

Applicability of Abstraction and Control of Traffic Engineered Networks (ACTN) to Packet Optical Integration (POI)

draft-ietf-teas-actn-poi-applicability-06

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I-D Use Cases

1. Inventory, Service and Topology Discovery

- Inter-domain link discovery
- Multi-layer IP Link discovery
- Inventory discovery
- SR-TE paths discovery

2. Establishment of L2VPN/L3VPN with TE requirements

- Optical Path Computation
- Multi-layer IP Link Setup and Update
- SR-TE Path Setup and Update

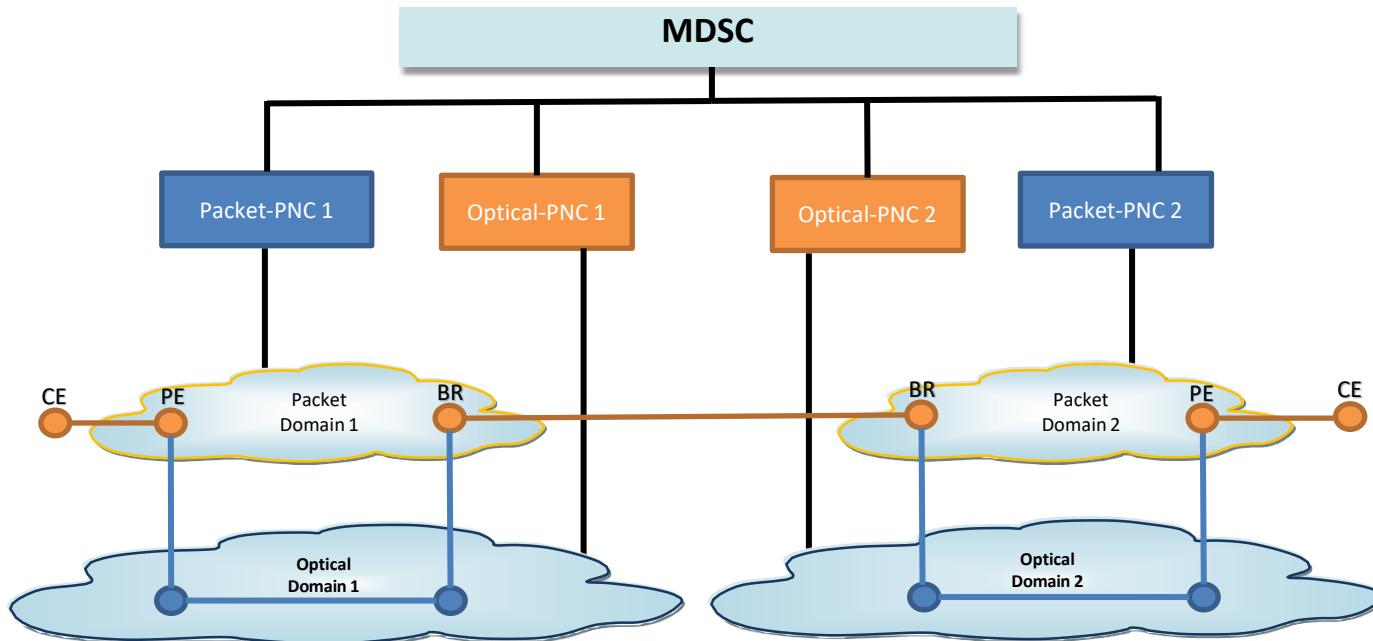


Figure 1 - Reference Scenario

Updates/Discussion for Latest Version (06)

- Updates in version 06
 - Major editorial review to align content and structure to the agreed scope (SR-TE end-to-end)
 - Added details about the inter-domain link discovery and use of LLDP snooping
 - Added a section to summarize the gaps identified
 - Minor text updates in the 06 version

Reaching our Conclusions

- The intention of the document was to provide an applicability statement of how key IETF technologies could be applied for the key use cases.
- The analysis provided in this document has shown that the IETF YANG models described (section 3.2) broadly provides:
 - ACTN Packet Optical Integration (POI) capabilities, including
 - Resource discovery (network inventory, network topology, tunnels and services)
 - Supporting for multi-layer/multi-domain L2/L3 VPN network connectivity services
- Several gaps have also been identified and these are described in section 6 (Conclusions)
 - Need for a network inventory model
 - A technology-specific augmentations of the path computation RPC
 - Packet topology discovery mechanisms
 - SR-TE Path setup and update

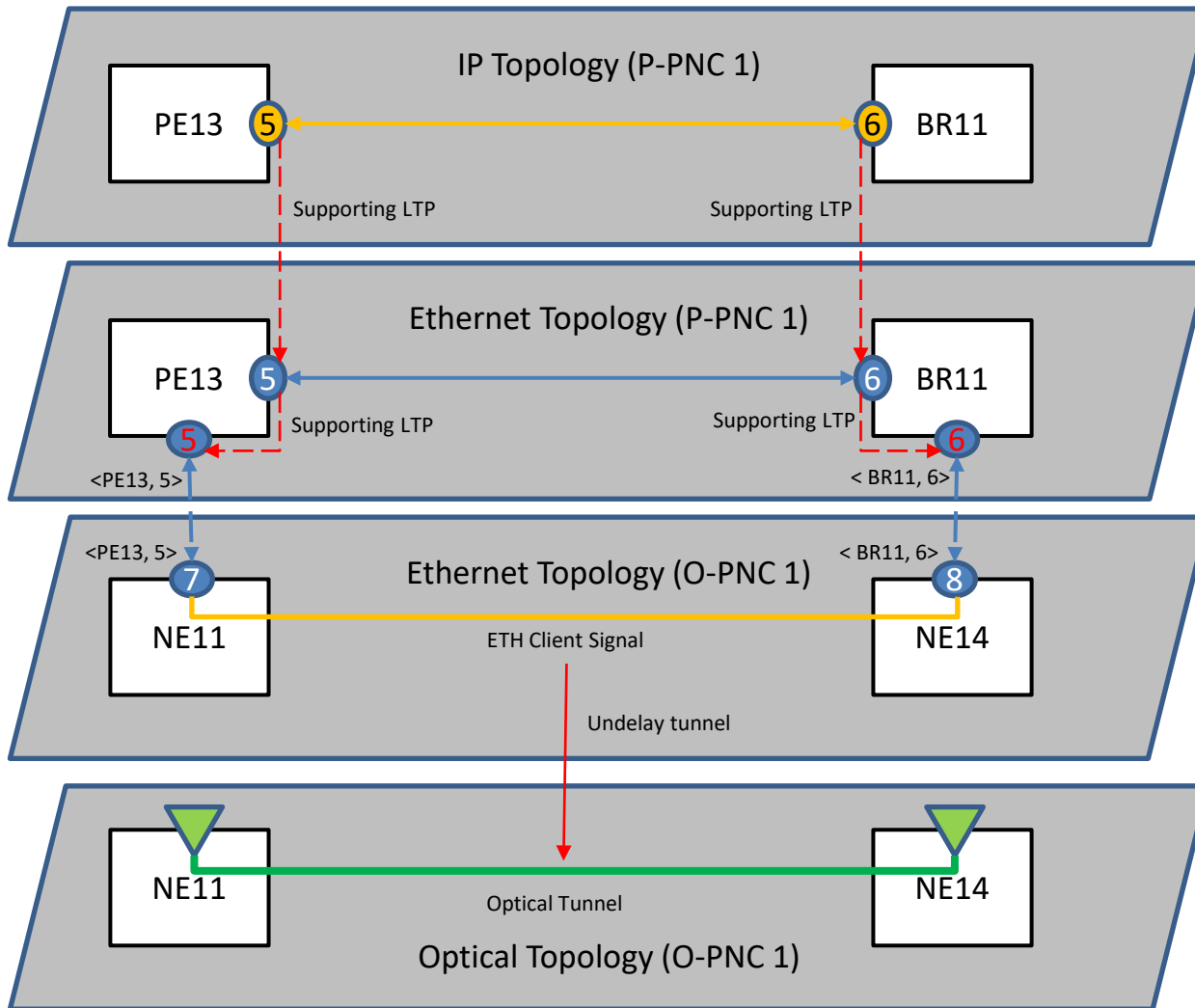
What next?

- Ongoing discussions
 - How the binding between a L3VPN and end to end SR-TE path can be configured?
 - Incoming packets have an active SID matching a local BSID at the headend
 - Per-destination Steering: incoming packets match a BGP/Service route which recurses on an SR policy
 - Per-flow Steering: incoming packets match or recurse on a forwarding array of where some of the entries are SR Policies
 - Policy-based Steering: incoming packets match a routing policy that directs them on an SR policy
 - Discuss and Document SR-TE Protection options
 - Multi-layer Intra-domain IP Link setup
 - See next slide(s)

Multi-layer Intra-domain IP Link setup

- MDSC receives a request to setup a L2/L3 VPN service
- MDSC understands that in order to fulfill this service requests it needs to setup a new optical tunnel (to support the setup of a new IP link)
- MDSC requests the O-PNC to setup the optical tunnel
- After the optical tunnel has been successfully setup, MDSC waits for the P-PNC to configure the new IP link
 - After the new optical tunnel has been setup, the P-PNC may automatically discover the new adjacency (e.g., through LLDP) and configures the new IP link.
 - Alternatively, the MDSC may configure the new intra-domain Ethernet link and the P-PNC can then configure the new IP link.
- After the P-PNC has setup the new IP link, the MDSC requests the P-PNC to setup a new SR-TE path or re-route an existing SR-TE path through the new IP link
 - The MDSC will get notified that the new IP link has been setup by the P-PNC by a topology update of the SR-TE topology exposed by the P-PNC

Multi-layer Intra-domain IP Link setup



Next steps for the Document

- Issue tracking and current version available on Git
 - Currently we are tracking 22 open issues - <https://github.com/FabioPeruzzini/actn-poi/issues>
- Continue to work with SPRING and resolve open SR-TE issues, and other items listed below
- Active discussions, hot topics/issues include
 - Issue #83 Binding between a L3VPN and an end-to-end SR-TE path
 - Issue #81 Intra-domain IP Link Configuration
 - Issue #80 Protection options with SR-TE
 - Issue #78 Reconcile WDM terminology with optical-impairment draft
 - Issue #36: Transparent Services of WDM
 - Issue #5: Provisioning of LAG
 - Plus, several additional issues
- Resuming weekly ACTN POI calls after IETF 113
 - Slot 1 at 4:30am EST starting from March 29
 - Slot 2 at 11am EST starting from April 5
- The plan is to complete the open actions/issues shortly after IETF 113, then
 - Ask WG participant to review the latest version of the I-D
 - Prepare for WG Last Call before IETF 114