UDP based Publication Channel for Streaming Telemetry

draft-zheng-netconf-udp-pub-channel-00

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Related Work

- Subscribing to YANG datastore push updates
  - ietf-netconf-yang-push-07
- Subscribing to Event Notifications
  - ietf-netconf-subscribed-notifications-03
- Netconf Transport
  - ietf-netconf-netconf-event-notifications-04
- Restconf + HTTP Transport
  - ietf-netconf-restconf-notif-02
Problem to Solve

- Large amount of data collection from devices with main board and line cards.
- Existing solution consider only one push server reside in the main board.
  - Result in performance bottleneck when data are forwarded to the main board and converged to one consolidated stream.
- Request for distributed data collection mechanism which can directly push data from line cards to a collector.
Why UDP based Publication Channel

• Separate the management and control of subscriptions from the transport that is used to actually stream and deliver the data.

• Existing transport including Netconf and HTTP2 are TCP based.
  – Data collector will suffer a lot of TCP connections from many line cards equipped on different devices.
  – Because of the lightweight UDP encapsulation, higher frequency and better transit performance can be achieved, which is important for streaming telemetry.
  – As no connection state needs to be maintained, UDP encapsulation can be easily implemented by hardware which will further improve the performance.
Solution Overview

**Technique points:**
- Subscription model that allow a single subscription to control multiple internal data originators
- Interaction between Subscription server and Subscription agent
- UDP based message header
- Retransmission procedure
UDP Telemetry Header

- **Flag**: indicates supported features on reliability, authentication, encryption, etc.
- **Message generator ID**: e.g. Line card number
- **Device ID**: global unique number within the management domain to identify a device.
- **Timestamp**: time when the message is generated/sent
- **Options**: parameters related to features enabled by the flag.
Thank you