Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
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Re:	Call for Comments 80216g-05_013.pdf and Baseline Document 80216g-05_008r2.pdf
Abstract	Revised Text by moving content from Chapter 14 to Chapter 1.
Purpose	Proposal for adoption as new baseline text by Netman task group
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Revised Chapter 1

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A.1. Proposed Text Changes

(Editorial instructions in this color are not part of the proposed text)

Text reformatted into subsections 1.1 and 1.2

1. Introduction

1.1 Scope

~~**Scope:**~~ This document provides enhancements to the MAC and PHY management entities of IEEE Standard 802.16-2004, as amended by P802.16e, to create standardized procedures and interfaces for the management of conformant 802.16 devices.

1.2 Purpose

~~**Purpose:**~~ The purpose of this project is to provide conformant 802.16 equipment with procedures and services to enable interoperable and efficient management of network resources, mobility, and spectrum, and to standardize management plane behavior in 802.16 fixed and mobile devices.

Text moved here into 1.4 from 802.16g-05_008r2 Section 14

1.4 Reference Model

Figure 304 moved here from 802.16g-05_008r2 Section 14.4 and is revised as Figure 1

[Replace the figure 1 in section 1.4 with the one below]

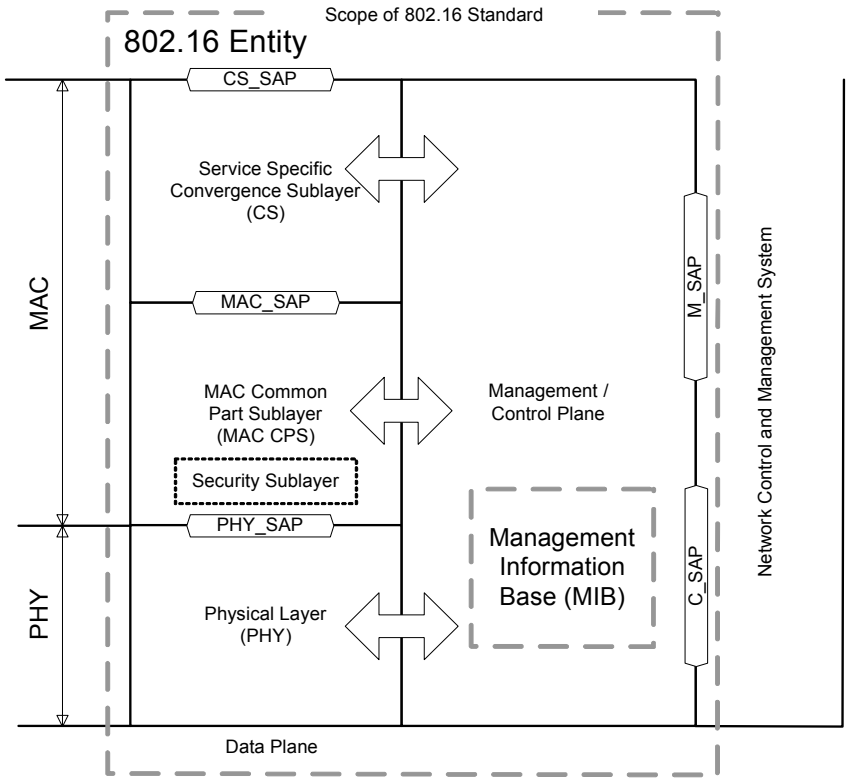

Figure 1—IEEE Std. 802.16 Protocol Architecture Model

Text moved here from 802.16g-05_008r2 Section 14.1 Overview and is revised

[Insert the following text into section 1.4 after the last para, before subsection 1.4.1]

The 802.16 devices ~~within the purview of this specification~~ can include 802.16-2004 subscriber stations (SS) or 802.16e mobile subscriber stations (MS) or base stations (BS). As the 802.16 devices may be part of a larger network and therefore would require interfacing with entities for management and control purposes, ~~this document assumes~~ a Network Control and Management System (NCMS) abstraction ~~that interfaces with the base stations~~ is assumed. The NCMS abstraction allows the PHY/MAC/CS layers and the management/control plane functions specified in 802.16 to be independent of the network architecture, the transport network, and the protocols used at the backend and therefore allows greater flexibility ~~on the network side~~. Any necessary inter-BS coordination is handled through the NCMS. ~~This specification will only describe procedures for management and control interactions between the MAC/PHY/CS layers of the 802.16 devices and the NCMS. The details of the various entities that form the Network Control and Management System are outside the purview of this specification. An abstracted network reference model is presented to clearly depict the interfaces that are assumed to be in scope of the specification.~~

Text moved here from 802.16g-05_008r2 Section 14.4.1 Architectural Aspects and is revised

This specification includes Service Access Primitives (SAP) that are exposed to upper layers in a consistent manner for use by control and management plane protocols in a network agnostic manner. The network that manages and controls an 802.16 air interface device which is abstracted as the Network Control and Management System (NCMS) uses the SAPs to interface with the 802.16 Entity. ~~The NCMS shall also support management function for SS/MS.~~ In

order to provide correct MAC operation, NCMS shall be present within each SS/MS. The NCMS is a layer independent entity that may be viewed as a management entity or control entity. General system management entities can perform functions through NCMS and standard management protocols can be implemented in the NCMS.

[Insert the following text into new subclause 1.4.2]

1.4.2 802.16 Entity

The logical entity in an SS/MS or BS that comprises of the PHY, MAC, CS layers of the Data Plane and including the Management/Control Plane is termed as an 802.16 entity.

Text moved here from 802.16g-05_008r2 Section 14.4.1.1 Architectural Aspects and is revised

[Insert the following text into new subclause 1.4.3]

1.4.3 ~~14.4.1.1~~ Network Control and Management System (NCMS)

This abstraction is detailed in Figure 1a to show the different functional entities that make up such a Network Control and Management System. These entities may be centrally located or distributed across the network. The exact functionality of these entities and their services is outside the scope of this specification but shown here for illustration purposes and to better enable the description of the management and control procedures.

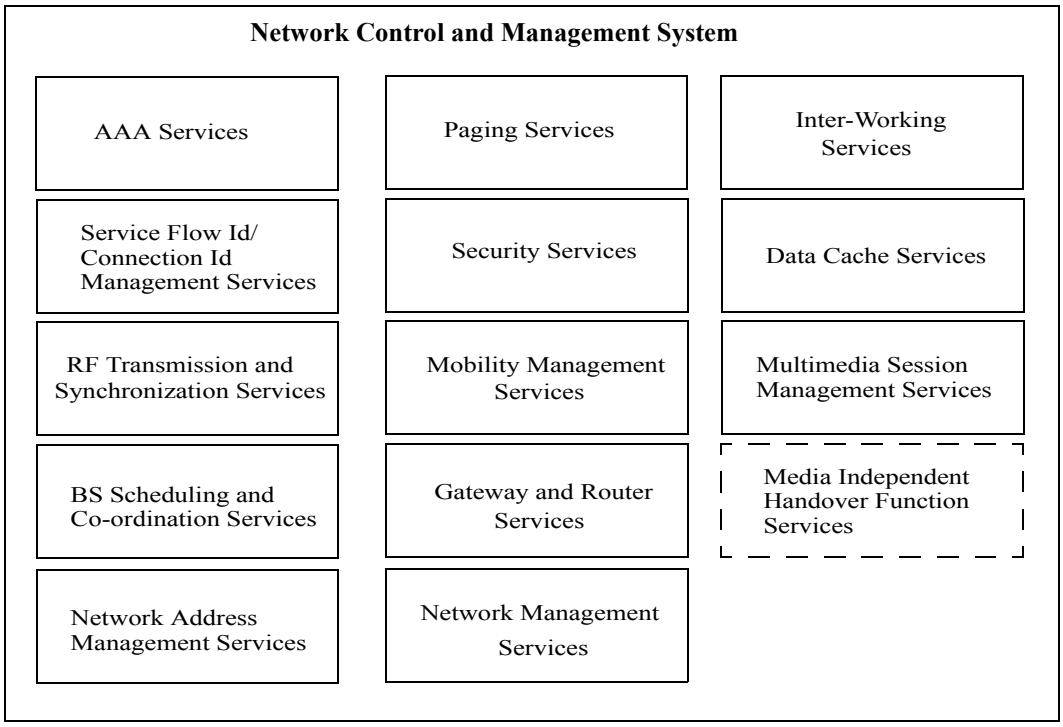

Figure 1a—Illustration of the Network Control and Management System (Informational)

NCMS protocols are not defined in this specification, however information elements (IEs) and protocol primitives for these IEs are exposed using Service Access Primitives ~~Points~~ (SAP). This includes CS, MAC and PHY layer context information used by NCMS protocols to manage and control the air interface. Every SS/MS and BS are ~~is~~ assumed to be part of an NCMS and therefore as shown in Figure 1a. The SS/MS may not have all the service depicted in the Figure 1a.

[Insert the following text into new subclause 1.4.3]

1.4.4 ~~14.4.1~~ Network Reference Model

The Figure 1a describes a simplified network reference model. ~~along with the interfaces that are within the scope of this specification.~~ Multiple SS or MS maybe attached to a BS. ~~The SS communicate to the BS over the U interface using a Primary Management Connection or a Secondary Management Connection. MS typically only utilize the Primary Management Connection over the U interface for management and related control functions.~~ SS or MS communicate to the BS over the U interface using a Primary Management Connection, a Basic Management Connection or a Secondary Management Connection.

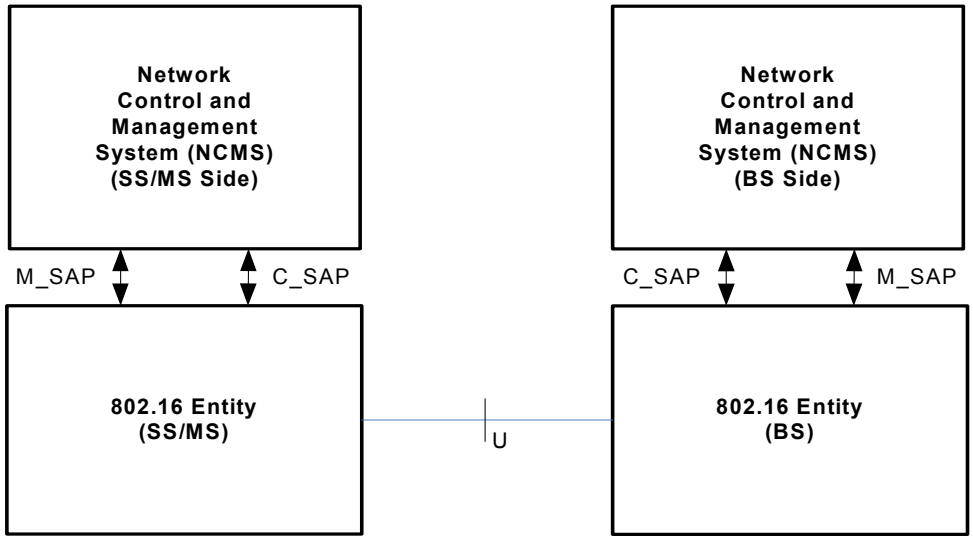

Figure 1b—802.16g Network Reference Model

[Insert the following text into new subclause 1.4.3.1]

1.4.4.1 ~~14.4.1.1.1~~ SS/MS and BS Interface

~~This U interface may be implemented using either a primary management connection or a secondary management connection.~~

SS or MS communicate to the BS over the U interface using a Primary Management Connection, a Basic Connection or a Secondary Management Connection.

For all SS or MS, the related control plane messages utilize the Primary Management or Basic Connection.

For managed SS or MS, the related management plane messages go through the Primary Management Connection or the Secondary Management Connection.

[Insert the following text into new subclause 1.4.3.2]

1.4.4.2 ~~14.4.1.1.2~~ 802.16 Entity to NCMS Interface

This interface is a set of Service Access Points (SAP) between SS/MS and NCMS and is represented in the Figure 1 and Figure 1b. It is decomposed into two parts: the Management SAP is used for Management plane primitives alone and the Control SAP is used for Control plane primitives that to support handovers, security context management, radio resource management, and low power operations (such as Idle mode and paging functions). The primary goal of such an interface is to ensure protocol separation.

~~These primitives do not define end to end protocol flows, but rather commands and indications for access to the Management and Control entities for the CS/MAC/PHY layers. Protocol procedures are defined using one or more of these primitives for performing distinct protocol functions on the air interface (eg. Paging, Handover etc.)~~

~~Management and Control entities are logical and may have SAPs between their protocol layers, however for simplicity they are not defined.~~

[Insert the following text into new subclause 1.4.4]

1.4.5 ~~14.4.1.1.2.1~~ Management SAP (M_SAP)

The Management SAP may include, but is not limited to primitives related to:

- System configuration
- Monitoring Statistics
- Notifications/Triggers
- Multi-mode interface management

[Insert the following text into new subclause 1.4.5]

1.4.6 ~~14.4.1.1.2.2~~ Control SAP (C_SAP)

The Control SAP may include, but is not limited to primitives related to:

- Handovers (e.g. notification of HO request from MS, etc.)
- Idle mode mobility management (e.g. Mobile entering idle mode)
- Subscriber and session management (e.g. Mobile requesting session setup)
- Radio resource management, etc.
- AAA server signaling (Eg. EAP payloads).
- Media Independent Handover Function Services

Delete section 14.1 and 14.4 and subclauses as they are moved here