



PCEP-LS: PCEP extensions for Distribution of Link-State and TE Information

draft-dhodylee-pce-pcep-ls-22

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PCEP-LS Feedback recap...

- Was presented at IETF 110.
 - Highlighted some key scenarios such as PCECC & H-PCE
- Note: This is an experimental I-D with an aim to progress R&D efforts & is not a replacement for any existing mechanisms
 - There are specific scenarios highlighted where the reuse of PCEP sessions for this information is deemed useful
- What would be useful is to help progress this draft is find out if there is interest in this experimental work and a poll for WG adoption can be issued.



PCEP-LS Feedback recap...

- Positive feedback on the list
 - Aijun Wang with China Telecom showed key interest
 - Highlighted the use of PCEP-LS in PCECC scenarios
 - Peter Park with Telco KT
 - Bin Yun with ETRI
- Plea for WG adoption on Experimental track
 - Scope & goal of the experiment would include testing this solutions viability to help eliminate any concerns
- Post Adoption
 - Refine the scope of the Experiments & expected output, especially targeting scalability concerns and impact in other protocols and the network.



Quick Overall Recap...

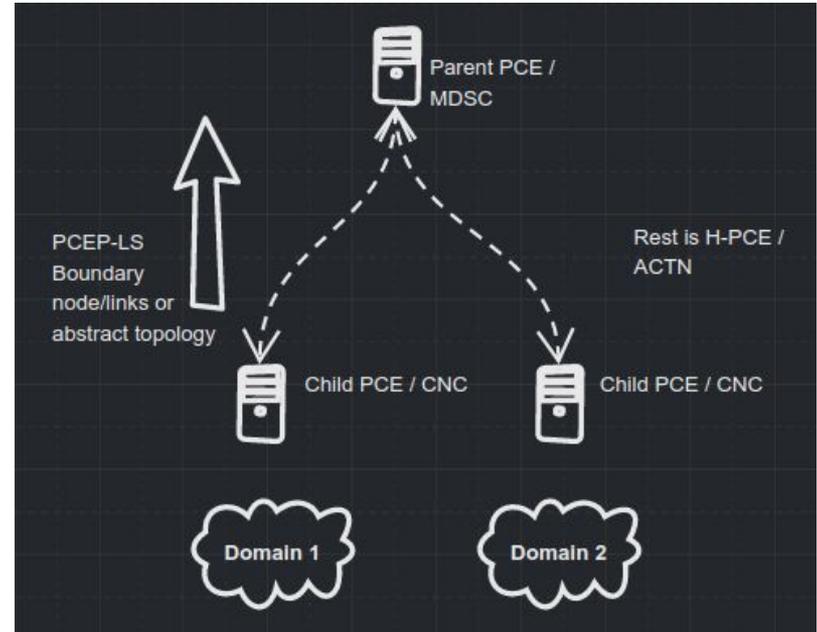
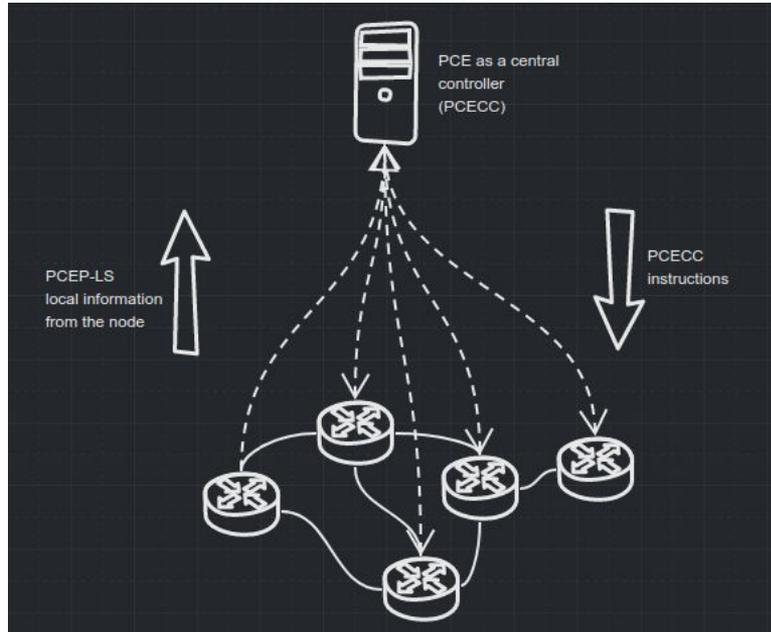
- Update on latest Feedback from PCE Working Group \Leftrightarrow WG Adoption Poll?
- Use of PCEP to also learn the network topology and state
- Applicable to Device to controller as well as controller to controller (H-PCE)
- Complementary extension (or another tool in the tool-box)
 - Not a replacement for running IGP in your network!
 - Or BGP-LS, Or Netconf!
 - Enable use of a single control plane protocol as an SBI in some scenarios
- A new PCEP Message and Object and reuse the TLVs already defined
 - Default is local-only (remote learned information can be enabled)



Some Use Cases & Scenarios where PCEP-LS is an attractive choice!

- PCECC
 - Some use cases require direct PCEP session to all nodes
 - Reusing the same session to also learn local network state is attractive
 - Enable the possibility of a single SBI protocol for some use cases
- H-PCE (and ACTN)
 - Between controllers for boundary nodes/links as part of the abstract domain topology
- Partial
 - Some information such as Optical extension learned via PCEP-LS for faster learning
 - Reusing PCEP synchronization optimization techniques and incremental updates
 - Other mechanism can co-exist

Flow of information/control





Ready for WG Adoption?

- Is there enough interest by some in the WG to work on this? Yes*
- Are there targeted experiments, demo, implementations? Yes*
 - Some were showcased in the past in Hackathon and Bits-n-Bytes
 - Some open source implementation exist and documented
 - Some researchers have shown interest and experimented
 - Some operators have shown interest
- Is there a possibility of a somewhat rough consensus/support for this as an Experimental I-D? Yes*
 - Scope of the experiment can be further refined after adoption



Useful References

- Chairs Slide from IETF 101:
<https://datatracker.ietf.org/meeting/101/materials/slides-101-pce-update-on-pcep-sdn-discussion-00.pdf>
- Mailing List Thread:
<https://mailarchive.ietf.org/arch/msg/pce/TXS2v8tXWCxXmp8Vxx59K2dOwCg/>
- Implementation:
<https://mailarchive.ietf.org/arch/msg/pce/0zEEJv-u7mQ1drkkWkAJXLQnDpo/> and
https://mailarchive.ietf.org/arch/msg/pce/HF_X3oUS7rIrjyymaw7miUQurpl/
- Researcher:
<https://mailarchive.ietf.org/arch/msg/pce/p1vKMyCWVxAd-Dpb5lcKX42BcVA/>



Working Group Adoption ??

Thank You!





A rough summary of where we left off...

- Presence of other ways to do this
 - and some consider them to be better!
- PCEP scalability worries!
- Operational Complexity!
- Does this require multi-vendor inter-operable RFC?
- Consensus on use of PCEP as SBI
- In some PCECC scenarios, there is a direct PCEP session with the nodes
 - Leveraging the direct PCEP session to also learn topology (and changes) is an attractive option!
- Usefulness in H-PCE, Inter-layer, Optical etc
- Another tool in the tool-box (and not replacing any other mechanism)
 - For instance we recognize that some may want to use YANG Path computation RPC instead of PCEP in some scenarios and we support both approaches!

Some of these questions would be tested & answered as part of the Experiment!



Backup

- Scalability Concern
 - Some PCECC scenarios already have session to all nodes
 - Reusing the same session to also carry local node information is okay
 - Bulk of the work during PCEP session establishment and before any other PCEP interactions!
- Some benefits of PCEP-LS procedures
 - Incremental changes only
 - Use of stateful techniques: LS-ID to uniquely identify node/link and only the attributes that have changed need to be encoded
 - Synchronization Optimization techniques for PCEP
 - Can be leveraged for PCEP-LS as well during session up/down

