Distributed Bandwidth Request and Allocation in Multi-Hop Relay

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Purpose:
  For discussion and approval of inclusion of the proposed text into the P802.16j baseline document.

Distributed BW request and allocation

Definition:

Each RS *individually* determines the BW allocations on the links it controls (i.e. access links to its MSs and relay links to its downstream RSs) and creates/transmits its own MAPs on these links.

Proposed text for distributed functionality

- BW request and allocation protocols for *access link* are same as those defined in 6.3.6.1-3 and 6.3.6.5, i.e. RS supports all of these protocols for the MS

- Relay link supports the same types of BW request mechanisms as the access link, i.e. polled or contention-based stand-alone BW request and piggy-backed BW request

  – Protocols for these BW request types on the relay links reuse the protocols defined for access links

  – Polling is shown to reduce latency in relaying process

  – Small changes introduced to reduce delay and overhead detailed in next two slides

Aggregating BW requests reduces overhead and latency

- RS may combine the BW requirements of the BW requests it receives from its downstream stations during a given period of time along with the BW requirements of packets in queue *into one BW request* that it transmits to its upstream station.

- This combining is done per QoS class, i.e. one BW request per QoS class is sent to the upstream station.

- Upstream station assigns BW to the RS's Basic CID, thus the RS can use this BW allocation in whatever way it considers best for addressing the QoS concerns of the packets in its queues.

Advancing start time of contention BW request reduces latency
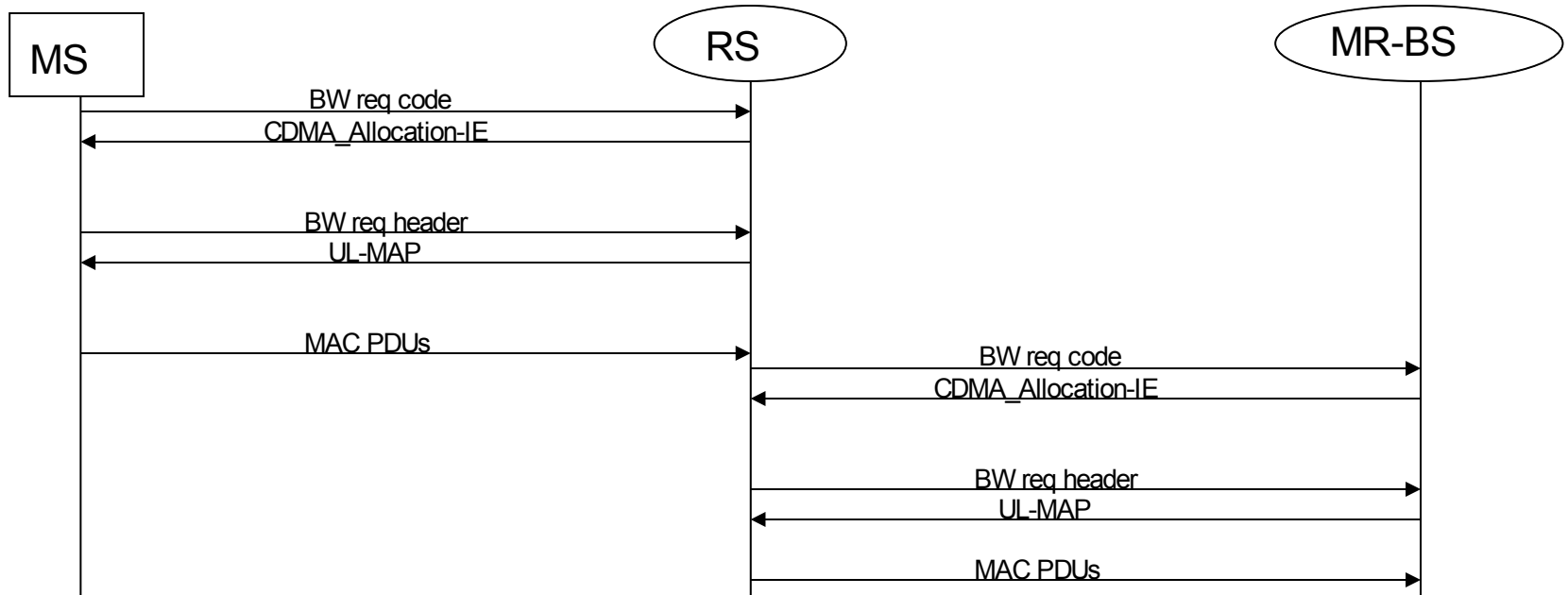
Allowing RS to begin contention-based BW request upon receipt of BW requests from downstream stations instead of waiting for actual packets to arrive may reduce latency