Improved Frame Format for the Foundation MAC

Presented by
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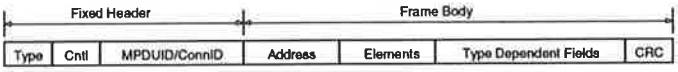
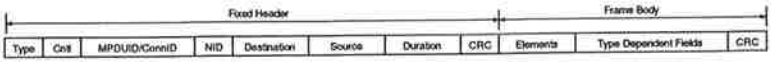
Foundation Frame Format



- The fixed header of the current frame format does not include the fields that are require for most of the frame types.
  - Most of the frame types use NID, source address, and destination address which are part of the address field in the frame body.
- The current frame format does not allow the fixed header to be validated independent of the rest of the frame.

Proposed Frame Format



- Add NID, source and destination addresses to the fixed header.
  - All frames except RTS, CTS, and ACK already have these fields.
  - RTS contains NID and destination.
  - Reduces variability of MAC header.
  - Reduces complexity therefore allowing for an easier implementation.
- Add a duration field and CRC to the fixed header
  - Duration field identifies the end of the frame, does not require an end delimiter.
  - Fixed header CRC allows receiving station to validate the fixed header independently of the rest of the frame.

Negative Acknowledgment

- Assuming the fixed header contains a duration field and is protected by a CRC, a negative acknowledgment can be used for frame transmissions.
- If the MAC header is received without error but the entire packet is received in error, a negative acknowledgment can be sent to the source station.
- Since the radio header and fixed header were received without error, the frame error is not likely due to a collision but an anomaly in the radio channel.
- It then follows that the source station should contend for the channel and not execute the backoff algorithm.

Motion

- Move that the frame format be modified to add NID, source, destination to the fixed header.

Motion

- Move that the frame format be modified to add a duration and CRC to the fixed header.

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Motion

- Move that a negative acknowledgment be defined that allows a destination station to respond to a source station if the fixed header CRC is valid but the frame CRC is not and that the retransmitted data frame contend for the channel but not execute the backoff algorithm.