

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

thomas.graf@swisscom.com
ahmed.elhassany@swisscom.com

25. October 2025

Extensible YANG Model for Network Telemetry Messages

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
```

```
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
```

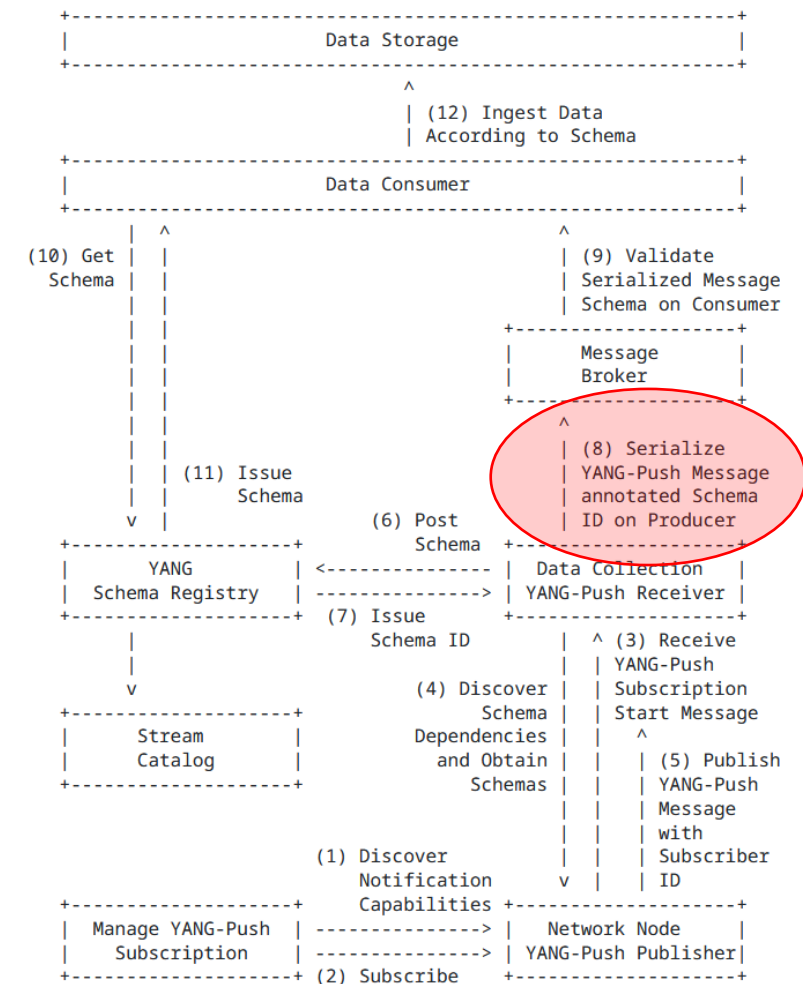
Extensible YANG Model for Network Telemetry Messages

Status and Summary from -02

- Addressed comments from Reshad (<https://mailarchive.ietf.org/arch/msg/nmop/MflthPyz61aJ9fX5WgJPuJud0us/>) and Rob (<https://mailarchive.ietf.org/arch/msg/nmop/Yi-WE5SgZ1hIxDefYtlgSQQfbC7U/>)
- Reflected changes in ietf-yang-push-telemetry-message yang module node name changes from "[draft-ietf-netmod-yang-semver](https://datatracker.ietf.org/doc/html/draft-ietf-netmod-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/.

4. Elements of the Architecture

The architecture consists of 6 elements. [Figure 1](#) gives an overview on the workflow.



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?**

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.