverInOrder TruthValue,
wmanIfBsSs2ndMgmtArqRxPurgeTimeout INTEGER,
wmanIfBsSs2ndMgmtArqBlockSize INTEGER,
wmanIfBsSsVendorIdEncoding OCTET STRING,
wmanIfBsSsAasBroadcastPermission INTEGER,
wmanIfBsSsMaxTxPowerBpsk WmanIfMaxTxPowerType,
wmanIfBsSsMaxTxPowerQpsk WmanIfMaxTxPowerType,
wmanIfBsSsMaxTxPower16Qam WmanIfMaxTxPowerType,
wmanIfBsSsMaxTxPower64Qam WmanIfMaxTxPowerType,
wmanIfBsSsMacVersion WmanIfMacVersion}

wmanIfBsSsIPAddr OBJECT-TYPE
        SYNTAX InetAddressType
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
                "The IP address of the SS after SS registered successfully."
        ::= { wmanIfBsRegisteredSsEntry 3 }