Support of Versioning in YANG Notifications Subscription
draft-ietf-netconf-yang-notifications-versioning-05

Adds semantics to the subscription process and notification
message to enable automated data mesh integration

thomas.graf@swisscom.com
benoit.claise@huawei.com
alex.huang-feng@insa-lyon.fr

12. July 2024

Support of Versioning in YANG Notifications Subscription

For subscription state change notification messages

```
module: ietf-yang-push-revision

  augment /sn:establish-subscription/sn:input:
    +---w module-version-config* [module-name]
      +---w module-name        yang:yang-identifier
      +---w revision?          rev:revision-date-or-label
      +---w revision-label?    ysver:version

  augment /sn:subscription-started:
    +--ro module-version* [module-name]
      +--ro module-name        yang:yang-identifier
      +--ro revision           rev:revision-date-or-label
      +--ro revision-label?    ysver:version
```

```
{
   "ietf-notification:notification": {
     "eventTime": "2023-03-25T08:30:11.22Z",
     "ietf-notification-sequencing:sysName": "example-router",
     "ietf-notification-sequencing:sequenceNumber": 1,
     "ietf-subscribed-notification:subscription-started": {
       "id": 6666,
       "ietf-yang-push:datastore": "ietf-datastores:operational",
       "ietf-yang-push:datastore-xpath-filter": "/if:interfaces",
       "ietf-yang-push-revision:revision": "2014-05-08",
       "ietf-yang-push-revision:module-name": "ietf-interfaces",
       "ietf-yang-push-revision:revision-label": "",
       "ietf-distributed-notif:message-observation-domain-id": [1,2],
       "transport": "ietf-udp-notif-transport:udp-notif",
       "encoding": "encode-json",
       "ietf-yang-push:periodic": {
         "ietf-yang-push:period": 100
       }
     }
   }
}
```

- **Network operators need to control semantics in its data processing pipeline. That includes YANG-Push.**

- This is today only possible during YANG-Push subscription but not when nodes are being upgraded or when messages are being published for configured subscription.

- draft-ietf-netconf-yang-notifications-versioning extends the YANG push subscription and publishing mechanism defined in RFC 8641:

  - **By adding the ability to subscribe to a specific revision** or latest-compatible-semversion of one or more yang modules.

  - **By extending the YANG push Subscription State Change Notifications Message** so that the YANG push receiver learns beside the xpath and the sub-tree filter also the yang module name, revision and revision-label.

Support of Versioning in YANG Notifications Subscription
draft-ietf-netconf-yang-notifications-versioning-04 - Status and Next Steps

Current Status

- Resolved issue that within a "case" statement identifiers need to be unique.

- Thanks to Jérémie Leska from 6Wind for reporting this issue.

Next Steps

➢ **Validate implementation at IETF 120 hackathon.**

➢ **Requesting feedback from the netconf working group and YANG-Push implementers.**

YANG-Push Implementation Status
IETF 120

	6WIND VSR	Huawei VRP	Cisco IOS XR
RFC 8639 YANG-Push Subscription	x	x	
RFC 8641 YANG-Push Notification	x	x	x
draft-ietf-netconf-udp-notif	x	x	
draft-ietf-netconf-distributed-notif	x	x	
draft-ietf-netconf-yang-notifications-versioning	x	x	
draft-tgraf-netconf-notif-sequencing	x		
draft-tgraf-netconf-yang-push-observation-time	x		
RFC 7895 YANG Module Library		x	
RFC 8525 YANG Library	x		x
draft-lincla-netconf-yang-library-augmentation			

Address YANG Specification and Integration Gaps
Aiming for an automated data processing pipeline

YANG Specifications Gaps:

- YANG model for NETCONF Event Notifications
  draft-ahuang-netconf-notif-yang -------------------------------->

- Validating anydata in YANG Library context
  draft-aelhassany-anydata-validation ----------------------------->

YANG Integration Gaps:

- Support of Network Observation Timestamping in YANG Notifications
  draft-tgraf-netconf-yang-push-observation-time ----------------->

- Support of Hostname and Sequencing in YANG Notifications
  draft-tgraf-netconf-notif-sequencing --------------------------->

- Support of Versioning in YANG Notifications Subscription
  draft-ietf-netconf-yang-notifications-versioning --------------->

- Augmented-by Addition into the IETF-YANG-Library
  draft-lincla-netconf-yang-library-augmentation ----------------->

« Addressing those gaps are a prerequisite to enable an automated data processing chain as described in draft-ietf-nmop-yang-message-broker-integration.
Please consider to attend IETF 120 NMOP working group session on Friday 13:00 – 15:00 or go onto the mailing list and contribute to the discussion. »