

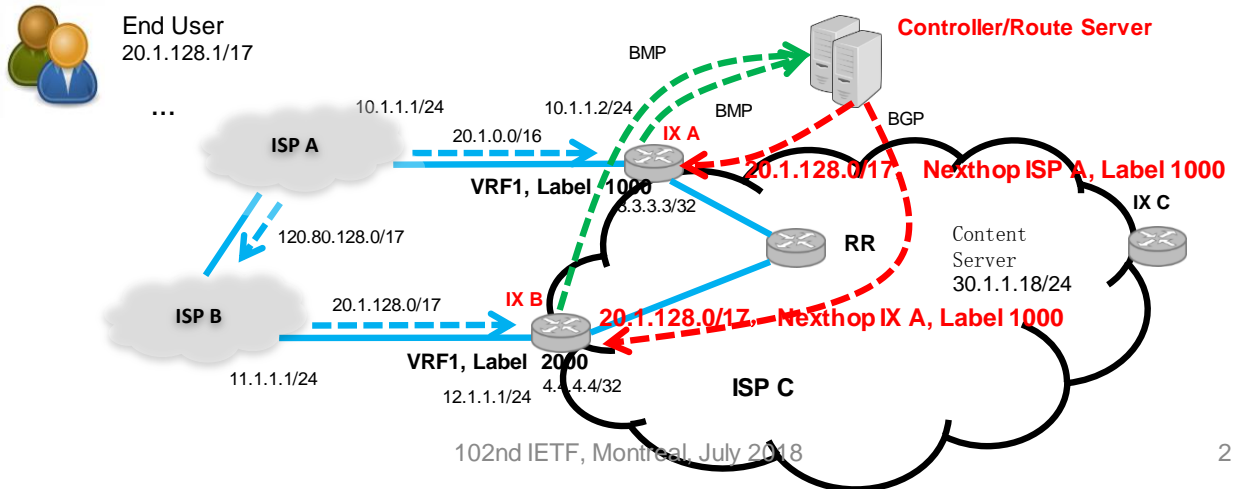
VPN Label Monitoring Using BMP

[draft-gu-grow-bmp-vpn-label-00](#)

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Use Case

- ❑ For traffic optimization, in the multi-exit network scenario, operator inserts explicit route(s) into the network gateways (i.e., IX A, IX B) to steer the traffic.
- ❑ In the MPLS VPN case, the VPN label needs to be included in the explicit route so that the gateway can correlate the route with the responsible VRF.
- ❑ PE: IX A, IX B, IX C
- ❑ CE: devices from ISP A and ISP B



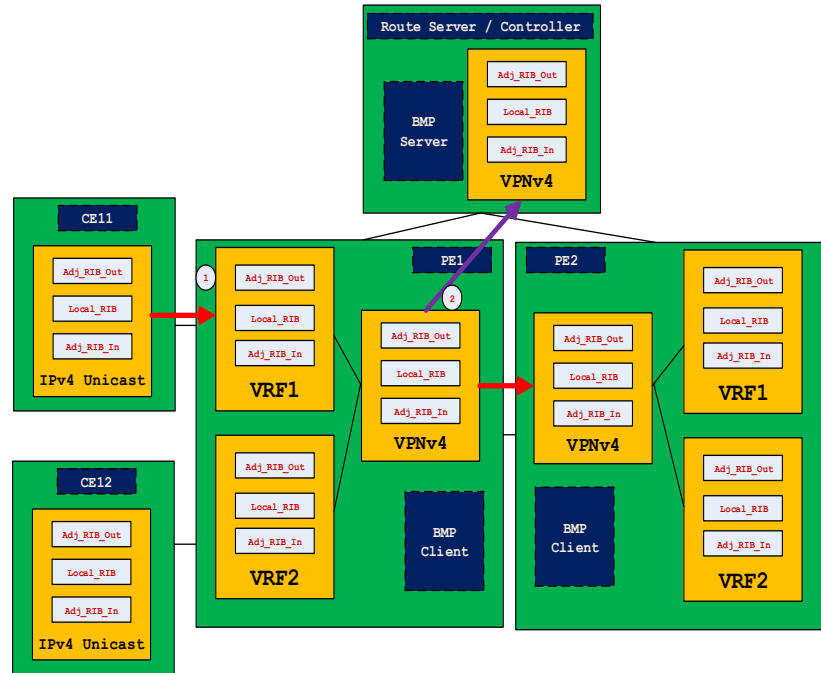
Current Approach of Collecting VPN Labels

□ Steps:

- ✓ Setting up VPNv4/6 peering relationship between the router server and the PE routers;
- ✓ The route server receives VPNv4/6 routes from PE routers, and then extracts VPN Label from the VPNv4/6 routes;

□ Issues:

- ✓ Inefficient processing of VPN routes in the server;
- ✓ No usage of VPN routes other than extracting the label, extra bandwidth consumption of VPN routes collection



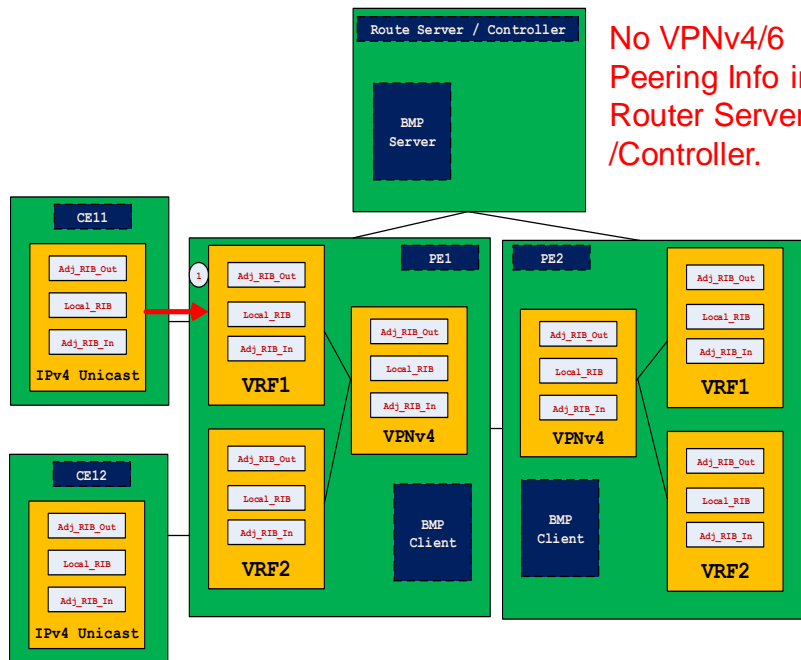
Solutions Options Using BMP

□ Solution 1:

- ✓ BMP server Monitors BGP session between PE and CE;
- ✓ Problem:
 - ✓ The peer between PE and CE is a "RD Instance Peer", and there is no VPN label information for this peer in the BMP messages.

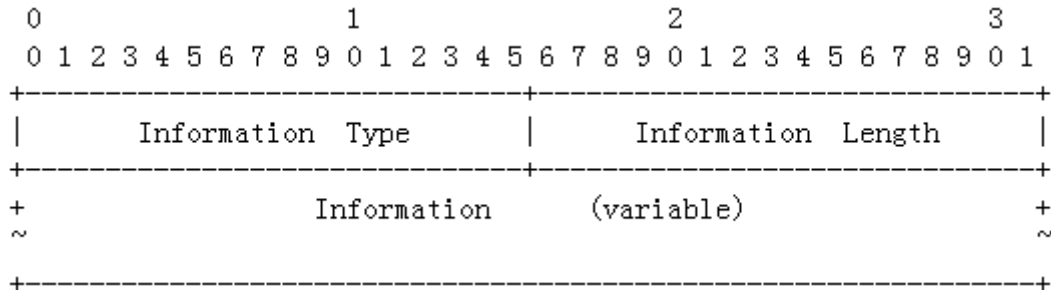
□ Solution 2:

- ✓ Get VPN Label from Peer Up Notification Message and/or Route Monitoring Message.
- ✓ Advantage over existing approach:
 - ✓ No extra work of label extracting from VPN routes, more efficient
 - ✓ Saves network bandwidth



Extension of BMP Peer Up Message

- ❑ The Peer Up Notification of BMP, defined in [RFC7854], is used to indicate the come-up of a peering session.
- ❑ The VPN route label can be carried in Peer Up Notification message and reported to the BMP monitoring station in the TLV format.



- Type = TBD1: VPN Label, allocated per VRF per label.
- Type = TBD2: VPN Label, allocated per interface per label.
- Type = TBD4: VPN Label, allocated per next hop per label.

Benefit

- ❑ Reduce amount of label reports (per label per instance)
- ❑ Eliminate the process of label stripping step, improve routing process efficiency
- ❑ Avoid errors caused by effective label monitoring

Next Steps

- ❑ Close the existing comments
- ❑ Solicit more comments, feedback from WG

Thank you !