Base YANG Data Model for NVO3 Protocols

Draft-zhang-nvo3-yang-cfg-06.txt

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Motivation of the draft

- Related works of Network Virtualization Overlay
  - Data plane: VXLAN (RFC7348), NVGRE (RFC7637), GENEVE (RFC soon), VXLAN-GPE (in progress),…
  - Control plane: RFC8365, draft-boutros-bess-evpn-geneve, …
  - YANG: Not standardized yet
- Why a **base** NVO3 YANG?
  - Several encapsulations and VPN technologies exist, to avoid repetitive works and non-consistent approaches, a common and reusable YANG should be defined
  - A start point for incremental work to fit a specific technology: augment the base YANG when necessary
- References
  - NVO3 RFCs: Framework (RFC7365), Architecture (RFC8014)
  - Related RFCs and works in progress in IETF

NVE as an interface

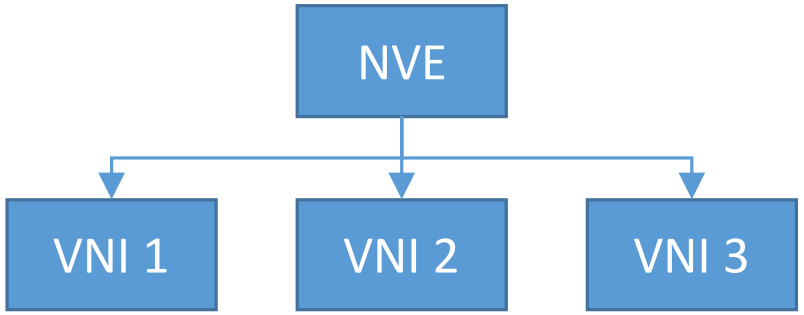
- Previous version 05: NVE as a container
- Augmenting the IETF interface YANG

Address of the anycast gateway

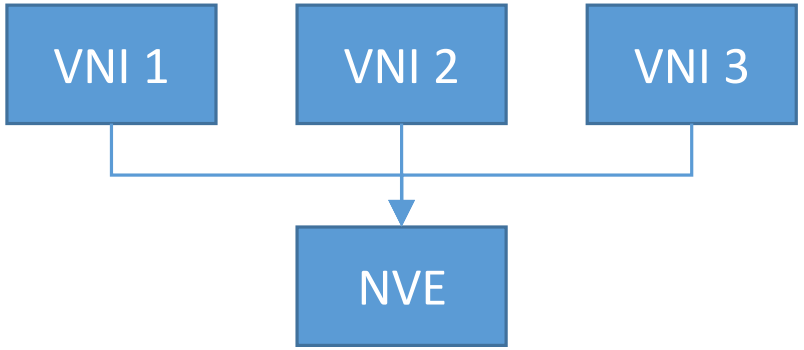
Unique identifier of the NVE in the anycast gateway

```
augment /if:interfaces/if:interface:
  +--rw nvo3-nve
  |  +--rw nvo3-config
  |     +--rw source-vtep-ip?      inet:ipv4-address-no-zone
  |     +--rw source-vtep-ipv6?    inet:ipv6-address-no-zone
  |     +--rw bypass-vtep-ip?      inet:ipv4-address-no-zone
  |     +--rw statistics
  |        +--rw statistic* [vni-id mode peer-ip direction]
  |           +--rw vni-id         uint32
  |           +--rw mode           vni-type
  |           +--rw peer-ip        inet:ipv4-address-no-zone
  |           +--rw direction      direction-type
  |           +--ro info
  |
  +--rw nvo3-gateway
     +--rw nvo3-gateway
        +--rw vxlan-anycast-gateway?   boolean
```

Before: The NVE contains several VNIs



Now: Several VNI are mapped to the same NVE



Base NVO3 YANG mapped to the Architecture

```
module: ietf-nvo3
  +--rw nvo3
     +--rw vni-instances
        +--rw vni-instance* [vni-id]
           +--rw vni-id                    uint32
           +--rw vni-mode                  enumeration
           +--rw source-nve                if:interface-ref
           +--rw protocol-bgp?             boolean
           +--ro status?                   vni-status-type
           +--rw static-ipv4-peers
           |  +--rw static-peer* [peer-ip]
           |     +--rw peer-ip                    inet:ipv4-address-no-zone
           |     +--rw out-vni-id?                uint32
           +--rw static-ipv6-peers
           |  +--rw static-ipv6-peer* [peer-ip]
           |     +--rw peer-ip     inet:ipv6-address-no-zone
           +--rw flood-proxys
           |  +--rw flood-proxy* [peer-ip]
           |     +--rw peer-ip       inet:ipv4-address-no-zone
           +--rw mcast-groups
           |  +--rw mcast-group* [mcast-ip]
           |     +--rw mcast-ip      inet:ipv4-address-no-zone
           +--rw statistic
```

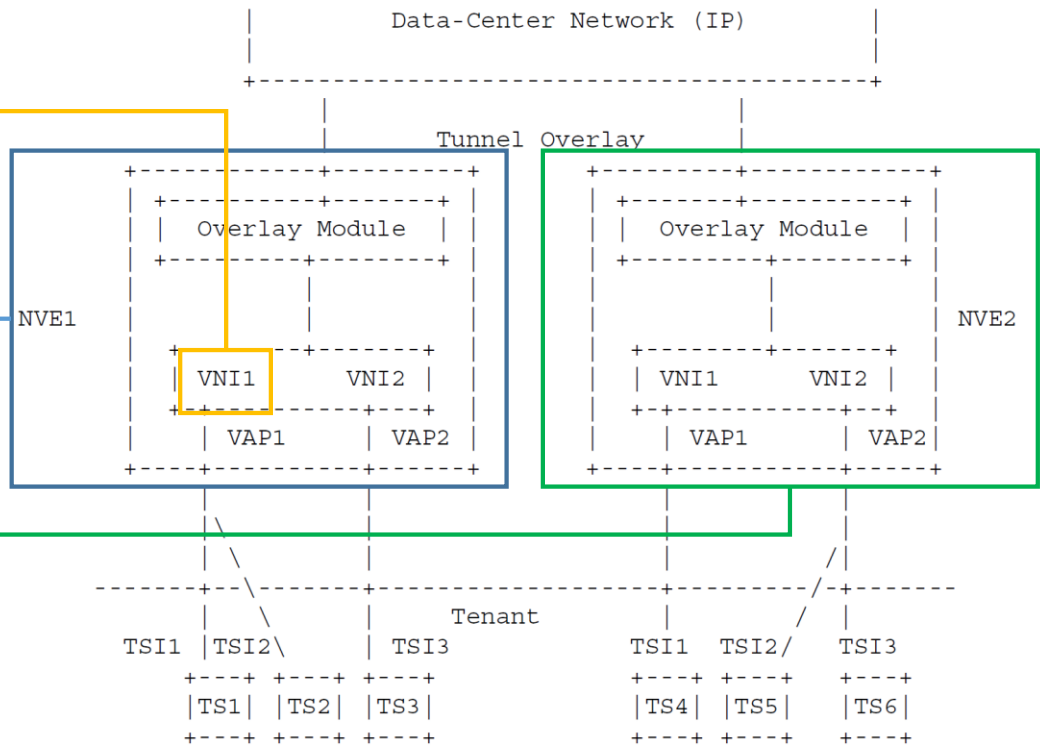
Mapping the vni-instance to NVE interface

BGP control plane enabler per VNI basis

Used for DCI (RFC8365)

Multicast group per VNI basis

Multicast service node (RFC8293)



NVE Reference Model in RFC 8014

VNI mapped to L2VPN & L3VPN

```
augment /ni:network-instances/ni:network-instance/ni:ni-type/l3vpn:l3vpn/l3vpn:l3vpn:
  +--rw vni-lists
     +--rw vni* [vni-id]
        +--rw vni-id    uint32
augment /ni:network-instances/ni:network-instance/ni:ni-type/l2vpn:l2vpn:
  +--rw vni-lists
     +--rw vni* [vni-id]
        +--rw vni-id                uint32
        +--rw split-horizon-mode?   vni-bind-type
        +--rw split-group?           string
```

- Indicating which VNIs are used for L2VPN(MAC_VRF), which VNI is used for L3VPN(IP_VRF)
- Previous version: indicated in the NVE container
- Now: augmenting the IETF L2VPN and L3VPN YANG

Next steps

- Comments are always welcome
- WG adoption?