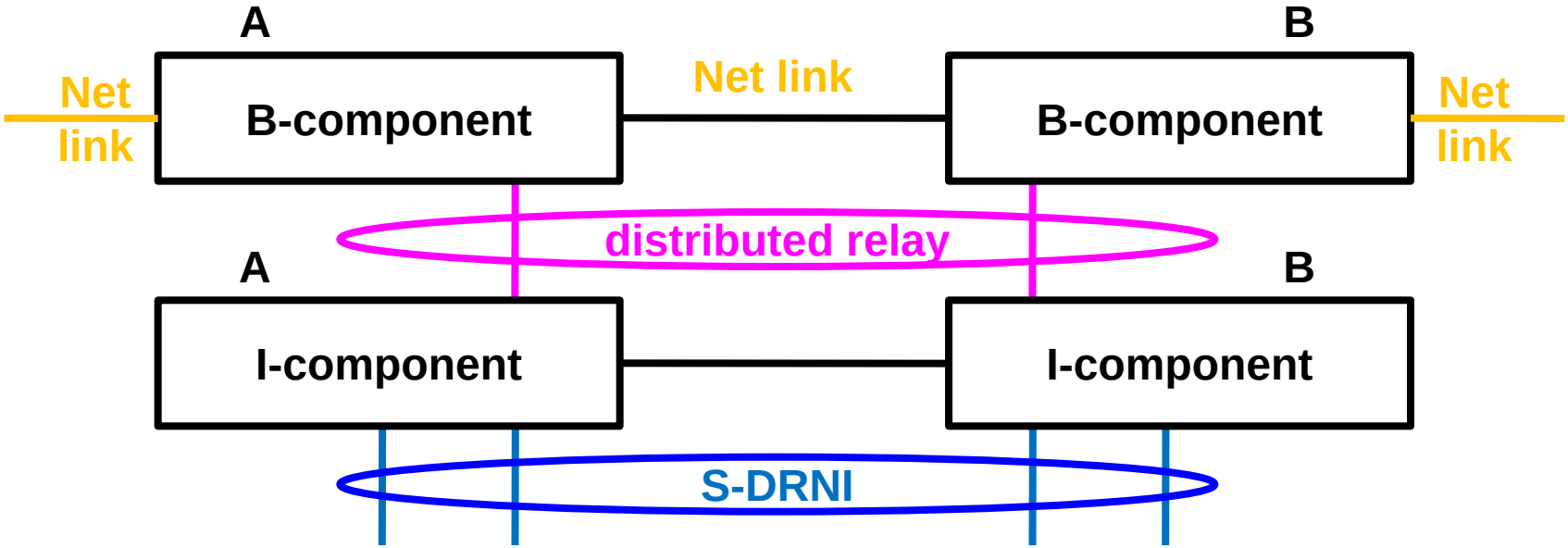
DRNI IB-BEBs

Rev. 6

Norman Finn

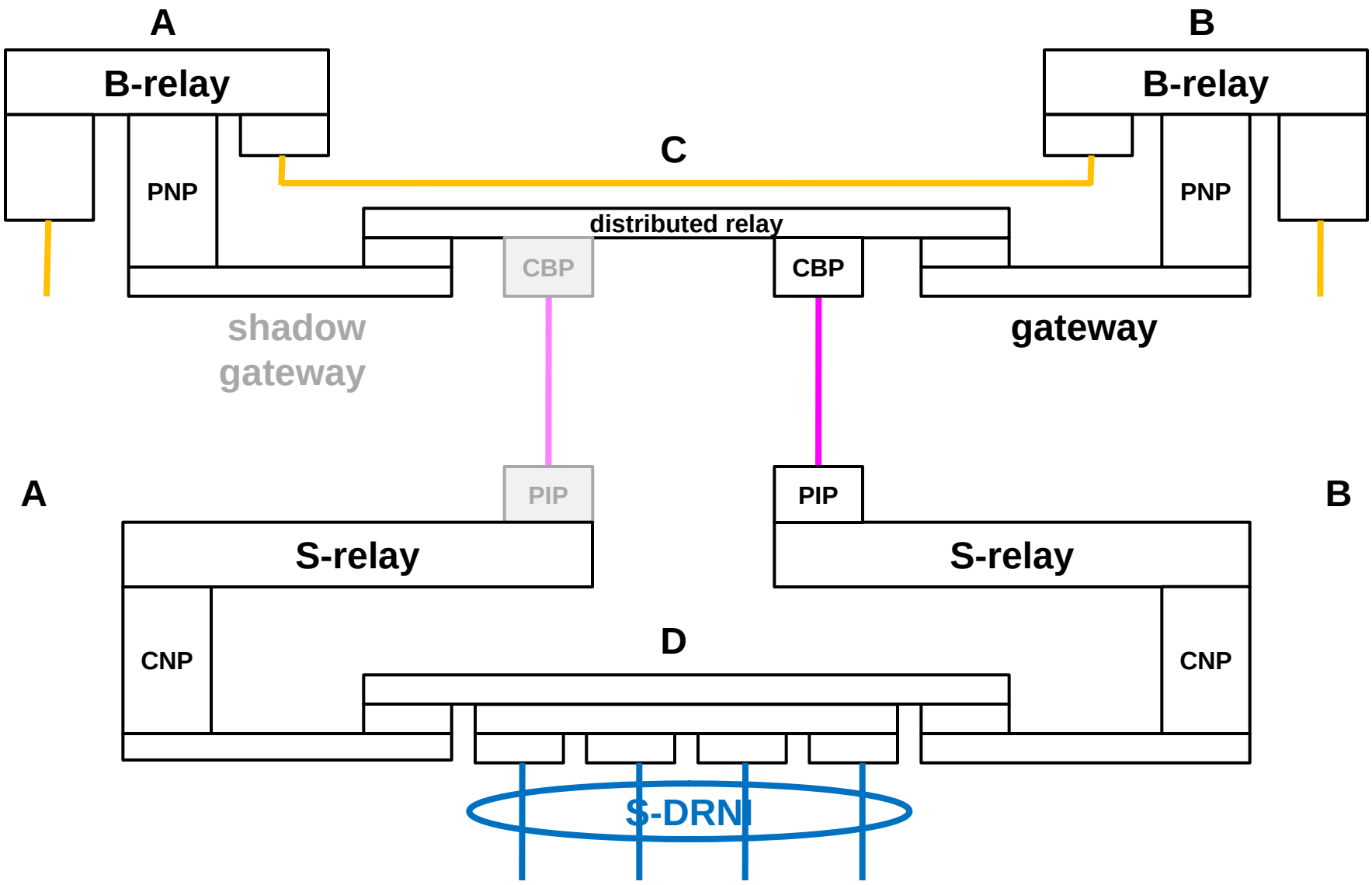
nfinn@cisco.com

IB-BEB Component view

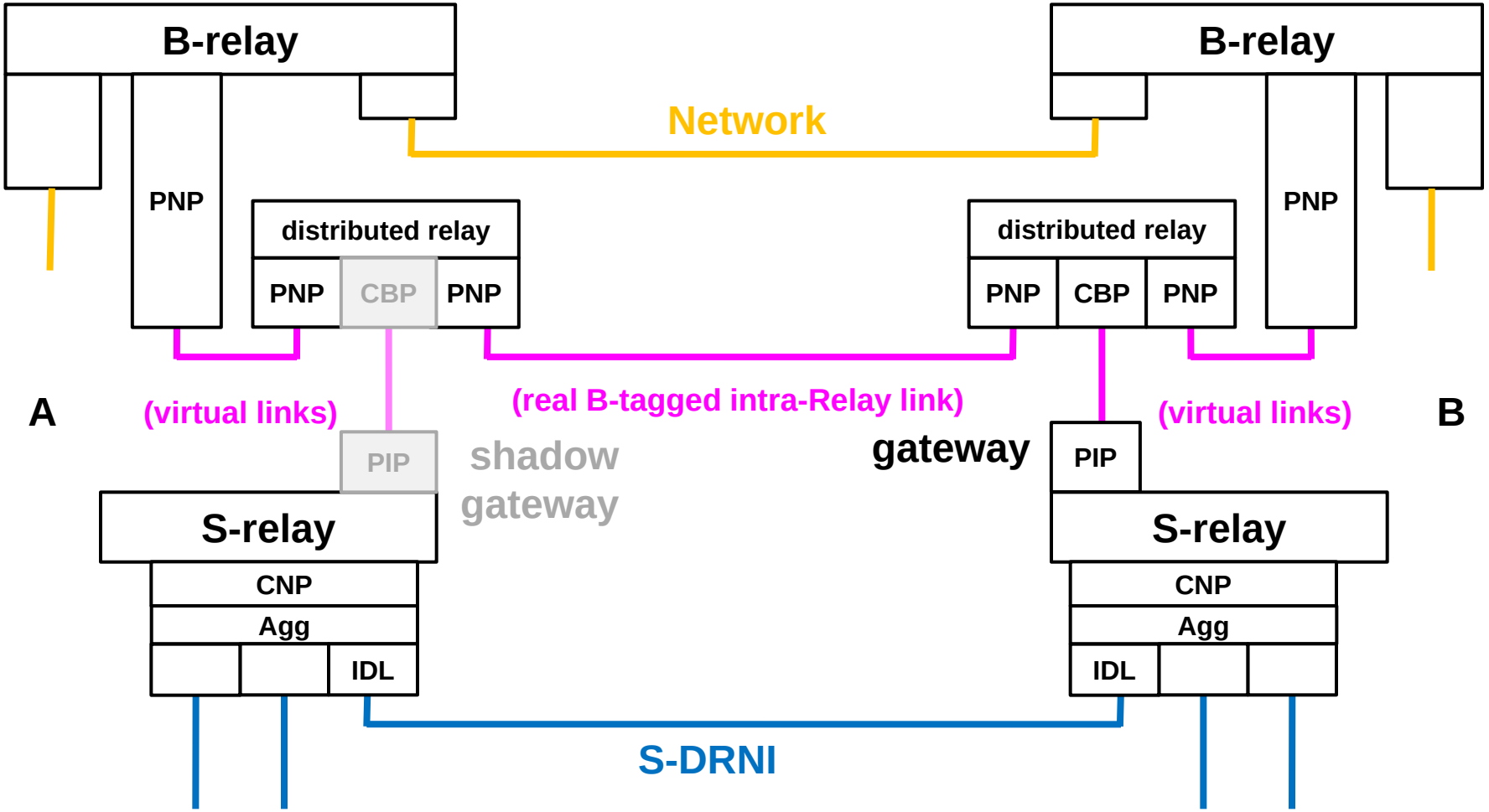


- An additional **distributed relay layer** between the B-components and the I-components provides an extra **Intra-Relay Link** so that one can be S-tagged and the other B-tagged.

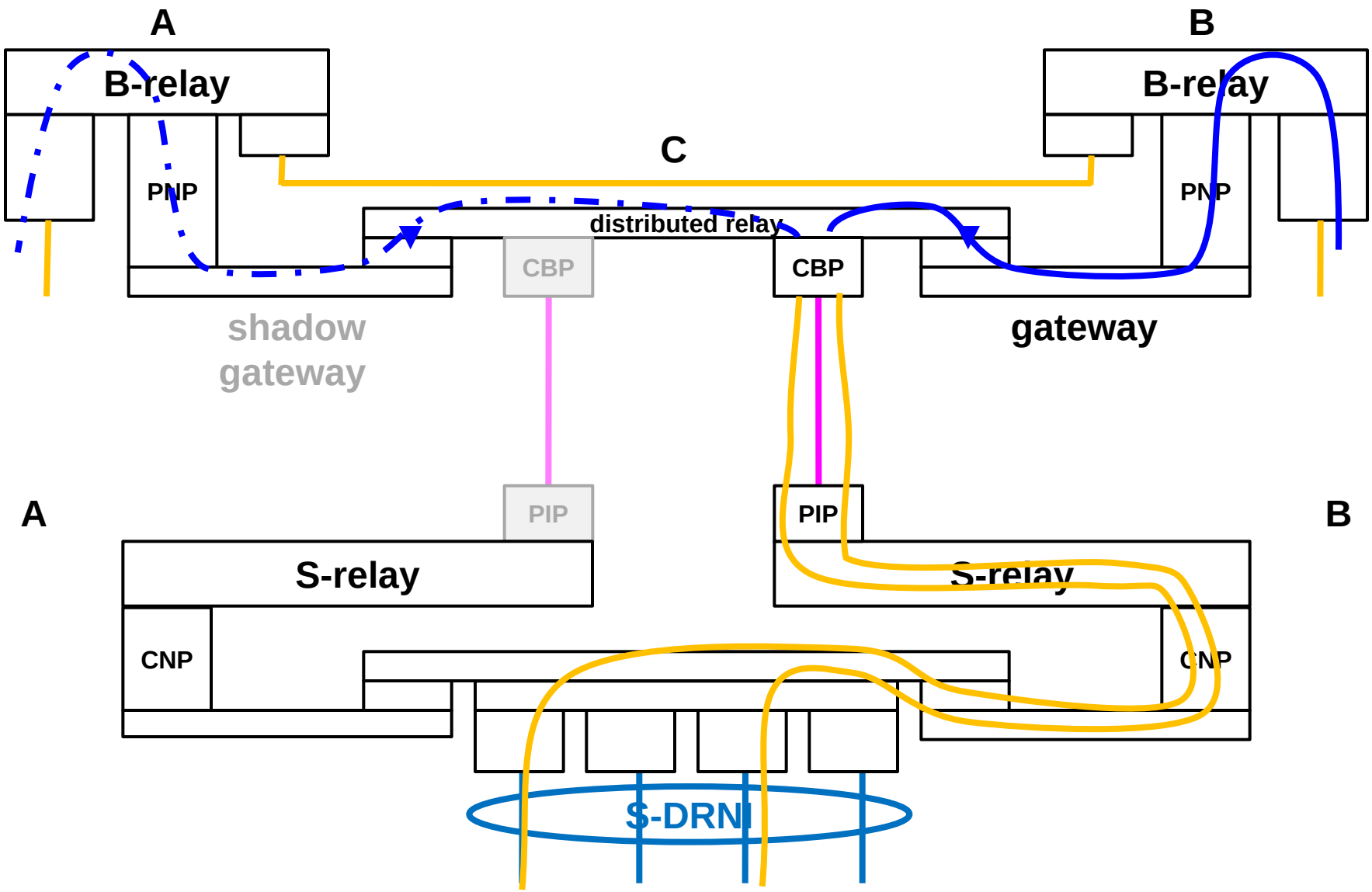
IB-BEB DRNI: Logical view



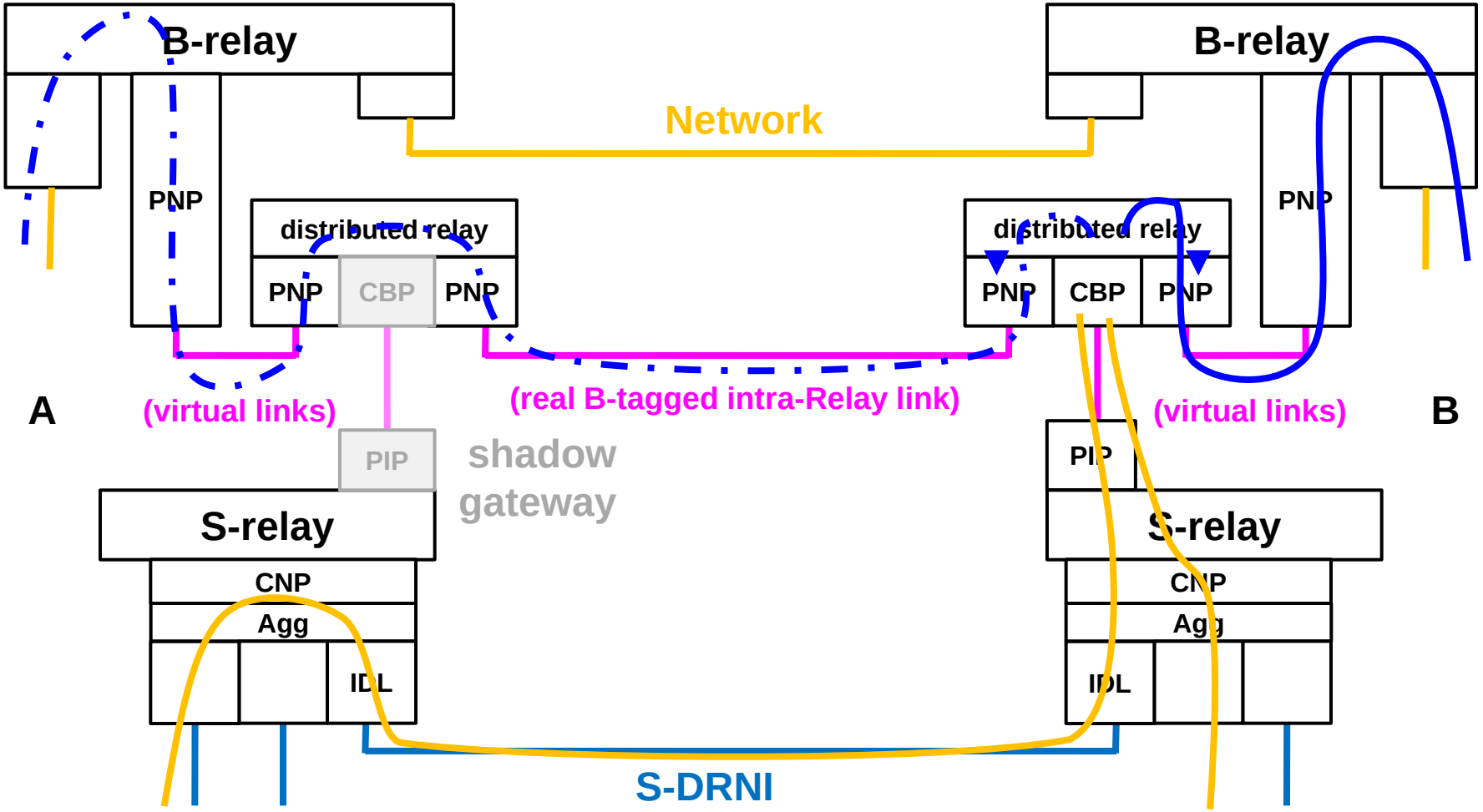
IB-BEB DRNI: Bridge view



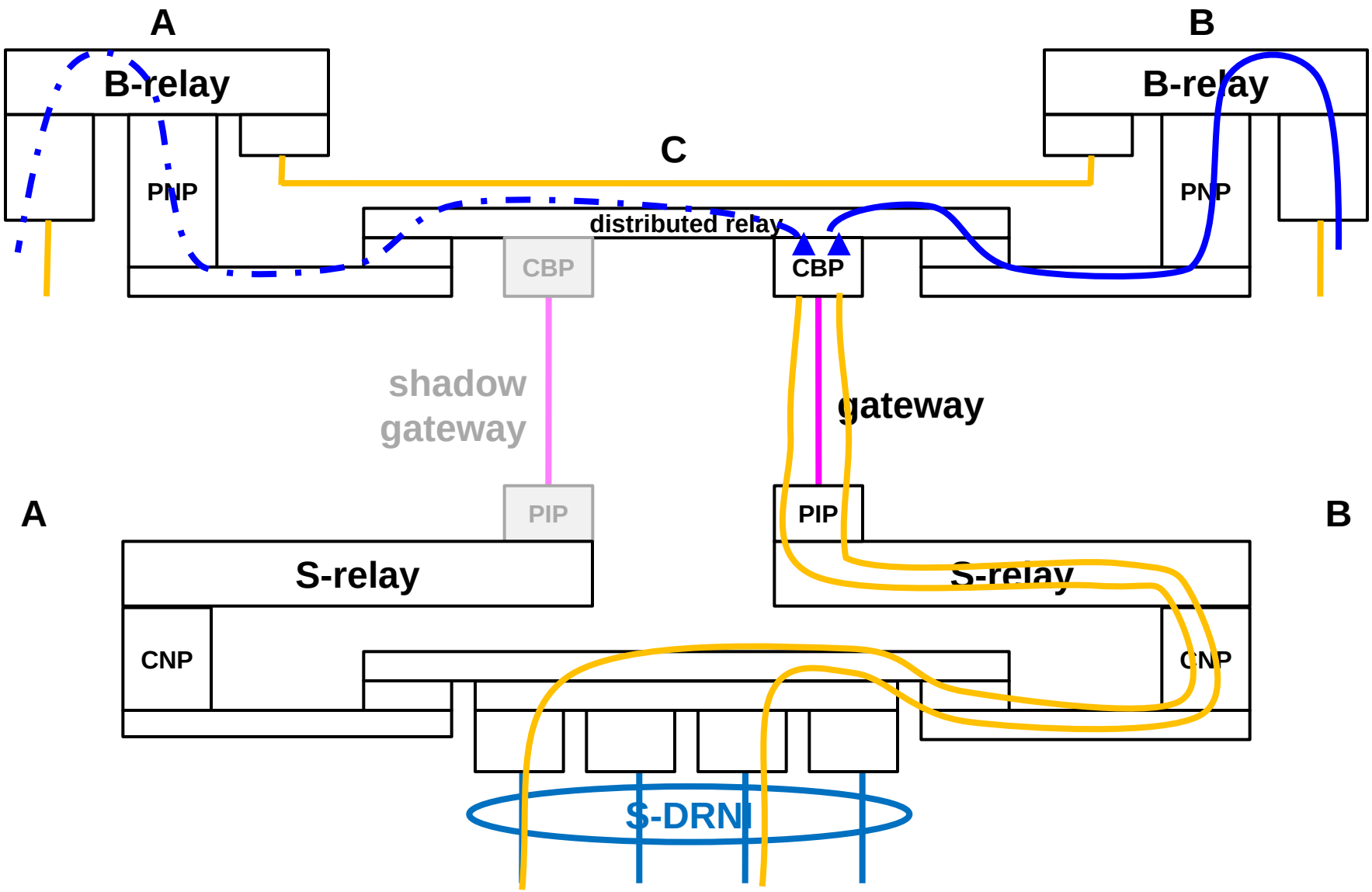
IB-BEB DRNI: Logical view, Seg. Prot.



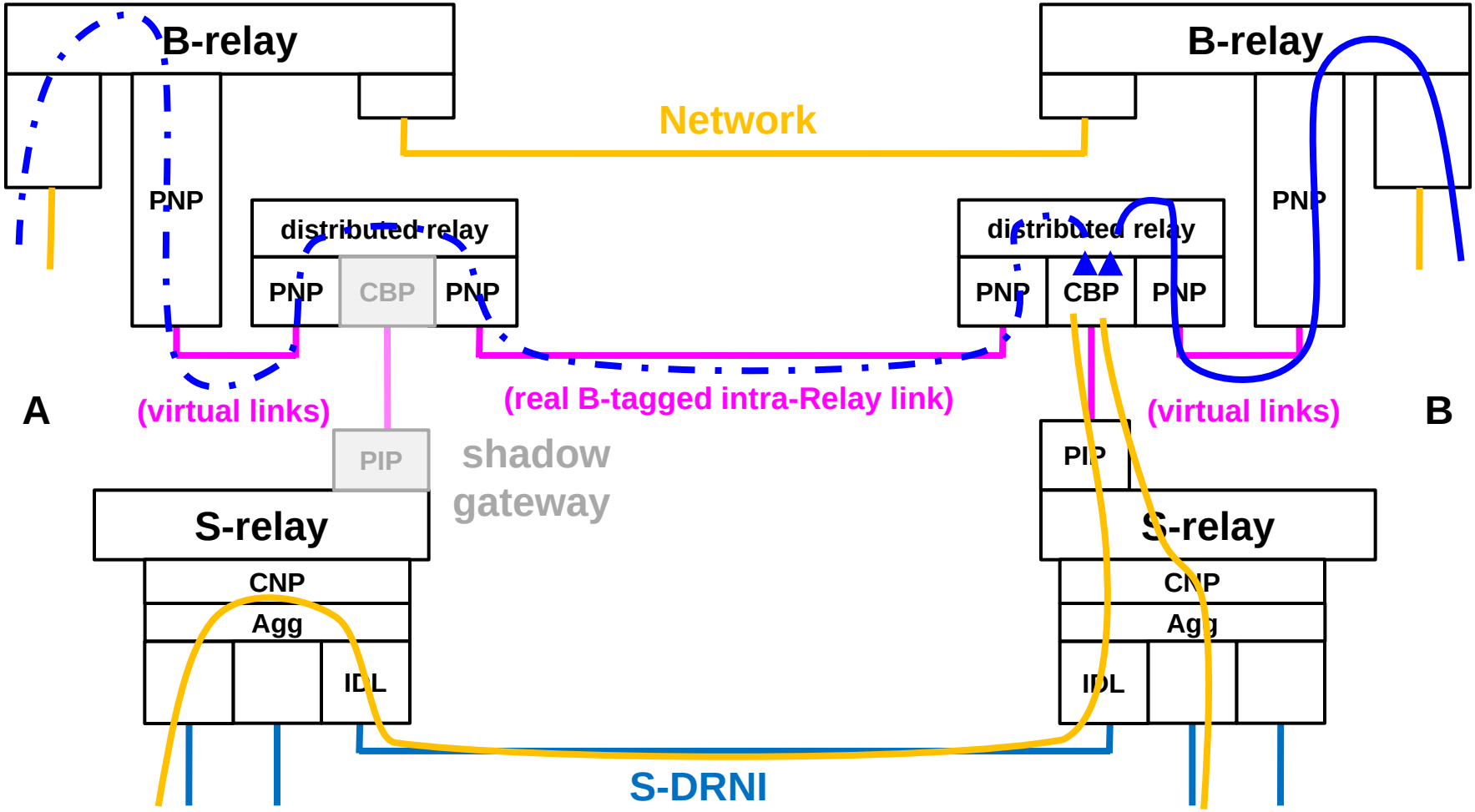
IB-BEB DRNI: Bridge view: Seg. Prot.



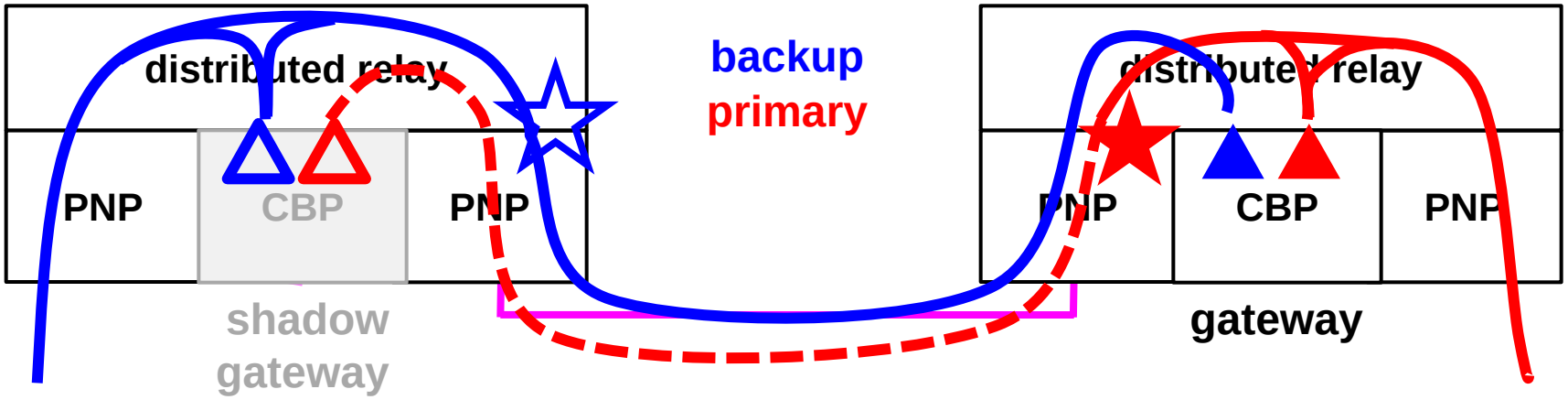
IB-BEB DRNI: Logical view,TESI Prot.



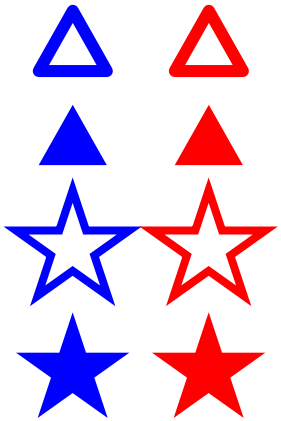
IB-BEB DRNI: Bridge view: TESI Prot.



Close-up Distributed Relay: TESI Prot.



Ready for fast-failover of TESIs in right gateway



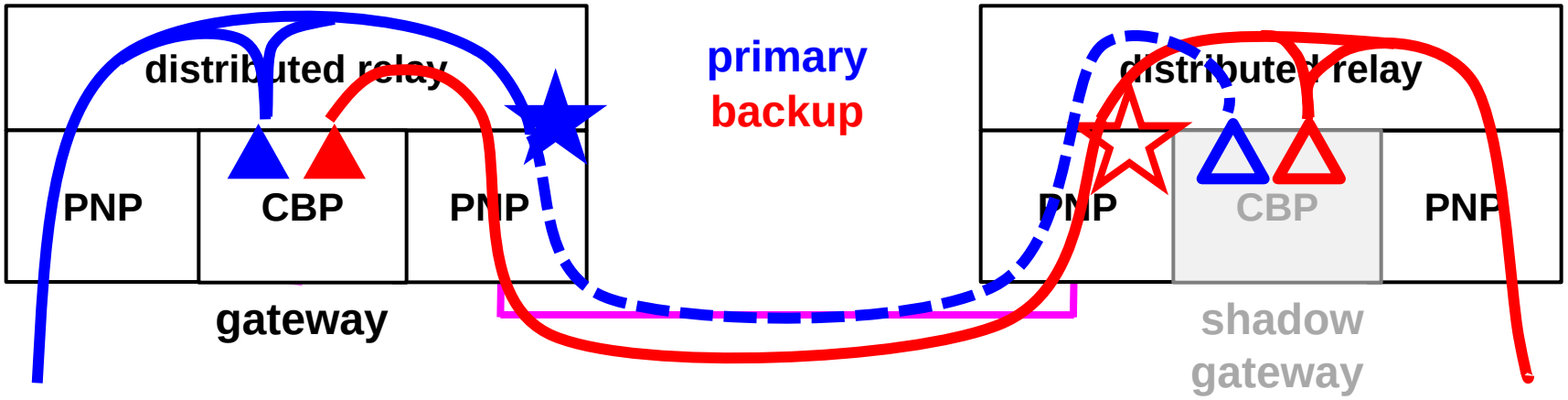
Hidden MEP (receives CCMs, TBD whether transmits CCMs)

Active MEP

Inactive CCM filter (no-op)

Active CCM filter (passes CCMs only)

Close-up Distributed Relay: TESI Prot.



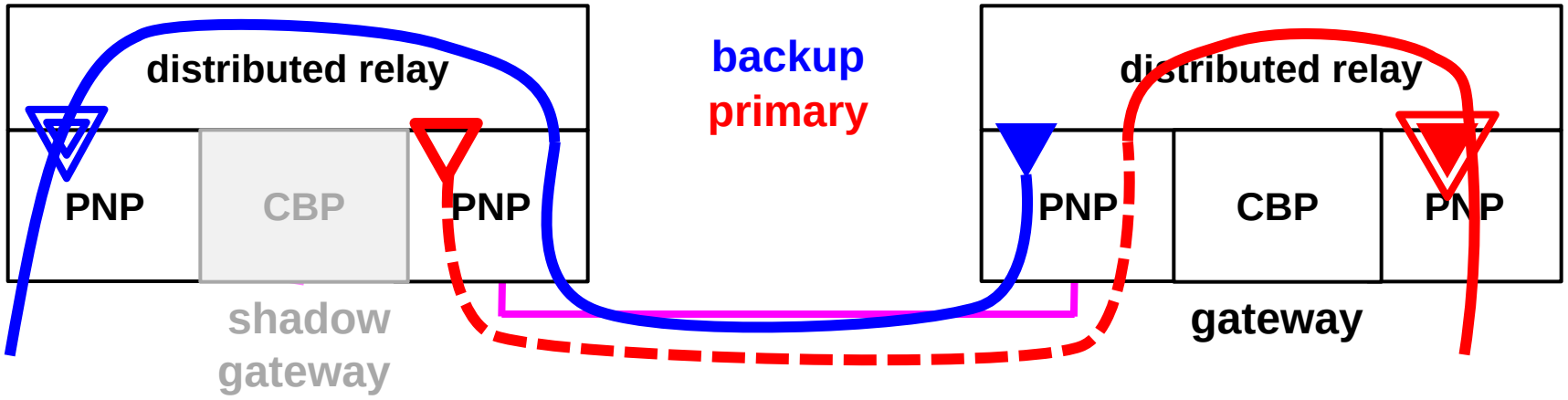
(Slow) switching active and shadow Gateway

- Hidden MEPs ← → Active MEPs
- Inactive CCM filters← → Active CCM filters

Funny CFM in TESI protection

- The purpose of the CCM filter is to allow the hidden MEP to see the CCMs.
- The purpose of the hidden CCMs is to supply the shadow gateway with the current context so that it can take over seamlessly when required.
- There are issues to work out with regard to the “fool’s paradise” problem. Ultimately, there are not just two, but **four MEPs whose states are relevant to the other ends of the TESIs**.

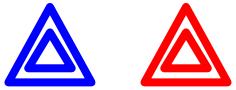
Close-up Distributed Relay: Seg. Prot.



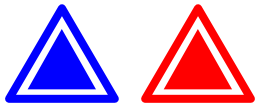
Segment Protection similar, but different CFM

Hidden MEP (receives CCMs, TBD whether transmits CCMs)

Active MEP

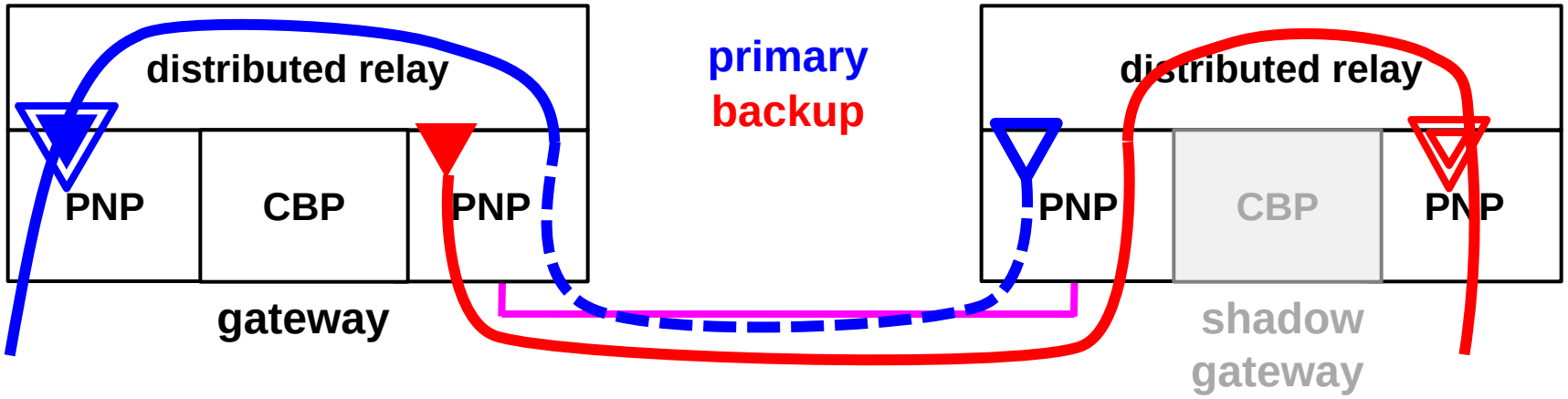


Pass-through MEP. (Activity TBD)



Intermediate MEP. (Generate/receive CCMs, other activity TBD)

Close-up Distributed Relay: Seg. Prot.



(Slow) switching active and shadow Gateway

- Hidden MEPs ← → Active MEPs
- Pass-through MEPs ← → Intermediate MEPs

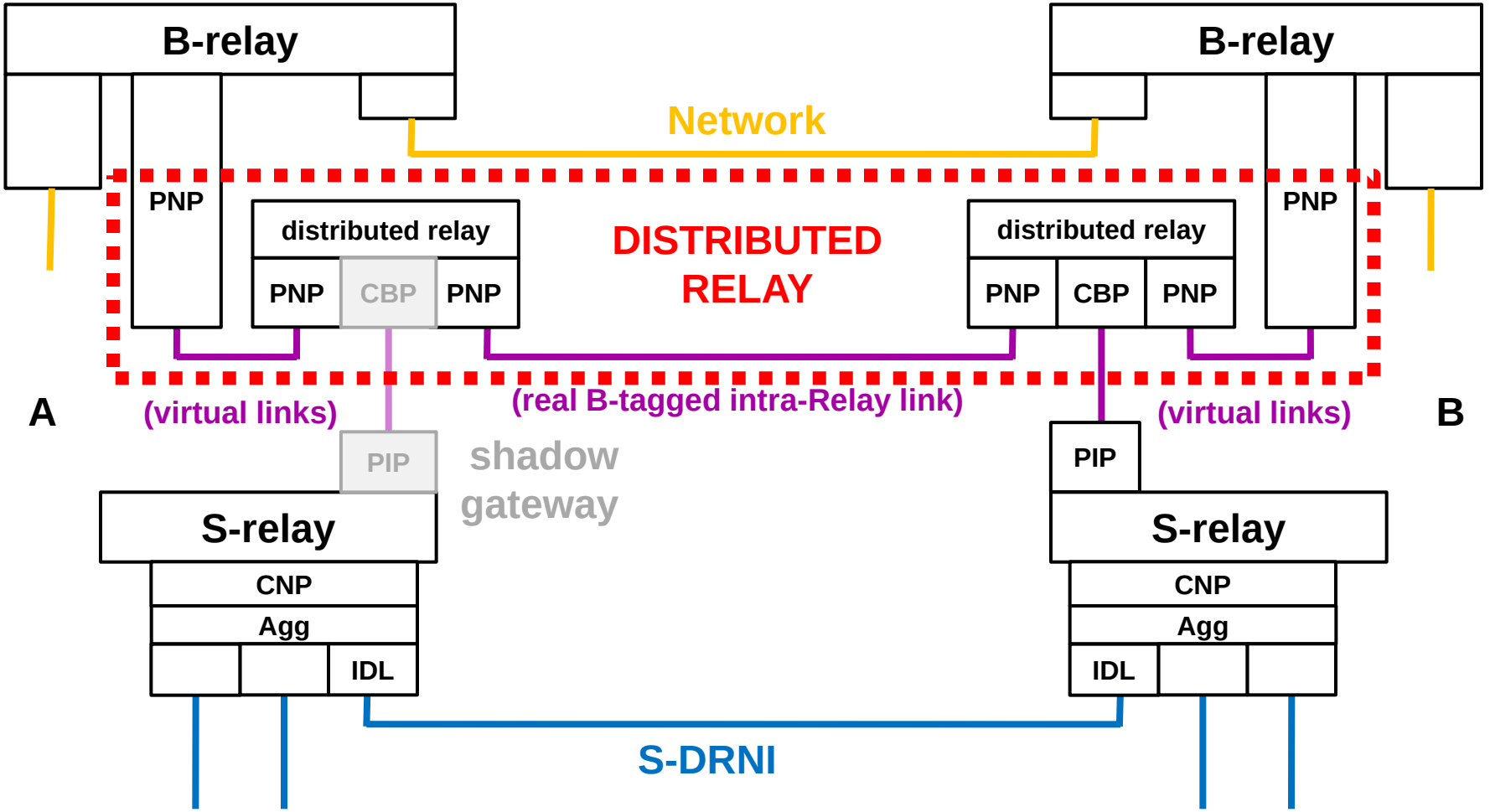
Funny MEPs in Segment protection

- The purpose of the pass-through MEP is to monitor the Segment's CCMs in case of Gateway failover, but to allow the active MEP to make the decisions.
- The purpose of the intermediate MEP is to terminate the Segment, but also to allow the hidden MEP to monitor the Segment.
- The purpose of the hidden MEP is to monitor the segment's CCMs in case of Gateway failure.
- There are issues to work out with regard to the "fool's paradise" problem. Ultimately, there is not just one, but **two MEPs whose states are relevant to the other ends of a Segment**.

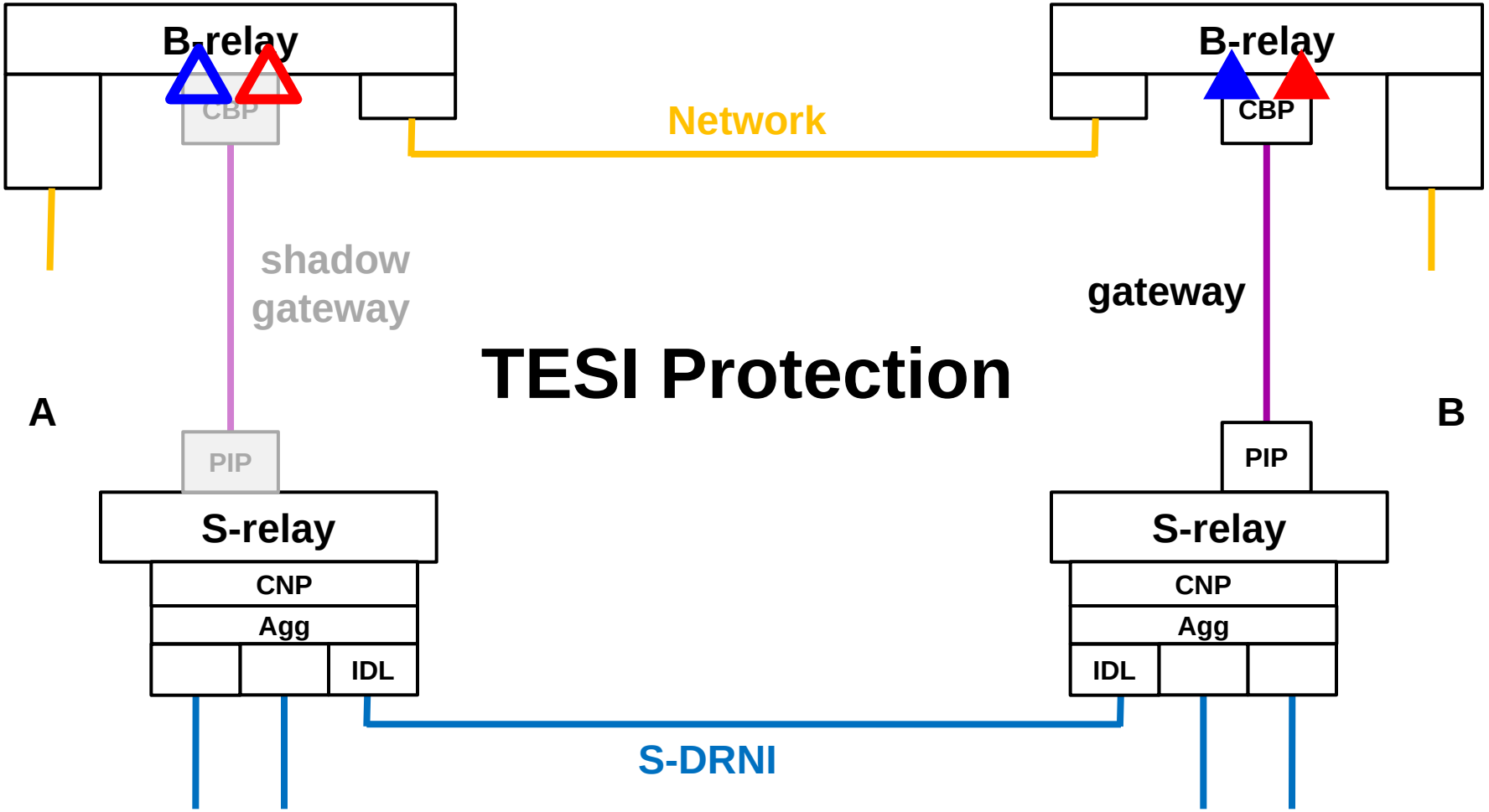
Simplifying the diagram

- We now note that the diagram is more complex than it needs to be.
- The Intra-Relay Link carries exactly the same encapsulations that the Network Link carries.
- The same service is never carried across both the Intra-Relay Link and the Network Link.
- The path from the distributed relay half to the physical Link through which its traffic passes is all virtual.

IB-BEB DRNI: Obvious Distributed Relay



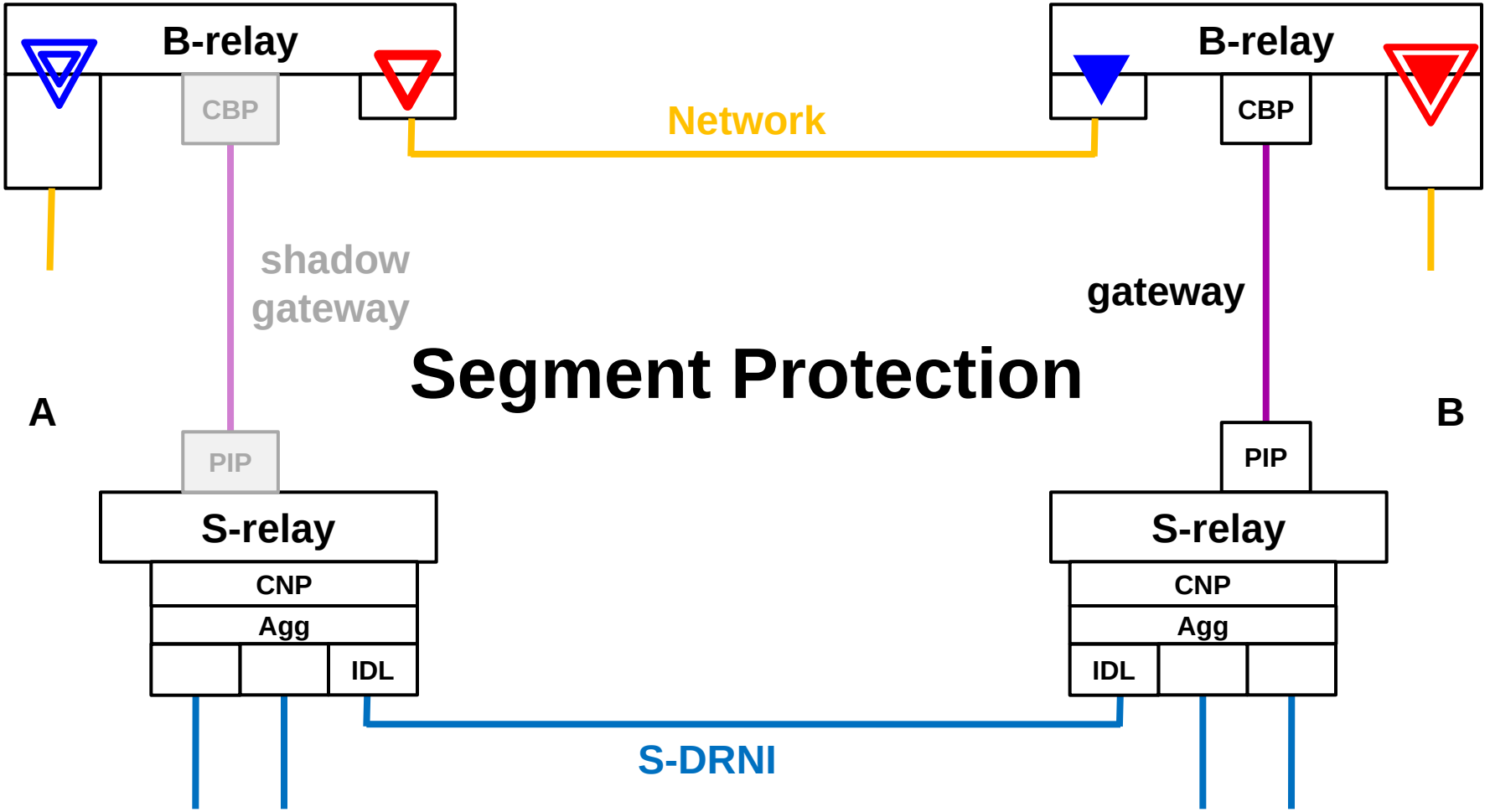
IB-BEB DRNI: Subtle Distributed Relay



TESI Protection MEP addressing

- There are some problems to work out.

IB-BEB DRNI: Subtle Distributed Relay



Segment Protection MEP addressing

- It appears that each of the illustrated MEPs (Active, Hidden, Pass-Through, and Intermediate) can have its own MAC address; there is no need to duplicate MAC addresses.
- If there is a Gateway swap, the new MEP taking over the Maintenance association has new frame loss counters and new timers. We might as well change MAC addresses; that can serve as a signal that the old context has been lost.
- Having separate addresses also gives us a handle on the “fool’s paradise” problem; each end can track all of the MEPs at the other end.

IB-BEB DRNI: Multiple CBP/PIPs