L2TP-VP: Layer Two Tunneling Protocol - Virtualization Profile
draft-fan-l2tp-vp-00

Duoliang Fan, Liang Xia, Zhen Cao,
Namgon Kim

November 2013  Vancouver Canada
Motivation

• A simple, enhanced IP-based multi-tenant tunneling technology aim for balancing technology evolution and reuse of existed resource, i.e. protocol and devices

• Try to focus on changing the network side, i.e. router or switch, to be transparent to client/server and alleviate their complexity

• Can support multiple services (e.g., PPP, Ethernet, Frame Relay, etc) over it
Overall consideration

• Complicated control signal: Do not need!

• Data plane: Comply with NVO3 DP requirements completely

• Security: Introducing security mechanism via inheriting L2TPv3[RFC3931] cookie mechanism

• Backward compatibility: Need to co-exist with L2TPv3 and OSS well
Frame format

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

Outer Ethernet Header:
Outer IPv4 Header:
L2TP-VP Header:

<table>
<thead>
<tr>
<th></th>
<th>Reserved#0</th>
<th>Type (e.g., ATM, Ethernet, IPv4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant Network Identifier (TNI)</td>
<td>Reserved#1</td>
<td></td>
</tr>
<tr>
<td>Cookie (optional)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Inner Ethernet Header:
Original Ethernet Payload:
Data plane

- Address learning: Through management plane, data plane flooding, or multicast support of underlay network

- BUM traffic: Multicast support of underlay network, or ingress replication

- QoS: May support CoS mapping between different network layers, and overlay network QoS by using overlay hearer

- ECMP: May support underlay and overlay network ECMP
Next Step

• Comments and suggestions?

• Cooperating with interested person for further work!
Thanks!

Liang Xia