

# 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
```

```
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
```

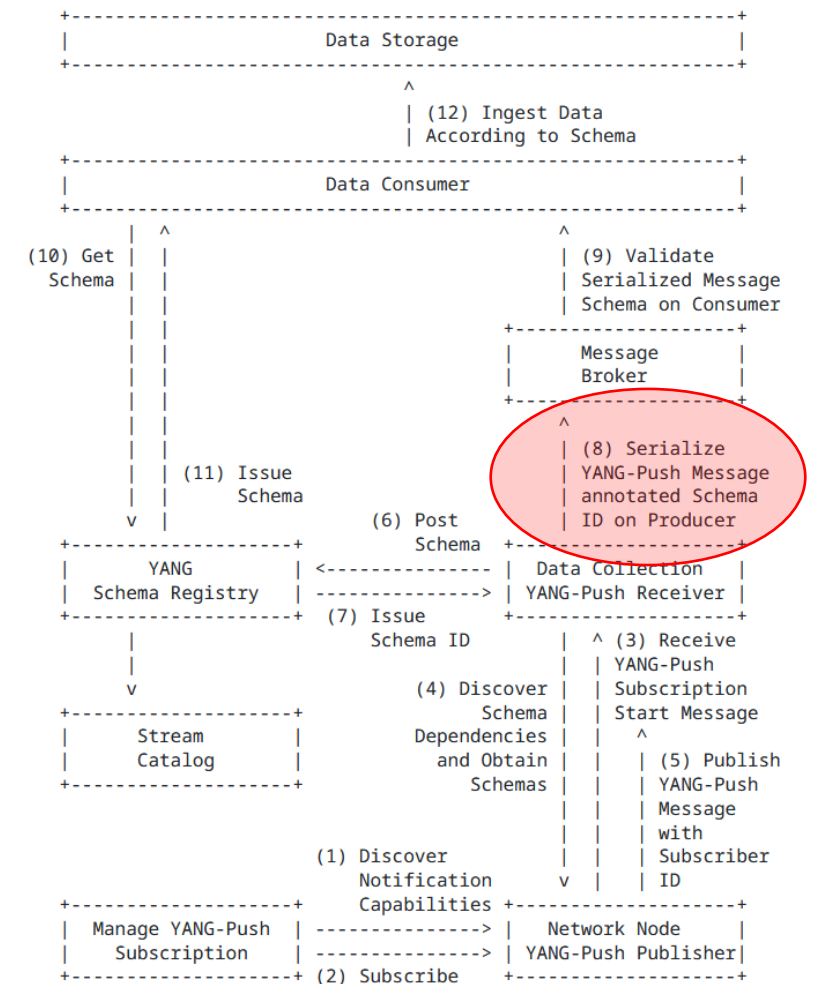
# Extensible YANG Model for Network Telemetry Messages

## 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/>). Many thanks for the review!
- 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/](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/](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.
- 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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