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 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
```

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```
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
```

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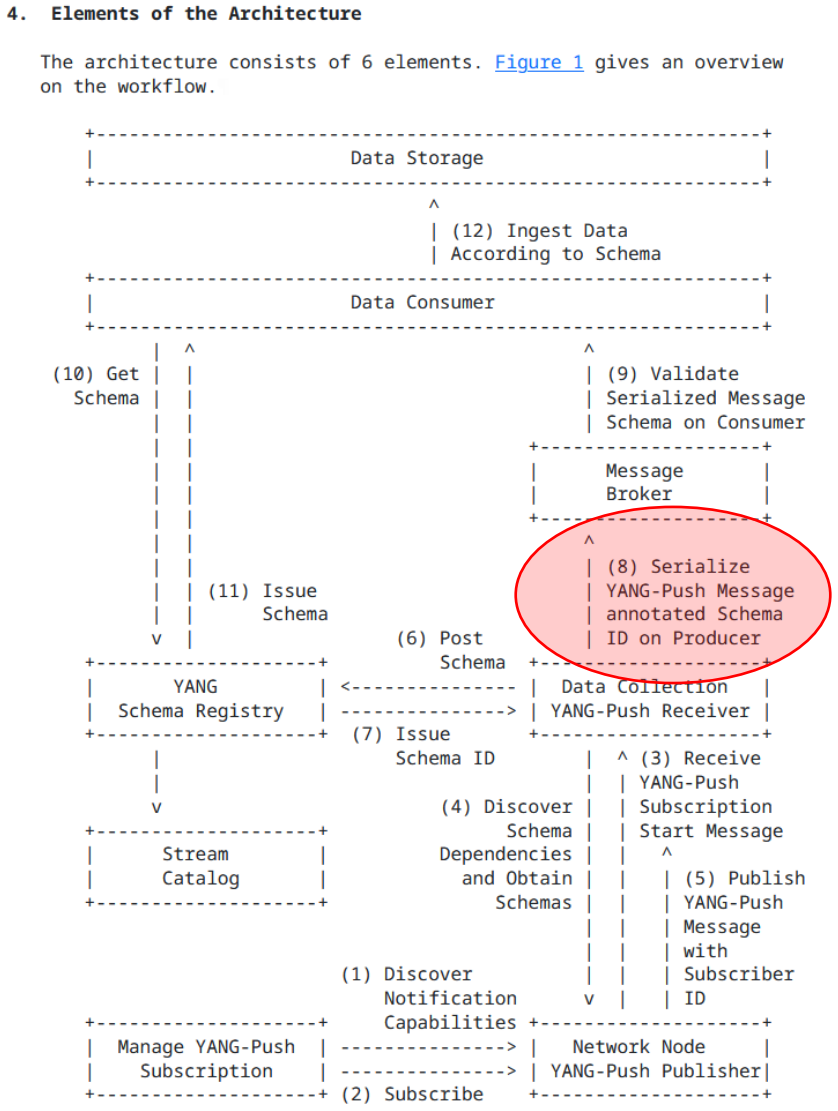
Status and Summary from -02

- 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 (). 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?**

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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.