

BMP Statistics Informational TLV

draft-msri-grow-bmp-stats- informational-tlv

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Problem Statement

- BMP statistics are usually reported on a periodic basis or triggered by specific events or thresholds.
- BMP statistics messages reports snapshot value and doesn't capture the variation that may have occurred during the reporting interval.
- Network insights bases on BMP statistics feed is limited by the granularity of the reporting interval.
- Two orthogonal requirements to deal with:
 - Analytics services require **high** temporal resolution data, which necessitates shorter reporting intervals - **higher reporting frequency**.
 - Operational constraints favor longer reporting intervals to **lower** the volume of statistics messages on wire - **lower reporting frequency** .

Solution

- Augment statistics report with distributional information over reporting interval.
- Allows longer reporting intervals while preserving the statistical insights required by analytics application.

BMP Statistics Reporting



Draft Proposal

- Define a Statistics Informational TLV that can accompany BMP statistics message to report additional information about the statistics.
- This is an optional TLV.
- Can be used with any existing or future gauge-type BMP stats type.

Statistics Informational TLV Format

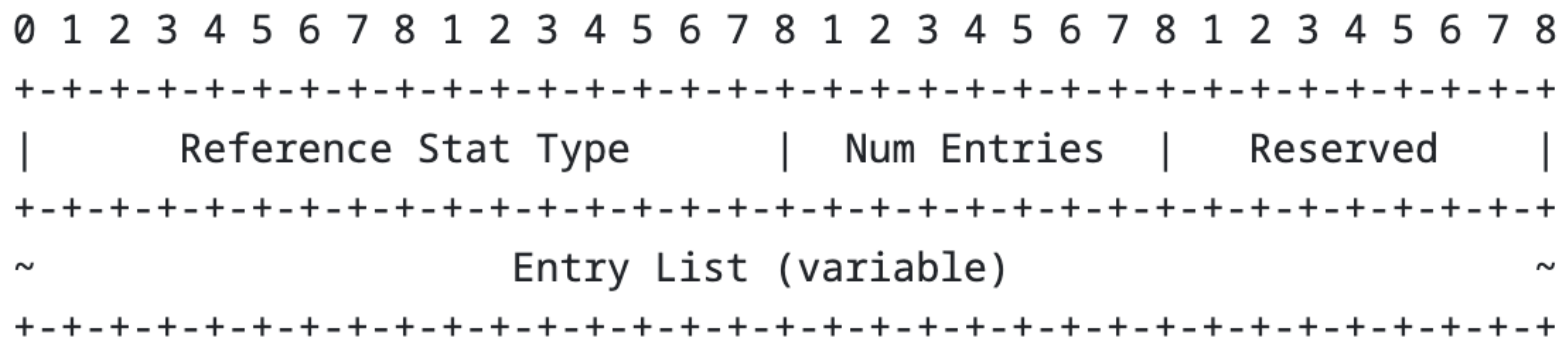
- Treat this TLV as new type of statistics included in BMP statistics report message.
- This TLV follows the standard counter encoding format defined for any statistics.
- The TLV is counted in the Stats count field and MAY appear multiple times in the single Statistics report message – once for each statistics type for which supplementary information is being reported.
- It provides distribution information about a referenced statistics.

```
0 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8
+-----+-----+-----+-----+-----+-----+-----+-----+
|           Stat Type           |           Stat Len           |
+-----+-----+-----+-----+-----+-----+-----+-----+
|                               |                               |
|                               |                               |
|                               |                               |
~                               ~
+-----+-----+-----+-----+-----+-----+-----+-----+
```

Standard Counter Encoding

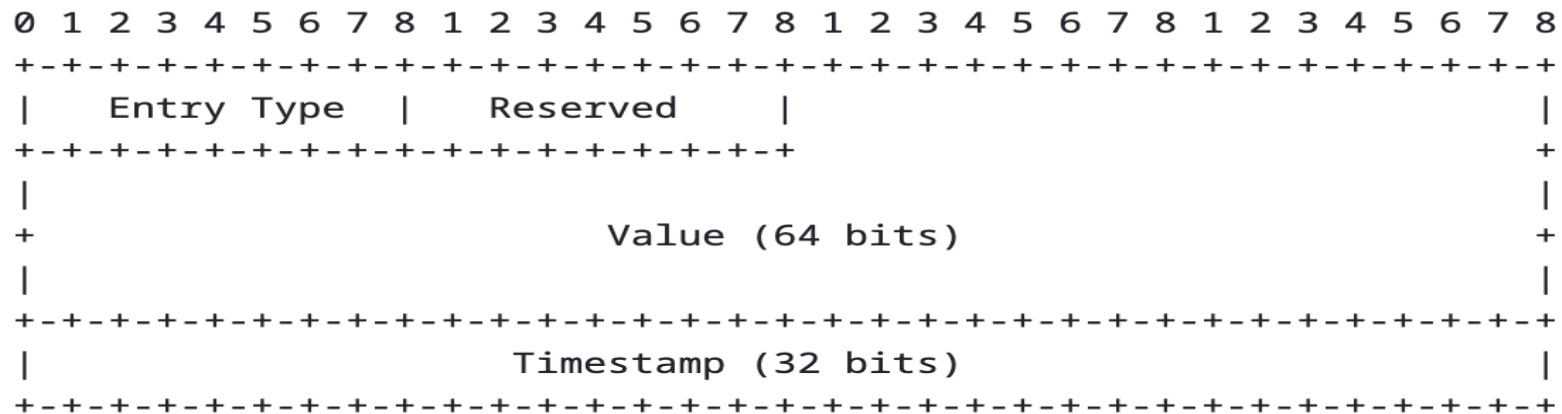
Statistics Informational TLV – Data format

- Reference stats type (2 bytes). – The BMP stats type for which the information is being provided.
- Num Entries (1 byte): The number of statistics entries.
- Entry list (variable): A sequence of statistics entries, each providing information about the reference statistics.



Statistics Informational TLV – Entry format

- Entry type (1 byte). – Identifies the type of statistical value reported in this entry.
- Value (8 bytes): An unsigned integer representing the gauge value.
- Timestamp (4 bytes): Time when this event was observed, expressed in seconds.
 - REQUIRED for Entry Types 1 (Minimum) and Type 2 (Maximum)
 - MUST NOT be present for Entry Types 3 (Snapshot), 4 (Average), and 5 (Median).



Entry type

- Defined Entry types are:
 - Type = 1: Minimum value observed during the reporting period.
 - Type = 2: Maximum value observed during the reporting period.
 - Type = 3: Snapshot value at the reporting interval.
 - Type = 4: Average of all sampled values during the reporting interval.
 - Type = 5: Median value (50th percentile) of all sampled values during the reporting interval.

Status & Next Steps

- Review comments are welcome.
- Adoption in working group