

Support of Versioning in YANG Notifications Subscription

draft-ietf-netconf-yang-notifications-versioning-03

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

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27. October 2023

Extend Datastore Selection and Subscription State Change Notifications with **module name, revision and revision-label**

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

```
augment /sn:establish-subscription/sn:input/sn:target/sn:stream
  /sn:stream-filter/sn:within-subscription:
  +-- module-version* [module-name]
  +-- module-name      yang:yang-identifier
  +-- revision?        rev:revision-date-or-label
  +-- revision-label?  ysver:version
augment /sn:establish-subscription/sn:input/sn:target/yp:datastore
  /yp:selection-filter/yp:within-subscription:
  +-- module-version* [module-name]
  +-- module-name      yang:yang-identifier
  +-- revision?        rev:revision-date-or-label
  +-- revision-label?  ysver:version
```

```
augment /sn:subscription-started/sn:target/sn:stream
  /sn:stream-filter/sn:within-subscription:
  +--ro module-version* [module-name]
  +--ro module-name      yang:yang-identifier
  +--ro revision         rev:revision-date-or-label
  +--ro revision-label?  ysver:version
augment /sn:subscription-started/sn:target/yp:datastore
  /yp:selection-filter/yp:within-subscription:
  +--ro module-version* [module-name]
  +--ro module-name      yang:yang-identifier
  +--ro revision         rev:revision-date-or-label
  +--ro revision-label?  ysver:version
```

```
{
  "ietf-restconf:notification" : {
    "eventTime": "2023-01-03T10:00:00Z",
    "ietf-subscribed-notifications:subscription-modified": {
      "id": 101,
      "stream-xpath-filter": "/ietf-interfaces:interfaces",
      "stream": "NETCONF",
      "ietf-yang-push-revision:module-version": [{
        "module-name": "ietf-interfaces"
        "revision": "2014-05-08",
        "revision-label": "1.0.0",
      }],
    }
  }
}
```

- **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 messages are being published for configured subscription.
- **draft-ietf-netconf-yang-notifications-versioning** extends the YANG push subscription and publishing mechanism defined in RFC8641:
 - **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.

Versioning in YANG Notifications Subscription

Status and Next Steps

- **Feedback from Qiufang and Rob at IETF 117**

- Extend the Datastore Selection section now describes error handling. Error identities with examples for revision-unsupported, revision-label-unsupported and incompatible-revision-and-revision-label added.
- Operational Section describes YANG package context; It offers a complementary information by describing how one specific YANG module revision is part of a set of YANG modules.

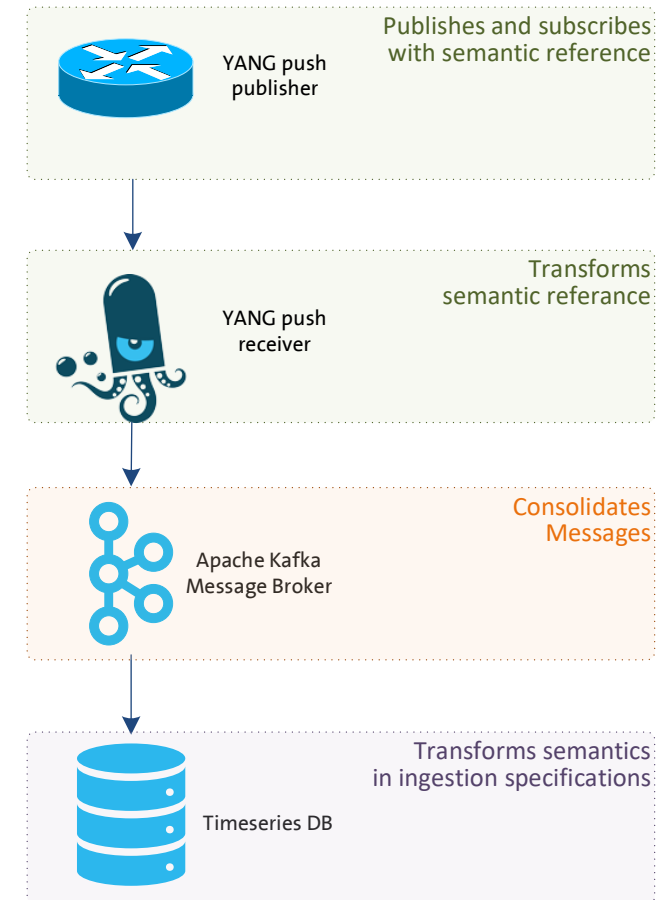
- **All addressed in -03 revision**

-> Requesting feedback and comments.

- **YANG @ Kafka side meeting today**

November 7th at 15:30 in room Palmovka 1/2.

-> Updates on semantic YANG Push message validation outcome from hackathon activity



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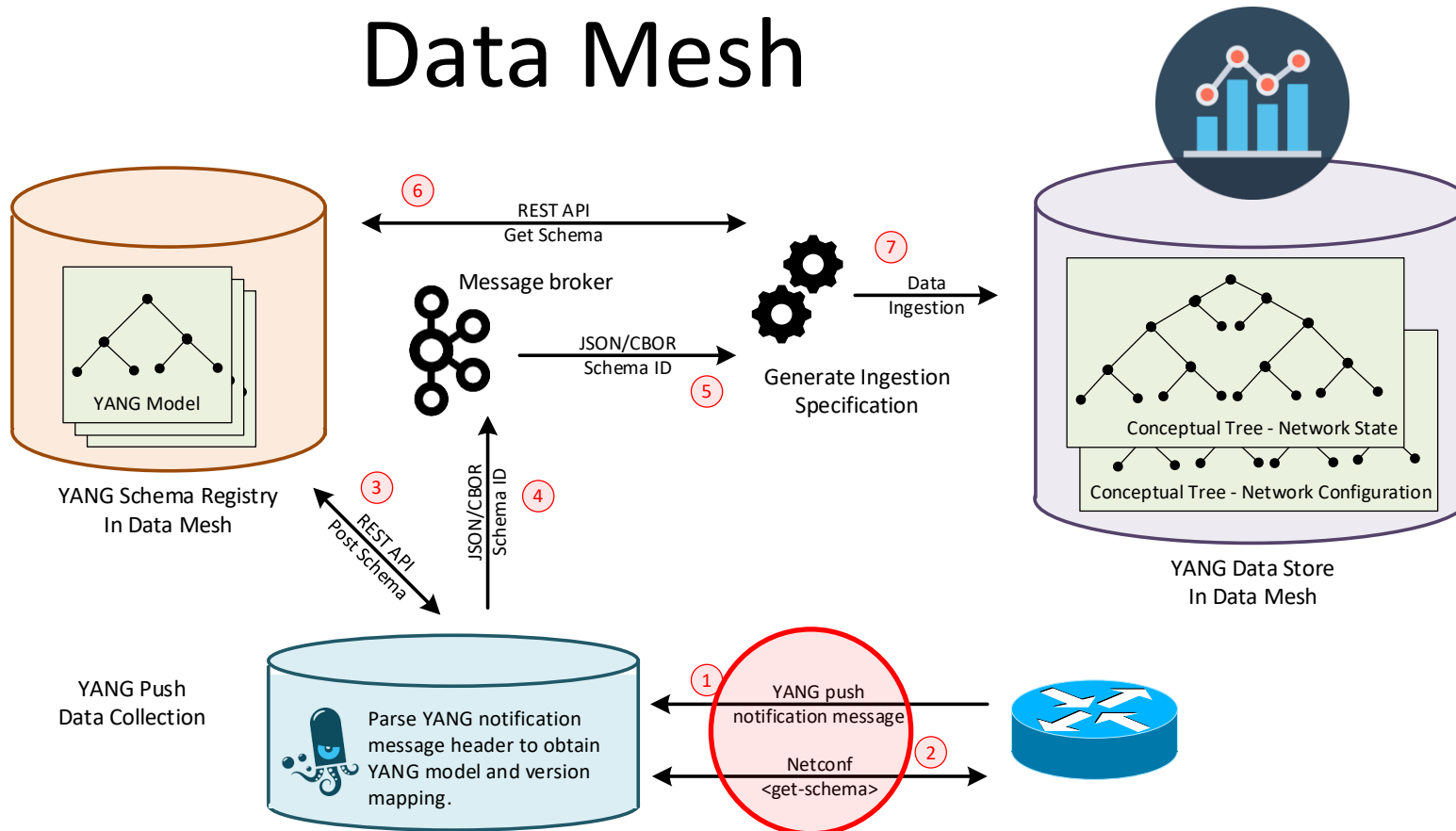
27. October 2023

Backup

When Big Data and Network becomes **one**

Marrying two messaging protocols

Data Mesh



- **Data Mesh** is a big data architecture where different domains can exchange data with a **bounded context** and **SLO's** are defined in Data Products. **Same principle as in networks.**
- **Semantics** are needed to describe the data. **A gauge32 is not the same as counter32.** Values can increase or decrease. Needs monotonic increasing counter normalization or not.
- **Versioning** is needed to not only understand that the semantic has changed, but also wherever the new semantic is backward compatible or not. **Preventing to break the data processing pipeline.**
- **Hostname, publisher ID, sequence numbers and observation timestamping** are needed to **measure loss and delay for SLO's.**
- **YANG push as defined in RFC8641 is missing** hostname, sequence numbers, observation timestamping and versioning. **draft-ahuang-netconf-notif-yang, draft-tgraf-netconf-notif-sequencing, draft-tgraf-netconf-yang-push-observation-time and draft-ietf-netconf-yang-notifications-versioning** addresses this.