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

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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 |
|--------|---|
| | 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-V | P Header: |
| | +- |
| | Reserved#0 Type (e.g., ATM, Ethernet, IPv4) |
| | +- |
| | Tenant Network Identifier (TNI) Reserved#1 |
| | +- |
| | Cookie (optional) |
| | +- |
| Inner | Ethernet Header: |
| Origin | al 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!

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