

A Yang Data Model for PCEP

draft-ietf-pce-pcep-yang-01

<https://github.com/dhruvdhody-huawei/pcep-yang>



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Introduction

Yang
Data
Model

Management of
PCEP speakers

PCEP as per RFC
5440

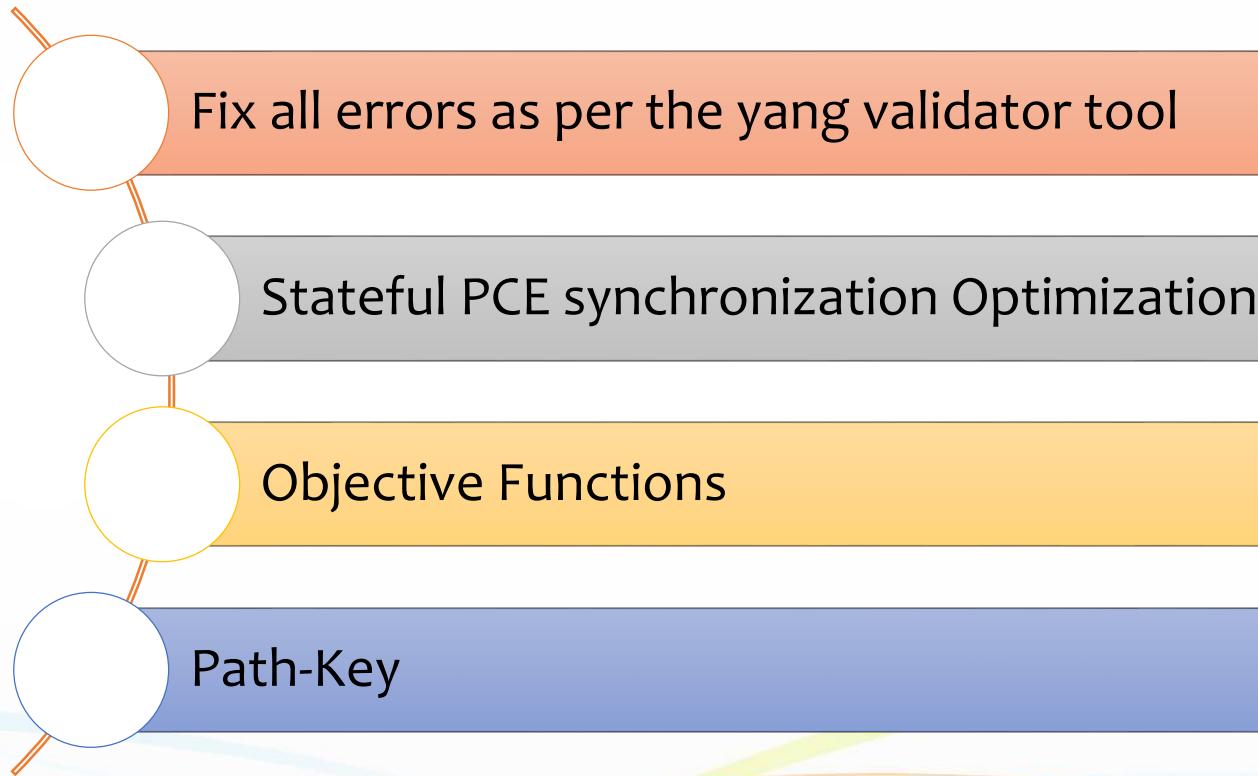
Extensions

Configurations
State

Aligned to PCEP MIB

Stateful PCE, SR, SVEC,
OF, GCO, P2MP...

Recent Changes



Sync Optimization

- Capability
 - Include DB Version
 - Incremental (Delta) Sync
 - Triggered Initial Sync
 - Triggered Re-sync

```
module: ietf-pcep
  +-rw pcep!
  |  +-rw entity
  |  +---+
  |  +-rw speaker-entity-id?           string {stateful-sync-opt}?
  |  +---+
  |  |  +---+
  |  |  +-rw stateful {stateful}?      boolean
  |  |  |  +-rw enabled?               boolean
  |  |  |  +-rw active?                boolean
  |  |  |  +-rw pce-initiated?        boolean {pce-initiated}?
  |  |  |  +-rw include-db-ver?       boolean {stateful-sync-opt}?
  |  |  |  +-rw trigger-resync?       boolean {stateful-sync-opt}?
  |  |  |  +-rw trigger-initial-sync? boolean {stateful-sync-opt}?
  |  |  |  +-rw incremental-sync?    boolean {stateful-sync-opt}?
  |  |  +-rw sr {sr}?
  |  |  |  +-rw enabled?             boolean
  |  +---+
  +-rw peers
  +-rw peer* [addr]
  |  +---+
  |  +-rw capability
  |  |  +---+
  |  |  +-rw stateful {stateful}?      boolean {stateful-sync-opt}?
  |  |  |  +-rw include-db-ver?       boolean {stateful-sync-opt}?
  |  |  |  +-rw trigger-resync?       boolean {stateful-sync-opt}?
  |  |  |  +-rw trigger-initial-sync? boolean {stateful-sync-opt}?
  |  |  |  +-rw incremental-sync?    boolean {stateful-sync-opt}?
  |  +---+
  +---+
```

Sync Optimization

- Local Speaker Entity
- Peer Speaker Entity
- Local DB Version
- Received DB Version per peer

```
+--ro pcep-state
  +-ro entity
  +---...
  +-ro speaker-entity-id?      string {stateful-sync-opt}?
  +---...
  +-ro capability
  |  +---...
  |  +-ro stateful {stateful}?
  |  |  +---...
  |  |  +-ro include-db-ver?    boolean {stateful-sync-opt}?
  |  |  +-ro trigger-resync?   boolean {stateful-sync-opt}?
  |  |  +-ro trigger-initial-sync? boolean {stateful-sync-opt}?
  |  |  +-ro incremental-sync? boolean {stateful-sync-opt}?
  |  |  +---...
  +-ro lsp-db {stateful}?
  |  +-ro db-ver?
  |  +---...
  +-ro peers
    +-ro peer* [addr]
    +---...
    +-ro capability
    |  +---...
    |  +-ro stateful {stateful}?
    |  |  +---...
    |  |  +-ro include-db-ver?    boolean {stateful-sync-opt}?
    |  |  +-ro trigger-resync?   boolean {stateful-sync-opt}?
    |  |  +-ro trigger-initial-sync? boolean {stateful-sync-opt}?
    |  |  +-ro incremental-sync? boolean {stateful-sync-opt}?
    |  |  +---...
    +-ro sessions
      +-ro session* [initiator]
      +---...
      +-ro recv-db-ver?          uint64 {stateful,stateful-sync-opt}?
      +---...
      +-ro speaker-entity-id?   string {stateful-sync-opt}?
```

Objective Function

- Support for various objective function codes
- PCEP entity is configured with list of OF it can support.
- List of OF supported by the peer as learned in the Open Message
- As per the manageability consideration of RFC 5541

```
module: ietf-pcep
  +-rw pcep!
    |  +-rw entity
    |  +---...
    |  +-rw of-list {objective-function}?
    |  |  +-rw objective-function* [of]
    |  |  +-rw of    objective-function
    |  +---...
  +-ro pcep-state
    +-ro entity
    +---...
    +-ro of-list {objective-function}?
    |  +-ro objective-function* [of]
    |  +-ro of    objective-function
  +-ro peers
    +-ro peer* [addr]
    +---...
    +-ro sessions
      +-ro session* [initiator]
      +---...
      +-ro of-list {objective-function}?
      |  +-ro objective-function* [of]
      |  +-ro of    objective-function
      +---...
```

Path Key

- Configure Path-key and related attributes
- List of Path-key and the confidential path segment (CPS)
- As per the manageability consideration of RFC 5520

```
module: ietf-pcep
++-rw pcep!
|  +-rw entity
|    +---...
|      +-+rw path-key {path-key}?
|        +-+rw enabled?          boolean
|        +-+rw discard-timer?    uint32
|        +-+rw reuse-time?       uint32
|        +-+rw pce-id?           inet:ip-address
```

```
+--ro pcep-state
  +-+ro entity
    +---...
    |  +-+ro path-key {path-key}?
    |    +-+ro enabled?          boolean
    |    +-+ro discard-timer?    uint32
    |    +-+ro reuse-time?       uint32
    |    +-+ro pce-id?           inet:ip-address
  +---...
  +-+ro path-keys {path-key}?
  |  +-+ro path-keys* [path-key]
  |    +-+ro path-key          uint16
  |  +-+ro cps
  |    +-+ro explicit-route-objects* [index]
  |      +-+ro index            uint8
  |      +-+ro explicit-route-usage? identityref
  |      +-+ro (type)?
  |        +-:(ipv4-address)
  |          +-+ro v4-address?     uint8
  |          +-+ro v4-prefix-length? boolean
  |          +-+ro v4-loose?      boolean
  |        +-:(ipv6-address)
  |          +-+ro v6-address?     uint8
  |          +-+ro v6-prefix-length? boolean
  |          +-+ro v6-loose?      boolean
  |        +-:(as-number)
  |          +-+ro as-number?      uint16
  |        +-:(unnumbered-link)
  |          +-+ro router-id?      inet:ip-address
  |          +-+ro interface-id?   uint32
  |        +-:(label)
  |          +-+ro value?          uint32
  +-+ro pcc-original?    -> /pcep-state/entity/peers/peer/addr
  +-+ro req-id?          uint32
  +-+ro retrieved?        boolean
  +-+ro pcc-retrieved?    -> /pcep-state/entity/peers/peer/addr
  +-+ro creation-time?   yang:timestamp
  +-+ro discard-time?    uint32
  +-+ro reuse-time?       uint32
  +---...
```

Next Step

- Some Open Issues
 - TLS configurations in authentication
 - Need for more notifications / rpc (?)
- Is it time to stop adding new PCEP features and freeze?
 - Work on making sure the completeness of current feature-set now?
- More reviews
 - Direct contribution on github are welcome!



Thank You!