YANG Data Model for CU Separated BNG Protocol

draft-hu-rtgwg-cu-separation-yang-model

Author: Fangwei Hu(ZTE)
Rongrong Hua(ZTE)
Shujun Hu(China Mobile)
Rong Gu(China Mobile)
C/U separation vBNG architecture which combined NFV and SDN advantages satisfy the requirements of field network.

The data came form tests and trials of China Mobile.

This document
CUSP YANG Data model Through Im

- The YANG data model through Management Interface for BNG-UP includes: BNG-UP Port, Control interface parameters, service interface parameters, ACL and QoS, etc.

- Data Model through Im
  - BNG-UP port
  - Control interface parameters
  - Service interface parameters
  - ACL
    - (Augment ietf-netmod-acl-model)
  - QoS
    - (Augment asechoud-rtgwg-qos-model)
BNG-UP Port Configuration

• BNG-CP configures BNG-UP port parameters information through the management interface by Netconf protocol

```xml
  +-rw port
    |  +-rw port* [name]
    |     +-rw name     if:interface-ref
    |     +-rw ethernet
    |        |  +-rw lacp?  boolean
    |        +-rw mac-offset?  uint32
    |  +-rw vlans
    |     +-rw tag* [index]
    |        +-rw index  uint8
    |        +-rw tag
    |            +-rw tag-type?  string
    |            +-rw vlan-id?  vlan-id
```
Configure Service Interface Parameters

• VxLAN/VxLAN-GPE protocol is used for the service interface.

• The VxLAN tunnel parameters are configured through management interface for BNG-UP.

```plaintext
  +--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?  inet:ip-address
     |     |  +--rw tunnel-destination-ip?  inet:ip-address
     |  +--rw bind-vxlan-id* [vxlan-id]
        |  +--rw vxlan-id  vxlan-id
```
Configure Control Interface Parameters

- The CUSP parameters for control interface are configured through management interface for BNG-UP. Below is the tree structure.

```
---rw cusp-channel
  |  ---rw address-family* [af]
  |  |  ---rw af address-family-type
  |  |  ---rw control-ip? inet:ip-address
  |  ---rw name? string
  |  ---rw id? uint32
  |  ---rw port? uint32
  ---rw disconnect
      | ---rw (response-delay)?
      |     ---:(nolimitflag)
      |     |  ---rw forever? enumeration
      |     ---:(range)
      |     ---rw delay-time? uint32
```
BNG-CP Configuration

```plaintext
augment /lne:logical-network-elements/lne:logical-network-element:
  +--rw ietf-vbng
    +--rw bng-cp
        |   +--rw bng-cp-name?  string
        |   +--rw enable?     boolean
        .......
    +--rw multicast-service
        |   +--rw multicast-global
        |   |   +--rw keepalive-timer?  enumeration
        |   |   +--rw query-interval?  uint16
        |   +--rw igmp-service-profile
        |       +--rw igmp-service-profile* [service-profile-num]
        |         .......
        |   +--rw mld-service-profile
        |       .......
    +--rw bng-pppox
        +--rw pppox-ipv6cp-cfg
        .......
        +--rw pppox-ipcp-cfg
        .......
        +--rw pppoe-cfg* [template]
```
BNG-UP Configuration

```plaintext
+-rw bng-up!
  |   +-rw bng-up* [shelf-no]
  |     |   +-rw shelf-no   uint8
  |     |   +-rw bng-up-name? string
  |     |   +-rw netconf-server!
  |     |     |   +-rw ip             inet:ipv4-address
  |     |     |   +-rw user-name?    string
  |     |     |   +-rw password?     string
  |     |     |   +-rw port?         uint32
  |     |   +-rw keepalive-sink? enumeration
```
Security Consideration and IANA Updated

➢ The Security and IANA consideration section is updated based on T. Petch’s comments (Thanks, ^_^).

➢ Rich the Security consideration based on

➢ Add the IANA consideration part to register the vbng yang model.
Next Steps:

- More comments for CUSP YANG data model?
- Continue to rich the document based on comments and implementation
Thank you