DRNI IB-BEBs

Rev. 6

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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

A

B-relay

PNP

B-relay

PNP

C

distributed relay

C

distributed relay

A

shadow gateway

B

gateway

A

S-relay

CNP

S-relay

CNP

B

S-relay

CNP

S-relay

CNP

D

$-DRNI$
IB-BEB DRNI: Bridge view

Network

B-relay

PNP

distributed relay

PNP CBP PNP

distributed relay

PNP CBP PNP

B-relay

PNP

S-relay

CNP

Agg

IDL

S-relay

CNP

Agg

IDL

S-DRNI

shadow gateway

gateway

(real B-tagged intra-Relay link)

(virtual links)

(virtual links)
IB-BEB DRNI: Logical view, Seg. Prot.
IB-BEB DRNI: Bridge view: Seg. Prot.

A

B

PNP

distributed relay

PNP

CBP

PNP

PNP

PNP

distributed relay

PNP

CBP

PNP

PNP

S-relay

CNP

Agg

IDL

S-DRNI

shadow gateway

Network

virtual links

(real B-tagged intra-Relay link)

virtual links

shadow gateway
IB-BEB DRNI: Logical view, TESI Prot.
IB-BEB DRNI: Bridge view: TESI Prot.
Close-up Distributed Relay: TESI Prot.

Hidden MEP (receives CCMs, TBD whether transmits CCMs)

Active MEP

Inactive CCM filter (no-op)

Active CCM filter (passes CCMs only)

Ready for fast-failover of TESIs in right gateway
Close-up Distributed Relay: TESI Prot.

(Slow) switching active and shadow Gateway

- Hidden MEPs $\leftrightarrow$ Active MEPs
- Inactive CCM filters $\leftrightarrow$ 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 $\leftarrow \rightarrow$ Active MEPs
- Pass-through MEPs $\leftarrow \rightarrow$ 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

Network

DISTRIBUTED RELAY

(real B-tagged intra-Relay link)

(virtual links)

shadow gateway

S-DRNI
IB-BEB DRNI: Subtle Distributed Relay

TESI Protection
TESI Protection MEP addressing

- There are some problems to work out.
IB-BEB DRNI: Subtle Distributed Relay

Segment Protection

Network

shadow gateway
gateway
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