CU separated BNG

draft-cuspdt-rtgwg-cu-separation-bng-architecture
draft-cuspdt-rtgwg-cu-separation-bng-protocol

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Architecture of CU Separation BNG

• Draft: draft-cuspdt-rtgwg-cu-separation-bng-architecture

• Motivation & Objective
  • Provide a document to present the basic idea of CU Separation BNG;
  • Describe the functions and requirements of different interfaces of CU Separation BNG;
  • Help the reader to understand the relationship of a bunch of CUSP related documents;
  • Not have strong opinion to standardize this document;
    • The architecture of CU separation BNG has been published (BBF RT-384)
CUSP Architecture Overview

**Vxlan interface**
- Which be used to transmit dialup packets (i.e. PPPoE or IPoE).
- Related draft: draft-hu-nvo3-vxlan-gpe-extension-for-vbng

**Control interface**
- The CP uses this interface to send service entries to UPs; and the UP uses this interface to report resources & events to the CP.
- Related draft:
  - Requirements: draft-hu-rtgwg-cu-separation-yang-model
  - Protocol: draft-cuspdt-rtgwg-cu-separation-bng-protocol
  - Information model: draft-cuspdt-rtgwg-cu-separation-infor-model

**Configuration interface**
- Can be used to configure the CP & UPs.
- Related draft: draft-hu-rtgwg-cu-separation-yang-model
CUSP Architecture : Usage Example

User Control Traffic:  ———
Dialup Traffic:  ———

Process:
1. Configure the CP & UPs via netconf/yang;
2. If a user request to access in, the User Plane sent the dialup packet to Control Plane via VXLAN tunnel;
3. Control Plane accept this packet to process the user authentication;
4. Control Plane dynamic distribute the User-information, User’s IP address and other policies such as QoS to User Planes via CUSP;
5. The User Plane forward the dialup packet base on the rules which received from Control Plane.
CU Separation BNG control channel Protocol (CUSP)

• Draft: draft-cuspdt-rtgwg-cu-separation-bng-protocol

• Motivation & Objective:
  • Design a lightweight protocol to support the CU Separation BNG’s control channel
  • Meet the operator’s implement requirements.
  • Helps to achieve the interworking of different vendor’s devices.
CUSP: Encapsulation Format Overview

CUSP common header

CUSP TLV Format

A simplest protocol! Lightweight but efficiency!
CUSP : Usage Example - User dialup

Step 1: session establish
- UP report the available resources via CUSP.
- Configure BNG access interface via netconf.
- CP send access-if-info to UPs via CUSP.

Step 2:
- UP report available resource;
- Configure BNG access interface;
- CP sends the Access Interface Information message to UPs that contains a variety of objects that specify the set of constrains and attributes for the BNG access interface.

Step 3:
- When a user dialup via VXLAN,
- The CP sends several message to UPs that contains a variety of objects that specify the attributes for the user’s basic information, user’s ipv4 information, and routing information. This can distribute users equally to UP devices.
- The UPs reports the user’s traffic status via USER_TRAFFIC_INFO message.
Hackathon

• Goal: To verify the validity and performance of CUSP

• Result: Hack two benchmarks:
  • Control Plane communicate with User Planes via CUSP;
  • Control Plane centralized manage the UP resource;
    • Dynamic assign the IP address field to UPs.

• More details please review “appendix-Hackathon” of this slides and links:
Next Steps:

• **Documents update:**
  - The authors appreciate thoughts, feedback, and text on the content of the documents.
  - And then prepare another version.
Thank you
The user successful access in, and traffic are forwarded without packet loss.