BGP EVPN Route Types

To share routing information with its peers, BGP uses update packets. Routes with the same path attributes are placed in the Network Layer Reachability Information (NLRI) of the update packet and advertised. Since traditional BGP-4 only supports IPv4 unicast routing information, Multiprotocol Extensions for BGP (MP-BGP) was developed to provide additional support for network layer protocols such as multicast and IPv6. MP-BGP extensions are added to the NLRI after which description for different protocols like IPv6 unicast and VPN instance family are subsequently added.

EVPN defines the EVPN sub-address family in the L2VPN address family with the introduction of EVPN NLRI. Once the routes are advertised, VXLAN tunnels are automatically established to carry packets. EVPN NLRI has the following EVPN route types:

- **Type-1, Ethernet Auto-Discovery routes:** are used for network wide messaging. The Ethernet auto discovery routes are used when a customer edge (CE) device is multi-homed. In case when a CE device is single-homed, the Ethernet Subnet Identifier (ESI) is zero. Type-1 routes are advertised on per ESI and per EVI basis and used to achieve fast convergence.
- **Type-2, MAC with IP advertisement routes:** are used to advertise the MAC and IP addresses of hosts.
- **Type-3, Inclusive Multicast routes:** are used for the automatic discovery of VTEPs and dynamically establishing VXLAN tunnels.
- **Type-4, Ethernet Segment Routes:** are needed in multi-homing scenarios and used for Designated Forwarder Election. Designated Forwarder is responsible for sending broadcast, unknown unicast and multicast (BUM) traffic to the CE on an Ethernet Segment.
- **Type-5, IP Prefix route:** provides encoding for inter-subnet forwarding. These routes are used for advertising IP prefixes for connectivity between different subnets across the enterprise.

PICOS only supports Type-2, Type-3 and Type-5 routes for now.

Note

EVPN feature is currently supported on X86 platforms only.