Support of Hostname and Sequencing in YANG Notifications

draft-tgraf-netconf-notif-sequencing-06

Adds sysName and sequenceNumber to identify
from where the message was exported from

thomas.graf@swisscom.com
jean.quilbeuf@huawei.com
alex.huang-feng@insa-lyon.fr

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Extend Netconf Notifications with Hostname and Sequence Number

For push-update and push-change-update

```
module: ietf-notification

  structure notification:
    +-- eventTime                          yang:date-and-time
    +-- inotifseq:sysName                  inet:host
    +-- inotifseq:sequenceNumber           yang:counter32
```

```
{
  "ietf-notification:notification": {
    "eventTime": "2023-03-25T08:30:11.22Z",
    "ietf-notification-sequencing:sysName": "example-router",
    "ietf-notification-sequencing:sequenceNumber": 1,
    "ietf-yang-push:push-update": {
      "id": 6666,
      "ietf-yp-observation-time:observation-time": "2023-02-04T16:30:09.44Z",
      "ietf-yp-observation-time:point-in-time": "current-accounting",
      "datastore-contents": {
        "ietf-interfaces:interfaces": [
          {
            "interface": {
              "name": "eth0",
              "type": "iana-if-type:ethernetCsmacd",
              "oper-status": "up",
              "mtu": 1500
            }
          }
        ]
      }
    }
  }
}
```

- When **NETCONF event notification messages are forwarded from a YANG push receiver to another system**, a message broker or a time series database where the messages are stored, the **transport context is lost since it is not part of the NETCONF event notification message metadata.** Therefore, the downstream system is unable to associate the message to the publishing process (the exporting router), nor able to detect message loss or reordering.
- draft-tgraf-netconf-notif-sequencing extends the NETCONF notification defined in RFC5277 with:
  - **sysName:** Describes the hostname following the 'sysName' object definition in RFC 1213 from where the message was published from.
  - **sequenceNumber:** Generates a unique sequence number as described in RFC 9187 for each published message.

Extend Netconf Notifications with Hostname and Sequence Number

draft-tgraf-netconf-notif-sequencing-06 - Status and Next Steps

Current Status

- Addresses feedback at NMOP that notification changes should be discoverable.
  - Section 2.1 describes new netconf notification with hostname and sequence capability.
  - Section 2.2 describes new YANG-related system capabilities. Netconf notification with hostname and sequence capability is now discoverable through extended YANG-related system capabilities defined in RFC 9196.
- Minor editorial changes and implementation status section added.

Next Steps

➢ **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 8641 YANG-Push	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. »