

# Control/User Plane Separated BNG

[draft-cuspdt-rtgwg-cu-separation-bng-architecture](#)

[draft-cuspdt-rtgwg-cu-separation-bng-protocol](#)

[draft-cuspdt-rtgwg-cu-separation-infor-model](#)

[draft-cuspdt-rtgwg-cu-separation-yang-model](#)

[draft-cuspdt-rtgwg-cusp-requirements](#)

# Authors

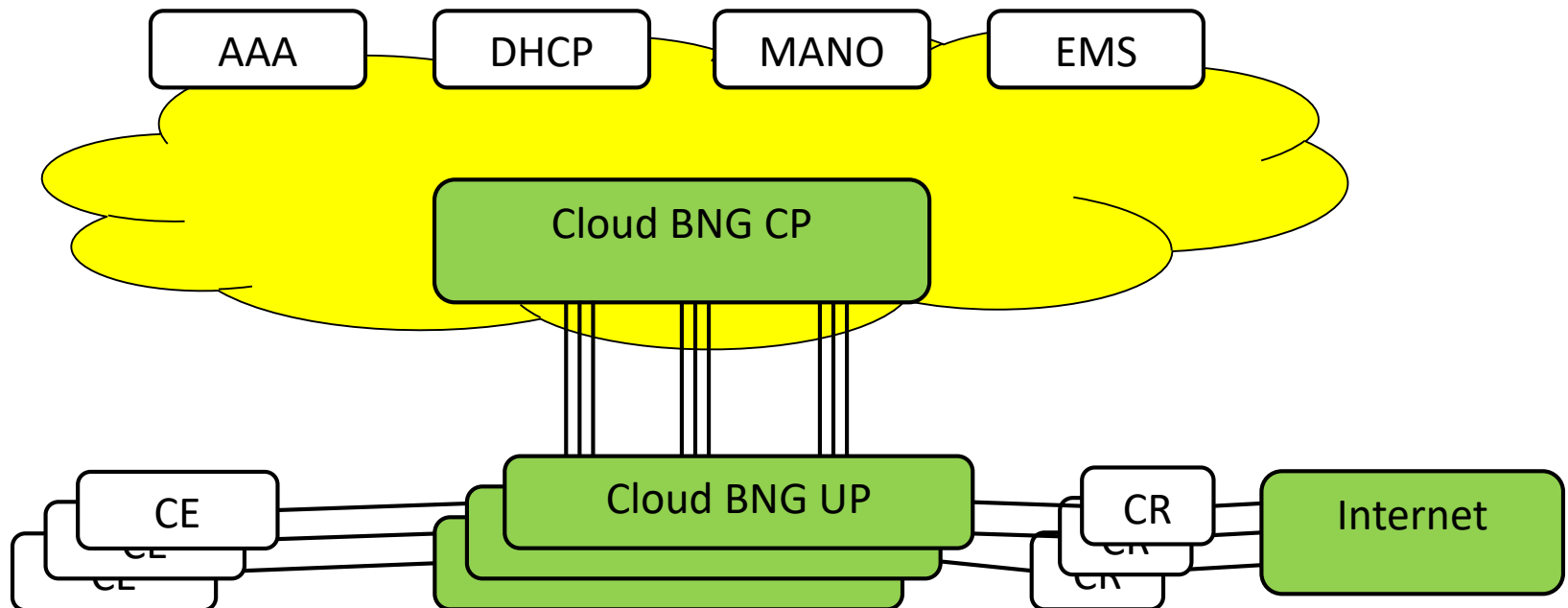
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- Shujun Hu, Fangwei Qin, Zhengquiang Li, China Mobile
- Dr. Liu Chang, China Unicom
- Fangwei Hu, RongRong Hua, ZTE
- Tee Mong Chua, Singapore Telecommunications Ltd
- Victor Lopez, Telefonica

# Broadband Forum

- BBF TR-384: “Cloud Central Office Reference Architectural Framework”, January 2018
  - <https://www.broadband-forum.org/technical/download/TR-384.pdf>
- Covers **Fixed Network Access**
- Provides Control and User Plane Separation (CUPS)
- Note that the BBF does not do protocols.

# Architectural Background

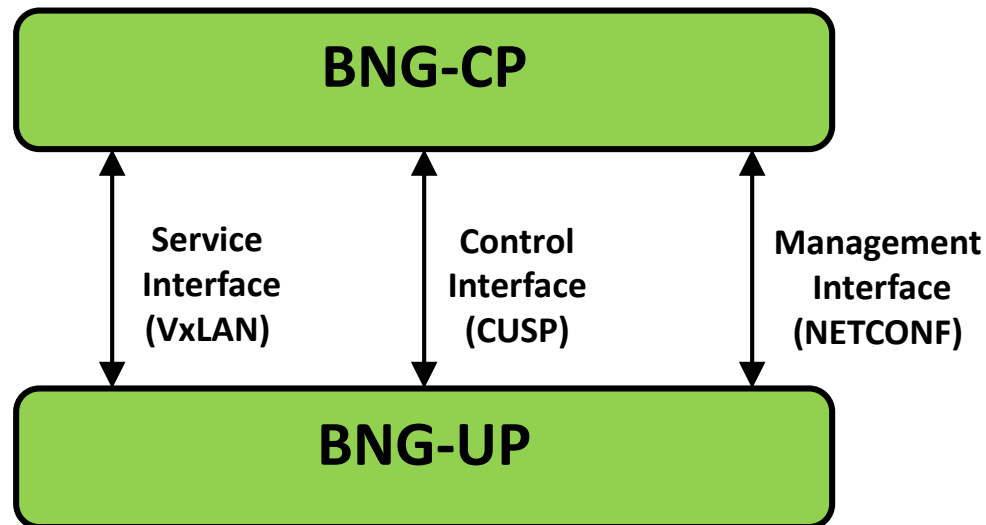
- Some goals are to improve scalability and economy of Broadband Network Gateways (BNGs) by factoring the needed functions and virtualizing many of them. This also enables faster roll-out of services.



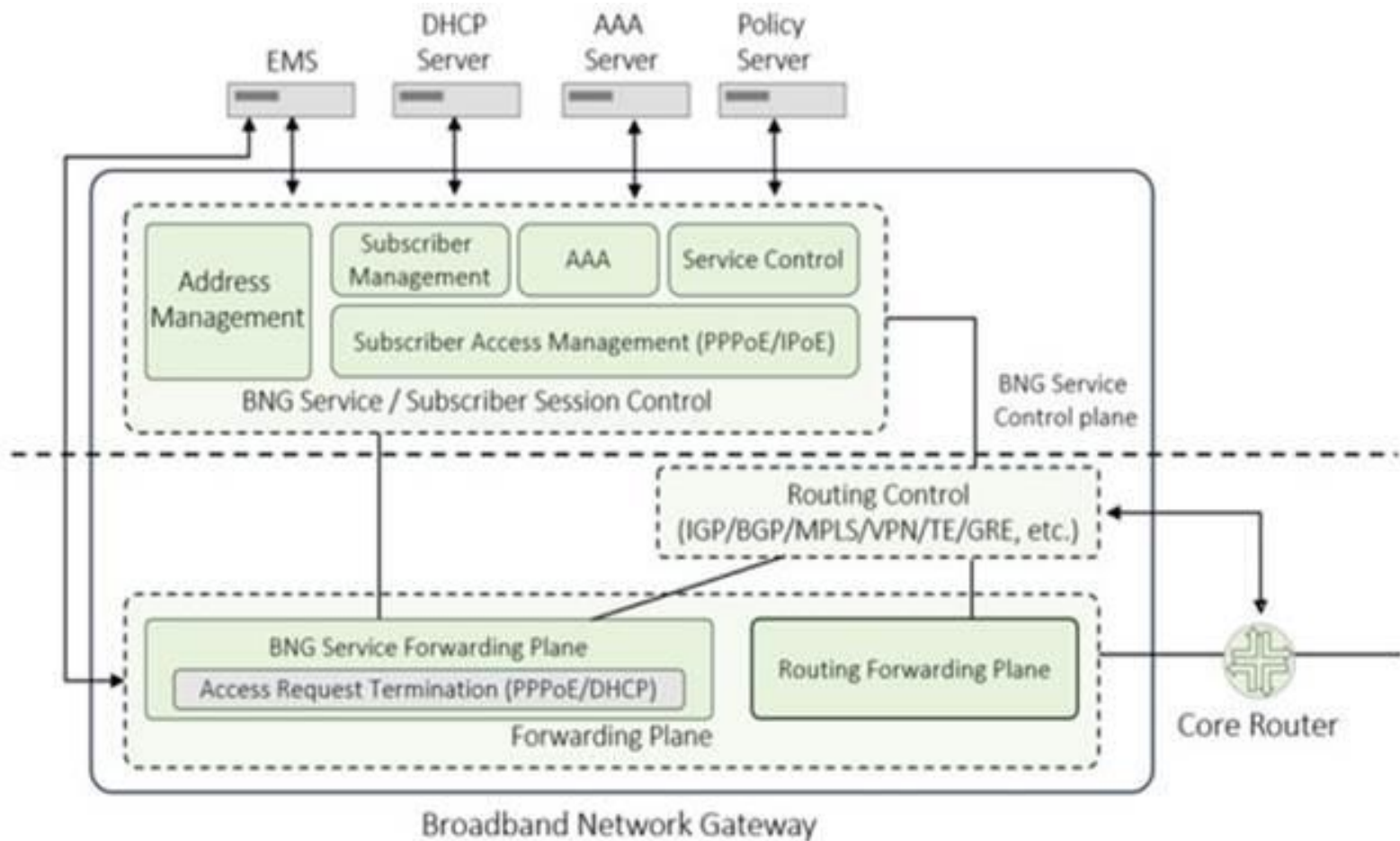
# Architectural Background

## Three interfaces

- Service Interface: PPPoE or IPoE packets over VxLAN for authentication.
- Control Interface: New: CP delivers service entries, UP reports service events. (CUSP = Customer User Separation Protocol)
- Management Interface: NETCONF, CP sends configuration to UP.



# BNG Disaggregation



# Broadband Forum

- First Liaison March 15, 2018  
<https://datatracker.ietf.org/liaison/1566>
  - “... Currently in IETF, the standards work on the interfaces of the disaggregated BNG has started. For example, the draft “Information model of control plane and user plane separation BNG”: <https://datatracker.ietf.org/doc/draft-cuspdt-rtgwg-cu-separation-infor-model/>. ... We look forward to continued IETF progress on the drafts for interfaces of the disaggregated BNG ...”

# Broadband Forum

- Second Liaison October 3, 2018  
<https://datatracker.ietf.org/liaison/1600>
  - “... The Wireless-Wireline Convergence (WWC) work area of the BBF has embarked on an effort to specify 5G Fixed Mobile Convergence in collaboration with 3GPP. ... A part of this collaboration the BBF work is expected to result in changes to CUPS interfaces in order to support some BNG functionality. ... The BBF has yet to perform a study on the feasibility of using a single protocol to allow multi-dimension inter-operability and satisfy the requirements of both TR-384 and our FMC work. ..”



# Current Internet Drafts

- Current Drafts
  - draft-cuspdt-rtgwg-cusp-requirements-03
  - draft-cuspdt-rtgwg-cu-separation-bng-architecture-02
  - draft-cuspdt-rtgwg-cu-separation-bng-protocol-02
  - draft-cuspdt-rtgwg-cu-separation-infor-model-03
  - draft-cuspdt-rtgwg-cu-separation-yang-model-00

# Internet Drafts, Use

- Drafts Recently updated with extensive editorial changes
  - [draft-cuspdt-rtgwg-cusp-requirements-03](#)
  - [draft-cuspdt-rtgwg-cu-separation-bng-architecture-02](#)
  - [draft-cuspdt-rtgwg-cu-separation-infor-model-03](#)
- Hackathon:
  - Successful use of CUSP show at IETF-102 Hackathon

# Path Forward

- I believe
  - There are enough people in the IETF who want to work on draft-cuspd-rtgwg-cu-separation-bng-protocol and related drafts to support TR-384 and that such work could be completed quickly
  - There are carriers who want to use that protocol in the Fixed Network for the support of the BNG control plane user plane separation
- If this is true, we should send a liaison stating so to the BBF and asking if they have any objection to this work (focused on TR-384 Fixed Network BNG control plane – user plane separation) being done in the IETF.

# END

draft-cuspdt-rtgwg-cu-separation-bng-architecture  
draft-cuspdt-rtgwg-cu-separation-bng-protocol  
draft-cuspdt-rtgwg-cu-separation-infor-model  
draft-cuspdt-rtgwg-cu-separation-yang-model  
draft-cuspdt-rtgwg-cusp-requirements