

Proposal for IEEE 802.16m System Architecture and Protocol Structure

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Purpose: Adopt the proposal into the IEEE 802.16m System Description Document

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Introduction

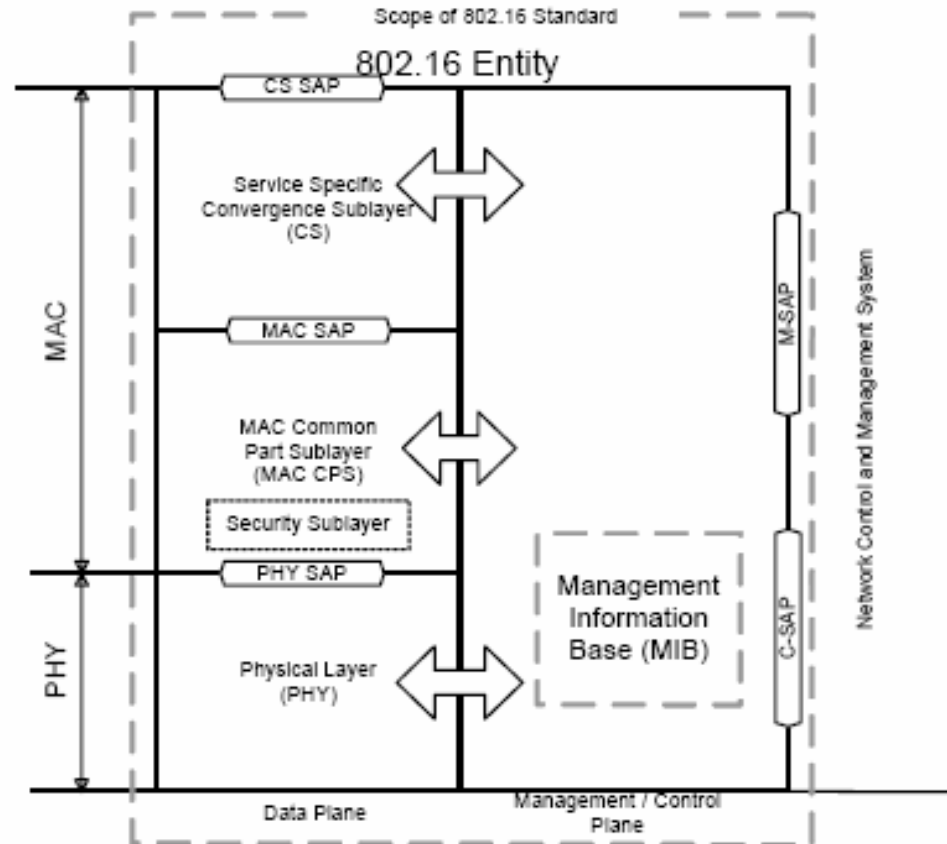
- This contribution presents system architecture and protocol structure for the support of multi-hop relay and multi-carrier operation as required by the IEEE 802.16m SRD

IEEE 802.16m System Architecture

- Same generic architecture should be defined to support relay and non-relay operation within IEEE 802.16m

IEEE 802.16m Protocol Architecture

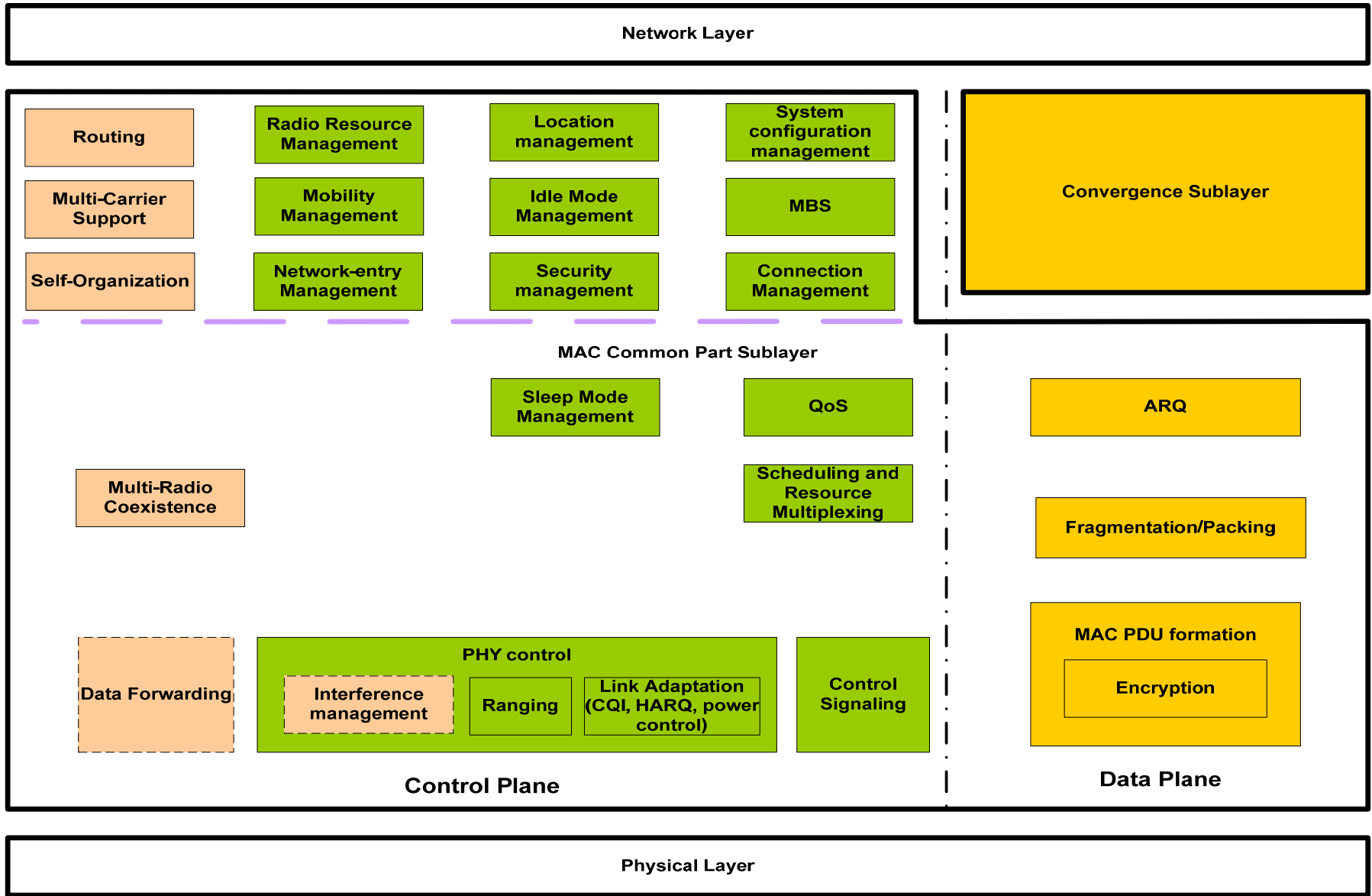
- Same protocol layering as in IEEE 802.16e.
- The functional grouping within each layer can be defined such that legacy support is not affected
- A subset of the functionality in each layer can be supported by intermediate nodes, e.g. relay station



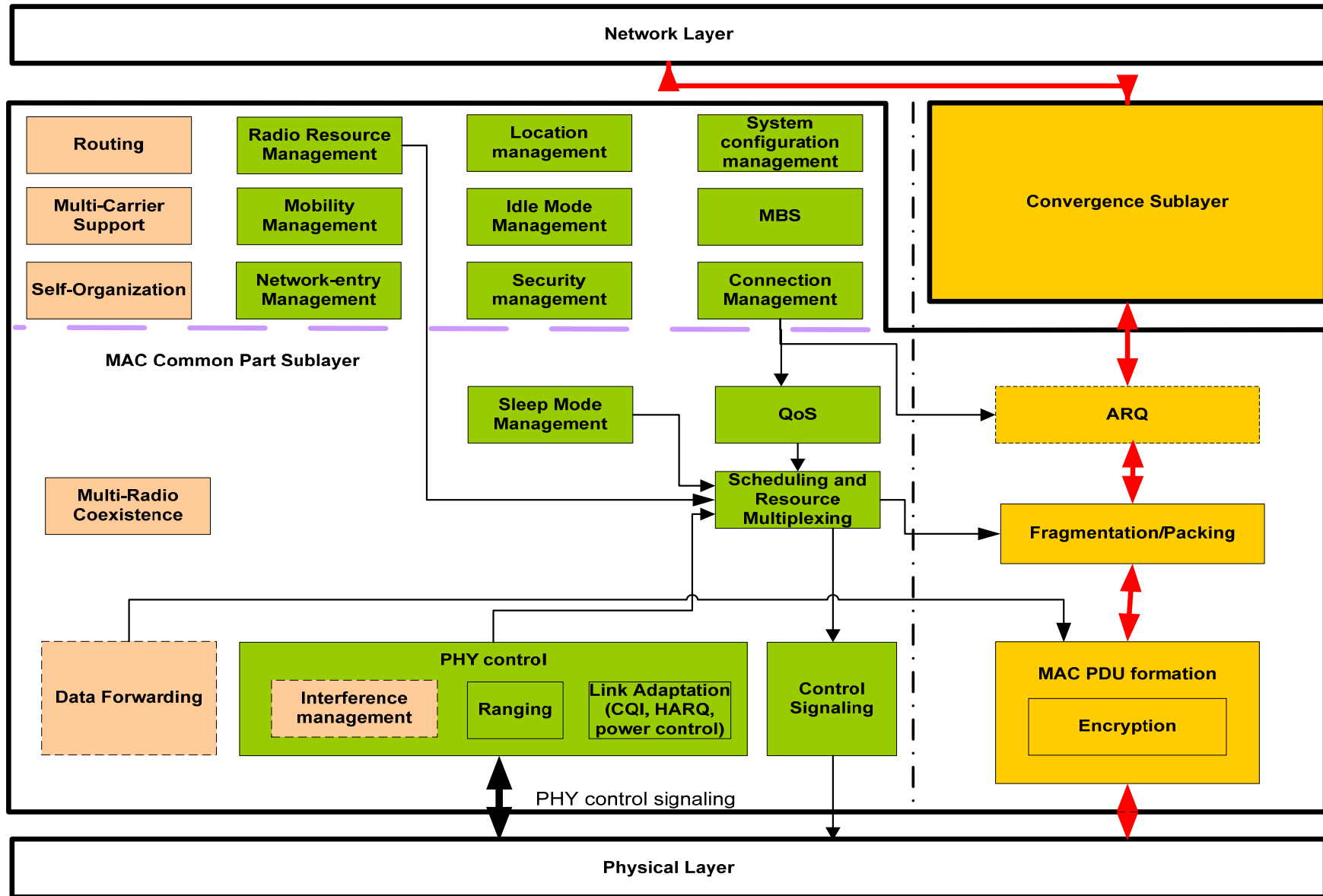
MAC Protocol Structure and Functions

- The same generic set of protocol structure and functions should be defined to support relay and non-relay operation within IEEE 802.16m.
- Intermediate nodes (i.e. relay station) consist of a subset of the PHY and MAC functions of the end nodes (i.e. BS and MS)
 - Different types of relay station consists of different subsets of PHY/MAC functions

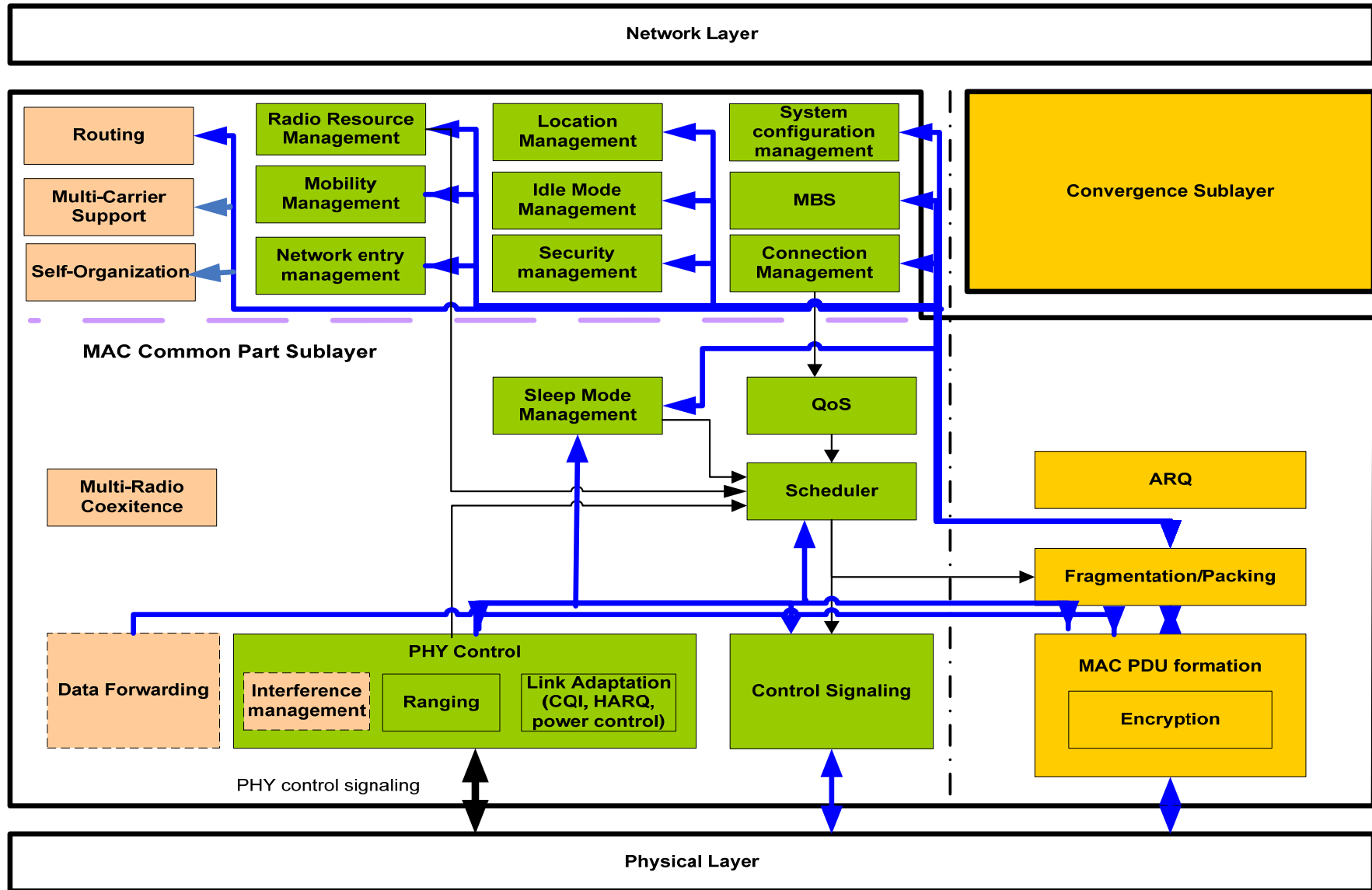
IEEE 802.16m Protocol Functions for End Nodes (BS, MS)



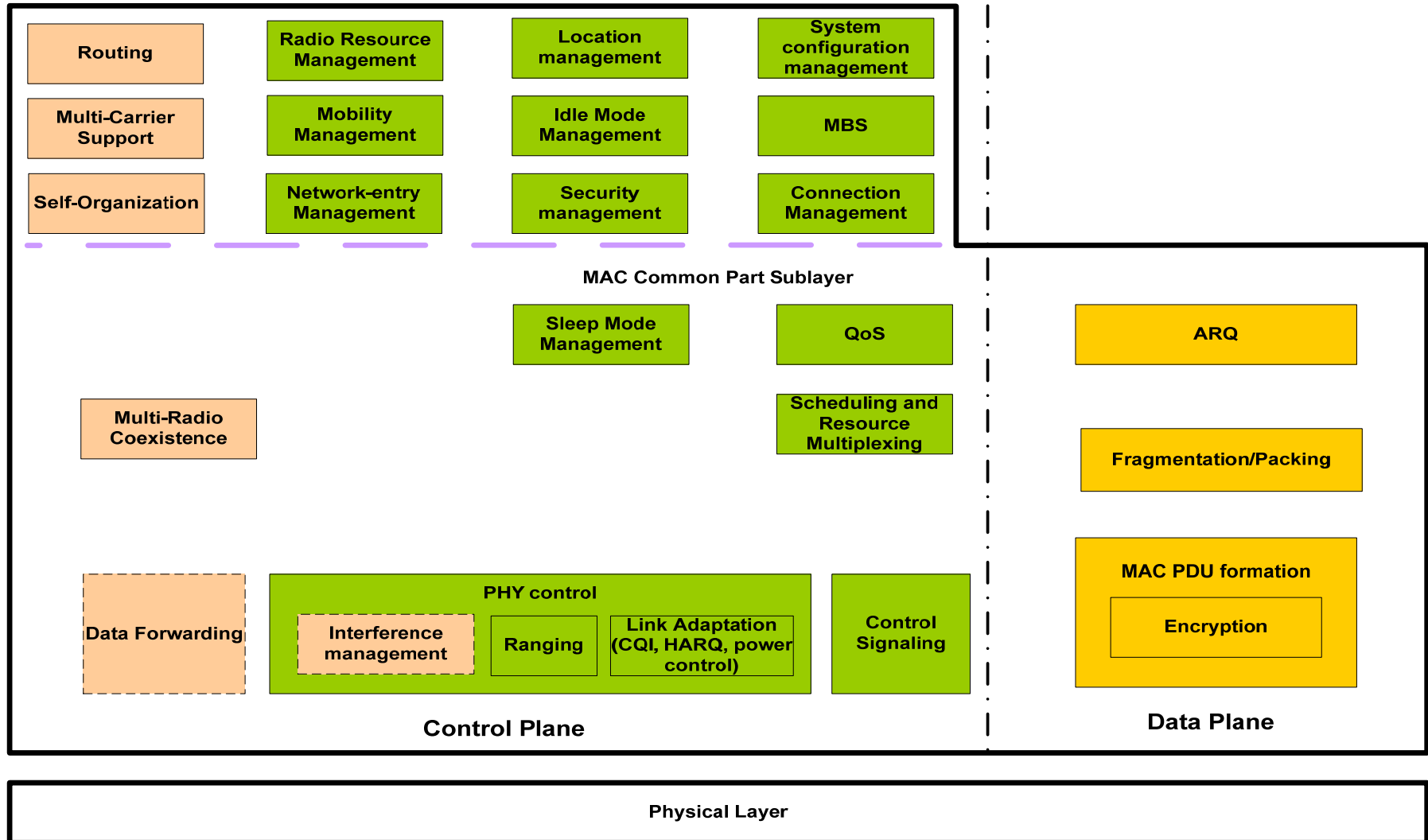
Data Flow for IEEE 802.16m End Nodes (BS, MS)



MAC Signaling Flow for IEEE 802.16m End Nodes (BS, MS)

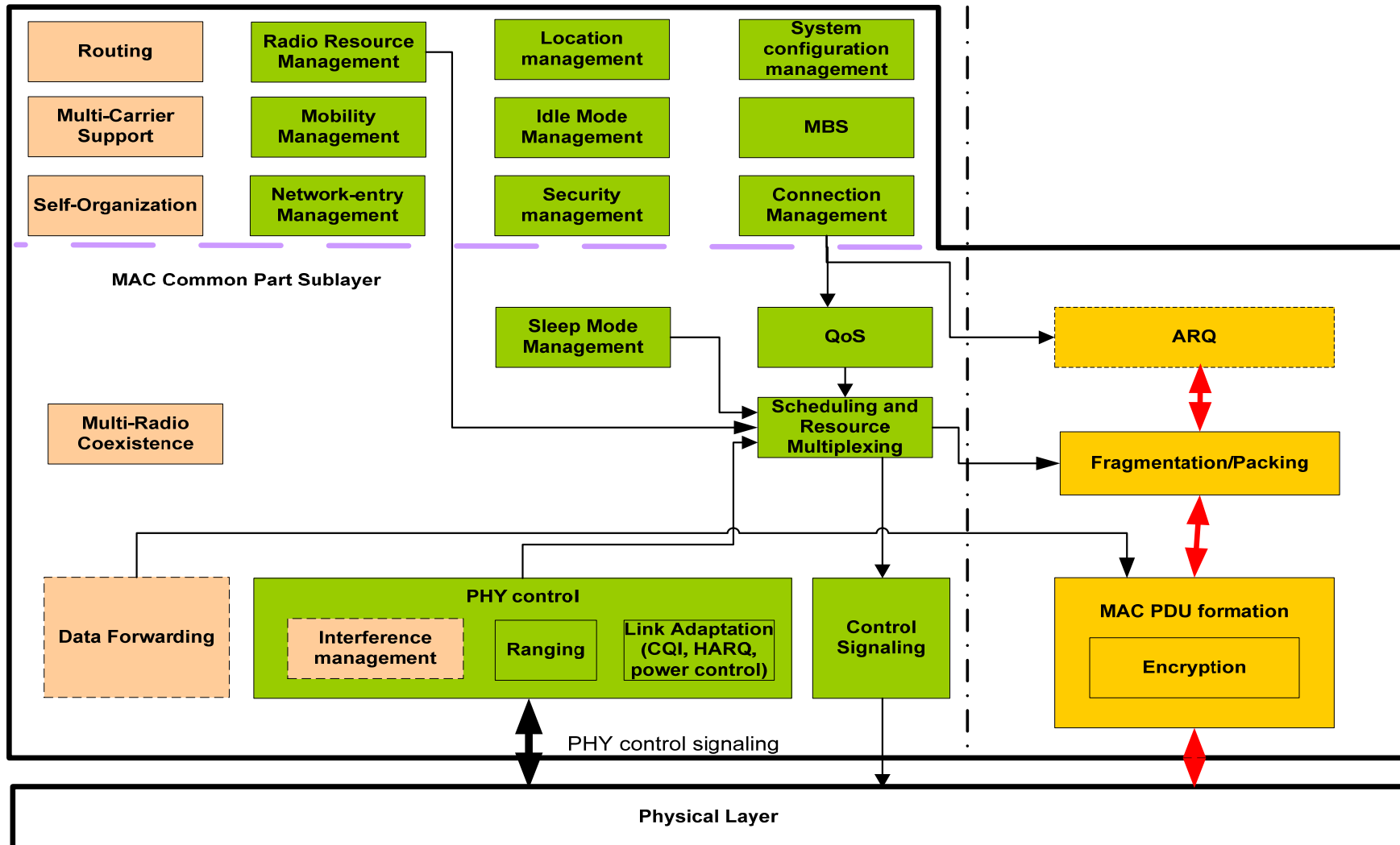


IEEE 802.16m Protocol Functions for Intermediate Nodes (RS)



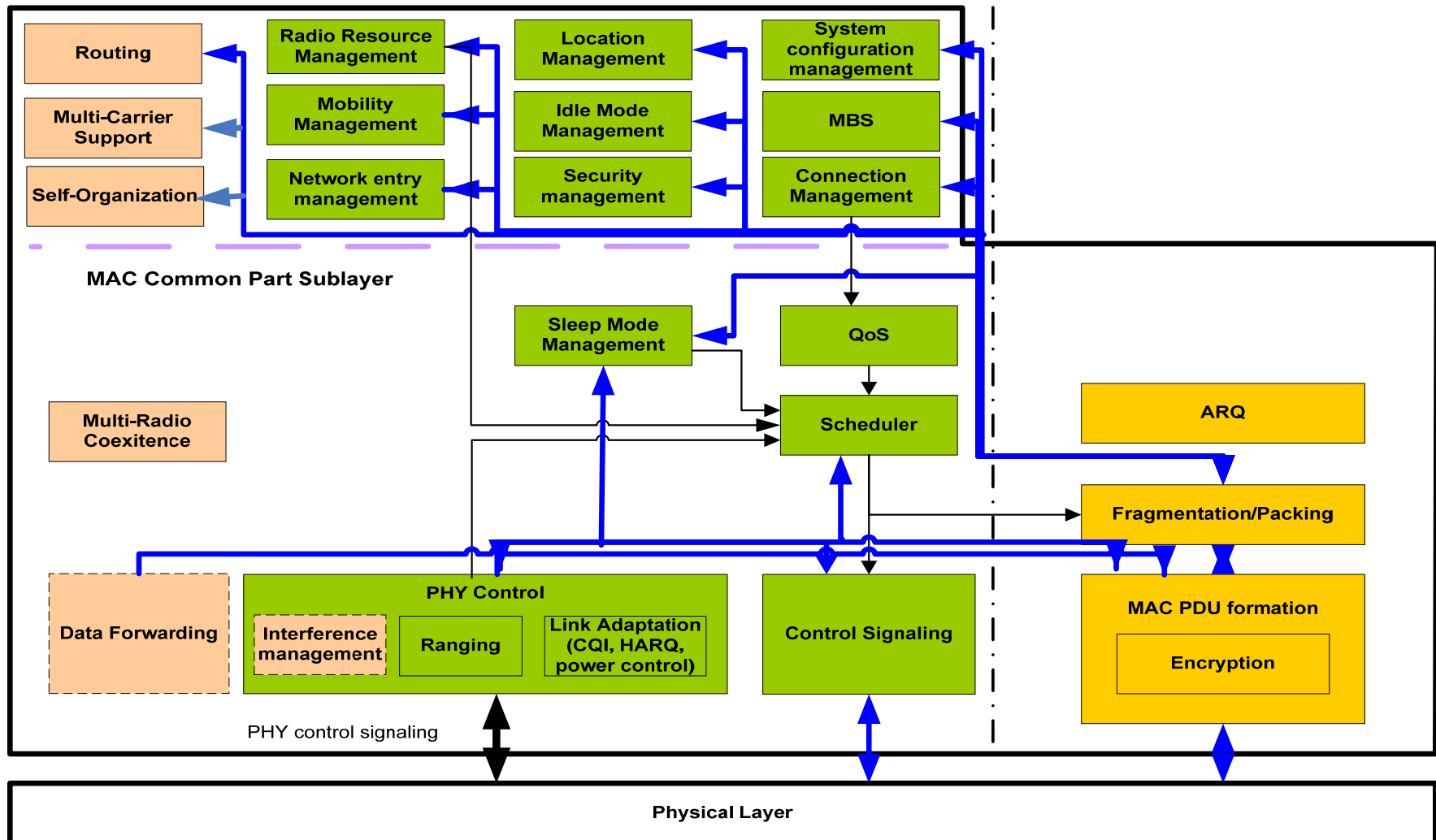
A RS contains a subset of the above-shown functions. The subset of functions depend on the RS type/category.

Data Flow for IEEE 802.16m Intermediate Nodes (RS)



A RS contains a subset of the above-shown functions. The subset of functions depend on the RS type/category.

MAC Signaling Flow for IEEE 802.16m Intermediate Nodes (RS)



A RS contains a subset of the above-shown functions. The subset of functions depend on the RS type/category.

Multi-Carrier Support

- The same generic protocol structure as presented in previous slides should be used to support single carrier and multi-carrier operation within IEEE 802.16m
- Each carrier can be viewed as a PHY entity. Control and resource management across multiple carriers or PHY entities are performed by the same set of MAC protocol functions

MAC Functions for Multi-Carrier Support

