

BGP/MPLS VPN Virtual PE

draft-fang-l3vpn-virtual-pe-05

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What is this draft about?

- A solution architecture of virtual PE
 - Allow physical control plane and data plane separation
 - Allow IP VPN (RFC 4364) to be extended into end-systems/devices
 - Allow large scale dynamic orchestration support
- Scope
 - Any networks, Data Centers and beyond

Virtual PE Definition

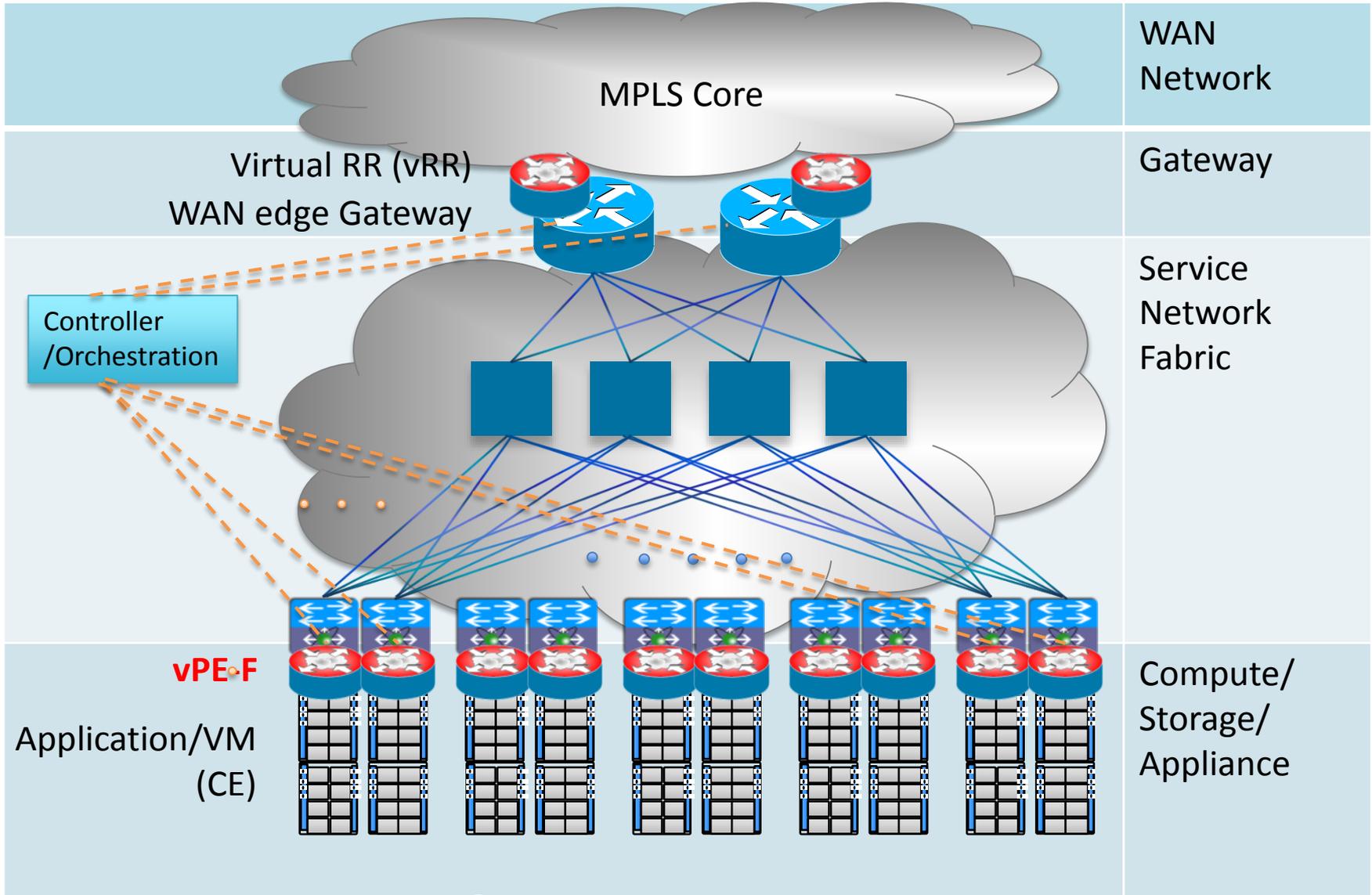
- A virtual PE (vPE): a BGP IP VPN PE software instance which may reside in any network or computing devices.
 - vPE-F: vPE Forwarding Plane
 - vPE-C: vPE Control Plane
- vPE-C and vPE-F can be decoupled, they may reside in the same physical device, or most often in different physical devices.

vPE Architecture and Design Options

	Design Options
1. vPE-F location	1a. End device, such as a server (most common case)
	1b. Top of the Rack (ToR)
	1c. Any other devices/systems, e.g., a Gateway router
2. vPE-C location	2a. Controller (most attractive): centralized/distributed
	2b. Same location as vPE-F, using mp-bgp for signaling
3. Orchestration models	3a. Push model: push VPN provisioning from NMS or other central control provisioning systems to VPN network elements.
	3b. Pull model: pull from network elements to network management/AAA based upon data or control plane activity.

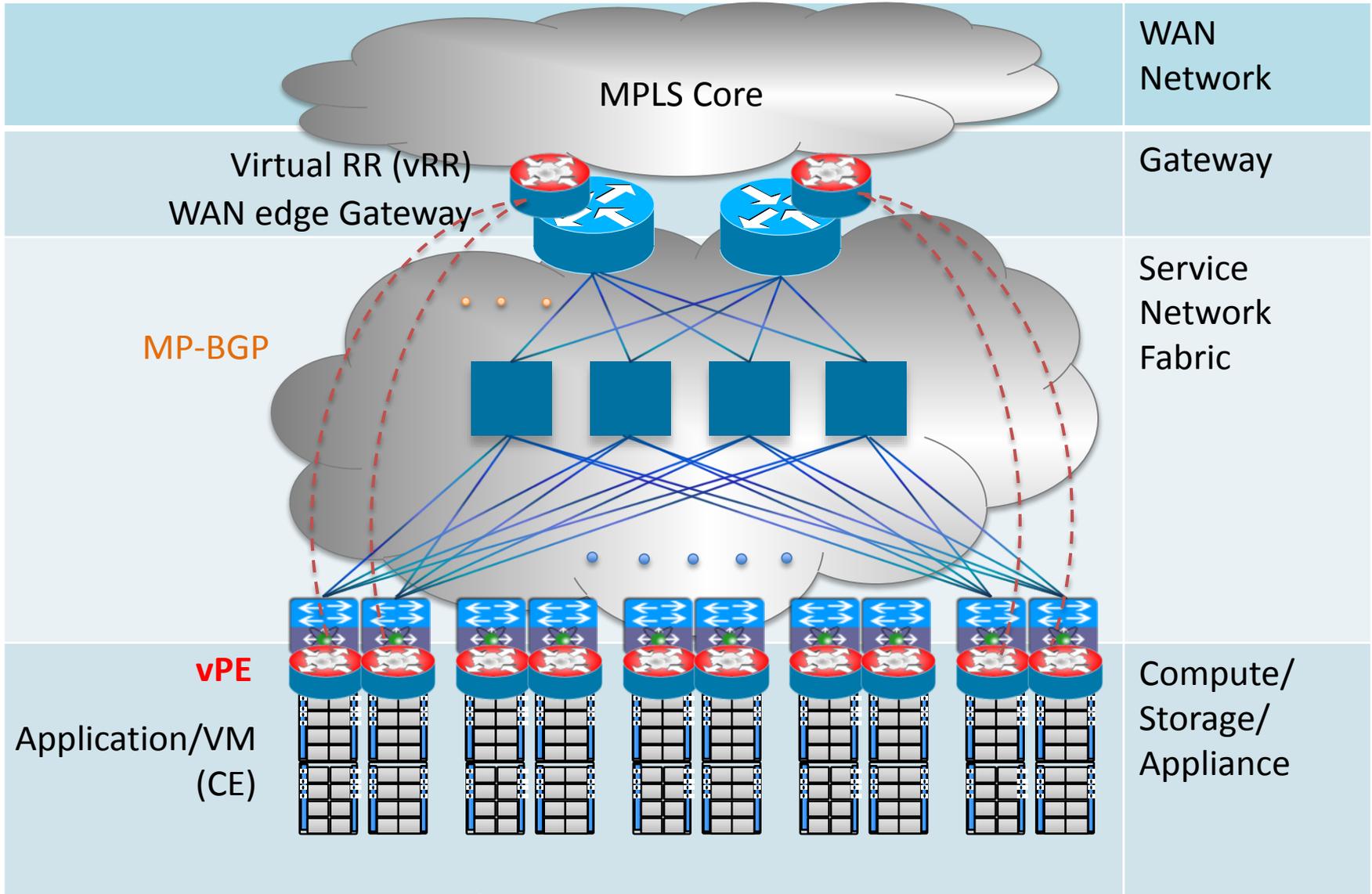
vPE Architecture Reference Models (1)

vPE-F in the end device, vPE-C in the controller



vPE Architecture Reference Models (2)

vPE in the end device, using MP-BGP for control



Changes from 04 to 05

- Expanded the scope from L3 VPN only to both L3 and L2 VPNs – per L3VPN WG Group discussion in previous meetings and off-line
- Added Wim Henderickx in our co-author list
- Addressed Daniel Voyer's comments, including VM security considerations.
- Update on Encap subsection
 - MPLS encap for forwarding with distributed MPLS protocols or SDN controller are viable options

Next Steps

- Comments on the list or talk to us
- Requesting L3VPN WG to adopt the draft as WG document