DHCP Options for Configuring Multicast Addresses in VXLAN

draft-sarikaya-dhc-vxlan-multicast-02
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Problem 1: multi-tenancy requires independent address spaces

• VXLAN provides overlayed virtual networks for each tenant.

• Normally, a VM configures its IP address through DHCPv4/DHCPv6

• It is possible for a VM to be configured the same IPv4/IPv6 address as another VM belonging to a different tenant.
Problem 2: Rendezvous Point (RP) address is needed for a VTEP to send IPv4/IPv6 multicast packets

- VXLAN uses IPv4/IPv6 multicast mechanism to convey Ethernet MAC broadcast/multicast traffic.

- When a VTEP intercepts an ARP with broadcast destination MAC address, the VTEP needs to send the packet to a router or switch acting as IP multicast Rendezvous Point.

- The VTEP needs to know the IP address of Rendezvous Point.
Problem 3: A VTEP needs to join some IPv4/IPv6 multicast groups

- In order to receive IPv4/IPv6 multicast packets, a VTEP needs to join a multicast group for each VNI (VXLAN Network Identifier)
- A VTEP needs to know **IP multicast address for each VNI**
Solution 1: VNI DHCP/DHCPv6 option for multi-tenancy address acquisition

VNI DHCP Option format

VNI DHCPv6 Option format
Solution 2: IPv4/IPv6 Rendezvous Point (RP) Option for DHCP/DHCPv6

IPv4 Rendezvous Point Address Option Format

IPv6 Rendezvous Point Address Option Format
Solution 3: IPv4/IPv6 Multicast Address Option for DHCP/DHCPv6

IPv4 Multicast Address Option Format

IPv6 Multicast Address Option Format
Please comment and help us improve the draft
Thank you