OSPF Version 2 as the Customer Edge/Customer Protocol for BGP/ MPLS IP VPNs

http://www.ietf.org/id/draft-freedman-l3vpn-ospf2-4364-ce-01.txt

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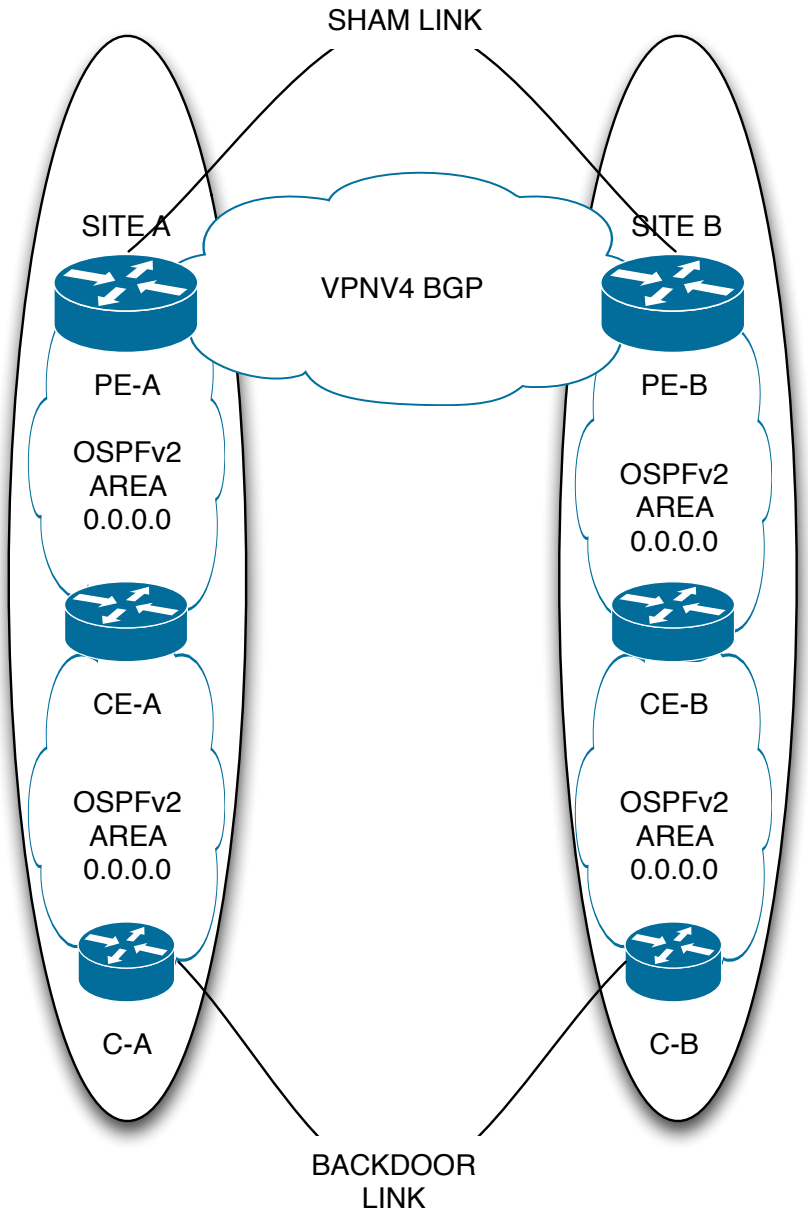
RFC4577 Refresher



- Published as RFC in 2006.
- OSPFv2 reachability carried inside VPNv4 BGP.
- Additional “Extended Communities” (DOMAIN, RID and TYPE) defined, MED can encode OSPF distance.
- “Sham” links define virtual intra-area links between sites such that the customer’s own “backdoor” links can be competed with equally.
- Provides for “multi tenant” environments where operator can use VRFs to carry multiple OSPF domains.
- At least two large, commercial implementations exist.
- Updated for OSPFv3 this year through publication of RFC6565.

The two shortcomings

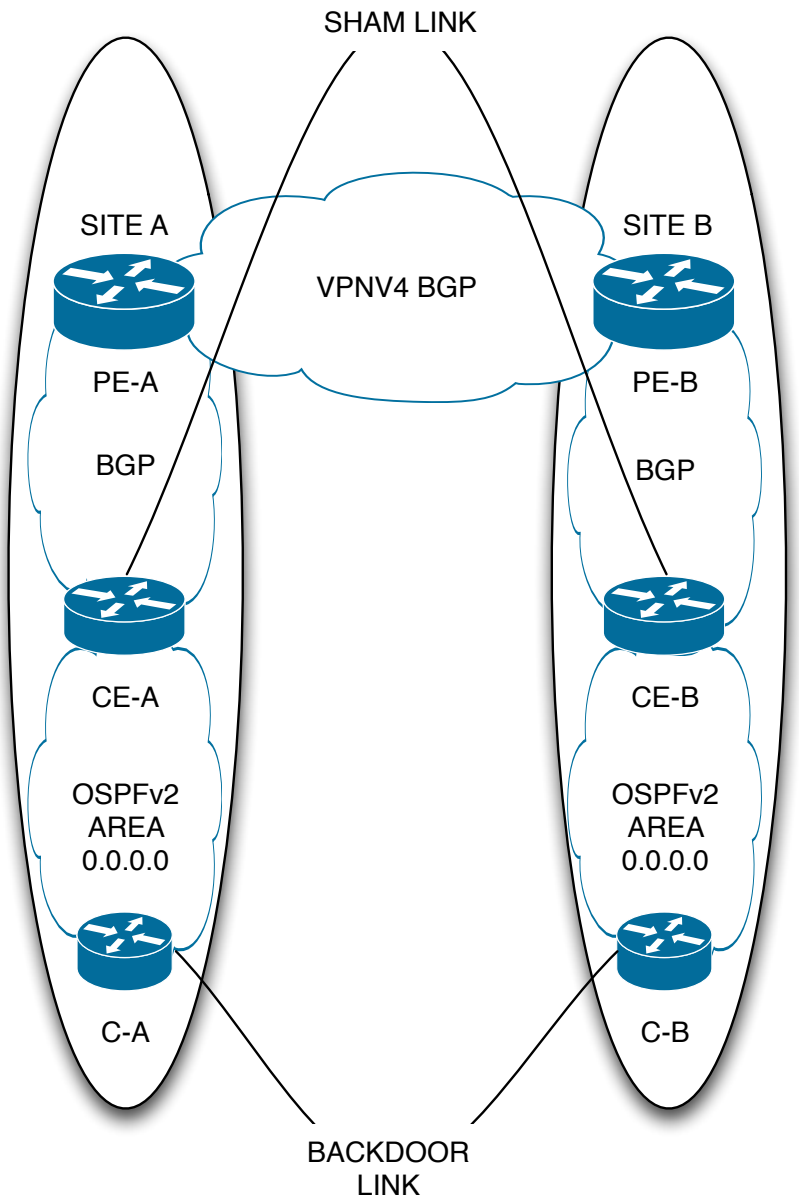
1. Operator must have access to PE routers

The operator may have full control over the CE router, but not access to the PE. This is common in scenarios where the operator provides "managed services", using the bandwidth of a larger operator (similar to RFC4364 sec.9 "Carriers' Carriers").

2. PE routers must run OSPFv2

OSPFv2 relies on repeated executions of the SPF algorithm in order to compute the topology, in the case of multi-tenanting with this approach, the situation may scale less well on the PE than simply using BGP.

Another solution



- Allow RFC4577 to apply to the CE router.
- But don't require the CE to be MPLS capable.
- A single domain is all that is required. Multiple domains are more suited to RFC4577.
- Scaling problem moved to the CE which only has to scale SPF for its own domain.
- Transparent to the PE operator (other than the need to use extended communities with the CE).
- One of the two large RFC4577 implementers has tried and confirms that relatively thoughtful, running code can be produced with some trivial modification.
- But no support for OSPFv3 (see next slide).

Why no support for OSPFv3?

- RFC6565 had a tortious time from draft publication (as draft-ietf-l3vpn-ospfv3-pece-00 in 2008) to RFC. This involved valuable input from the OSPF WG prior to RFC publication.

- At the time of publication of draft-freedman-l3vpn-ospf2-4364-ce-00 , the OSPFv3 draft was in the editors queue, with RFC publication imminent, From a practical standpoint there was no motivation from the authors to make the required modifications to support the concept being described (mainly the relaxing of the MPLS requirement).

- If the WG so desire, this draft can adopt OSPFv3 support.

Conclusion

I’m respectfully requesting opinion from the working group as to whether :

- A. This draft can be adopted in its current form, if there is to be any OSPFv3 support this is presented as a separate document.

- B. This draft should provide OSPFv3 support and a version which does so can be adopted for this purpose.

FAQ available at:

http://www.convergence.cx/drafts/draft-freedman-l3vpn-ospf2-4364-ce-01-faq.txt

Questions if time permits.