Network Working Group                        IJsbrand Wijnands
Internet Draft                                  Gargi Nalawade
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                    MT Tunnel Discovery and RPF check
                    draft-wijnands-mt-discovery-01.txt

Abstract


   This document describes a way to dynamically learn the headend  point
   of  a  Multicast Tunnel (MT) and how to do a successful  RPF  check
   on  the  MT  using  a  VPNv4  prefix reachable  over  that  MT.  This
   is complementary to [ROSEN- MCAST]

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**2**. **Copyright Notice**

**3**. **Introduction**

   Multicast Tunnels  are  built  between  Provider  Edge  (PE) routers
   to  allow multicast communication between different site's of a VPN.
   The MT tunnel has a destination  MDT  group address  that  is unique
   to the VPN. All routers that act as PE's and are configured for a

specific VPN join the VPN  MDT multicast  group  in the backbone of
   the provider network to be able to receive each others packets. Each

router is  also a  sender  to  the  MDT group. How the forwarding of
the MDT packets is achieved is depending on the PIM mode of the  MDT
group.  This can be either PIM-Bidir, PIM-SM or PIM SSM. The proposal
in this document is related specifically to PIM SSM mode.

An MT tunnel is setup between the PEs in one  or  more  VPN-
Providers  networks.   Over  the  MT  tunnel  we  create PIM
neighbor's. The IP address of the PIM neighbor that  we  see over
the MT tunnel depends on the configured address of the Tunnel
endpoint. This can either be  an  unnumbered  address from  a
different  interface or a configured address on the Tunnel itself.
The PE router that does an RPF check on a VPN source  can  find which
Tunnel the source is on, but may not know what PIM neighbor to target
on that tunnel.   Therefore we  need  a  way  to connect the BGP
VPNv4 prefix to the PIM neighbor on the tunnel to allow the RPF check
to succeed.


**4. MT Tunnel discovery for SSM**

PIM SSM does not have a mechanism to learn the source  to  a
multicast group using PIM like in Sparse Mode. The signaling of the
source is done via an out-of-band mechanism. To allow SSM  mode  for
building the MT Tunnel we need an out-of-band mechanism to learn the
source of the MT  Tunnel  so  we  can join directly to it using PIM
SSM.

[BGP-MDT] defines a new AFI/SAFI  to  carry  the  MT  Tunnel endpoint
information.   This AFI/SAFI carries the source of the MT tunnel, the
MDT group and the RD  for  that  specific VPN.

**5. Originating PE's address for RPF**

Suppose we want to join to a source that is  behind  another VPN
site.  We do an RPF lookup on the source address in the VPNv4 unicast
table on this PE. The RPF lookup will return a connected next-hop and
interface to use to reach the source.  The returned next-hop may not
be  the  neighbor  on  the  MT tunnel.  This  can be due to the
next-hop being rewritten by BGP Route Reflectors (RR) or  crossing
AS's.  Therefore  we don't know which PIM neighbor to target as
upstream neighbor in the PIM join.

[BGP-MDT] defines a new attribute called the  BGP  Connector
attribute.  This  document  proposes sending the Originating PE's IP
address as the value field when  the  BGP  Connector attribute
contains AFI/SAFI IPv4-MDT. This is the MT Tunnel IP address that is
used to establish the PIM neighborship on the  MT  tunnel.  This
attribute is attached to all the BGP VPNv4 prefixes used for
multicast. The PE  router  that  was able  to successfully RPF on a

BGP VPNv4 prefix will use the IP address learned from the connected
   attribute to find  the PIM neighbor on the MT tunnel.

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## 8. Normative References

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## 9. Author's Addresses

Gargi Nalawade
Cisco Systems, Inc.
170 Tasman Drive
San Jose, CA, 95134
E-mail: gargi@cisco.com

IJsbrand Wijnands
Cisco Systems, Inc.
170 Tasman Drive

San Jose, CA, 95134
       E-mail: ice@cisco.com

**10. Full Copyright Statement**

**11. Expiration Date**

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