Extensible YANG Model for Network Telemetry Messages

draft-ietf-nmop-message-broker-telemetry-message-03

Defines an extensible message schema in YANG
to be used at data collection to transform Network Telemetry messages
into external systems such as Message Brokers

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YANG Schema Trees

(1) Optional network node and collector data manifest reused from [draft-ietf-opsawg-collected-data-manifest](#).

(2) Telemetry Protocol Metadata.

(3) Optional network operator metadata.

(4) YANG-Push notification received from the network node.

(5) YANG-Push subscription received from network node.

```
module: ietf-yang-push-telemetry-message

  augment-structure /tm:message/tm:telemetry-message-metadata:
    +-- yang-push-subscription
      +-- id?                          sn:subscription-id
      +-- (filter-spec)?
      |  +--:(subtree-filter)?
      |  |  +-- subtree-filter?   anydata
      |  +--:(xpath-filter)?
      |     +-- xpath-filter?      yang:xpath1.0
      +-- (target)?
      |  +--:(stream)
      |  |  +-- stream?    string
      |  +--:(datastore)
      |     +-- datastore?    identityref
      +-- transport?                   sn:transport
      +-- encoding?                    sn:encoding
      +-- purpose?                     string
      +-- (update-trigger)?
      |  +--:(periodic)
      |  |  +-- periodic!
      |  |     +-- period?         yp:centiseconds
      |  |     +-- anchor-time?    yang:date-and-time
      |  +--:(on-change)
      |     +-- on-change!
      |        +-- dampening-period?   yp:centiseconds
      |        +-- sync-on-start?      boolean
      +-- module* [name]
      |  +-- name         yang:yang-identifier
      |  +-- revision?    rev:revision-date
      |  +-- version?     ysver:version
      +-- yang-library-content-id?    string
```

```
module: ietf-telemetry-message

  structure message:
    +-- network-node-manifest {network-node-manifest}?
    |  +-- name?              string
    |  +-- vendor?            string
    |  +-- vendor-pen?        uint32
    |  +-- software-version?  string
    |  +-- software-flavor?   string
    |  +-- os-version?        string
    |  +-- os-type?           string
    +-- telemetry-message-metadata
    |  +-- node-export-timestamp?   yang:date-and-time
    |  +-- collection-timestamp     yang:date-and-time
    |  +-- notification-event
    |  |    telemetry-notification-event-type
    |  +-- session-protocol          telemetry-session-protocol-type
    |  +-- export-address            inet:host
    |  +-- export-port?              inet:port-number
    |  +-- collection-address?       inet:host
    |  +-- collection-port?          inet:port-number
    +-- data-collection-manifest {data-collection-manifest}?
    |  +-- name?              string
    |  +-- vendor?            string
    |  +-- vendor-pen?        uint32
    |  +-- software-version?  string
    |  +-- software-flavor?   string
    |  +-- os-version?        string
    |  +-- os-type?           string
    +-- network-operator-metadata
    |  +-- labels* [name]
    |     +-- name        string
    |     +-- (value)
    |        +--:(string-choice)
    |        |  +-- (string-choice)?
    |        |     +--:(string-value)
    |        |        +-- string-value?    string
    |        +--:(anydata-choice)
    |           +-- (anydata-choice)?
    |              +--:(anydata-values)
    |                 +-- anydata-values?    anydata
    +-- payload?                        anydata
```
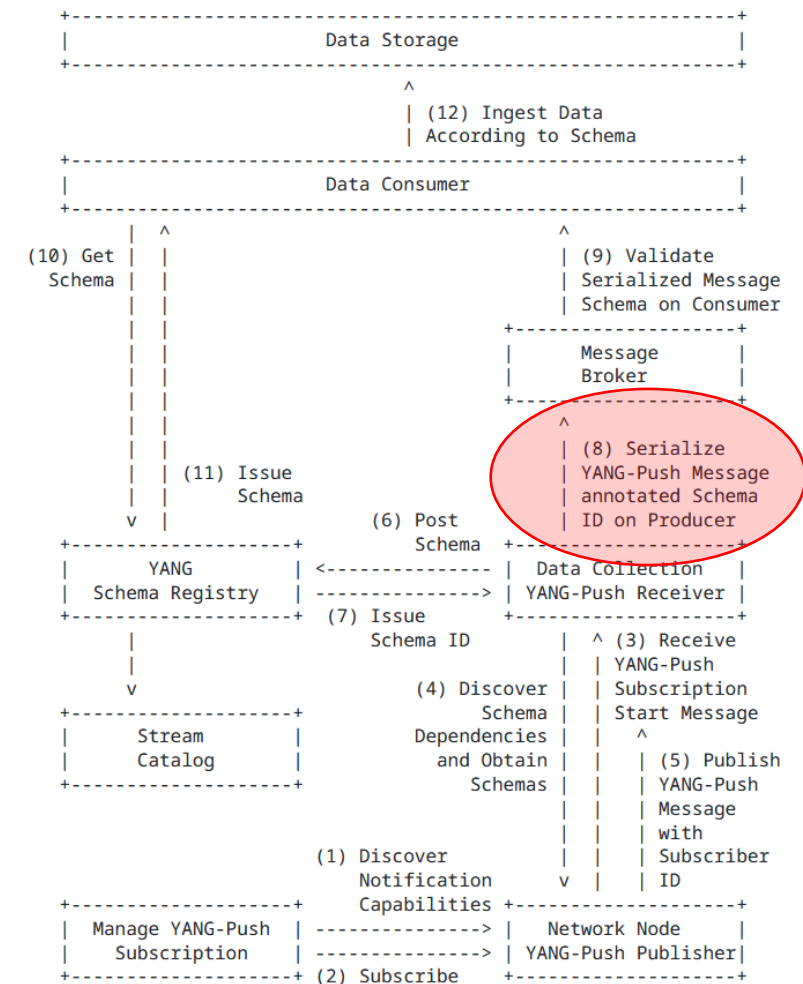
Extensible YANG Model for Network Telemetry Messages
Status and Summary from -02

- Addressed comments from Reshad (https://mailarchive.ietf.org/arch/msg/nmop/MfIthPyz61aJ9fX5WgJPuJud0us/) and Rob (https://mailarchive.ietf.org/arch/msg/nmop/Yi-WE5SgZ1hIxDfYtlgSQQfbC7U/). Many thanks for the review!

- Reflected changes in ietf-yang-push-telemetry-message yang module node name changes from "draft-ietf-netmod-yang-semver" from "revision-label" to" version" and "module-name" to "name" to align with https://datatracker.ietf.org/doc/html/draft-ietf-netmod-rfc8407bis-22#section-4.3.1.

  - Please note that the described changes also had implications on draft-ietf-netconf-yang-notifications-versioning-09 https://mailarchive.ietf.org/arch/msg/nmop/aefFROi7Pgm3m6xxfovqX_LIQ1c/.

Extensible YANG Model for Network Telemetry Messages
Status and Summary from -03

- Many thanks to Martin Björklund for the early YANG doctors review. Comments were addressed as bellow. See also https://mailarchive.ietf.org/arch/msg/nmop/cgOnUQDVc_8hb0YOkIMDyBXyCrU/

- identity name change from "yp-push" to "yang-push".

- Introduced missing leaf "notification-event" referencing "telemetry-notification-event-type" identityref to declare notification type of telemetry message. Wherever real-time transformed from network node or generated or removed out of cache in data collector as state update.

- Martin suggested to change "message" container to sx:structure (RFC 8791, data structure) or notification (Section 4.2.10 of RFC 7950). Considering that it envelops draft-ietf-netconf-notif-envelope, authors opted for "sx:structure".

  - **We like to hear from the working group wherever the YANG doctors input and authors choice make sense. Other opinions?**

Extensible YANG Model for Network Telemetry Messages
Next steps at IETF 124 and 125

Next Steps

- The document describes in the implementation status section the NetGauze YANG Message Broker Producer implementation which was validated at IETF 123 hackathon.

- We validated Pmacct as second YANG Message Broker Producer implementation at IETF 124 hackathon.
  - ➢ **See separate presentation for details.**

- Workflow Engine from Ciena Blue Planet UAA is a YANG Message Broker Consumer implementation which is currently under development and testing.

- The last remaining normative referenced document which did not pass working group last call is draft-ietf-nmop-yang-message-broker-integration.

➢ **Clarify with NMOP and OPS AD wherever the document should be "informational" or "standards track".**

➢ **The authors believe that the document is stable and once YANG doctors review and input from second implementation has been merged, working group last call at IETF 125 and submitted together with draft-ietf-nmop-yang-message-broker-integration to IESG can be considered.**

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