General DRNI Model with an additional IB-BEB case

Version 01

Stephen Haddock

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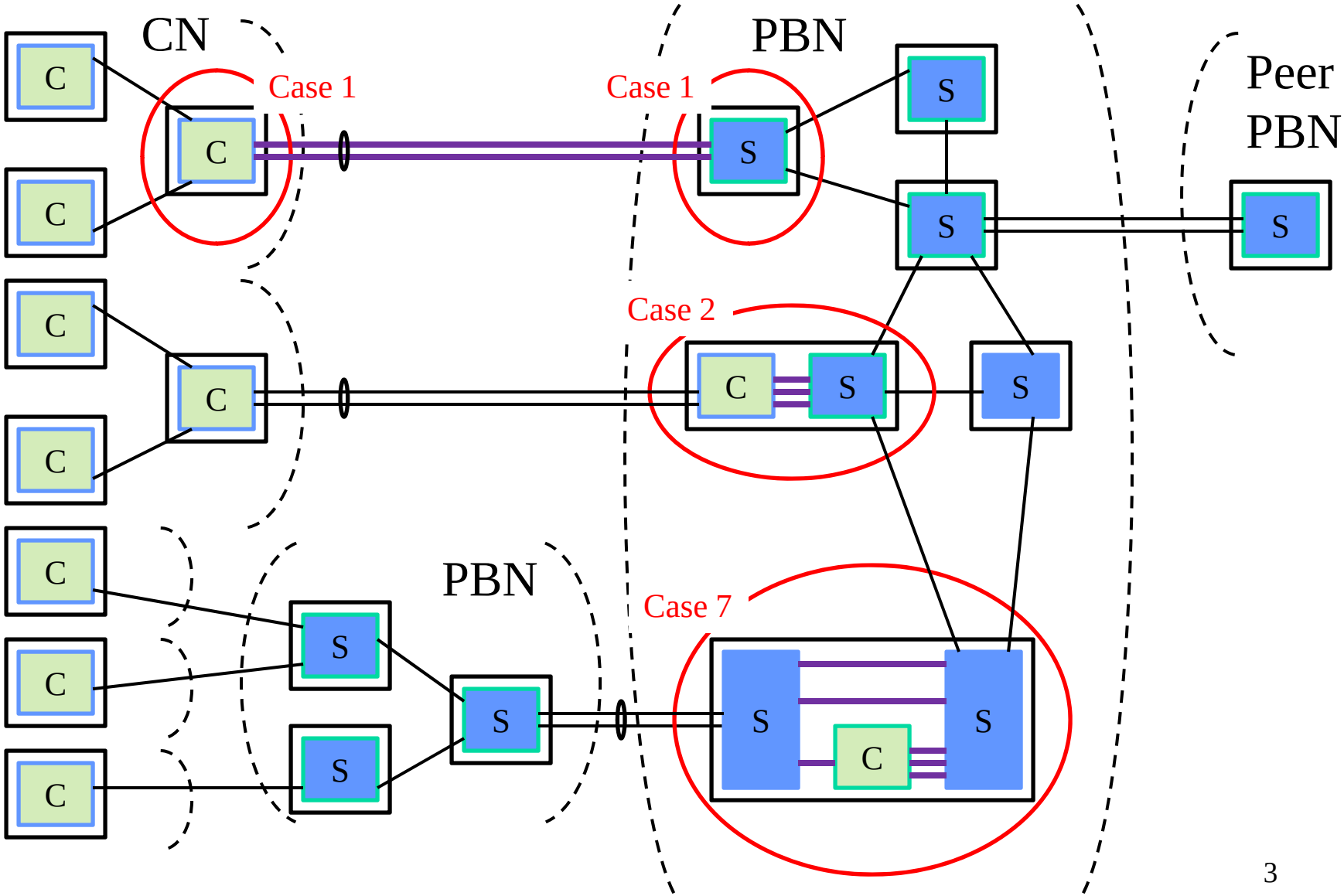
- A previous presentation (http://www.ieee802.org/1/files/public/docs2011/axbq-haddock-multicomponent-models-1111-v02.pdf) develops logical component models and distributed component models for 7 cases of DRNIs involving single and multi-component bridge.
- From those, a single generalized model is developed.
- This presentation discusses an 8th case.
  - I didn't include this case in the original presentation because I didn't see an obvious need for it.
  - I think Maarten may have a use case for it however.

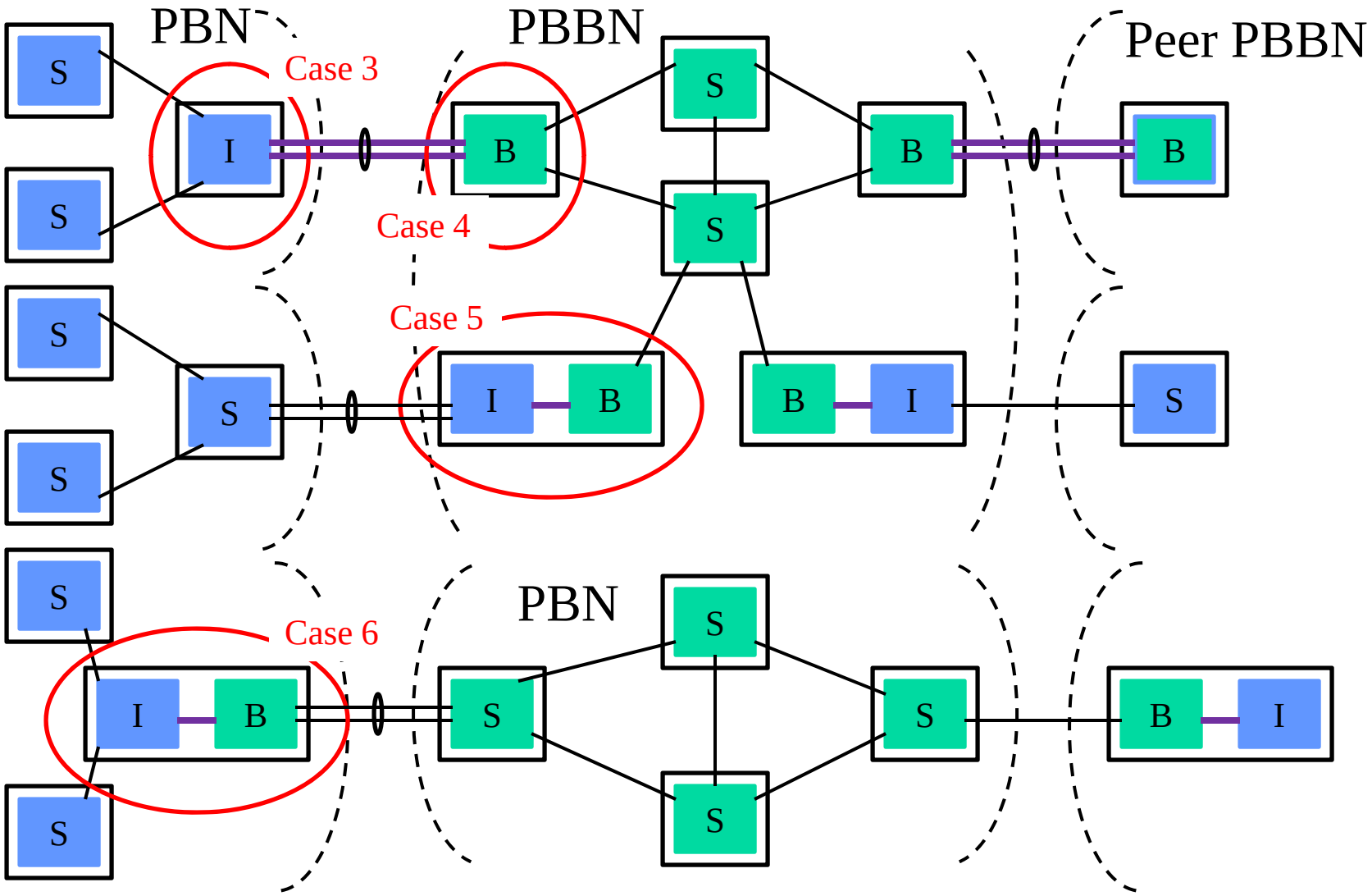
Cases 1, 2, and 7 of the original 7 cases

Q, PB, PEB, and RCSI cases to consider

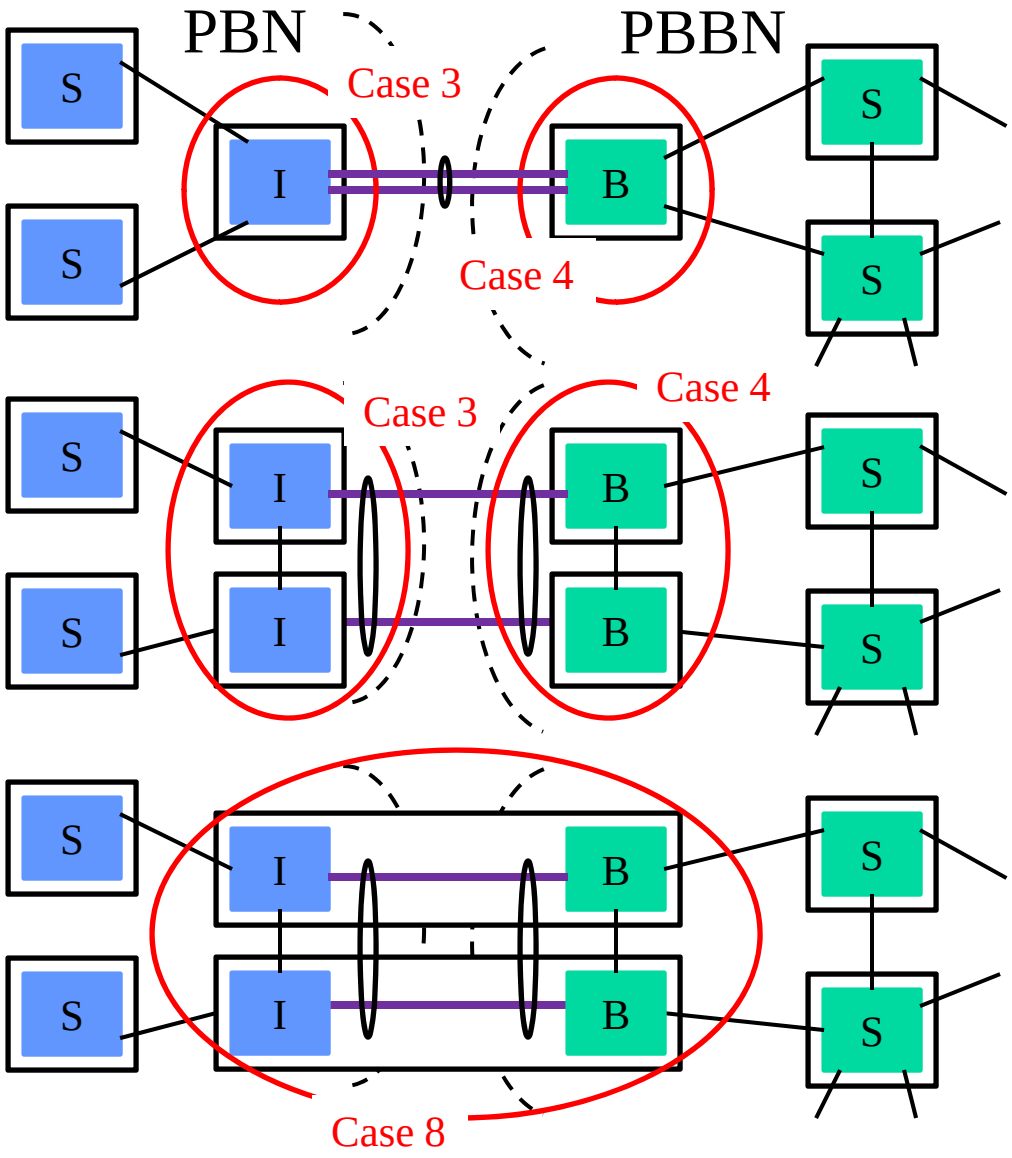


Cases 3, 4, 5, and 6 of the original 7 cases

BEB cases to consider



Developing Case 8

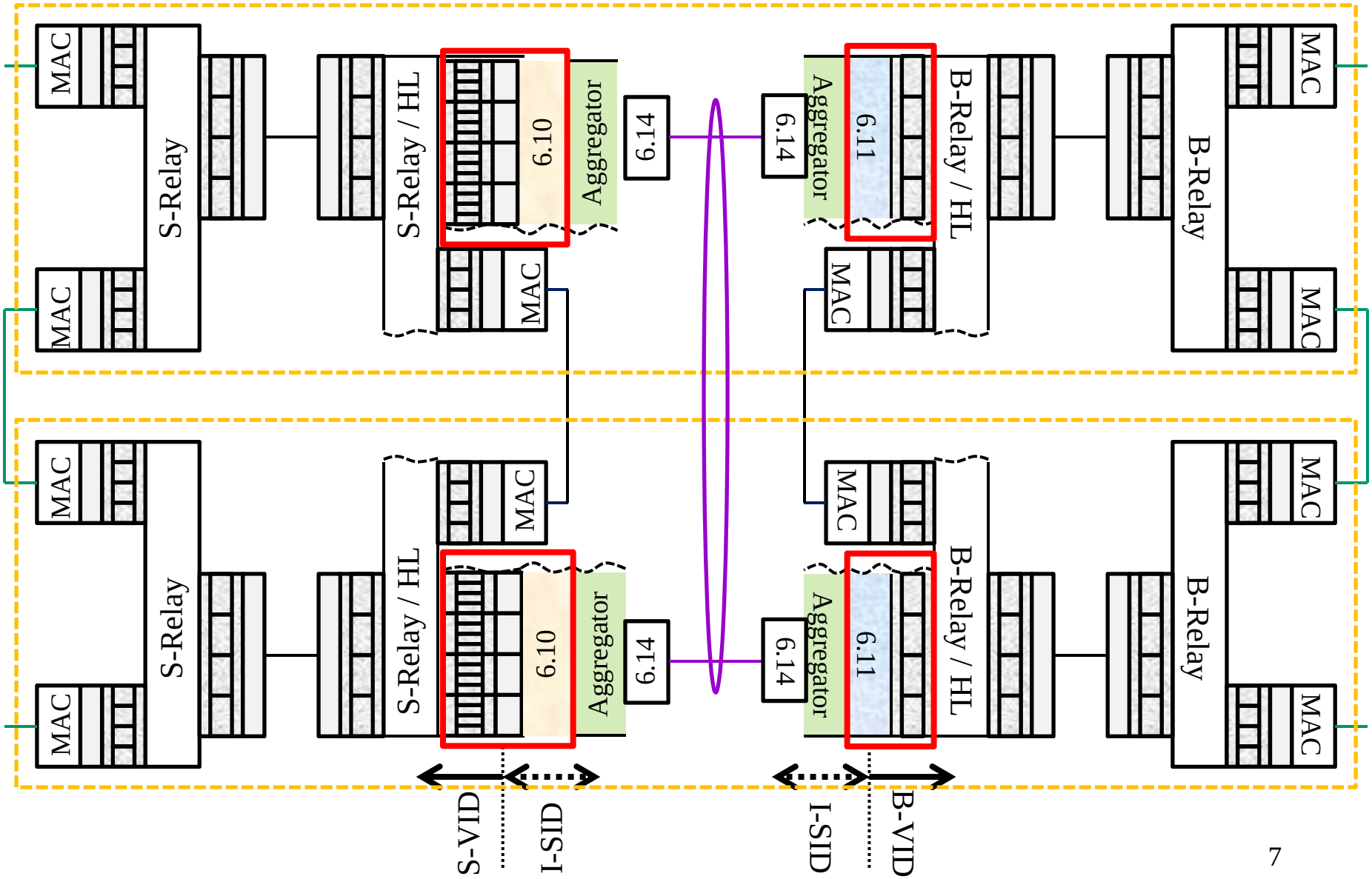


1. Start with Case 3 and 4.
2. Change it from a simple Link Aggregation to a DRNI
3. Implement with two IB-BEBs rather than two I-BEBs and two B-BEBs.

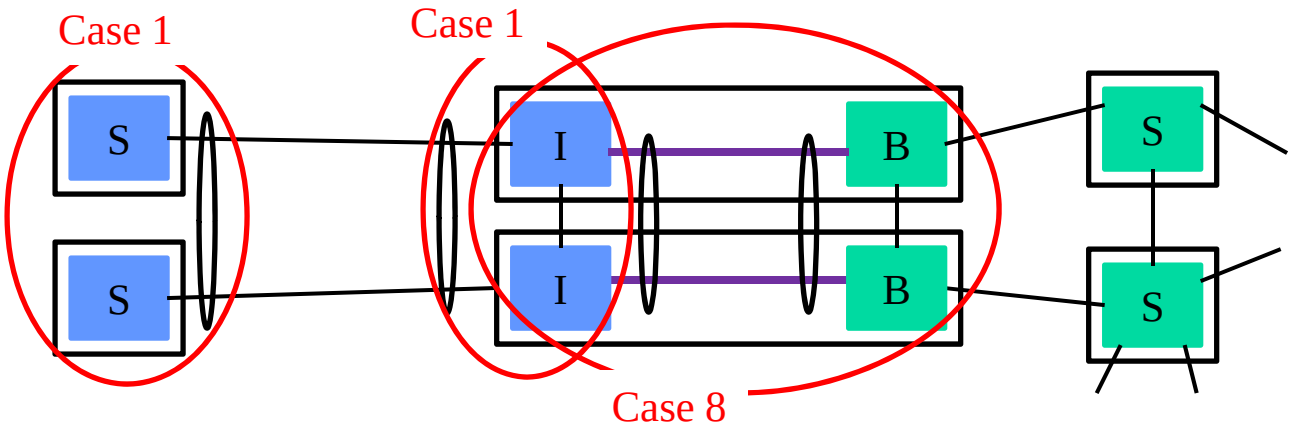
Now are creating a distributed aggregation of the internal PIP/CBP links!

- In the scenarios I am accustomed to an ENNI is a demarcation on a link connecting two devices in two independently operated networks.
  - By this view, case 8 is not interesting as an ENNI solution.
  - I did come up with a use case within a network, but it seemed pretty obscure and not worth pursuing.
- In Maarten's world the ENNI can be a device, not a link, with the demarcation between two networks being somewhere inside the device.
  - By this view, case 8 is an interesting way of making a redundant ENNI.

Applying the General Model to Case 8



Comparing Case 8 to Case 5 or 6



- Could also form DRNI aggregations with some (or all) of the network links attaching to the IB-BEBs.
  - These are separate Case-1 DRNIs.
  - If an aggregation attaches to the I-components (as shown), the combination of Case-8 and Case-1 looks a lot like Case-5, but the resulting models are different. Why is that?
  - If an aggregation attaches to the B-component (not shown), the combination of Case-8 and Case-1 would look a lot like Case-6, but the resulting models are different. Why is that?

Comparing Case 8 and Case 5

- Case 5 is an optimization given the constraint that all the links connecting to one I-component are part of the same aggregation. This case is worth optimizing because:
  1. It is likely to be common.
  2. It is analogous to the PEB cases that always have this constraint.
  3. It is a much more efficient model when the IB-BEB has multiple I-components with one aggregation to each I-component.
- A combination of Case 8 and Case 1 is also a valid model.
  - Norm started down the path of using this model in http://www.ieee802.org/1/files/public/docs2011/axbq-nfinn-IBBEBs-1011-v4.pdf but did not continue this approach in v6.
  - The model is more complex than necessary given the above constraint (1:1 relationship between aggregations and I-components).
  - It is a necessary model if both the I-component and B-component have multiple aggregations.

Comparing Case 8 to Maarten's model

- If all network connections attaching to either the I-component or the B-component are DRNI aggregations to both IB-BEBs,
  - Then it should be possible to select the active gateway for each service on each side of the aggregated CBP-PIP links such that no frames traverse the Intra-DAS Links associated with the Case-8 aggregations.
  - In that case, the functionality of the distributed B-relay, distributed S-Relay, and both Aggregators in the Case-8 model reduces to "wires". The distributed relays still have significance in the control plane, but in the data plane they effectively disappear, and you are left with just two CBP-PIP connections sharing an address.
  - I think that this is what is implied in the last slide of Maarten's presentation: http://www.ieee802.org/1/files/public/docs2012/axbq-vissers-drni-data-plane-summary-0112-v1.pptx