Round Trip Delay Optimization

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A need in faster ARQ

- There is a strong need for faster ARQ and bandwidth reservation process in the case of mobile communications to decrease the system latency and boost the performance

- On the other hand, there still is a need for window-based ARQ algorithm with considerably large window size to provide high bandwidth

- This problem can be solved by an additional "Fast ARQ" mechanism.

Fast ARQ

- Fast ARQ mechanism will use PHY signaling similar (from PHY prospect) to the one defined in 802.16a "Focused Contention Transmission" (OFDM) or "Periodic-ranging and bandwidth-request transmissions" (OFDMA)

- Fast ACK/NACK (in UL direction) will be implemented as presence/absence of transmissions at certain symbols/subcarriers allocated to the target MS

Fast ARQ

- Fast ACK acknowledges all DL MAC PDUs transmissions addressed to the SS that appear within the latest DL Subframe

- Number N of MAC PDUs is specified by the same UL MAP IE (of new format) that specifies the Transmission Opportunity

Fast ARQ

- Presence of transmission means that all MAC messages in the last frame were received; absence of transmission means "not all were received", then AU will allocate time for Tx of regular ACK/NACK.

Fast Bandwidth Request

- The same PHY mechanism can be reused for fast BR: presence/absence of transmissions at certain symbols/subcarriers allocated to certain SS means presence of transmission demand at the SS

- This demand still should be learned by the BS using unicast polling.