60802 CONFORMANCE CLASS B REQUIREMENTS

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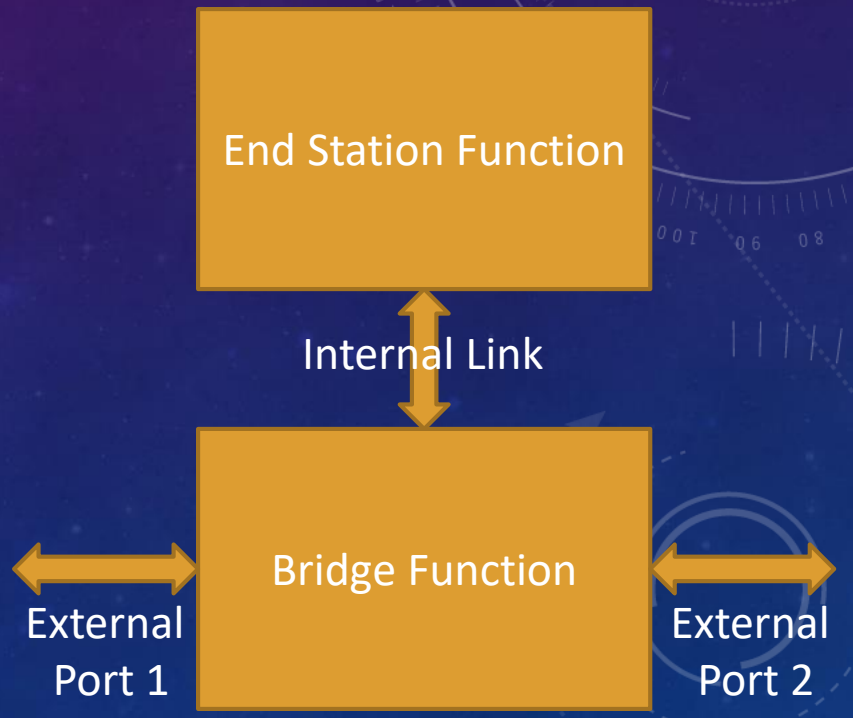
V2

GOALS OF PROFILE

- With one profile and two conformance classes, the 60802 profile needs to provide scalability to hit each enumerated use case without requiring significant complexity and cost for applications that can’t absorb it.
  - Currently, the drivers behind Conformance Class A(ccA) are ensuring that it meets the needs of the highest performance applications.
  - Conformance Class B(ccB) specifies an approach where options exist, but those options still aren’t flexible enough to meet all enumerated use cases.
    - In the 60802 use case document, Use Case 10 includes simple and inexpensive sensors, including single pair ethernet. Single pair ethernet is being targeted to simple, low power end stations and may contain simple bridge functions in the same device.

BRIDGE FUNCTION & END STATION FUNCTION

- It's understood that the concept of a bridged end-station in 60802 is functionally represented by a bridge function and an end-station function in one device, in keeping with the precedent set by IEEE 802.1.
- Representing bridges and end-stations as separate functions has advantages in providing a clear demarcation of functions, and disadvantages in not providing options in articulating the behavior of the link between the bridge function and end-station function. This is especially true if the application requirement of the bridging functionality doesn't need to be as extensive as to implement a full set of the normative 802.1 specifications.
  - Some constrained devices may use bridge functionality that isn't a full 802.1Q implementation.
    - For traffic coming from an external port the filtering database(FDB) just needs to have entries for the attached end-station, all other traffic gets passed directly to the other external port.
    - Furthermore, the internal port could be proprietary and not an IEEE802 conformant link to save on gates and power.
  - Egress traffic from the end-station is topology dependent, but can be managed by the end-station and doesn't require a full FDB implementation.



BRIDGE REQUIREMENTS FOR CONSTRAINED DEVICES

- Currently clause 4.5 forces rather stringent requirements on constrained two external port bridges. For example, requiring the following technologies may be ideal, but resource heavy:
  - RSTP
  - MVRP

TIMING REQUIREMENTS FOR CONSTRAINED DEVICES

- Currently there is a single specification for timing requirements that doesn't include options.
- ccB should have flexibility in timing requirements to meet the needs of applications such as:
  - Velocity controlled drives (a variant of use case 2)
  - Low cost sensors such as single pair ethernet devices (use case 10)
- It is understood that these timing requirements won't work for all (e.g. the most demanding) applications if a relaxed timing model is adopted for ccB infrastructure. In this model bridge vendors will be able to provide different solutions and integrators/end users can select the appropriate infrastructure for their needs as they do today.

CCB BRIDGE AND END STATION MODIFICATIONS

- To meet the needs of constrained devices and applications, the following adjustments should be made to:
  - 1. Section 4.9.2.1: Add the clarification: d) Support bridge requirements per clause 4.5 for a bridge with more than two external ports.
  - 2. Section 5.1.5: Specify different max|TE_R| requirements for ccA and ccB over 100 hops.
    - |1 µs| max|TE_R| for ccA
    - |10 µs| max|TE_R| for ccB

THANK YOU!