What is the correct terminology
for the media path in PoE?

P802.3bt TF Interim Mtg
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GraCaSI S.A./Independent

Real 802.3 Definitions

Link: 1.4.248: The transmission path between any two interfaces of generic cabling. (From ISO/IEC 11801.)

Link Segment: 1.4.255: The point-to-point full-duplex medium connection between two and only two Medium Dependent Interfaces (MDIs).

"Link Segment" was first addressed in FOIRL & 10BASE-T. See 802.3-1996, cl. 9.2.11, 13.2.2 and 14.1.2.

Easiest place to look would be on your 802 DVD in 802.3-1996, cl. 9.2.11, 13.2.2 and 14.1.2.

APPRECIATION

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George Zimmerman was of tremendous help in my preparation of this material. His assistance by reviewing my preliminary work, finding holes in it for me to remove and unearthing additional pertinent information buried deep within 802.3.

Thank you George

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Problem Statement

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- Untangle current mess
    ISSUES
        Scope of link segment is undefined
        Current link section is dependent on link segment def'n

- Definition of Link Section
    REQUIREMENTS
        Technically correct
        Not derivative (so it doesn't get fiddled by rest of Dot3)
        Concise

Link Segment definition

History
- Roots in FOIRL, defined in 10BASE-T
- Simple Conceptual Model:
  Equipment -- Media – Equipment
- Actually predates cabling standards
  (both TIA and 25/WG3)

- 9.2 Definitions for link segment, start to now:
  - Add the following definition: "link segment. The point-to-point full duplex medium connection between two and only two Medium-Dependent Interfaces (MDIs)." [802.3i-1990]
  - 1.4.309 link segment: The point-to-point full-duplex medium connection between two and only two Medium Dependent Interfaces (MDIs). [P802.3cjRev/D3.1]

The big question:
Unused pairs part of the link segment or not?

POSSIBILITIES:

A) YES? : No supporting evidence.
- It doesn't say this or specify this anywhere in the standard.
- 4-Pair Cable may include 2 link segments
    (e.g. split outlets in 11801).
- Use of 25 pair DIW was common with use shared with
    other LANs, phone service, RS-232.

B) NO? : No supporting evidence.
- Illustrations include only used pairs [e.g. Figure 14-1]
- No text in standard excluding unused pairs

C) OUT OF SCOPE? : Best choice.
- Seems correct since 802.3 doesn't specify or deal with
    unused pairs/conductors

INDETERMINATE AT BEST

History - Link Section def'n

802.3af Definitions

    1.4.x Link Section:

        The portion of the link from the PSE to the PD.
        (Depends on: 1.4.153 link: The transmission path
         between any two interfaces of generic cabling.
        ("link" is from ISO/IEC 11801 & 802.3-2002.)

    1.4.x Midspan: An entity located within a link segment
        that is distinctly separate from and between the
        Medium Dependent Interfaces (MDIs).

Current status in bt

1.4.309 link section: The portion of the link segment from the PSE to the PD.
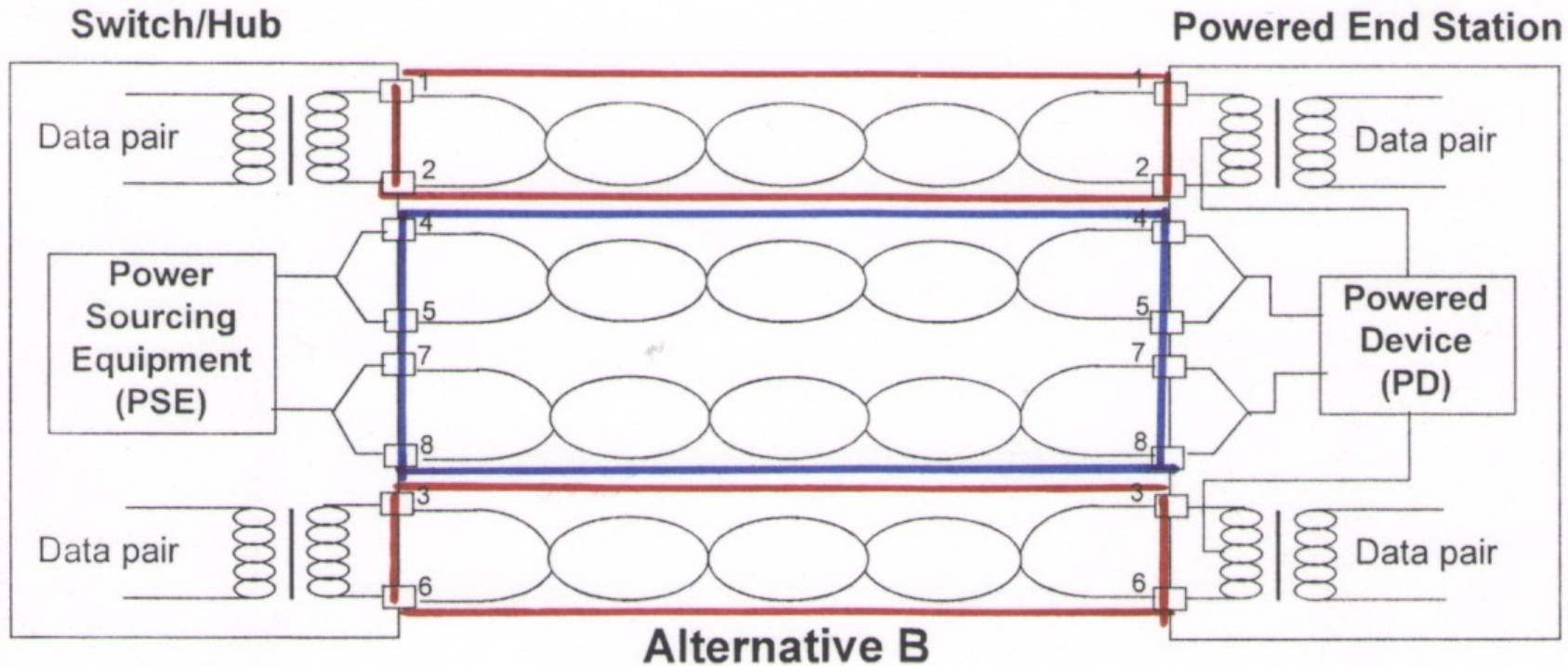
This was changed from the legacy definition by adding the word "segment"
i.e. "link" was correct, "link segment" is Incorrect.

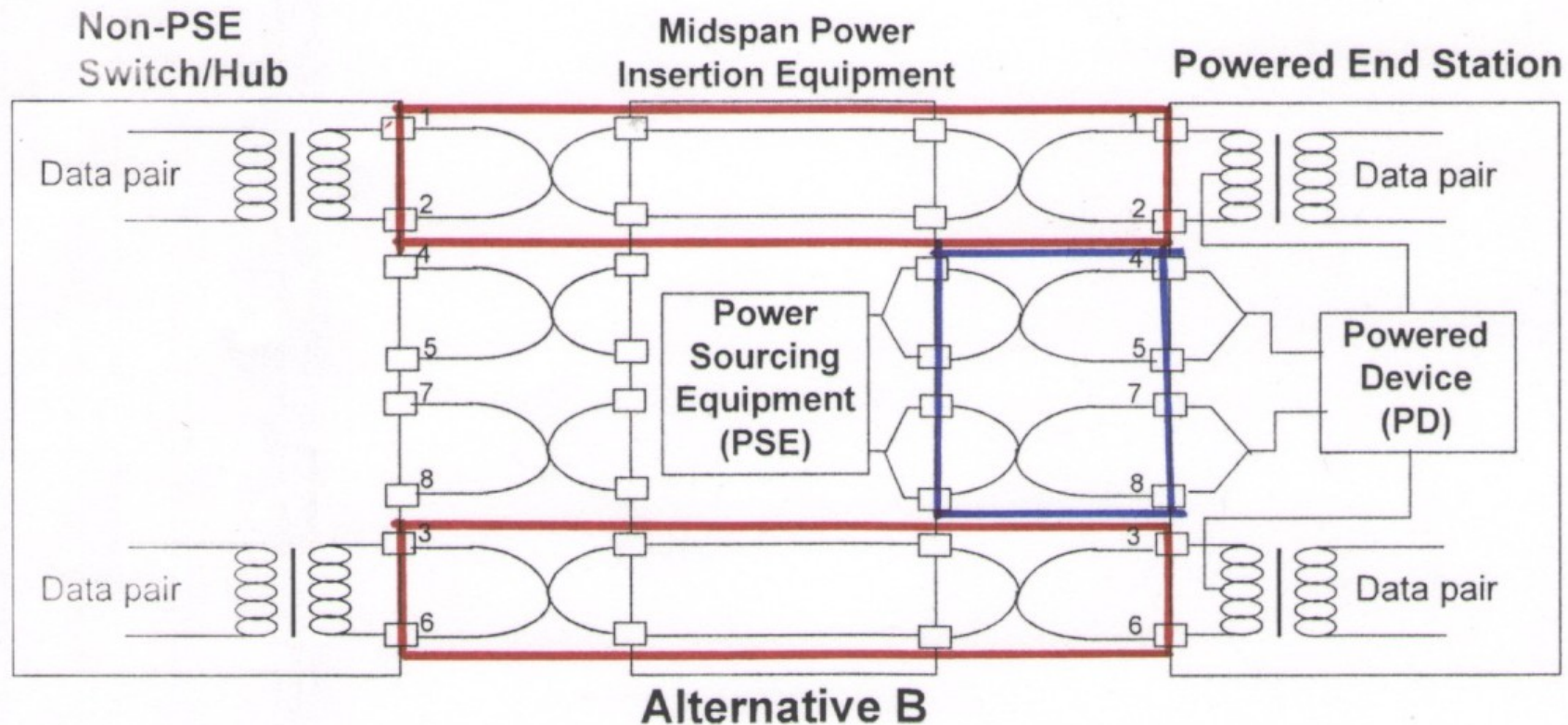See diagrams on following pages.

LINK SEGMENT

LINK SECTION

In this instance, the link section is not a "portion" of the link segment.

LINK SEGMENT
LINK SECTION

In this instance, the link section is not a "portion" of the link segment.

How did it get changed?

IEEE P802.3bt D1.2 4P PoE 5th Task Force review comments

CI **33**   SC **33.1.4**   P **198**   L **8**   # 228

Schindler, Fred   Seen Simply

Comment Type   **TR**   *Comment Status* **A**   *Cabling*

Changes to the text,
"A power system consists consisting of a single PSE, link segment, and a single PD, and the link section
connecting them. "
have changed legacy requirements.

1.4.241 link section: The portion of the link from the PSE to the PD.
1.4.242 link segment: The point-to-point full-duplex medium connection between two and only two Medium Dependent Interfaces (MDIs).

We had a "link segment" that changed to "link section", which removes that requirement that a full-duplex medium be used.

SuggestedRemedy

The Task Force should discuss these implications. The preferred solution is to replace "link section" with "link segment".

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change definition to:

1.4.241 link section: The portion of the link segment from the PSE to the PD.

Conclusion

Correct (legacy)
>   The portion of the link from the PSE to the PD.

Correct and more precise (new as in 802.3cj)
>   The point-to-point medium connection betweenthe active
>   PSE Power Interface (PI) and the PD PI.

Incorrect (bt draft)
>   The portion of the link segment from the PSE to the PD.

**Pick one of the correct ones,
preferably the more precise one**

Proposal

1) Where you mean the MDI-to-MDI connection use:
   "link segment"
   (See: 112.9, 112.10 for 2 of several examples)

2) Where you mean the PI-to-PI connection use:
   "link section"

3) When you mean both AND it is technically correct use:
   "link segment"

The END

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