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Title	<b>Proposed Modifications to the IEEE 802.16m SDD, Section 4</b>	
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	* <a href="http://standards.ieee.org/faqs/affiliationFAQ.html">http://standards.ieee.org/faqs/affiliationFAQ.html</a> >	
Re:	Revised text for sections 4	
Abstract	The Network reference model is WiMAX release 1.0 centric. WiAMX is evolving its network reference model. We believe that 802.16m needs to adopt longer term view which allows for future evolution of WiMAX network reference model	
Purpose	Accept the proposed specification changes into IEEE 802.16m SDD	
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# Proposed Modifications to the IEEE 802.16m SDD, Section 4

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## Introduction

This contribution proposes several editorial and technical modifications to the 802.16m SDD (IEEE C802.16m-08/003)

The technical modifications are mainly in the section 4 and section 8. We also proposed several editorial modifications throughout the SDD. Added text is marked with Blue underlined text. Deleted text is marked with ~~red-strikethrough~~ text.

The technical modifications are as follow:

- Section 4
  - The Network reference model is WiMAX release 1.0 centric. WiAMX is evolving its network reference model. We believe that 802.16m needs to adopt longer term view which allows for future evolution of WiMAX network reference model

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2 **Proposed Text**

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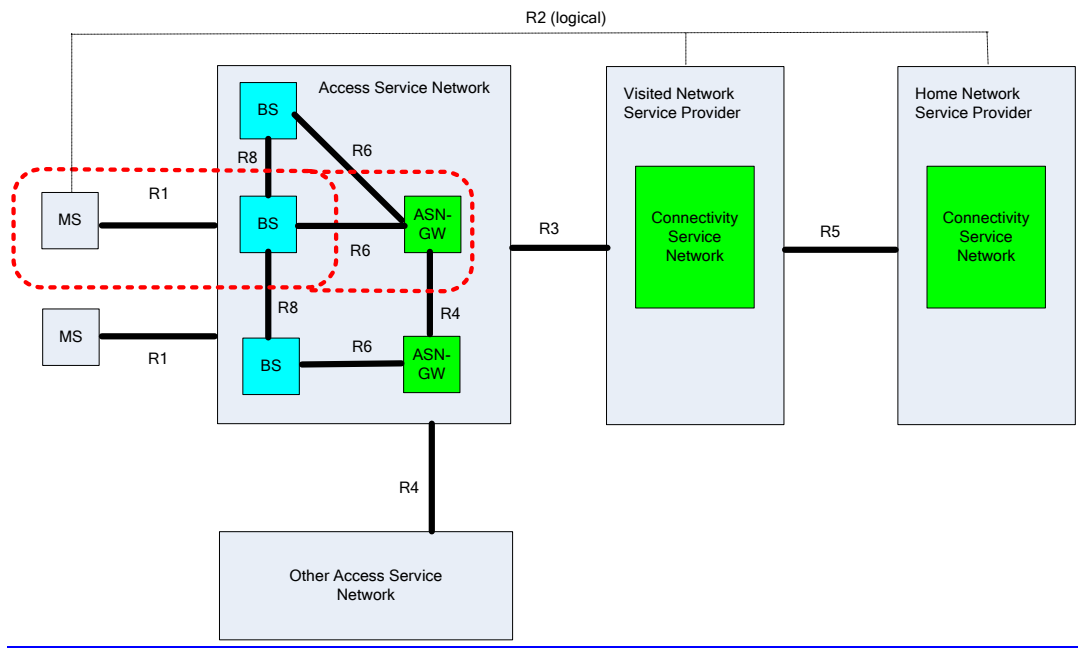
# 4 Overall Network Architecture

<Editor’s Note: This section will describe the overall network architecture applicable to 802.16m.>

This section describes the Network Reference Model (NRM) as being developed in the WiMAX Network Working (NWG) group. The existing network reference model is defined in WiMAX Network Architecture [9] for Release 1.0 supported features. The NRM is being evolved to support R1.5 features such as E-911, Location Based Services, Simple IP support, and MCBCS [cite NWG reference to R1.5 documents].

The NRM is a logical representation of the network architecture. The NRM identifies functional entities and reference points over which interoperability is achieved between functional entities. The following Figure 1 illustrates the NRM, consisting of the following logical entities: Mobile Station (MS), Access Service Network (ASN), and Connectivity Service Network (CSN). The dotted red line denotes IEEE 802.16m scope. The ASN comprises network elements such as one or more Base Stations (BS), and one or more ASN Gateway (ASN-GW) nodes and is

~~The existing network reference model is defined in WiMAX Network Architecture [9].~~



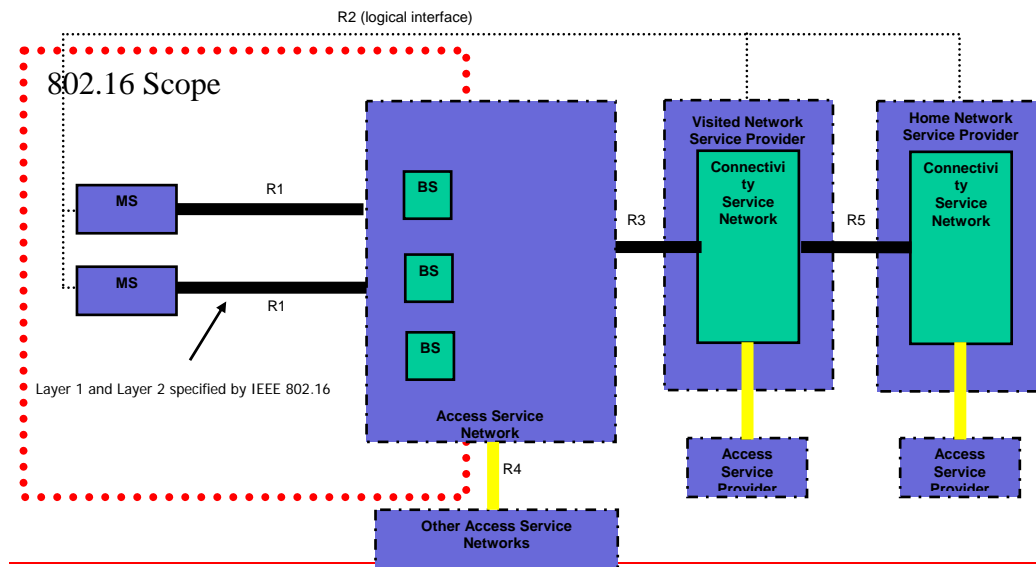


Figure 1 Example of overall network architecture

The ASN is defined as the complete set of network functions needed to provide radio access to an IEEE 802.16e/m subscriber. The functionality to be provided by the ASN will ultimately depend on end to end feature set to be supported. The ASN provides at least the following functions:

- IEEE 802.16e/m Layer-2 (L2) connectivity with IEEE 802.16e/m MS
- Transfer of AAA messages to IEEE 802.16e/m subscriber's Home Network Service Provider (H-NSP) for authentication, authorization and session accounting for subscriber sessions
- Network discovery and selection of the IEEE 802.16e/m subscriber's preferred NSP
- Relay functionality for establishing Layer-3 (L3) connectivity with an IEEE 802.16e/m MS (i.e. IP address allocation)
- Radio Resource Management

In addition to the above functions, for a portable and mobile environment, an ASN further supports the following functions:

- ASN anchored mobility
- CSN anchored mobility
- Paging and Idle mode support
- ASN-CSN tunneling

Similarly for supporting the MBS feature, the ASN would have to provide a synchronization function to support macro diversity.

The reference point R6 is specified between the ASN-GW and the BS and consists of the set of control and Bearer Plane protocols for communication between the BS and the ASN-GW. Direct communication between BSs is supported over the R8 interface. Lastly, the current NRM allows more than one ASN-GW per ASN. Reference Point R4 consists of the set of Control and Bearer Plane protocols originating/terminating in various functional entities of an ASN that coordinate MS mobility between ASNs and ASN-GWs within an ASN.

~~The ASN comprises network elements such as one or more Base Station(s), and one or more ASN Gateway(s). An ASN may be shared by more than one CSN.~~ The CSN is defined as a set of network functions that provide IP connectivity services to the IEEE 802.16e/m subscriber(s). A CSN may provide the following functions:

- MS IP address and endpoint parameter allocation for user sessions
- Internet access
- AAA proxy or server
- Policy and Admission Control based on user subscription profiles
- ASN-CSN tunneling support,
- IEEE 802.16e/m subscriber billing and inter-operator settlement
- Inter-CSN tunneling for roaming
- Inter-ASN mobility
- ~~The~~ IEEE 802.16e/m services such as location based services, connectivity for peer-to-peer services, provisioning, authorization and/or connectivity to IP multimedia services and facilities to support lawful intercept services such as those compliant with Communications Assistance Law Enforcement Act (CALEA) procedures.

Depending on the feature functionality to be supported the CSN may further will -comprise network elements such as routers, MIP Home Agents, DHCP Servers, AAA proxy/servers, user databases, Interworking gateway MSs etc. ~~A CSN may be deployed as part of a greenfield IEEE 802.16e/m NSP or as part of an incumbent IEEE 802.16e/m NSP..~~

The reference point R3 consists of the set of Control Plane protocols between the ASN and the CSN to support AAA, policy enforcement, mobility management capabilities etc. It also encompasses the Bearer Plane methods (e.g., tunneling) to transfer user data between the ASN and the CSN.

The Relay Stations (RSs) may be deployed to provide improved coverage and/or capacity (see Figure 2). When RSs are present, communications between the BS and the MS can occur directly or via relay.

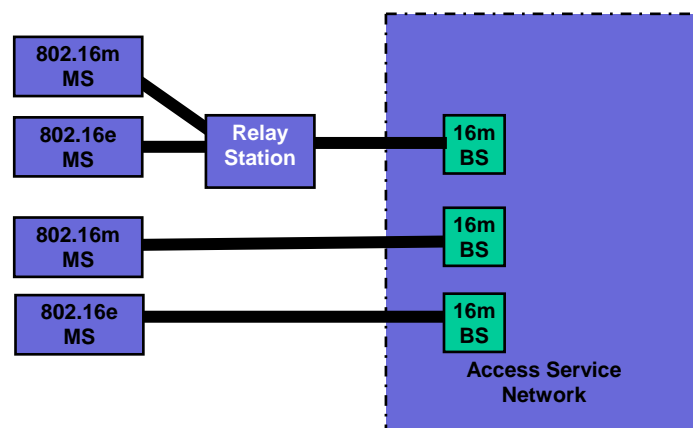


Figure 2 The Relay Station in overall network architecture