

Proposed introductory text for PLCA – 148.4.7.1:

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Implementations supporting the PLCA RS may optionally support D-PLCA as described in this subclause. If the D-PLCA option is implemented, it shall comply with the state diagrams in Figure 148-5 (D-PLCA Control State Diagram) and Figure 148-6 (D-PLCA Aging State Diagram).

D-PLCA allows plug & play operation over statically configured PLCA, trading off some latency and throughput due to an increased number of collisions.

D-PLCA allows nodes to start with a possibly non-unique PLCA node ID and autonomously select a unique node ID at a later time. Additionally, D-PLCA defines a method to designate a single node with ID = 0 (coordinator).

If enabled, D-PLCA constantly adapts the parameters `aPLCANodeCount` and `aPLCALocalNodeID` to accommodate the current state of activity (transmit opportunities claims) of the nodes on a mixing segment. When mixing D-PLCA capable nodes with statically configured PLCA nodes, the formers eventually select IDs outside the space of the statically assigned ones. When D-PLCA is used, PHYs may detect collisions until every node eventually selects a unique ID.

D-PLCA keeps track of claimed transmit opportunities, distinguishing between HARD claims (with COMMIT requests), and SOFT claims (without explicit COMMITS). The aging algorithm assigns two different aging times for HARD and SOFT claims to avoid the case where non PLCA-enabled nodes may prevent D-PLCA from converging. `HARD_AGING_CYCLES` and `SOFT_AGING_CYCLES` can be configured to optimize convergence time and stability over time in different situations, although it is recommended to always keep the former much higher than the latter. This condition ensures both stability and interoperability with statically configured PLCA nodes"

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