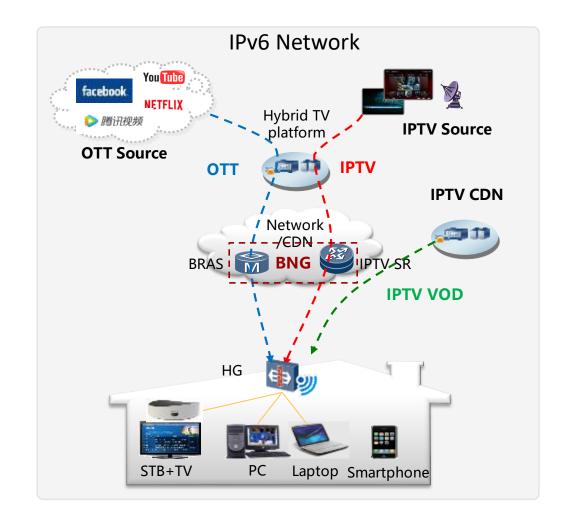
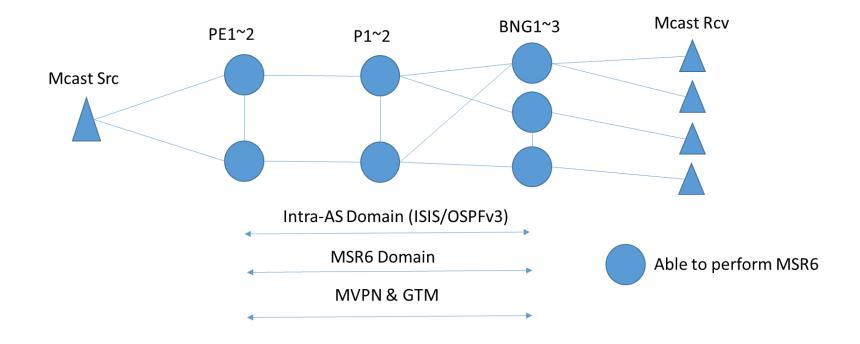
Basic Use Case and Potential Solutions for Multicast Segment Routing IPv6 (MSR6)

Basic Use Case for MSR6

- Traditional multicast services, e.g., IPTV, the following 4 scenarios should be considered in an IPv6 network:
 - Intra-AS deployment with all nodes supporting MSR6
 - Intra-AS deployment with some intermediate nodes not supporting MSR6
 - Intra-AS deployment with some edge nodes not supporting MSR6
 - Inter-AS deployment
- Potential multicast use case for live video, e.g., Live
 Sports Events in IPv6 network
 - Multicast source is not static and the location of the source depends on the requirement

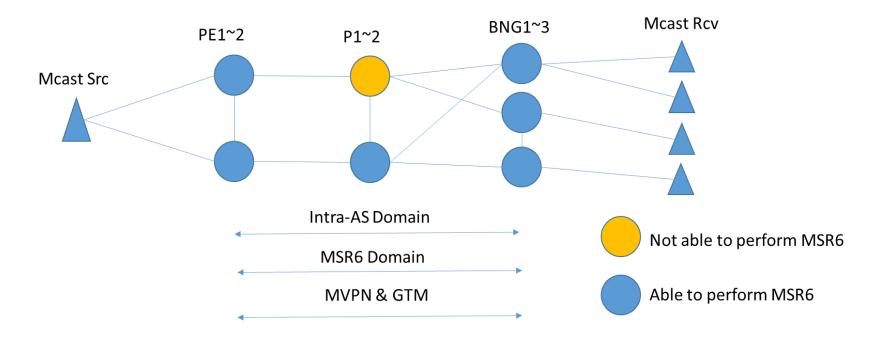


Use Case 1: Intra-AS deployment case



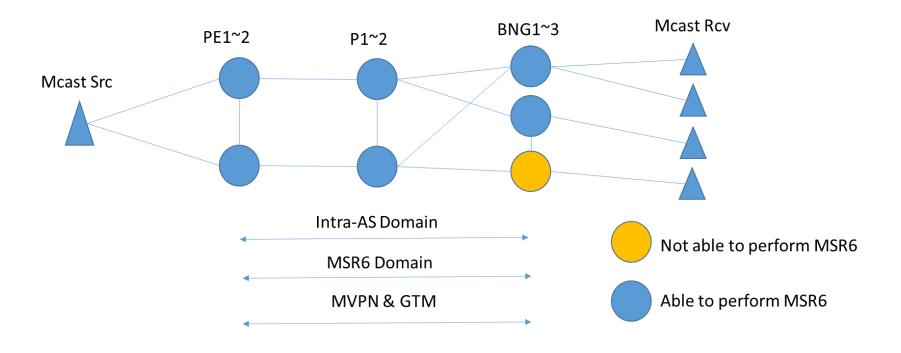
- Case-1: MSR6 Intra-AS deployment
 - Deploy MSR6 in the same AS domain
 - MVPN is used to provide service isolation among different multicast service
 - All the nodes in the network could support MSR6

Use Case 2: Intra-AS deployment case



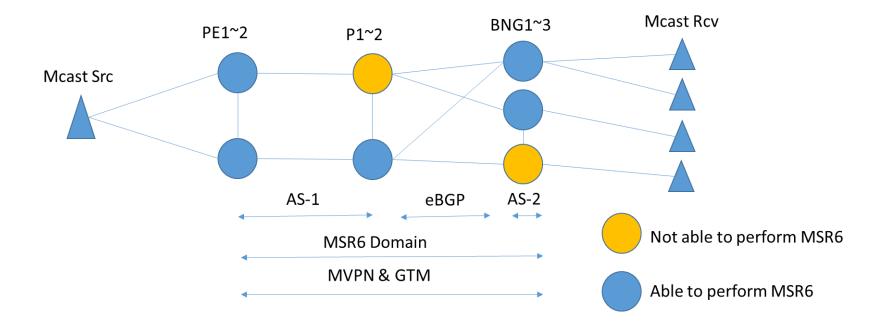
- Case-2: MSR6 Intra-AS deployment, with intermediate nodes not able to perform MSR6.
 - Deploy MSR6 in the same AS domain
 - MVPN is used to provide service isolation among different multicast service
 - Not all nodes could be are upgraded

Use Case 3: Intra-AS deployment case



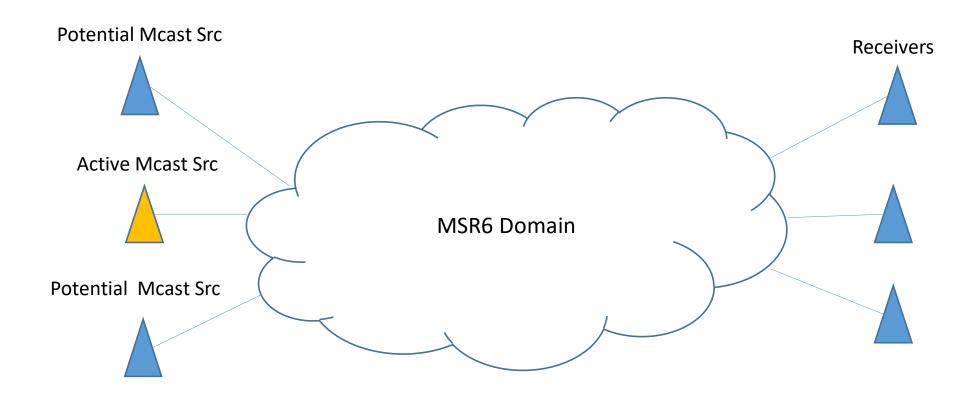
- Case-3: MSR6 Intra-AS deployment, with some Edge/Bud nodes not able to perform MSR6.
 - Deploy MSR6 in the same AS domain
 - MVPN is used to provide service isolation among different multicast service
 - Some of the edge nodes could belong to different company or can't be upgraded

Use Case 4: Inter-AS deployment case



- Case-4: MSR6 Inter-AS deployment, with Intermediate + Edge/Bud nodes not able to perform MSR6.
 - Deploy MSR6 in inter AS domains, e.g., some large province in China
 - MVPN is used to provide service isolation among different multicast service
 - Some of the intermediate or edge nodes could belong to different company or can't be upgraded

Use Case 5: Potential multicast use case for live video



- Case-5: MSR6 Inter/Intra-AS/ deployment, with non-static multicast source.
 - Deploy MSR6 in inter/Intra AS domains;
 - The source is non-static, so the ingress is supposed to program the packet based on requirement with source routing;

MSR6 BE Solution Proposal PE2 id=2 IPv4/6 Hdr **IPv6 BIER Domain** SA:X,DA:mcastX payload PE₁ Multicast PE3 source IPv4/6 Hdr: id=3SA: X. DA: mcastX Payload IPv6 Hdr(Outer): IPv6 Hdr(Outer): \rightarrow IPv6 SA=PE1, SA: PE1 (Src.DTx), SA: PE1 (Src.DTx), IPv6 Header DA: P (End.RGB) DA: PE2/PE3 (End.RGB) VPN or public network multicast service with Scr.DTx RGB Dest Opt Hdr: Dest Opt Hdr: BIER Info: 0110 BIER Info: 0010/0100 IPv6 unicast In IPv6 DoH Indicate next MSR6 Replication **Endpoint** IPv4/6 Hdr(inner): IPv4/6 Hdr(inner): SA: X, DA: mcastX SA: X, DA: mcastX Public or private IPv4/6 **RGB DoH Option** Payload Payload multicast packets BIER Forwarding may be used

- MSR6 Source Node encapsulates IPv6 packet headers with RGB(Replication through Global Bitstring) DoH Option.
- MSR6 Replication Endpoint forwards the packet to the next-hop Replication Endpoint based on End. RGB.
- MSR6 leaf node decapsulates the outer IPv6 header, and forwards the original packet to the user based on Scr. DTx.

Thank you