Project	**IEEE 802.16 Broadband Wireless Access Working Group <**http://ieee802.org/16**>**
Title	**Comments on the 16m protocol structure of SDD**
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Re:	IEEE 802.16m-08/005**-** Call for Contributions on Project 802.16m System Description Document (SDD) Topic: Comments on IEEE 802.16m-08/003
Abstract	This contribution proposes modifications to 16m protocol stack and associated Data Plane and Control Plane Processing Flows to enable the multihop relay.
Purpose	For discussion and approval by IEEE 802.16 Working Group
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Comments on the 16m protocol structure of SDD

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Introduction

Based on the IEEE 802.16m system requirement (IEEE 802.16m-07/002r4), the IEEE 802.16m should provide mechanisms to enable multihop relays (Line 11, Page 20).

This contribution proposes modifications to 16m protocol stack and associated Data Plane and Control Plane Processing Flows to enable the multihop relay. In order to facilitate the incorporation of this proposal into SDD, specific changes to SDD are listed below.

Specification Changes

[Modify the following text and Figure 7 in Line 7, Page 15? as indicated:]

8.2 The IEEE 802.16m Protocol Structure

The IEEE 802.16m follows the MAC architecture of current IEEE 802.16e and includes additional functional blocks for 802.16m specific features (see Figure 7). The following additional functional blocks are included:

- Routing Relay Path Management & Routing

- Self Organization

- Multi-Carrier

- Multi-Radio Coexistence

Self Organization block performs functions to support self configuration and self optimization mechanisms. The functions include procedures to request RSs/MSs to report measurements for self configuration and self optimization and receive the measurements from the RSs/MSs.

Relay path management and routing block performs functions to support multihop relay mechanisms. The functions include procedures to establish/change/remove DL and UL relay paths between the 16m BS and 16m MS with relay stations.

Congestion management block performs functions to support congestion control and flow control. The functions include procedures to perform congestion signaling and flow control between the 16m BS and 16m MS with relay stations.
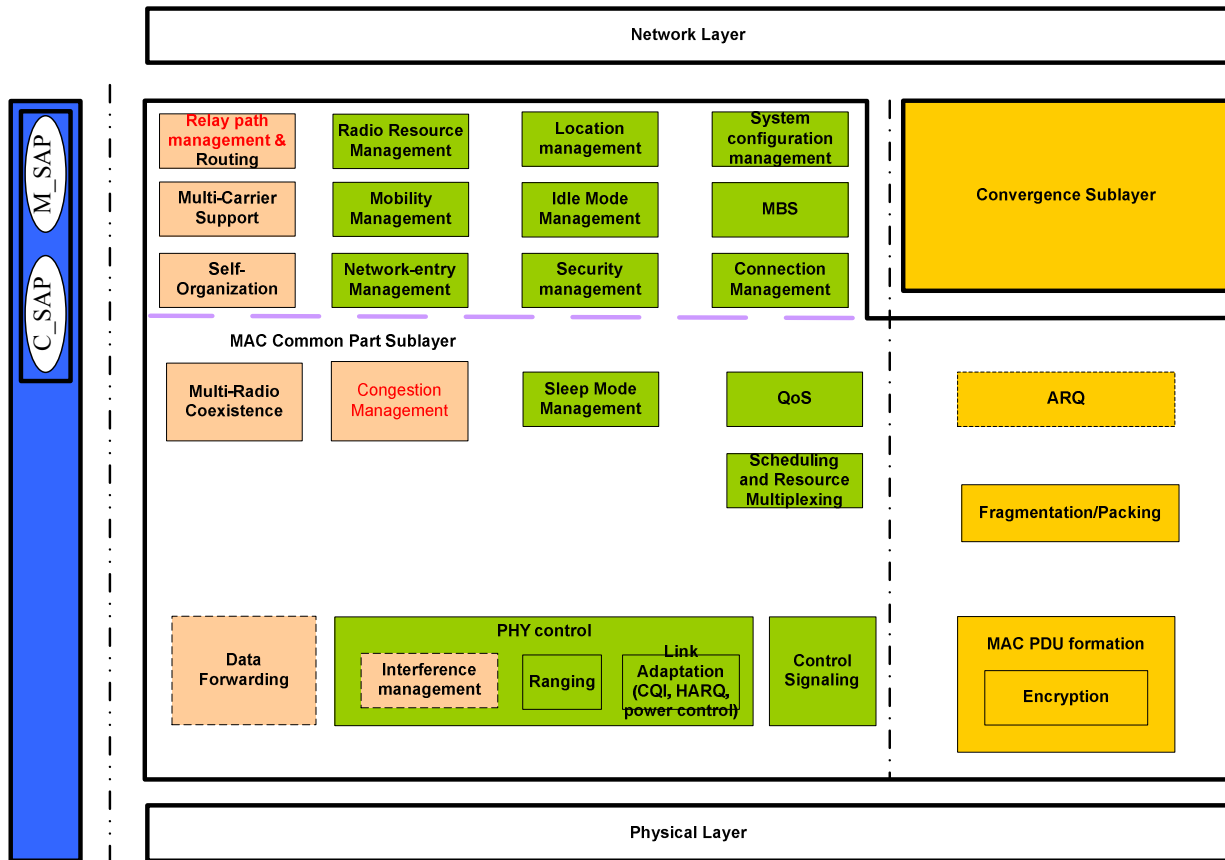
Figure 7 The IEEE 802.16m Protocol Structure

[Insert subclause 8.2.3 in Line 3, Page 18? as indicated:]

8.2.3 The IEEE 802.16m RS Data Plane Processing Flow

The following Figure 10 shows the user traffic data flow and processing at the RS. The red arrows show the user traffic data flow from the physical layer to the physical layer. A physical layer SDU is processed by MAC PDU formation function (if present), the fragmentation/packet function (if present), the ARQ function (if present) and the convergence sublayer function (if present). Afterwards, the receiving packet is sent to the physical layer. The black arrows show the control primitives among the MAC CPS functions and between the MAC CPS and PHY that are related to the processing of user traffic data.
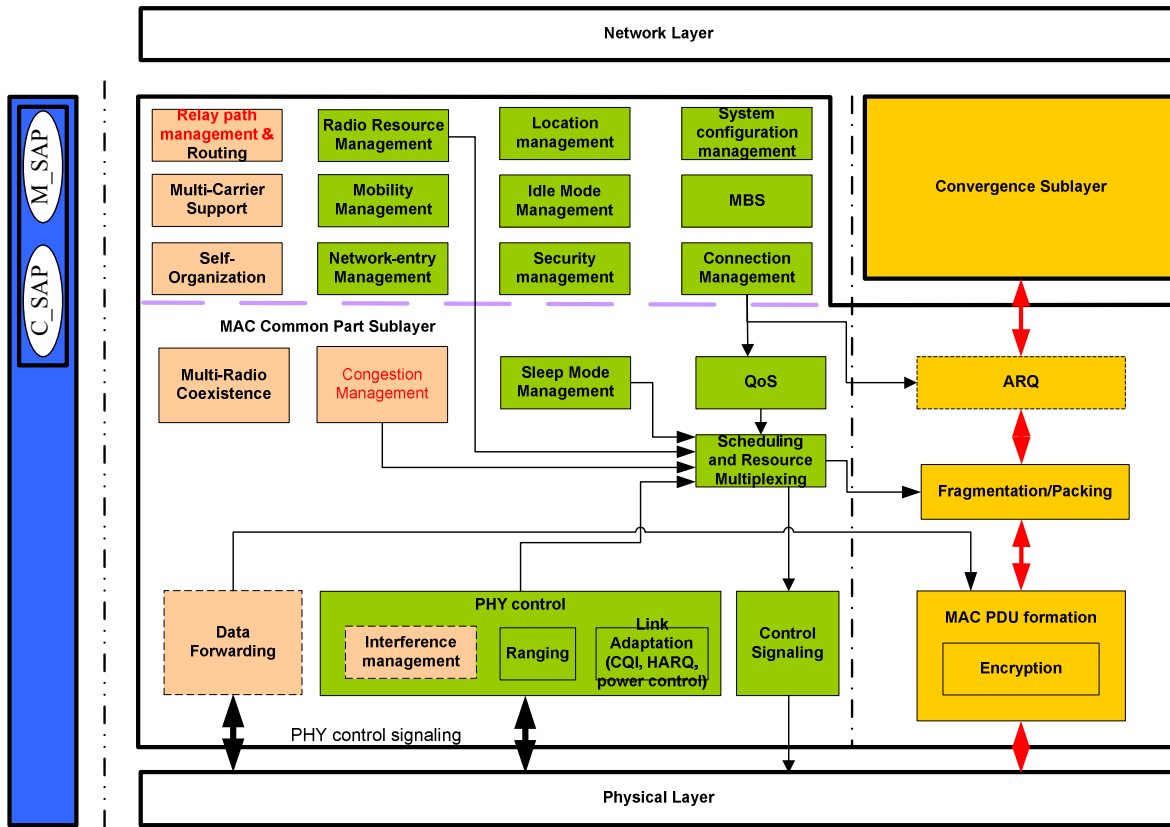
Figure 10 The IEEE 802.16m RS Data Plane Processing Flow

[Insert subclause 8.2.3 in Line 3, Page 18? as indicated:]

8.2.4 The IEEE 802.16m RS Control Plane Processing Flow

The following figure 11 shows the MAC CPS control plane signaling flow and processing at the RS. On the transmit side, the blue arrows show the flow of control plane signaling from the control plane functions to the data plane functions and the processing of the control plane signaling by the data plane functions to form the corresponding MAC signaling (e.g. MAC management messages, MAC header/sub-header) to be transmitted over the air. On the receive side, the blue arrows show the processing of the received over-the-air MAC signaling by the data plane functions and the reception of the corresponding control plane signaling by the control plane functions. The black arrows show the control primitives among the MAC CPS functions and between the MAC CPS and PHY that are related to the processing of control plane signaling.
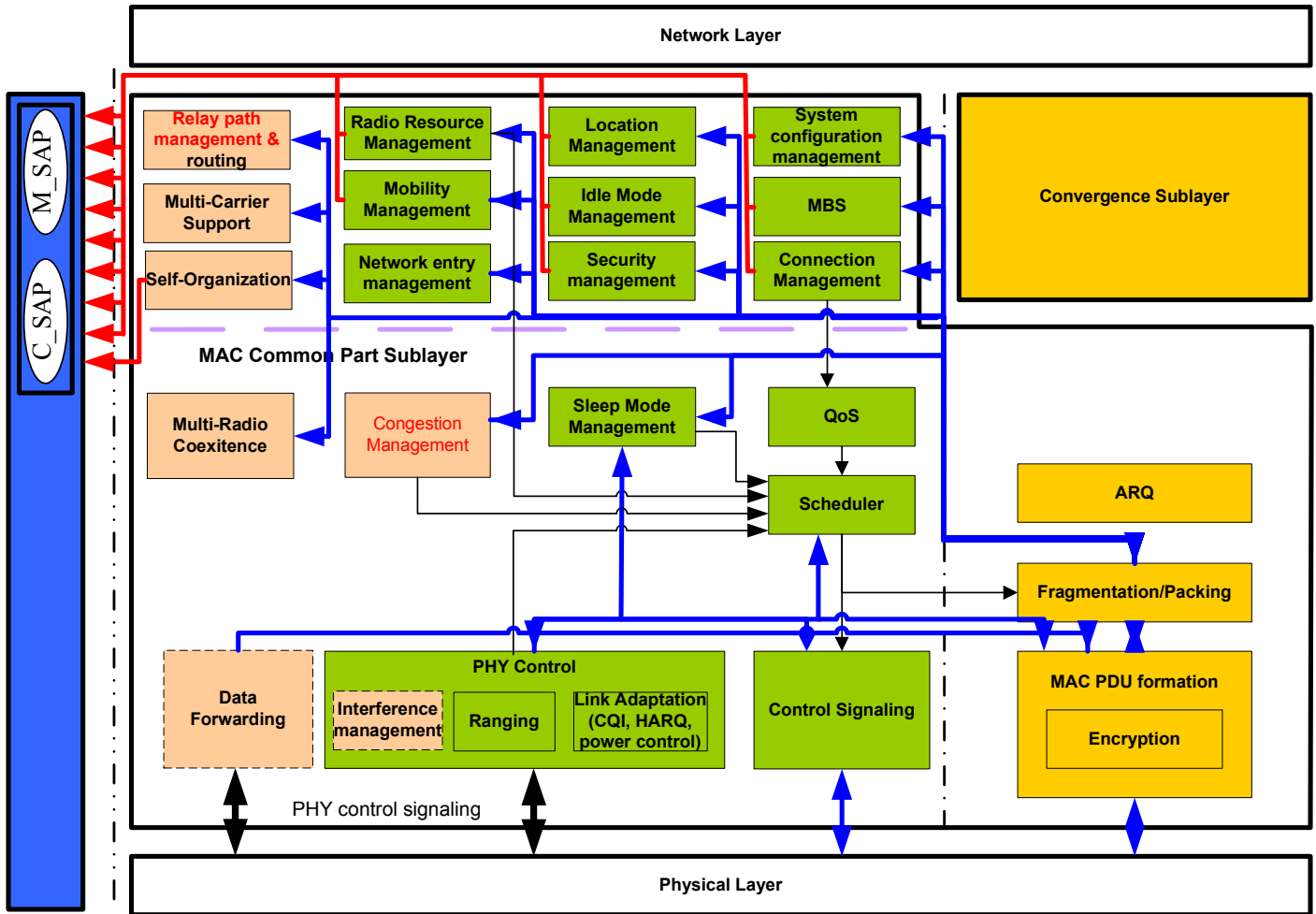
Figure 11 The IEEE 802.16m RS Control Plane Processing Flow