

WT-508 and YANG-Push to Message Broker Comparison

Shared synergies and common interests

zhenghaomian@huawei.com
david.zhujian@huawei.com
thomas.graf@swisscom.com

22. February 2025

Agenda Items

- Hight Level Requirements
- Architecture, Component and Interface Comparison
- Key Findings and Possible Action Points
- Next Steps

High Level Requirements

What we **both care**

- Standard Interface for Subscription Management
-> NETCONF and RESTCONF?
- Standard Interface for Network Data Collection
-> YANG-PUSH and IPFIX?
- Standard Data Modelling
-> YANG?
- Standard Models covering management and forwarding plane
-> BBF augmented IETF YANG modules?
- Standard Interface for Data Delivery
-> Message Broker?

High Level Requirements

What **IETF cares** and BBF probably as well

- Discoverable subscription capabilities
-> **Subscription Automation**: Not all network elements have the same capabilities
- Notifications of subscriptions state and schema changes
-> **Subscription Lifecycle**: Subscriptions and Schema can change over time
- Exportability of schema and schema tree
-> **Data Collection Automation**: Schema and dependencies needs to be obtainable from publisher
- Notification metadata (hostname, sequence-number, observation timestamping)
-> **Data Correlation Automation**: From where, when and with which data quality

High Level Requirements

What **BBF cares** and IETF probably as well

- Network Telemetry (RFC 9232)
 - > **Holistically: Beyond YANG** and management plane, IPFIX forwarding plane, BMP control plane.
 - > SIMAP, Knowledge Graph, Network Observability, Network Anomaly Detection

Component and Interface

How **they compare**

BBF Component	IETF Component
Data Requestors (DReqs)	N/A
DC Management Function (DC MF)	YANG-Push Subscription
Managed Entities (MEs)	YANG-Push Publisher
DC Function (DCF)	YANG-Push Receiver YANG Message Broker Producer
Data Delivery Targets (DDTs)	YANG Message Broker Consumer

BBF Interface	IETF Interface
DReq-DCMF	N/A
DCMF-ME	NETCONF, RESTCONF
DCMF-DCF	N/A
DCF-ME	YANG-Push
DCF-DDT	Message Broker / Schema Registry

Discussion Points

What are the **key findings**

- Do we agree that the 4 highlighted points from slide 4 should be included in the BBF requirements?
- Do we agree that regardless wherever the network data is being polled or pushed the architecture remains the same only the functions move to different systems?

Remark: Only in case of polling an interface between DC Management Function and DC Function resp. YANG-Push Subscription and YANG-Push Receiver is needed.

- Shall we align terminology between IETF and BBF or describe in each other document how terminology can be mapped on component and interface level?

Discussion Points

What are the **possible action points**

- Shall we describe in the IETF architecture how the data collection maintains the subscription when network data is being polled on the network node?
- Shall we describe in the IETF architecture how IPFIX and BMP could be accommodated by preserving the architecture principles?
- Shall we include in the IETF architecture the Data Requestor aspect? How a system can interface with YANG-Push Subscription.

Next Steps

How we keep updated

- Do you agree that both operators' requirements and architecture proposals are very similar?
- Do you agree that it is mutually beneficial to align?
- Was this exchange useful and should we meet again in 3 months?