NVO3 introduction and VDP new requirements

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**Network Virtualization Overlays**

- **Target**: Support for multi-tenancy, with reqs:
  - Traffic isolation
  - Address independence
  - Support the placement and migration of VMs

- **Basic idea**:
  - Creating overlay by assigning a global unique VN Name and VNID for each overlay network (DCVPN)
  - Deploy a Network Virtualization Edge (VPNGW) at edge of the overlay network
  - VNID is indicated in tunnel encapsulation.
Example Framework - NVE on ToR SW

**Basic Reqs** on TES-NVE protocol:
- Membership of which VNI (VSIID/or add a VN Name field)
- VM connectivity (Associate, De-associate, S-bit, M-bit)

**Optional Reqs**
- Inner address and local VID (Filter info), only useful while network between TES and NVE is L2

**VDP is valid in L2 case**

NVE: Network Virtualization Edge
VAP: Virtual Access Point
VNI: Virtual Network Instance

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**Example Diagram**

- L3 Network
- Tunnel Overlay
- Overlay Module
- VN Context
- VNI: Virtual Network Instance
- VAPs: Virtual Access Points
- Tenant Service IF
- Tenant End Systems

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**Overview**

- NVE1
- NVE2

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**Technical Details**

- Protocol interactions between TES and NVE
- Overlays and tunnels for virtual networks
- Membership and connectivity management
More Cases

- **L3 case**: NVE is on a router, i.e. L3 connection between TES and NVE
- **Indirect L2/L3 case**: NVE is on SW/Router9316503 but there are other devices between TES and NVE, e.g. bridge
L3 case

- Special Reqs to VDP
  - No Filter infor (MAC/VLAN) is needed
  - VDP need to be carried on protocol supported by router:
    - Either enable router to support ECP
    - Or enable VDP to be carried in another protocol, and Hypervisor need to support that protocol too
    - Will this also require CDCP be supported by router?
Indirect L2/L3 case

- Special Reqs on VDP
  - VDP should traverse more than bridges
    - Maybe use the intermediate bridges as relay?
    - Or update VDP to transmit to non-adjacent bridge?
Can we do something in DCB?