Yang model for requesting Path Computation

draft-ietf-teas-yang-path-computation-05

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Summary of changes from v04

- Added optional enhancement to request the setup of a path already computed using path computation RPC:
  - The server maintain a ≪temporary state≫ within the ≪operational DS≫ for each computed path
  - The client can request the setup of a computed path creating a TE Tunnel in ≪running DS≫ with the same ≪tunnel name≫ and ≪path name≫ identifying that computed path within the ≪operational DS≫
  - The server will setup that path, if still available.
  - An optional Transaction ID allows fast deletion of computed path state when no longer needed. A timer with default value is always set in the request to delete transient state at expiration time.
- The behavior would be similar to the stateful solution (compute-only te-tunnel) <u>without</u> relying on ≪permanent≫ state in the ≪running DS≫
- Added text describing this solution in section 3.3 and 3.3.1 reflecting mailing list discussion

- Aligned Yang model to the last version of yang ietf-te-types.yang and ietf-te.yang modules

- Corrected bugs, solved issues:
  https://github.com/rvilalta/ietf-te-path-computation

Open Issue #61: path computation in a fl at/distributed approach (1)

- Mailing list discussion about distributed path computation as per RFC54 41 (BRPC)
- Use case: Multi-domain, networks are own by different operators/busine ss units within the same operator, with no centralized orchestrator/pare nt controller.
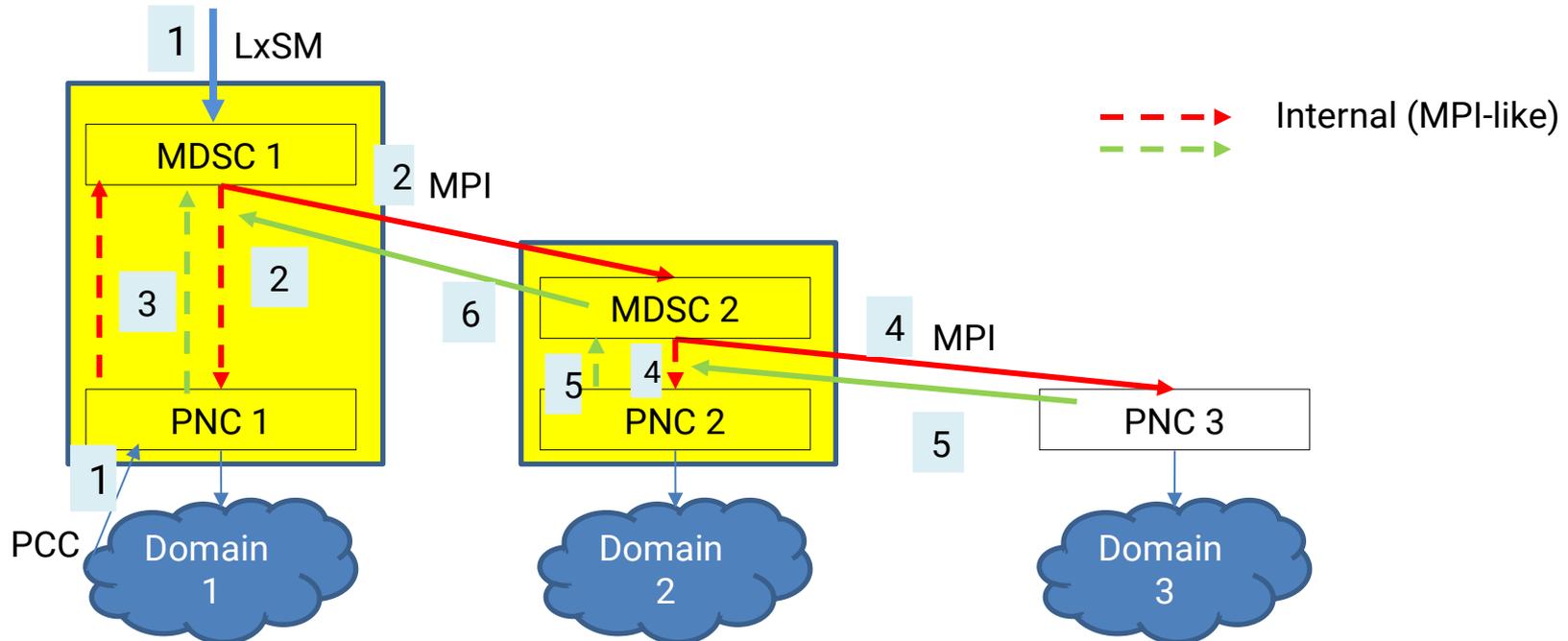
Open Issue #61: path computation in a fl at/distributed approach (2)

- Questions
  - Anything missing in current YANG model?
    - Or the current YANG model already supports thi s use case?
  - Need to describe this use case?
    - Or just clarify that the use cases in the draft are not prescriptive and that the model supports oth er use cases (e.g., distributed scenarios): path co mputation request can be used independently of architecture

Open Issue #49: Path computation for protected tunnels (1)

- We had further discussion about this issue and we agree on the requirement to have the possibility to request a computed path with protection capability.
- 2 different use cases:
  - the request is to compute both the working and the protection path for a tunnel that does not yet exists.
  - the request is to compute a protection path to protect the working path of an existing tunnel.
- Two possible alternatives for YANG model:
  - single request to compute working and protecting path related to a single tunnel
  - two requests one to compute a working path and the other for protecting path, optionally, with an association between the two requests within the same RPC

Open Issue #49: Path computation for protected tunnels (2)

	Option 1 (Single Tunnel Request)	Option 2 (Two Path Requests)
PROS	• tighter alignment with TE tunnel model and operations • Implicit support of all associations of paths within a tunnel: e.g., unidir and bidir paths (issue #43)	• just add new attributes to the existing YANG model • the model already supports requesting the computation of multiple paths with one RPC
CONS	• Major and heavy restructure of existing YANG model • impacts on synchronization vector (SVEC) model unclear • different approach than PCEP (using SVEC and ASSOCIATION objects)	• need to define new mechanisms to associate paths to be used in the same tunnel e.g. unidir and bidir paths #43 • duplication of tunnel parameters in multiple requests: e.g. source, destination, bandwidth

Do we have requirements/scenarios to use only the Path Computation RPC without the TE Tunnel model?

Open Issues status

- GitHub Repository https://github.com/rvilalta/ietf-te-path-computation

- Tracking Open Issues, discussions and resolutions linked to YANG model
    - 3 closed since IETF 103
    - 8 open (only 1 new since IETF 103)
        - 3 specific for path computation RPC
        - 3 are being discussed jointly with TE Tunnel
        - 1 editorial (review terminology)
        - 1 pending the YANG model becoming stable (example of path computation request)

Acknoledge

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- Thanks to Igor Bryskin, Dhruv Dhody, Dieter Beller and Xufeng Liu for the input to "temporary reporting path state"

- Thanks to Olivier Dugeon, Igor Bryskin, Adrian Farrel and Young Lee for discussion about "flat/distributed approach"

Next Steps

- Resolve current open issues
  - Continue cooperation with TE Tunnel and TE Topology model authors
- Provide guidance for technology specific augmentations
  - Synch up with OTN tunnel model authors, WSON and flex-grid tunnel authors