

BIER Use case

draft-kumar-bier-use-cases

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Use cases

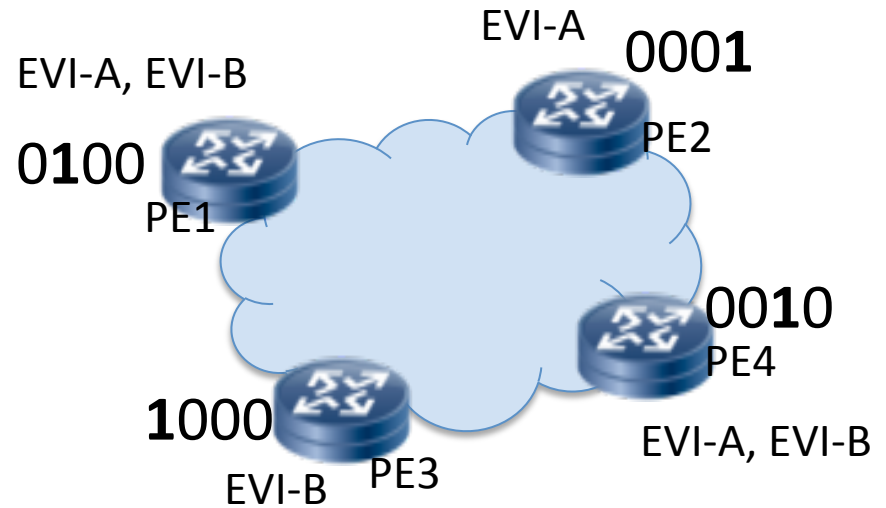
- Multicast VPN
- BUM in EVPN
- IPTV Services and OTT
- Multi-Service, Converged L3VPN network
- Control Plane Simplification
- Virtualized Data center
- Financial Services

New Use cases added in -01 and -02 versions, new co-authors

Multicast in L3VPN

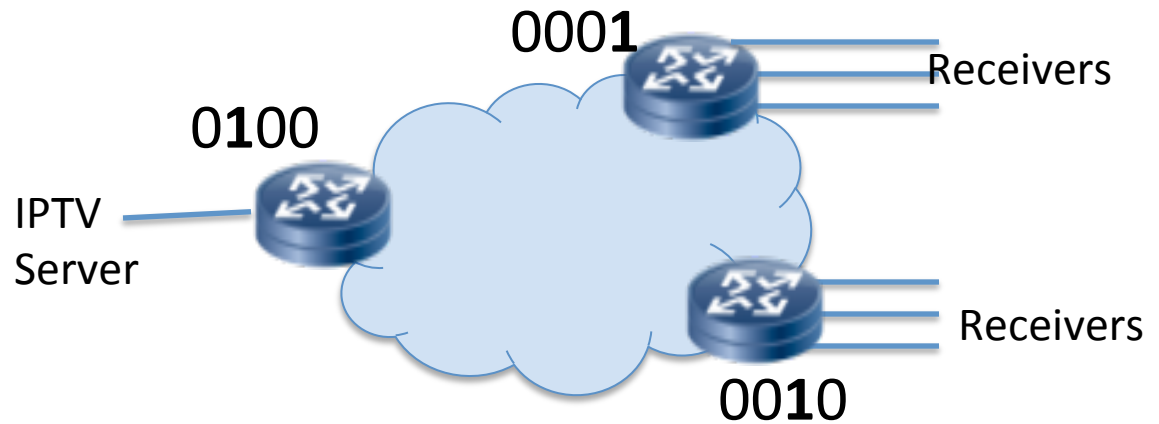
- Different MVPN profiles with a trade-off between Optimality and Scalability.
 - Optimal forwarding needs more state entries (Ex:S-PMSI)
 - Less state entries causes multicast delivered to unintended egress Pes (Ex:I-PMSI)
- BIER helps to balance it by providing optimal forwarding with minimal state entry

BUM in EVPN – with BIER



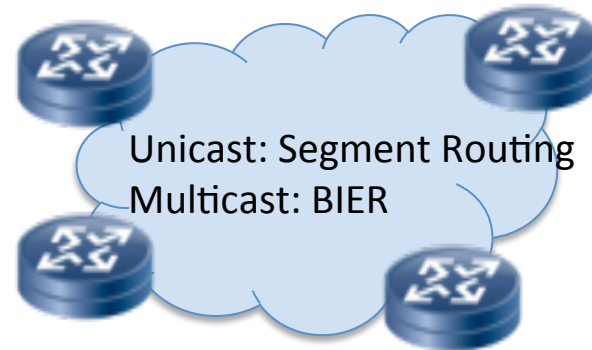
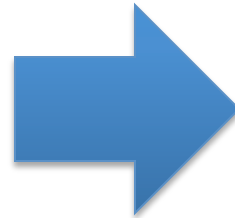
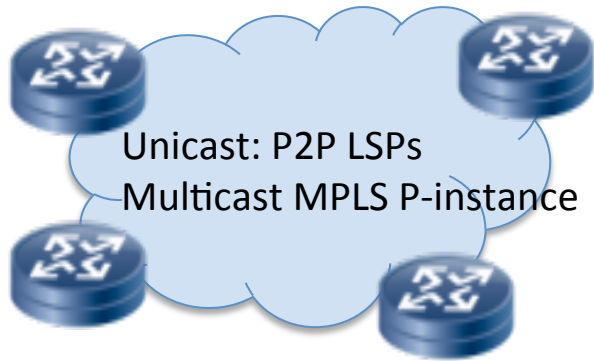
- A single unique Bit Position for each PE nodes – irrespective of number of EVI.
- No per flow/VPN state entries in core.
- Optimal forwarding by following unicast path.
- Right balance between Optimality and Scalability.

IPTV – with BIER



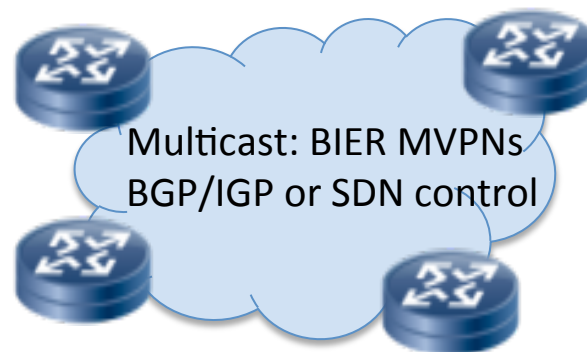
- Provisional simplification
 - ‘Channel to receiver set’ mapping on Ingress node.
 - No changes on egress nodes.
- No per channel/group state entries in core.

Control Plane Simplification



- MPLS Network
 - Core or access use cases
 - MPLS control plane used in P-instance
 - Objective: remove MPLS control plane
- MPLS data plane only
 - Unicast: Segment Routing allows MPLS-less control plane
 - Multicast – BIER
 - Removes need for control plane
 - Allows, if desired, full SDN control (up to programming of BIER forwarding tables)

Multi-service, converged MVPNs



- Single network for retail, wholesale IPTV, IPVPNs, but
 - Existing deployment example single MVPN IPTV
 - 400+ PEs, 2000 channels, Redundant Source PEs
 - Over 2.4 M BGP MVPN routes
- Mix of P2MP and MP2MP MVPNs in a network
 - Use P2MP LSPs for both MVPN types
 - Increased complexity as mesh needed for P2MP (can become an issue with many MVPNs/sites)
 - Use MP2MP LSPs for both MVPN types
 - “Overkill” for P2MP MVPNs
 - Limited industry support: vendors, no RSVP-TE
 - Use mix as required y MVPN type
 - Ideal but doubles operational complexity

P2MP and MP2MP MVPNs in a network using single technology

- BIER
 - Same paradigm, same operations, same technology for both P2MP and MP2MP MVPNs

Financial Services

- Requirement
 - Optimal latency Path
 - Deterministic Convergence and traffic redirection
- BIER helps to achieve it by following unicast path.

Thank you!

Questions/Comments?