

Loop Protection in EVPN Networks

draft-snr-bess-evpn-loop-protect-00

Jorge Rabadan (Nokia)
Senthil Sathappan (Nokia)
Kiran Nagaraj (Nokia)
Julio Bueno (Telefonica)
Jose Manuel Crespo (Telefonica)

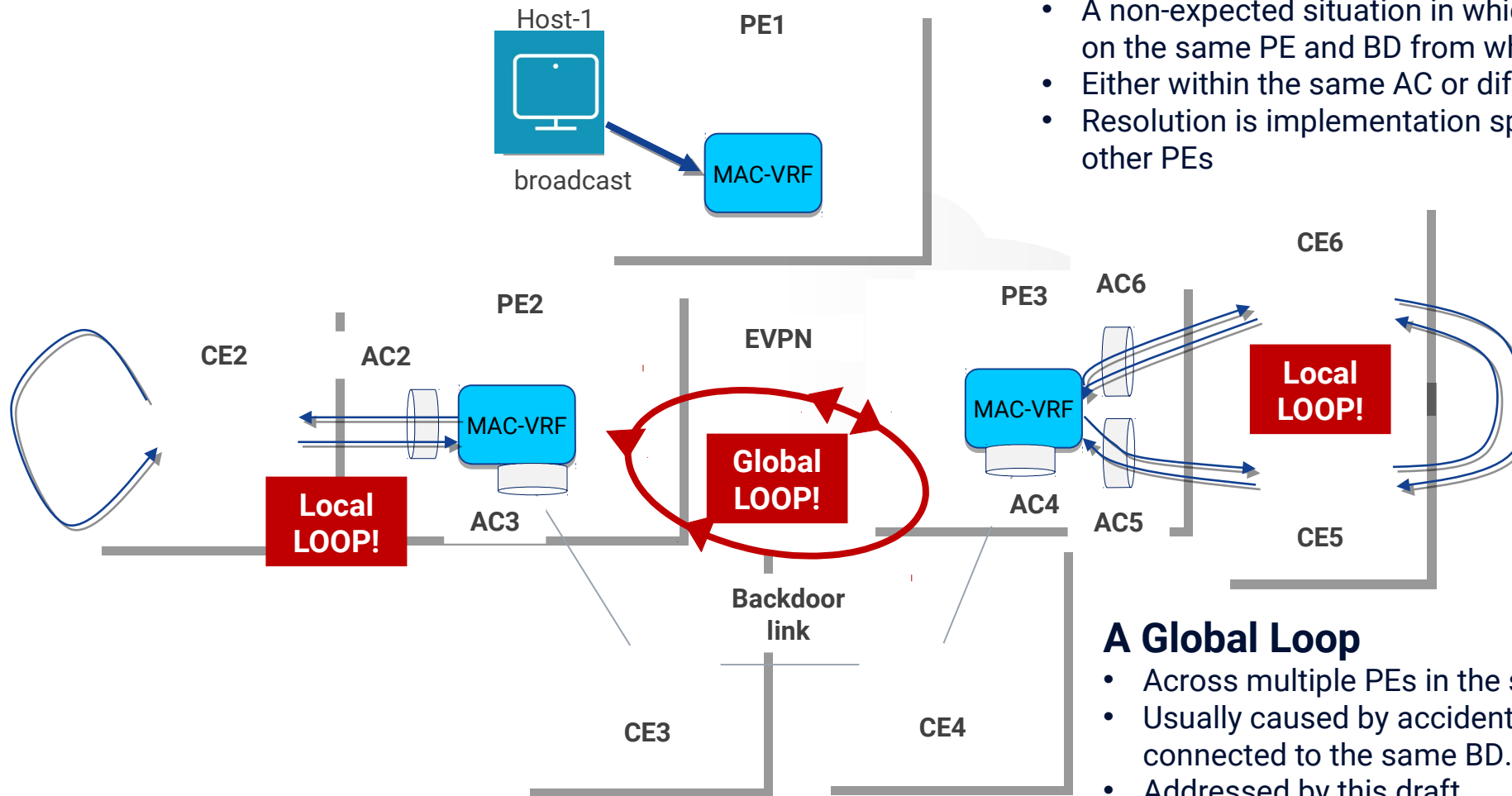
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Local vs Global loops in EVPN Broadcast Domains

draft-snr-bess-evpn-loop-protect addresses global loops

A local Loop

- A non-expected situation in which BUM frames are received on the same PE and BD from where they were sent.
- Either within the same AC or different ACs.
- Resolution is implementation specific and independent of the other PEs



A Global Loop

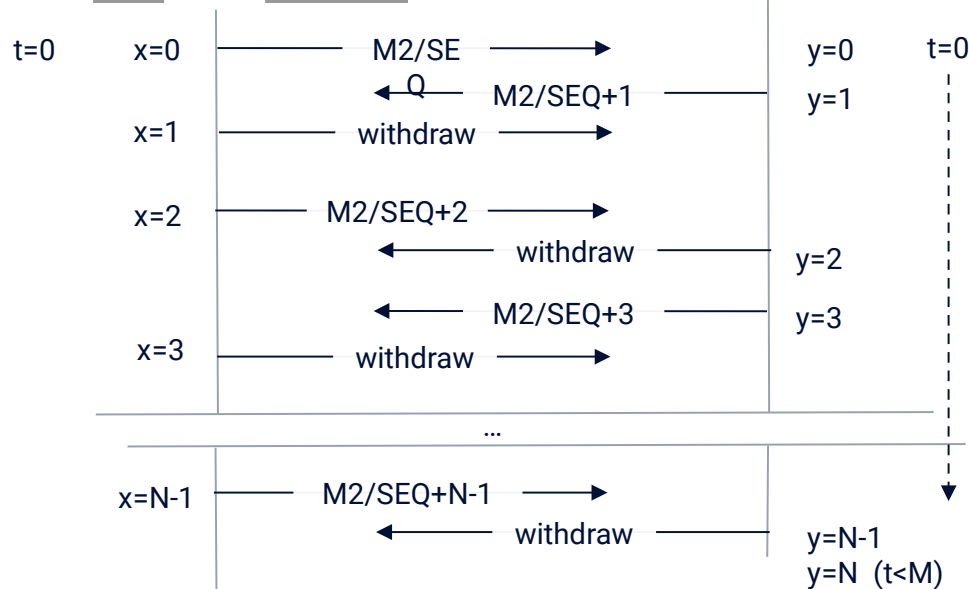
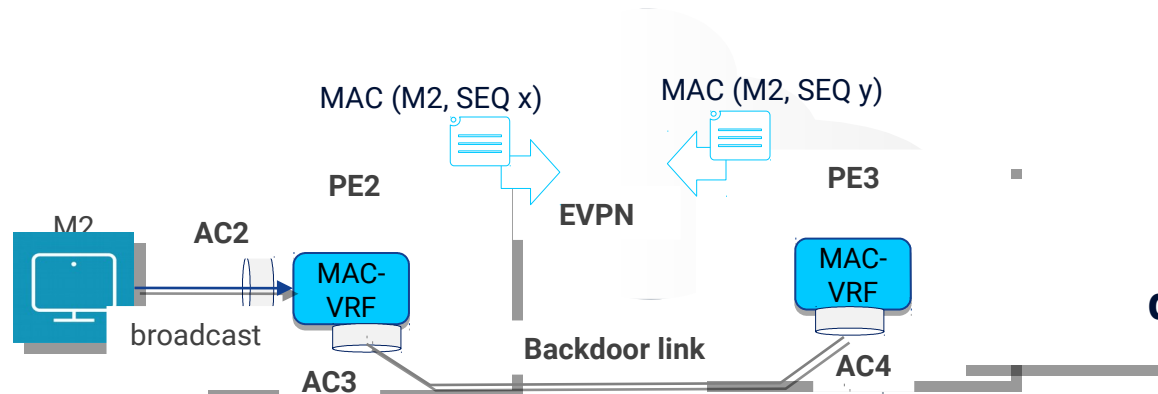
- Across multiple PEs in the same BD
- Usually caused by accidental backdoors between CEs or ACs connected to the same BD.
- Addressed by this draft.

Global Loop Protection Proposal

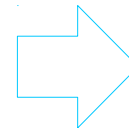
For EVPN networks

- It completes the RFC7432 MAC Duplication mechanism with an optional Loop Protection procedure for Global Loops.
- RFC7432-compatible.
- It does not modify/add any control plane piece of information.
- Upon detecting a loop, it carries out the following Loop Protection actions:
 - The PE SHOULD discard looping flows while allowing other non-looping flows.
 - The PE MAY bring down the ACs involved in the loop, as opposed to only discarding the flows involved.

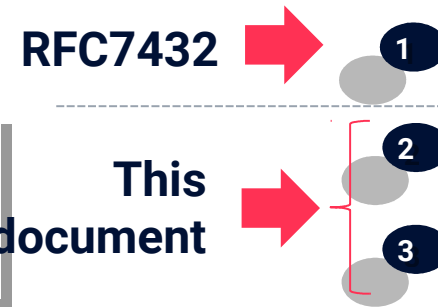
Loop Protection Solution for EVPN Broadcast Domains



Add M2 to duplicate-MAC list



Actions



1 PE3 stops advertising M2 and logs a duplicate event

2 PE3 initializes a retry-timer "R"

3 PE3 triggers Loop Protection and "black-holes" M2

A Black-Hole MAC M2 means:

- It is installed in the BT as Black-Hole (not associated to any AC).
- For any ingress frame on PE3:
 - If MAC SA=M2 $\hat{=}$ frame MUST be discarded
 - If MAC DA=M2 $\hat{=}$ frame SHOULD be discarded
- Optionally, for any ingress frame on a PE3 AC
 - If MAC SA=M2 $\hat{=}$ AC MAY be brought oper down.
- A Black-Hole M2 is flushed if:
 - R expires
 - Manual flush
 - PE2 withdraws M2 or sends M2 with sticky bit.

Observations and conclusions

Why is this draft Informational

It is compatible with RFC7432 procedures and does not modify EVPN routes

Can be deployed in an EVPN BD where not all the PEs support Loop Protection

Why do we think it is important

Accidental (or not) backdoor paths happen

Global Loops are a big concern in Operators and Service Providers

What do we ask the WG

Feedback / Comments

Thank you