

BIER Interop Testing

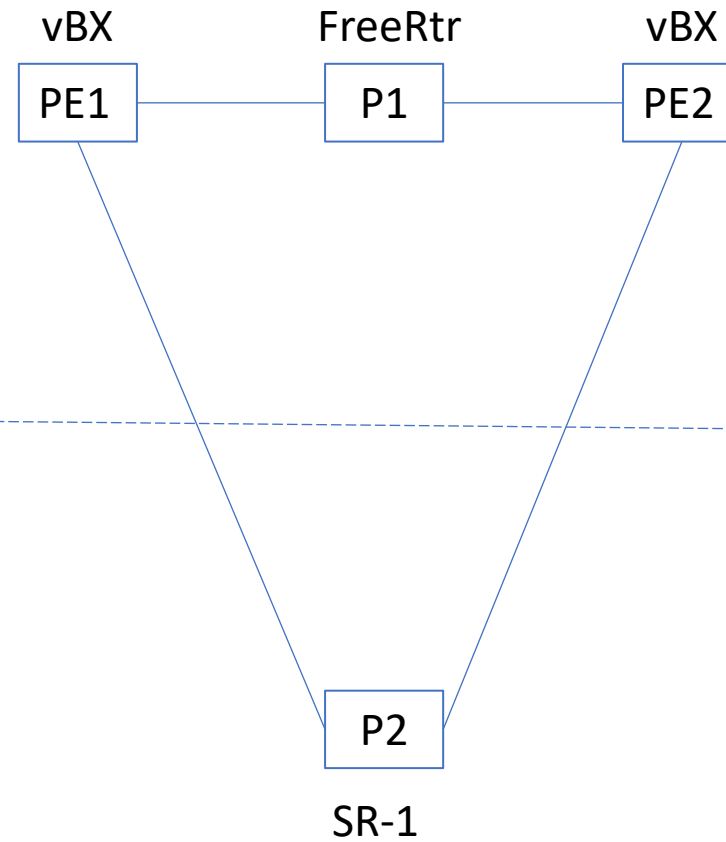
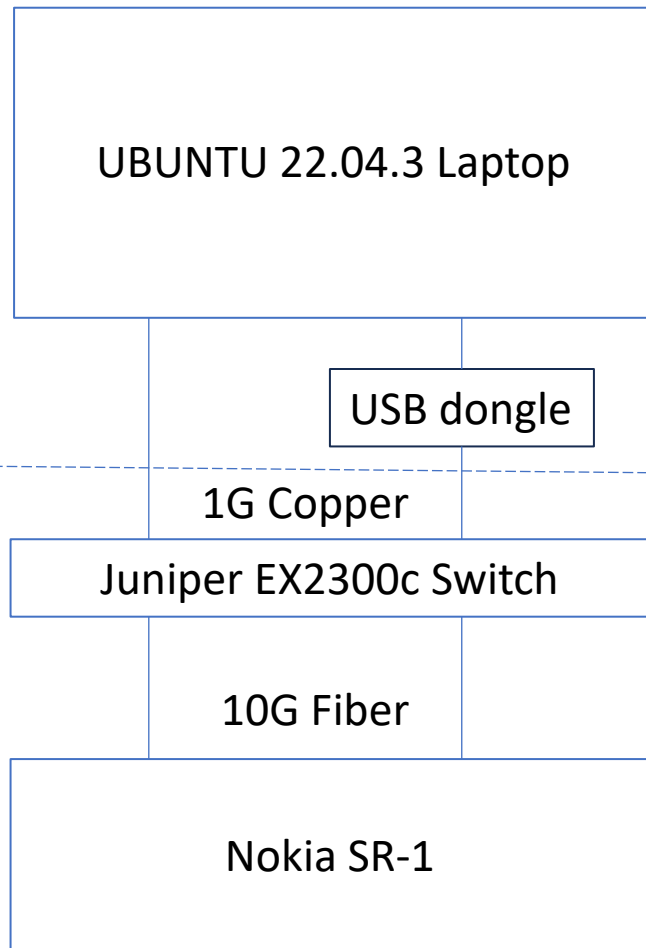
Jeffrey Zhang, Csaba Mate, Hooman Bidgoli

IETF 118, Prague

Participants

- FreeRtr (Csaba Mate, remote)
 - FreeRtr control plane plus software-based forwarding
- Juniper (Jeffrey Zhang)
 - Virtualized PTX platform with Express 5 ASIC (vBX)
- Nokia (Hooman Bidgoli)
 - SR-1
- Ice Wijnands

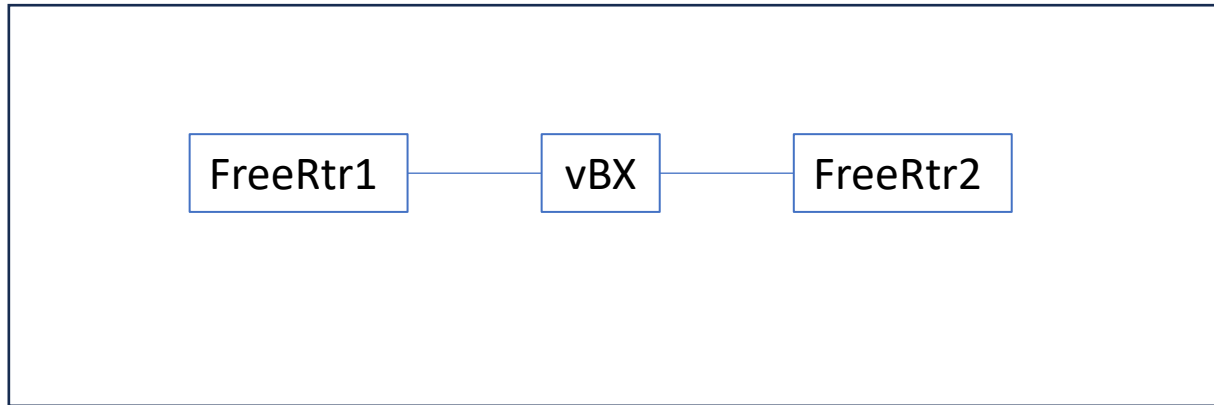
Setup #1



Configuration

- MPLS encapsulation, BitStringLength 256, Number-of-Sets 4
- ISIS single level, subdomain 0 and 10
- MVPN overlay on PE1/PE2
 - Aggregation labels
 - all VRFs of a VPN use the same label from the default label space
 - Vs. Upstream-assigned Labels in RFC8556
 - draft-ietf-bess-mvpn-evpn-aggregation-label (RFC editor's queue)
 - Inclusive tunnel (only one bit in the bitstring)
 - Selective tunnel tested (but not here)
 - Static BFERs added to the tunnel to allow more bits to be set

Setup #2



Linux Server @ Csaba's Home

PIM as Flow Overlay

Testing Performed

- ISIS signaling
- MVPN & PIM as overlay signaling
- BIER forwarding
 - PE2 → FreeRtr → PE1, subdomain 10
 - PE2 → NSR-1 → PE1, subdomain 10
 - FreeRtr1 → vBX → FreeRtr2, subdomain 0
- All worked well
 - After some fixes

Challenges

- Many have noticed the stress I had ...
- Most challenges come from the virtual testing environment
 - 8 VMs running on an Ubuntu laptop
 - Very slow to bring up VMs and connections
 - I am new to virtualization and FreeRtr
 - Thanks Csaba and others for helping me out!
 - Bug fixes were quick and easy, but it took a while to get the fixes built/loaded
- Most progress was after the hackathon after we ironed out the kinks



11:55





Next Steps

- We only did some simple/informal interop testing
 - This is not intended as a testing event for robustness
- A more formal and more comprehensive interop testing is being ***considered*** in [EANTC](#)
 - More vendors are welcome!
 - Results would be presented in [MPLS World Congress](#)
- The industry now has BIER hardware capability across access/edge/aggregation/core from multiple vendors
 - Pioneering vendors and operators will break the chick-and-egg dilemma