

# Extensible YANG Model for Network Telemetry Notifications

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

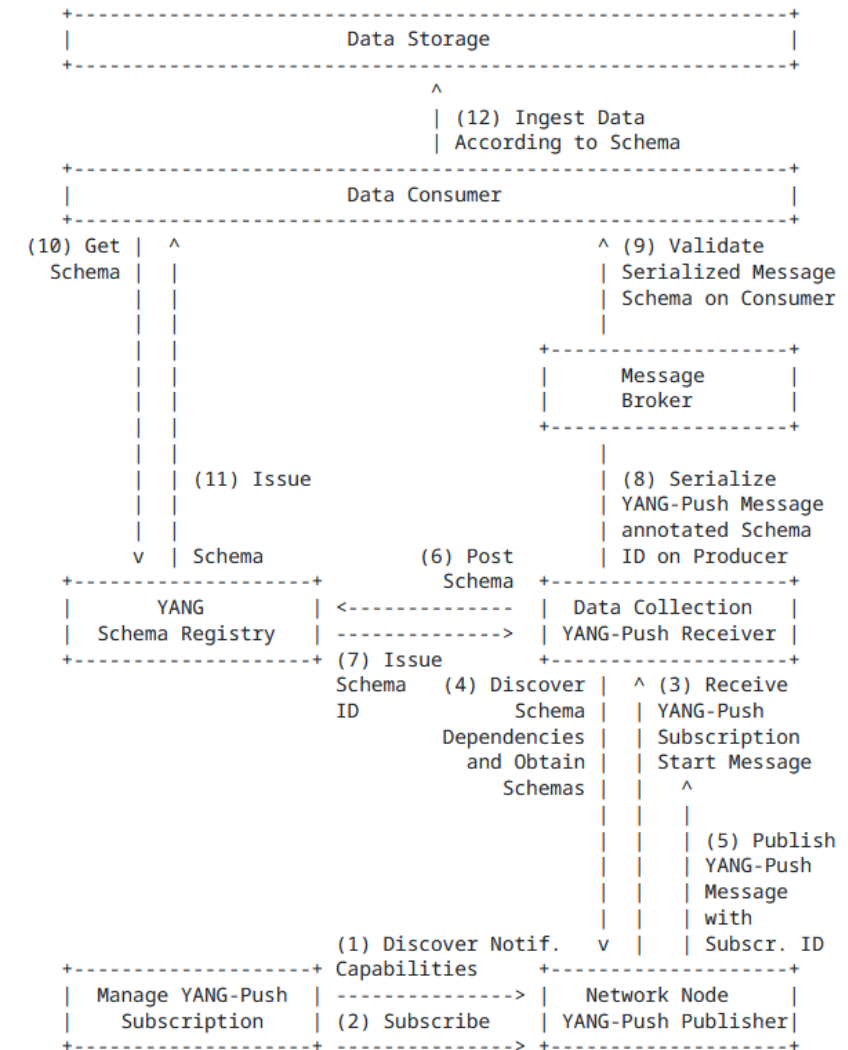
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# YANG-Push to Message Broker Architecture

## draft-ietf-nmop-message-broker-telemetry-message

- The integration architecture is defined in [draft-ietf-nmop-yang-message-broker-integration](#)
- The message produced by the **Data Collection YANG-Push receiver** towards the **Message Broker** is assumed to be the same as the one received from the router.
- In production networks, operators often enrich collected data with additional information such as collection time and the YANG-Push subscription path.
- This document **aims to standardize the message format** between Message Broker Producer and Consumer.



## Feedback from NMOP

- **Document adopted at NMOP.** Thanks a lot for the support and to Benoit and Reshad for their review.
- Addressed all feedback from IETF 122, and on the NMOP mailing list from the adoption call.
  - ietf-platform-manifest is now being imported and platform-details reused
  - Clear naming for leafs and containers based on NMOP feedback
  - Thanks to Benoit, address and port now distinguishes between local and remote in container data-collection-metadata.
  - Added session-protocol identities.
  - Added feature flags for optional metadata: network-node-manifest and data-collection-manifest.
- Updated both ietf-telemetry-message and ietf-yang-push-telemetry-message YANG modules based on feedback from [Netgauze](#) example implementation.
- Added security section as per [RFC 8407bis](#) and IANA consideration section.
- Added information about implementation status and examples from produced messages.

# ietf-telemetry-message YANG Schema Tree

## draft-ietf-nmop-message-broker-telemetry-message

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 message received from the router

```
module: ietf-telemetry-message
+--ro message
  +--ro network-node-manifest {network-node-manifest}?
  | +--ro name? string
  | +--ro vendor? string
  | +--ro vendor-pen? uint32
  | +--ro software-version? string
  | +--ro software-flavor? string
  | +--ro os-version? string
  | +--ro os-type? string
  +--ro telemetry-message-metadata
  | +--ro node-export-timestamp? yang:date-and-time
  | +--ro collection-timestamp? yang:date-and-time
  | +--ro session-protocol
  | | telemetry-session-protocol-type
  | +--ro export-address inet:host
  | +--ro export-port? inet:port-number
  | +--ro collection-address? inet:host
  | +--ro collection-port? inet:port-number
  +--ro data-collection-manifest {data-collection-manifest}?
  | +--ro name? string
  | +--ro vendor? string
  | +--ro vendor-pen? uint32
  | +--ro software-version? string
  | +--ro software-flavor? string
  | +--ro os-version? string
  | +--ro os-type? string
  +--ro network-operator-metadata
  | +--ro labels* [name]
  | | +--ro name string
  | | +--ro (value)
  | | +--: (string-choice)
  | | | +--ro (string-choice)?
  | | | +--: (string-value)
  | | | +--ro string-value? string
  | | +--: (anydata-choice)
  | | +--ro (anydata-choice)?
  | | +--: (anydata-values)
  | | +--ro anydata-values? <anydata>
  +--ro payload? <anydata>
```

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## ietf-telemetry-message YANG Schema Tree

### draft-ietf-nmop-message-broker-telemetry-message

1. Extends ietf-telemetry-message ietf-telemetry-message with YANG-Push subscription with information obtained from the [YANG-Push subscription-started notification](#).
2. Previous implementation didn't specify the correct filters (thanks Rob).
3. Unlike YANG-Push, we use one spec for datastore and notifications with a target leaf to specify the use of the filter.
4. Added additional metadata that are useful: transport, encoding, purpose, module-version, etc..

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

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

## Questions and Next steps

- **Request more feedback** from NMOP, BBF Broadband Network Data Collection (BNDC), network operators and network analytics software development colleagues wherever the proposed schema
  - The structure makes sense
  - Accommodates all needs or is missing elements
- Validate consuming telemetry message with Ciena Blue Planet Unified Assurance and Analytics (UAA), Network Anomaly Detection and YANG transformation systems.
- Propose second augmentation supporting IPFIX. Addressing WT-508 requirements from Broadband Forum.

<https://www.network-analytics.org/yp/>

