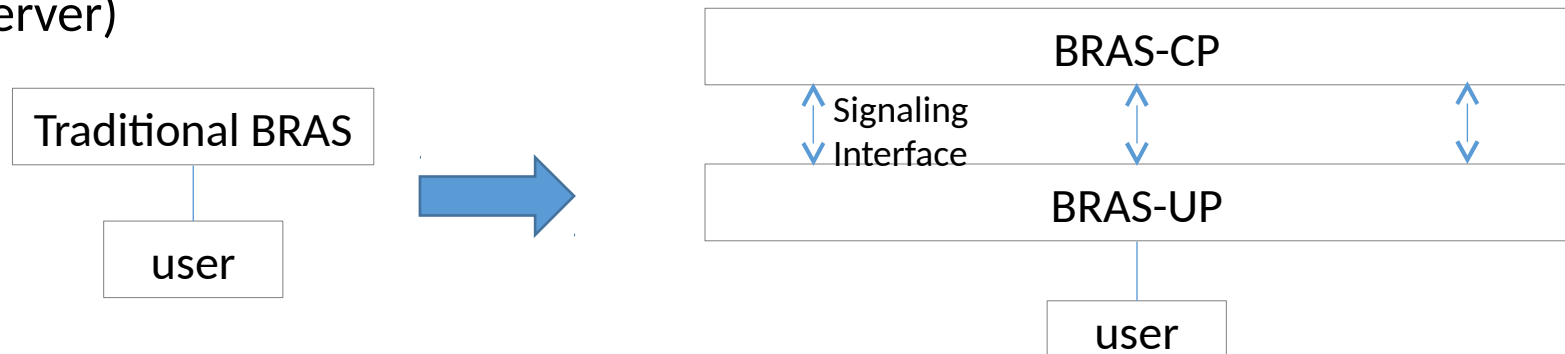


VXLAN Extension Requirement for Signaling Exchange Between Control and User Plane of vBRAS

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Problem to be addressed

- For China Mobile's metro network evolution, we choose to separate control plane and user plane of the traditional BRAS (Broadband Remote Access Server)

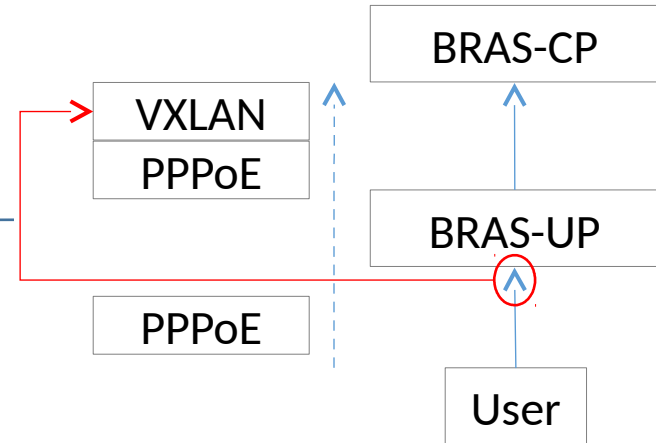


- Between BRAS-CP and UP, signaling interface is used to transmit PPPoE/IPoE authentication packets from BRAS-UP to BRAS-CP. We prefer to use VXLAN to encapsulate user's packets because of the following reason.
 - Firstly PPPoE/IPoE authentication is done between user and BRAS-CP, BRAS-UP will play a "relay" role in the middle and transmit PPPoE/IPoE authentication packets to BRAS-CP.
 - Since BRAS-CP is deployed concentrated and BRAS-UP distributed, packets between them usually have to go across a Layer3 network. And we need a layer2 tunnel to transmit PPPoE/IPoE authentication packets through the layer3 network. VXLAN is the most popular and widely supported way to do that.
 - PPPoE/IPoE authentication happens before PPPoE/IPoE session is built and user's location is one of the factors need to be authenticated. Before the authentication successes no resources will be allocated for a particular user, or nothing exists for a particular user both in UP and CP. So user's port information should be carried with the authentication packets together instead of transmitted through the other communication messages between CP and UP.

Problem to be addressed

- So we need to find a way to carry user's port information together with the authentication packets

No standard way for carrying port information in VXLAN header



Port information includes:

- *device ID, slot ID, subcard ID, port ID*

Possible solutions

- As described in the draft, possible solutions are as following
 - 1. Amend VXLAN header
 - 1.1 encode port information into VNI
 - 1.2 use reserved bits in original VXLAN header
 - 1.3 extend VXLAN header and define new TLV to carry port information
 - 2. Use VXLAN-GPE and NSH
 - 3. Assignment based solution, one VNI for each port of BRAS-UP
- We prefer to extend VXLAN header to meet the requirement because it seems leverage the flexibility and complexity.

Flag	Reserved		
VNI			Ext.flag =1
Type = Port-info	Length	Reserved	
Port information (<i>device ID, slot ID, subcard ID, port ID</i>)			

Discussion

- For the mentioned requirement, choose the appropriate solution
- Since the application of VXLAN is an important work in NVO3, we prefer to do the extension work in NVO3 WG
- Next action: determine the solution and start a draft for the mechanism ?

Thanks