

Path Computation Element to Support Software-Defined Transport Networks Control

PCE WG, IETF 89th, London, UK

draft-zheng-pce-for-sdn-transport-00.txt

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Problem Statement

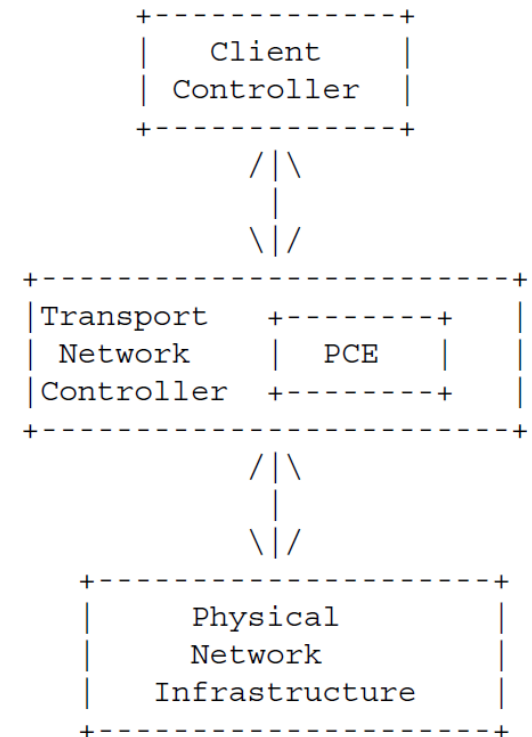
Problem: what can current PCE and its Protocol (PCEP) do in the Transport SDN?

PCE in T-SDN: embedded in controller for path computation:

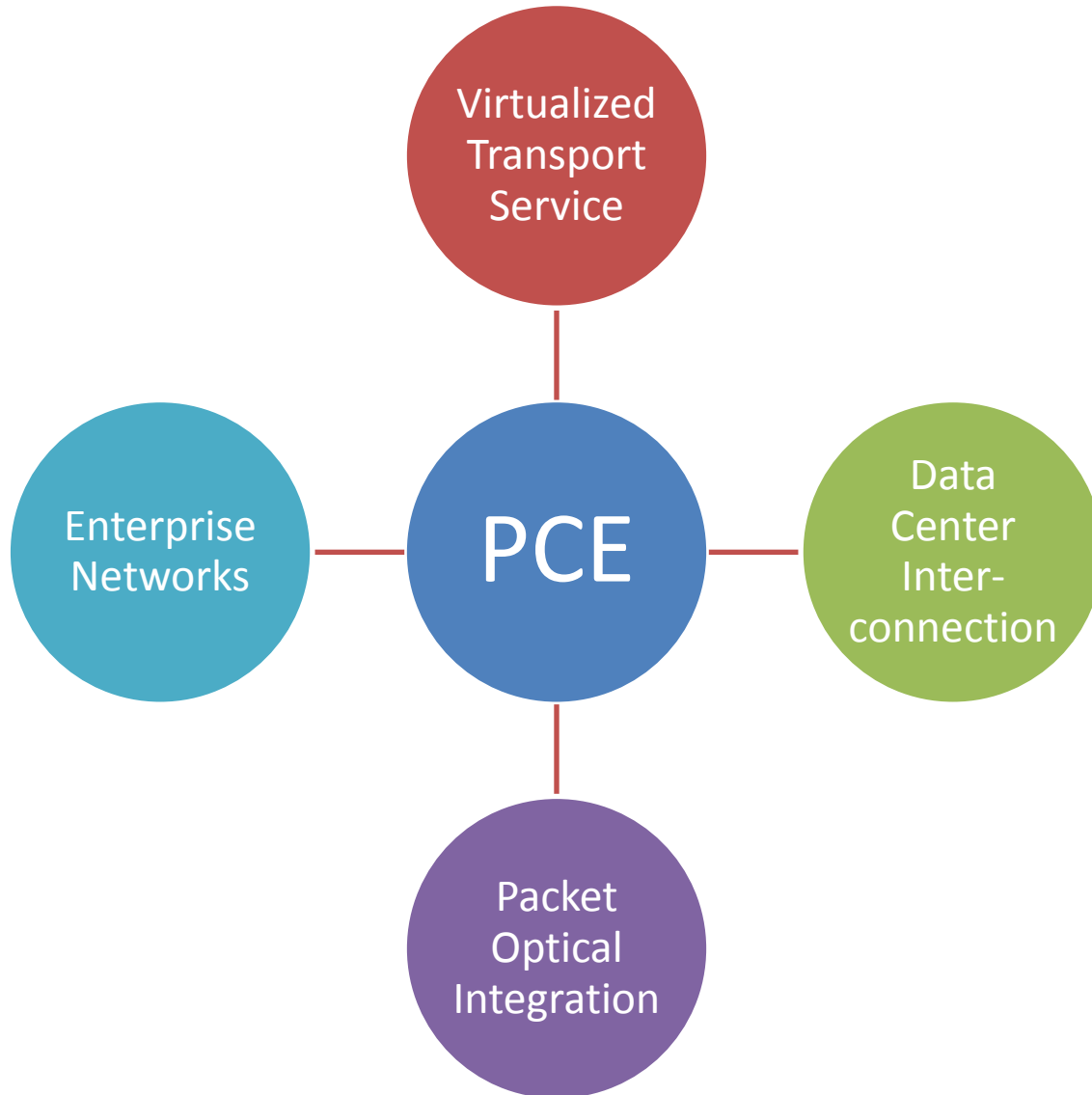
- Connected to infrastructure
- Connected to Client Controller

Possible PCE mode in T-SDN:

- Stateless PCE
- Stateful PCE
- PCE Initiation

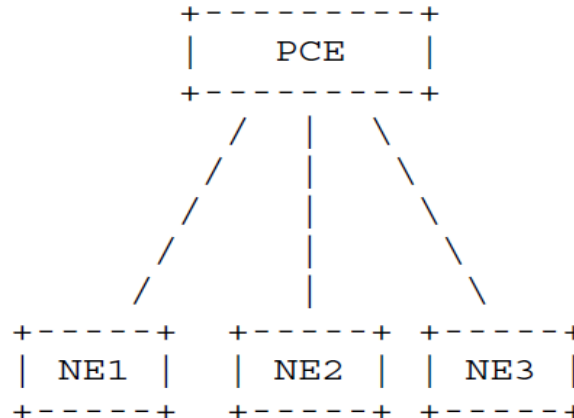


PCE Applicability for T-SDN



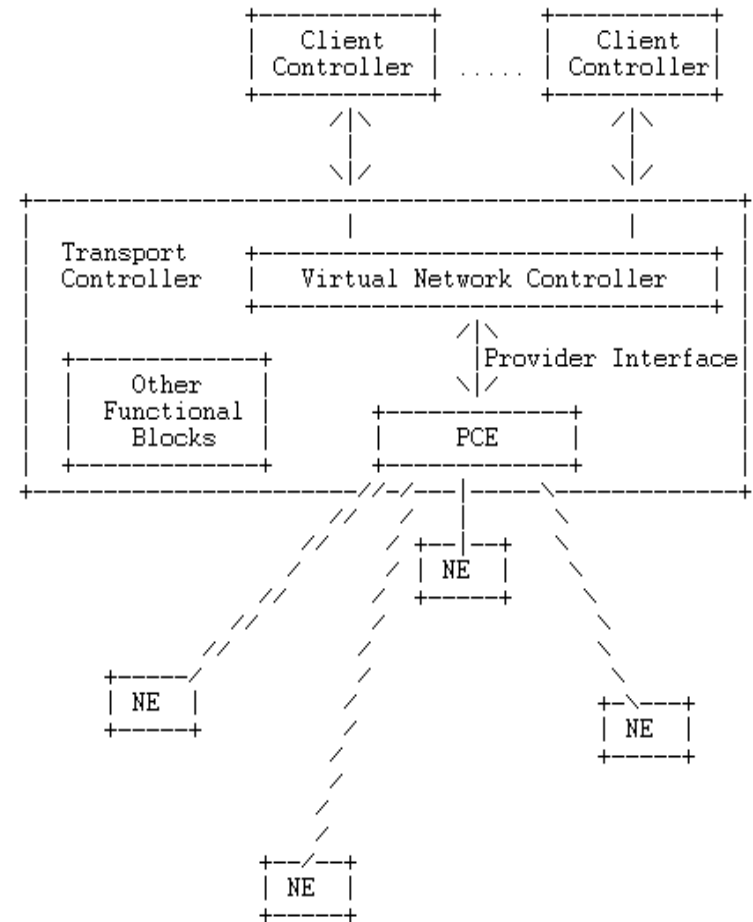
PCE in T-SDN Use Case(1)

- Enterprise Network
 - Small Scale : 1 PCE for a few NEs
 - PCE for basic Path computation requests from NEs
 - Current PCEP is capable to support
 - Stateless PCE is able to handle this scenario



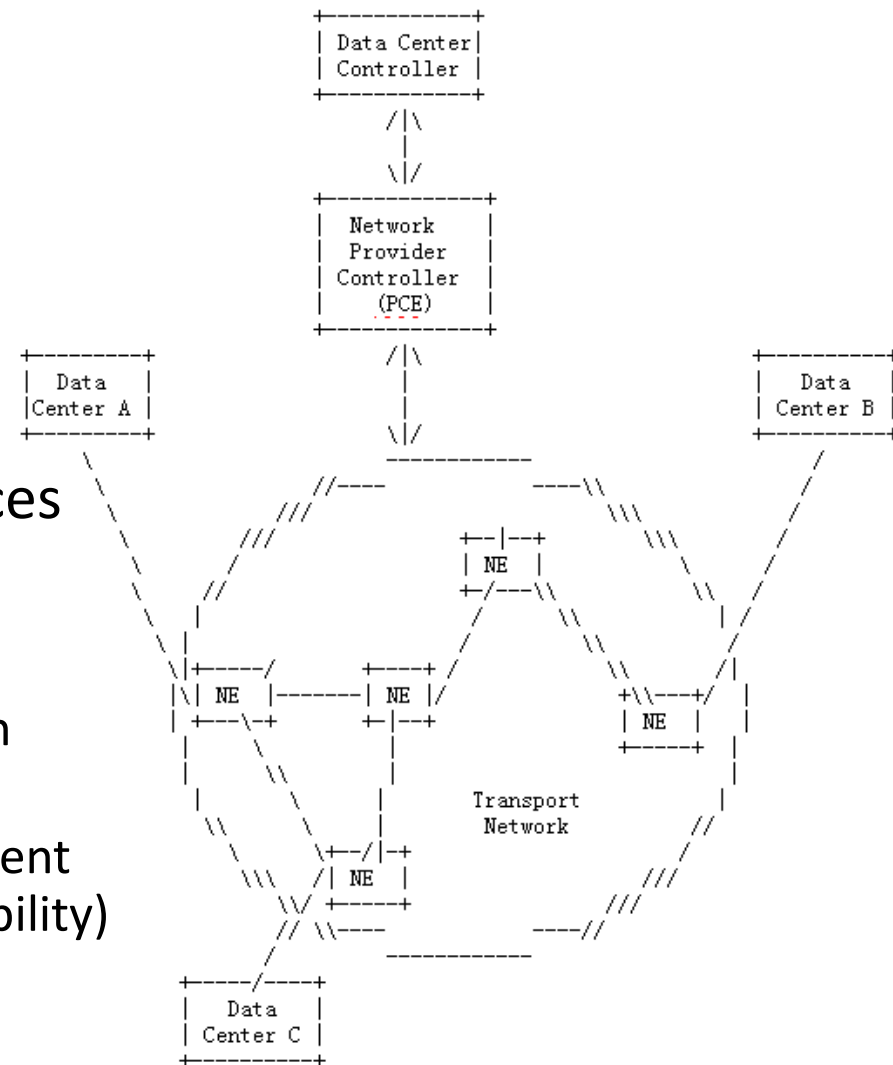
PCE in T-SDN Use Case(2)

- Virtual Transport Network
 - Client Controllers introduced
 - More blocks in T-Controller
 - Virtual Network Controller (VNC)
 - PCE
 - Other functional blocks
 - Provider interface
 - Provide Virtual Network Services to clients
 - PCE:
 - PCEP to VNC for path calculation (require stateless capability)
 - PCEP to NEs for path establishment (require stateful/initiation capability)



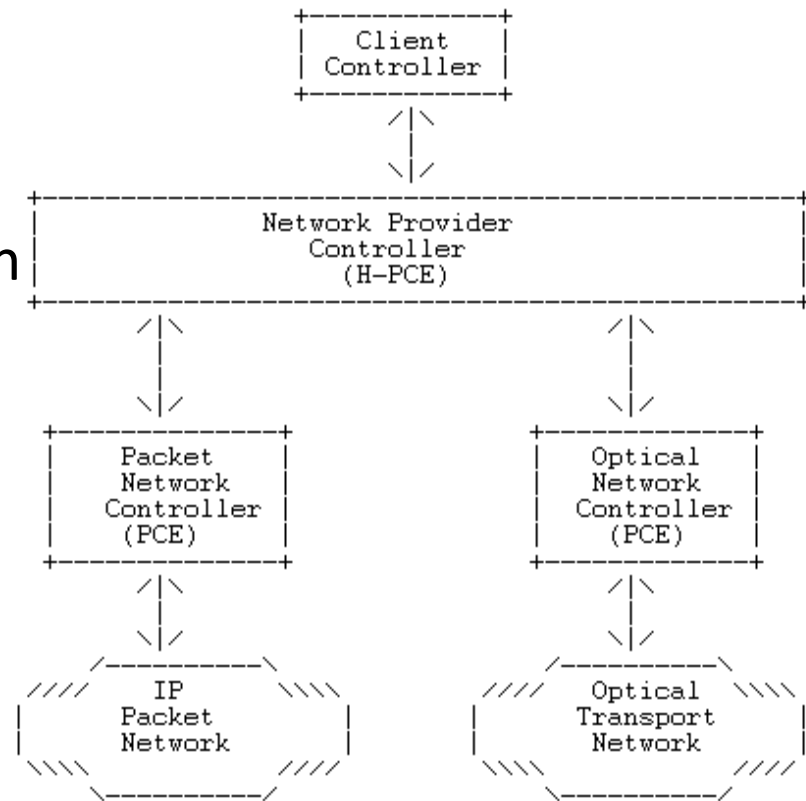
PCE in T-SDN Use Case(3)

- Data Center Interconnection
 - DC connected by Transport Network
 - PCE in Network Provider Controller (NPC)
 - Provide Virtual Network Services among Data Centers
 - PCE:
 - PCEP to VNC for path calculation (require stateless capability)
 - PCEP to NEs for path establishment (require stateful/initiation capability)



PCE in T-SDN Use Case(4)

- Packet Optical Integration
 - Respective PCE for Packet/Optical
 - NPC (H-PCE) for joint Optimization
 - Provide Virtual Network Services for IP + Optical
 - Improve resource utilization



Conclusion & Future work

- Conclusion:
 - Current PCE/PCEP can satisfy fundamental requirement of Transport SDN.
- Comments?