Proposal for Adaptive HARQ ACID Expansion on Relay Links

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Purpose:

Propose to adopt the adaptive HARQ ACID expansion mechanism described herein into IEEE 802.16j.

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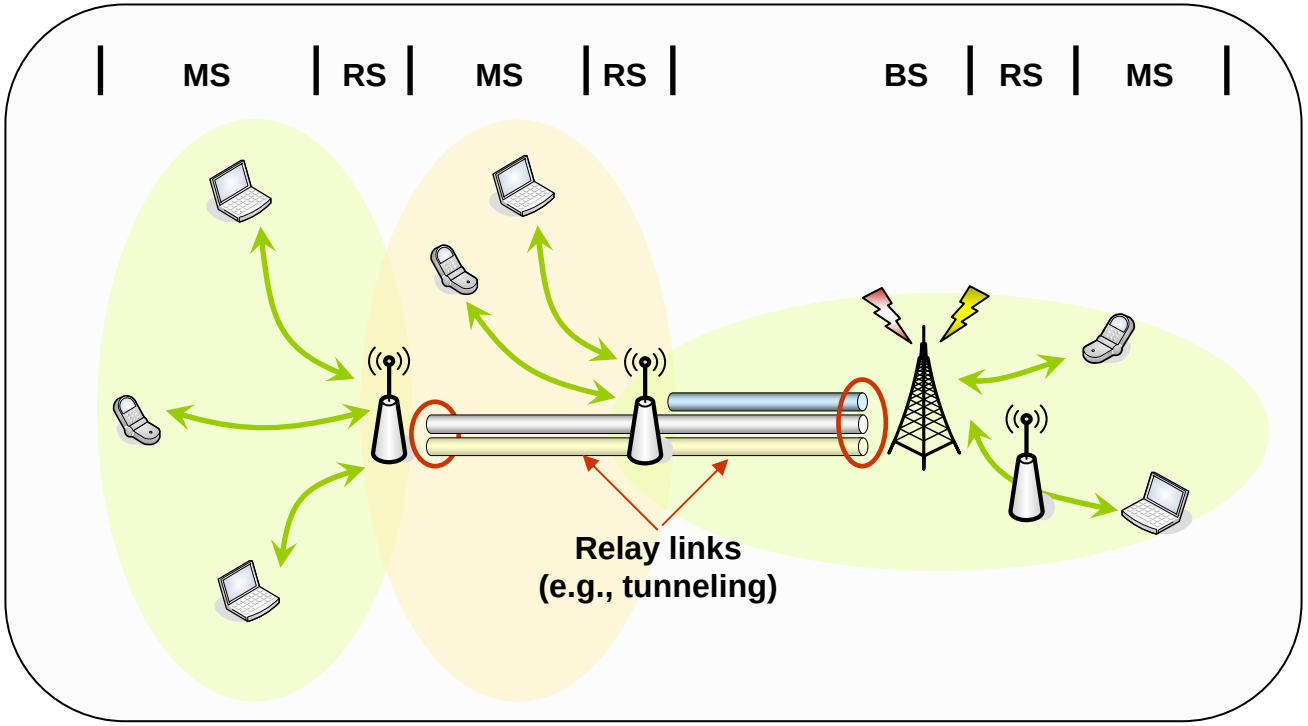
Requirement of Relay Links

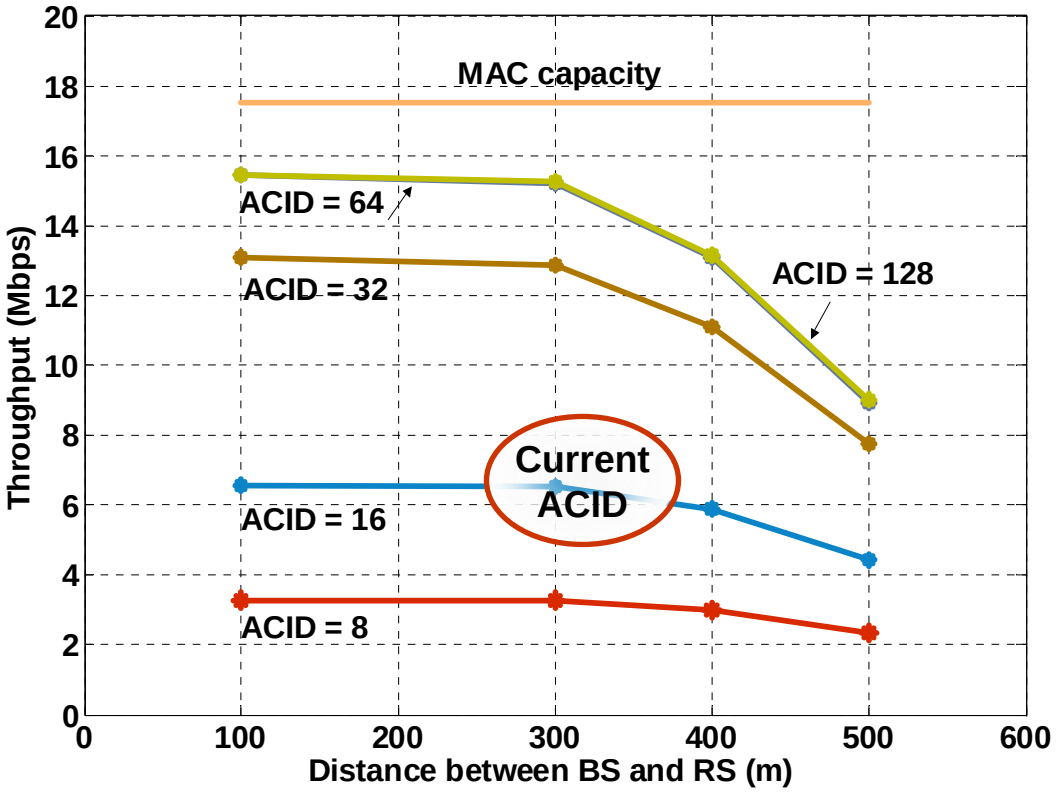
- Relay stations have to carry traffic initiated from or terminated at all the MSs associated with it.
  - Traffic aggregation naturally occurs on relay links.

- High performance is thus demanded, in order to support aggregated traffic on relay links.



Problem of Current HARQ ACID Size

- **Major findings:**
  - As the number of parallel HARQ channels decreases, the achievable throughput drops significantly.
  - Current HARQ ACID field can support up to 16 HARQ channels.



Proposed Solution Approach

- For RS link, increase the maximum number of parallel HARQ channels supported per terminal on relay link.

- The actual number of parallel HARQ channels supported by each terminal on relay link can be indicated by *TLVs* in SBC-REQ/SBC-RSP handshake.
  - The TLVs can specify the number of UL and DL HARQ channels that the SS/MS support.

- The actual number of parallel HARQ channels to be used can be specified and negotiated by *TLVs* in DSA-REQ/DSA-RSP, and REG-REQ/REG-RSP handshake.
  - The TLV not only indicates whether the connection uses HARQ or not, but also conveys the actual number of HARQ channels that the HARQ transmitter desires to use.