A Recommendation on PMP Mode Compatible Frame Structure

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None.

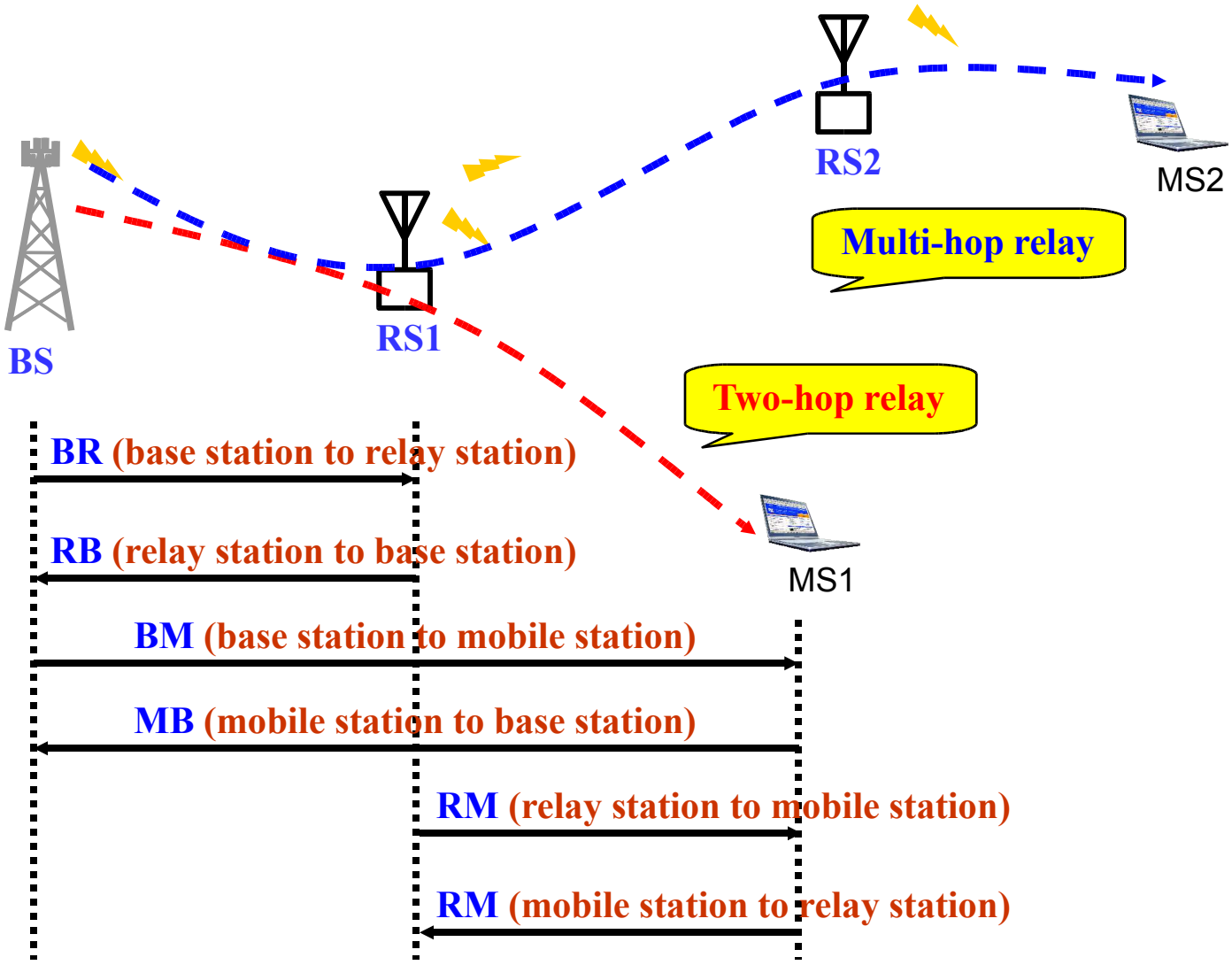
Purpose:

This is a response to IEEE 802.16mmr-05/001(call for contributions: IEEE 802.16's Study Group on Mobile Multi-hop Relay) to present a compatible frame structure.

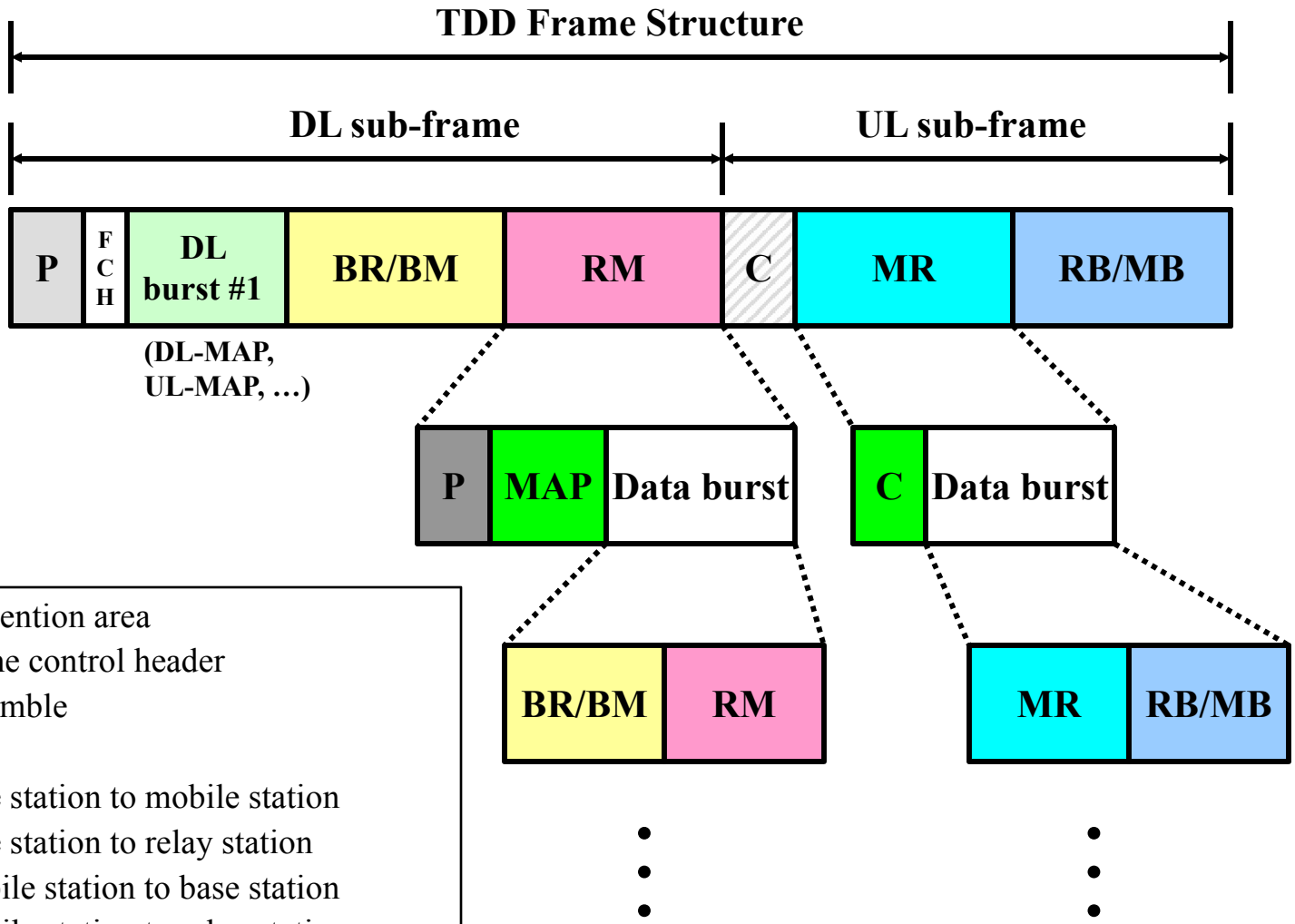
Purpose

- To propose a frame structure that is compatible to the TDD mode with no relaying
  - BS/RS and RS/MS use the same frequency, i.e.,homogeneous relaying.
  - From the BS viewpoint, an RS behaves the same as an SS. The transmission/reception burst is controlled by the BS.
  - From the MS viewpoint, an RS just performs coverage extension and is transparent to MSs.

Scenario

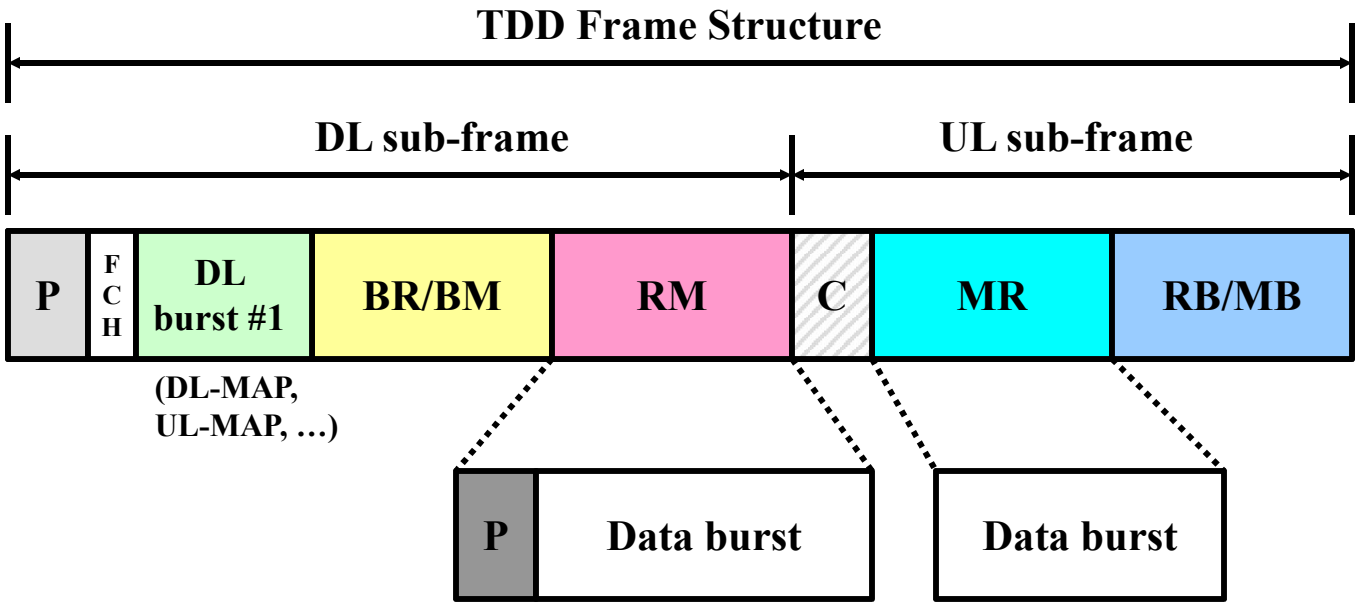

RS2
MS2
Multi-hop relay
BS
RS1
Two-hop relay
BR (base station to relay station)
RB (relay station to base station)
MS1
BM (base station to mobile station)
MB (mobile station to base station)
RM (relay station to mobile station)
RM (mobile station to relay station)

Frame Structure for Multi-hop Relay



C	contention area
FCH	frame control header
P	preamble
BM	base station to mobile station
BR	base station to relay station
MB	mobile station to base station
MR	mobile station to relay station
RB	relay station to base station
RM	relay station to mobile station

Simplified Frame Structure for Two-hop



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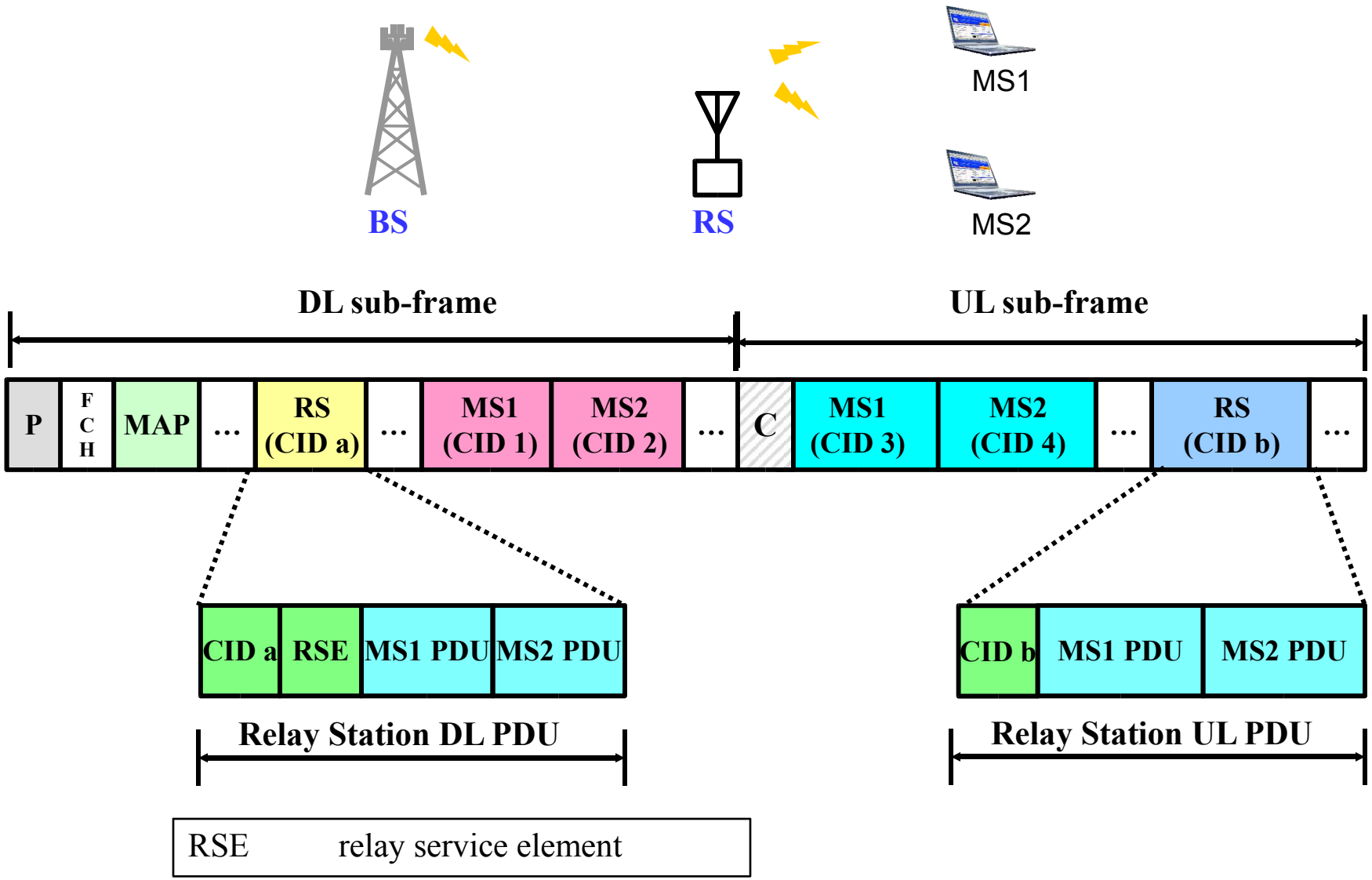
- If there is no need to provide MAP at RS, the frequency domain can be further partitioned for BS/MS and RS/MS at the same time.
- Otherwise, the coexistence of BS/MS and RS/MS at the same time will reduce the flexibility to enable multihop relay capability

Example of Two Hop Relaying



RSE	relay service element

Relay Service Element (RSE)

- RSE is the control PDU for an RS to know the following info
  - The downlink relaying service CIDs and their DL burst profiles of the MSs served by the RS.
  - The uplink relaying service CIDs and their UL burst profiles of the MSs served by the RS.
  - For last page example, RES consists of
    - Burst profile for CID 1
    - Burst profile for CID 2
    - Burst profile for CID 3
    - Burst profile for CID 4