Network Telemetry Framework

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What’s new

- Requested for OPSAWG adoption on March 7
  - WG started adoption poll in email list on March 11
- Updates since version 02
  - Clarify the definition of Network Telemetry
  - Move the technique survey to the appendix
  - Clarify the relationship between network telemetry and network OAM
  - Articulate the need for partitioning telemetry to different network planes
  - Add data acquiring mechanism as a framework dimension
  - Add security discussions for network telemetry
  - Add discussions on network telemetry evolution
Telemetry Data Acquiring Mechanisms

- Query (poll)
- Subscription (push)

Data Types:
- Simple
- Custom
- Event Triggered
- Streaming
# Telemetry Data Objects

<table>
<thead>
<tr>
<th>Plane</th>
<th>Data Source</th>
<th>Export Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Plane</td>
<td>Device config. &amp; op. status</td>
<td>Main control CPU</td>
</tr>
<tr>
<td>Control Plane</td>
<td>PDU, RIB, FIB</td>
<td>Main control CPU, LC CPU, FWD chip</td>
</tr>
<tr>
<td>Data Plane</td>
<td>User traffic</td>
<td>LC CPU, FWD Chip</td>
</tr>
<tr>
<td>External Data</td>
<td>Social event, App info</td>
<td>Terminals, Servers</td>
</tr>
</tbody>
</table>

- **Different monitoring entity & object**
- **Different data source**
- **Different data export location**

**Protocols:**
- NETCONF
- gRPC
- UDP
- BMP
- iOAM
- sFLOW

**Data Sources:**
- Device config.
- Operation status
- User traffic
- Social event, App info
- Terminals, Servers
Framework based on Telemetry Data Objects

- No one-size-fits-all solution
- Interface consolidation and unification are desired
Telemetry Function Components

- Data Analysis and Storage
  - Data requirement
  - Data sharing, distribution, and processing

- Data Subscription, Query, and Configuration
  - Interface for data request and model

- Data Encode and Export
  - Interface for telemetry data output

- Data Generating and Processing:
  - Device side data preparation

- Data Object and Source:
  - Raw data source
Discussion and Next Steps

- Revise the draft based on suggestions and comments from OPSAWG
  - Thanks to Thomas Graf, Juergen Schoenwaelder, Adrian Farrel, Daniel King, and many others who provided tangible suggestion to improve the draft
  - Thanks to many network operators and OTTs who provided requirements and confirmed the validity and usefulness of the framework
  - More reviews and feedbacks are welcome!