YANG data model of Control-Plane and User-Plane Separation BNG

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Background-vBNG Control plan and User Plane Separation

Painpoints for tradition BNG

1. Services are **not well balanced** in different parts resulting to different utilization of resources such as sessions and IP addresses.

2. BNG is evaluated by indicators some related with forwarding resources and some related with controlling resources. Both can be the limitation of a BNG device.

3. BNGs are configured on each device. It’s not convenient on management.
vBNG interfaces

Dialup traffic
Service traffic

Cloud BNG-CP

VXLAN: Service interface
Interface is used to establish VXLAN tunnels between CP and UP with PPPoE and IPoE packets transmitting over the VXLAN tunnels

Control interface
CP uses this interface to deliver service entries with IP, QoS, etc, and UP uses this interface to report service events to the CP including traffic statistics.

Management interface
CP uses this interface to deliver configurations to the UP with YANG models to be contributed.

Receive tables, matches rules, performs actions

Manage resources and generate several tables which contains a set of rules according to service requirement
vBNG drafts

Architecture and use case can be referred to:
draft-guvnfrg-cloud-bng-architecture-00

draft-huang-nvo3-vxlan-extension-for-vbras

draft-wcg-i2rs-cu-separation-infor-model
vbng configuration

- vbng is based on LNE
  - vbng-name
  - enable

```text
module: ietf-vbng
  augment /lne:logical-network-elements/lne:logical-network-element:
    +--rw ietf-vbng
      +--rw vbng-name? string
      +--rw enable ? boolean
```
vbng configuration

module: ietf-vbng
    +++rw ietf-vbng
    +++rw vbng-name? string
    +++rw enable? boolean
    +++rw interfaces
        | +++rw interface* [name]
        | | +++rw name if:interface-ref
        | | +++rw ethernet
        | | | +++rw lacp? boolean
        | | +++rw mac-offset? uint32
        | | +++rw vlans
        | ... ...
    +++rw openflow-channel
        | +++rw ofls-name? string
        | +++rw dpid? uint32
        | +++rw of-port? uint32
    +++rw vxlan-channel* [vxlan-tunnel-id]
        | +++rw vxlan-tunnel-id uint32
        | +++rw vxlan-tunnel-name? string
        | +++rw address-family* [af]
        | | +++rw af address-family-type
        | | +++rw tunnel-source-ip? address-family-type
        | | +++rw tunnel-destination-ip? address-family-type
        | | +++rw bind-vxlan-id* [vxlan-id]
        | | | +++rw vxlan-id vxlan-id
    +++ rw acl
        | ... ...
    +++ rw qos
        | ... ...
Comments

• Comments are welcomed.

• Anyone has the interest to work together?
Thank you