6.5   Retry Mechanisms

The Transaction Layer provides a straight-forward retry mechanism that follows one of two algorithms:

a)   Single-phase retry, which does not guarantee forward progress (nodes that have a higher natural priority are more likely to succeed), or

b)   Dual-phase retry, which guarantees that all nodes following this protocol have an equal opportunity to get through.

In the single-phase retry, a busy Transaction Layer will respond to all Link Data Indications with a "ack_busy_X" acknowledge code. The requesting Transaction Layer must retry the request in the next fairness interval with a Link Data Request with the retry_code set to "retry_X".

Nodes using the single-phase algorithm that get a Link Layer confirmation of "ack_busy_n" (where "n" is "A", "B" or "X") shall attempt a new Link Layer request with a retry code of "retry_X" **every** fairness interval until they succeed or their retry count maximum is exceeded.

In the dual-phase retry, the Transaction Layer is either in the A or B phase of the retry acceptance process. When a Tranaction Layer first gets busy, it responds with an ack set to the current phase ("ack_busy_A" or "ack_busy_B") and enters a state where it only accepts packets labeled with the appropriate retry code; all other packets get acknowledges with the other phase (i.e., if a node is accepting "retry_A", then initial, "retry_X" or "retry_B" packets are acknowledged with "ack_busy_B"). When an entire fairness interval passes without a retry of the current phase, then the node switches phase (A->B or B->A) and reenters the not-busy state where it accepts initial attemps and retries of the current phase. This process is detailed in figure 6-17

Nodes using the dual-phase algorithm that get a Link Layer confirmation of "ack_busy_n" (where "n" is "A", "B" or "X") shall attempt a new Link Layer request with a retry code of "retry_n" **every** fairness interval until they succeed or their retry count maximum is exceeded.

Mike's note: We need a value for this maximum. Do we need to have this programmable?
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Figure 6-17 – Response protocol for dual phase retry