

# Problem statements and requirements of L2 CATS

<https://datatracker.ietf.org/doc/draft-huang-cats-ps-and-requirements-of-l2-cats/>

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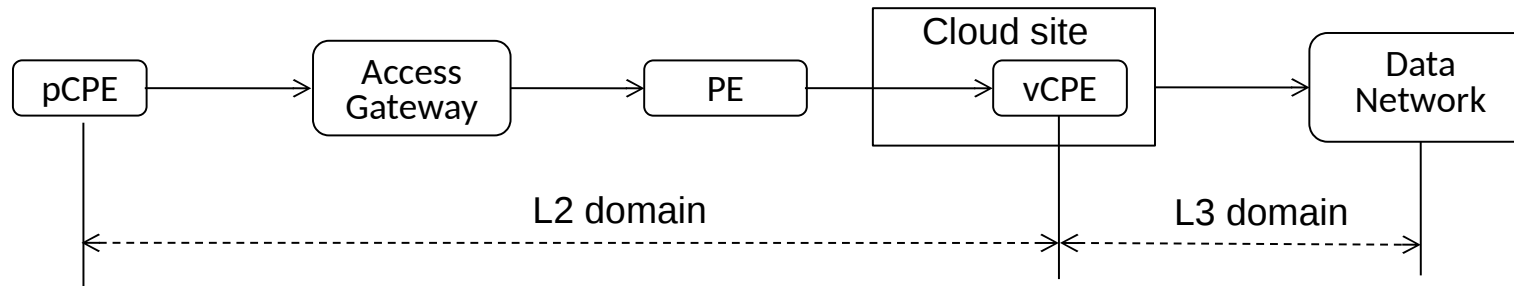
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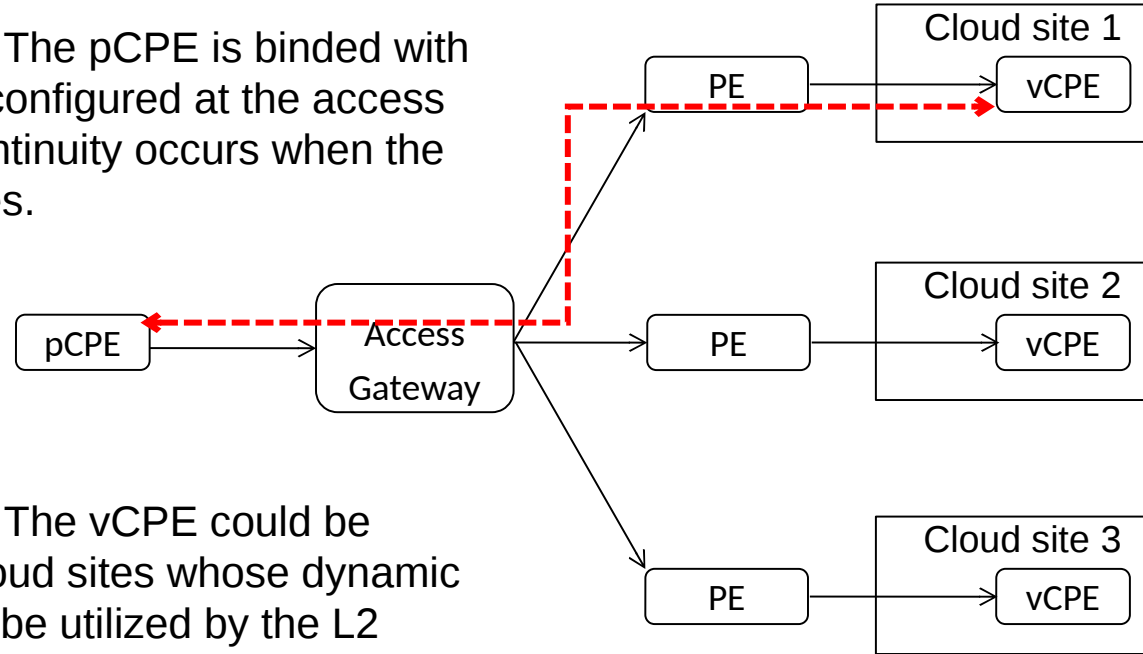
# Use case of L2 vCPE traffic steering



- Computing-intensive part of CPE has been migrated into the cloud while the pCPE would be “thin”, and significant cost benefits could be gained for both pCPE and the vCPE in terms of maintenance efficiency.
- The global IP address is allocated for vCPE, therefore the domain behind vCPE is actually an L2 network.
- The subscriber behind the pCPE accesses the services through vCPE in the cloud, and all of the exchanges between pCPE and vCPE remain within L2 network.
- The vCPE turns out to be the first node to start routing the service requests as well as the service traffic with a public IP address.

# Problem statements and gap analysis

**Problem statement 1:** The pCPE is binded with the specific vCPE pre-configured at the access gateway, service discontinuity occurs when the binding relation changes.



**Problem statement 2:** The vCPE could be deployed at multiple cloud sites whose dynamic resource status fails to be utilized by the L2 network.

**Problem statement 3:** The L2 access gateway could not be able to steer the traffic to the multiple sites dynamically without a location-independent service identification.

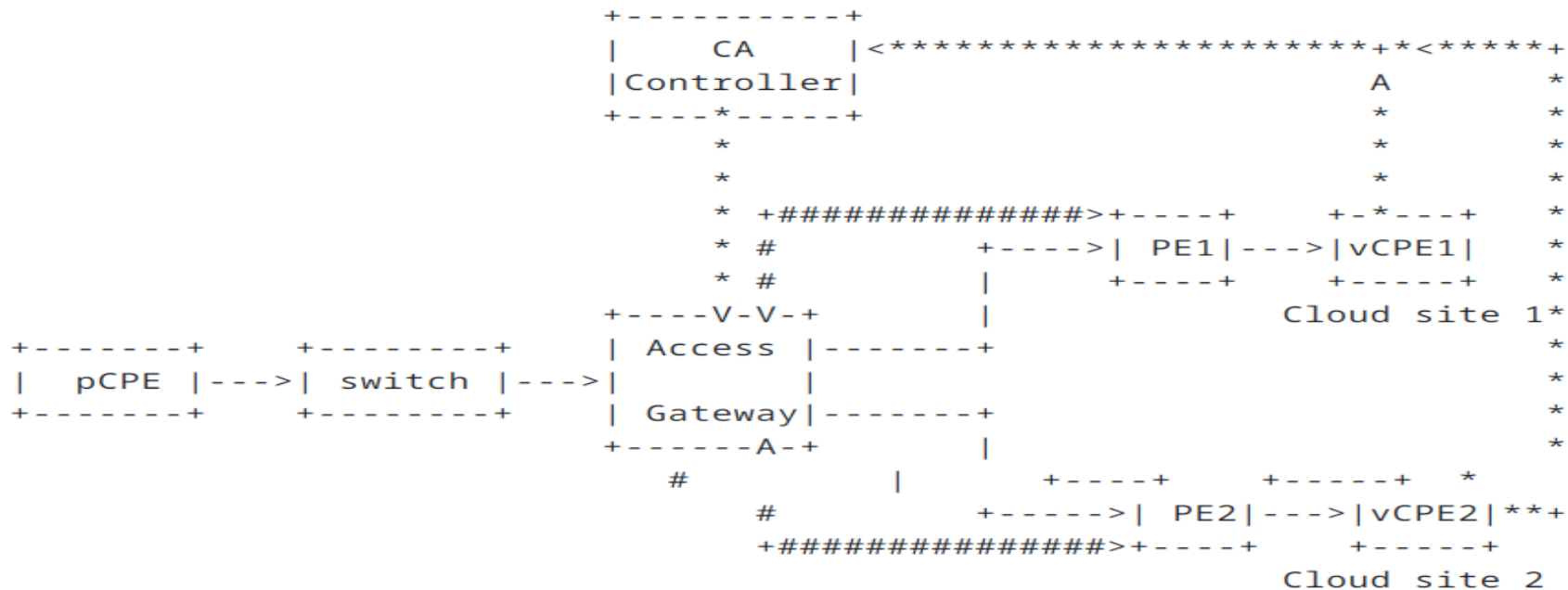
# Requirements for CATS framework

## Requirements:

- **REQ 1:** Service identification of Layer 2 protocols SHOULD be specified for computing awareness traffic steering.
- **REQ 2:** Computing awareness information MAY be notified to the \*L2 access gateway through a centralized computing awareness controller or distributed protocols.

Note \*: the L2 access gateway is always an L3-capable networking node (BNG/BRAS etc.), so L3 protocols could be leveraged for computing awareness.

# Solution consideration



Computing awareness flow <\*\*\*\*\*> <#####>  
 service traffic flow <----->

- 1, The access gateway could steer the service requests from pCPE to the best cloud site where the vCPE resides, based upon compute awareness through the specified channels.
- 2, QinQ/broadcast MAC address in the L2 user packets could be specified as the service identification of vCPE, and index both the service traffic forwarding policy and the compute awareness information.

## **Next step**

- Refine the draft upon comments and suggestions
- More comments, suggestions and contributions would be welcome.