Self Describing Data Object Tags

draft-tao-netmod-yang-node-tags-06

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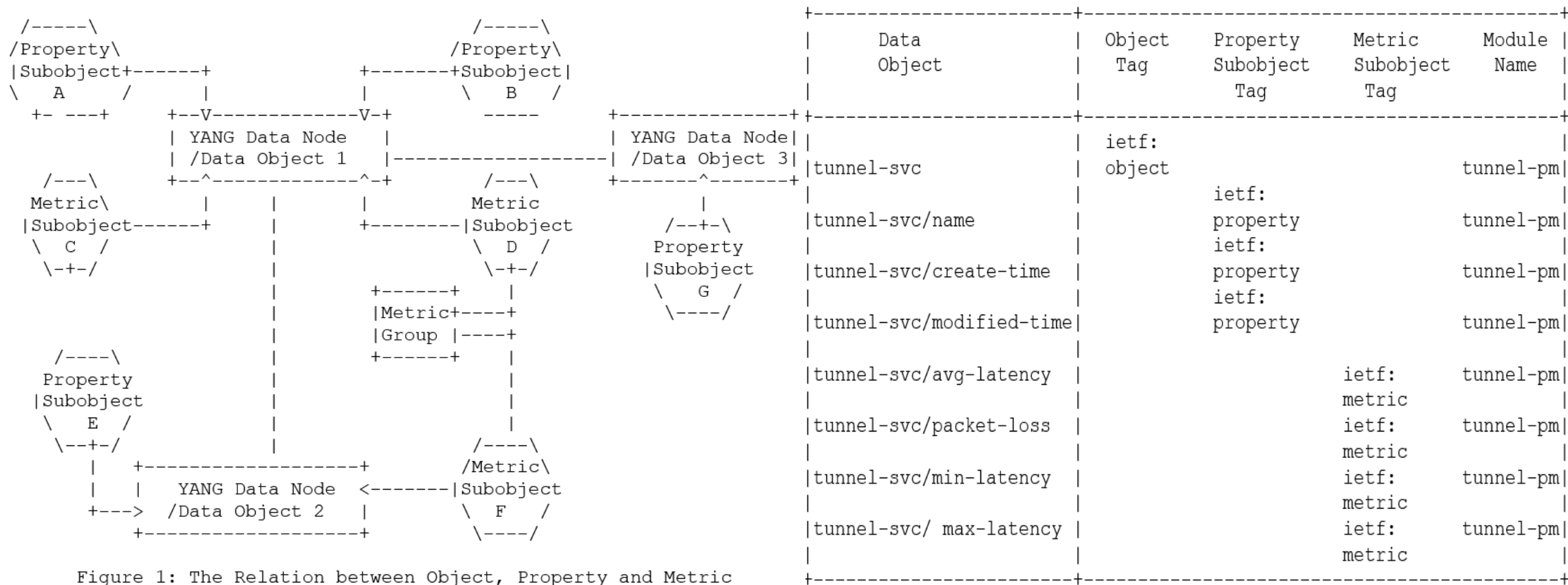Mohamed Boucadair (mohamed.boucadair@orange.com)

Recap

- The use of tags for classification and organization is fairly ubiquitous not only within IETF protocols, but in the internet itself (e.g., "#hashtags")
  - Module Tag defined in [I.D-ietf-netmod-module-tags] provides YANG modules classification and filter different discrete categories of YANG modules
  - Self describing Data Object Tags classify data objects from different YANG modules and identify characteristics data
- Self describing data object tags can be used in the streaming telemetry to reduce the amount of data exported to the destination.
- Self describing data object tags may be registered as well as assigned during the module definition; assigned by implementations; or dynamically defined and set by users.

Document Status

- Presented in NETMOD session 3 times (IETF106,IETF 107,IETF 108)
- IPR on draft-tao-netmod-yang-node-tags was issued in July 14 and has been disclosed in compliance with IETF IPR rules
- WG adoption call on draft-tao-netmod-yang-node-tags-05 was issue in August 17 and got a lot of support,
  - Many thanks to Juergen Schoenwaelder Liu Peng, Duzhongpeng, Chang Liu, Paul, Wei Wang, YuanZhang, Lou Berger, YingzhengQu,
  - It was suggested by WG
    - Operation type definition should be specified in each device module definition
    - object-specific tags is interesting capability which provide general utility.
- Changes in v-06 since IETF 108
  - Remove operation-type extension statement together with metric-precision and metric-scale based on agreement during the first WG adoption call
  - Remove service-tag and task-tag extension statement since module tag can be reused
  - Rewrite the use cases section to clarify the Relation between Object, Property and Metric and opm tag usage.
  - Clean up YANG Data Object Tags Registry
  - Add one new coauthor Mohamed

OPM tag definition

- opm-tag extension statement is defined to
  - Classify management and operation data into object, property subobject and metric subobject three categories.

```
/-----\                              /-----\          +-----------------------+----------------------------------------------------+
/Property\                           /Property\        |       Data            | Object    Property    Metric        Module |
|Subobject+------+          +-------+Subobject|        |      Object           |  Tag      Subobject   Subobject      Name   |
\    A   /       |          |        \   B   /         |                       |            Tag         Tag            |
 +- ---+       +--V-------------V-+      -----         +-----------------------+----------------------------------------------------+
               | YANG Data Node   |               | YANG Data Node|           |  ietf:                                    |
               | /Data Object 1   |---------------| /Data Object 3||tunnel-svc |  object                      tunnel-pm|
 /---\         +--^-----------^-+      /---\       +-------^------+|           |                                           |
Metric\          |     |        |      Metric         |            |           |  ietf:                                    |
|Subobject------+     |   +--------|Subobject       /--+-\       |tunnel-svc/name |  property                 tunnel-pm|
\   C  /              |   |         \  D  /        Property      |               |  ietf:                                    |
 \-+-/               |   |          \-+-/        |Subobject      |tunnel-svc/create-time |  property            tunnel-pm|
                     |   +------+      |          \   G  /       |               |  ietf:                                    |
                     |   |Metric+----+ |           \----/        |tunnel-svc/modified-time|  property           tunnel-pm|
                     |   |Group |----+ |                         |               |                                           |
 /----\              |   +------+    | |                         |tunnel-svc/avg-latency  |              ietf:     tunnel-pm|
 Property            |              | |                         |               |              metric                       |
|Subobject           |              | |                         |tunnel-svc/packet-loss  |              ietf:     tunnel-pm|
\   E  /             |              | |                         |               |              metric                       |
 \--+-/      +------------------+   | |   /----\                |tunnel-svc/min-latency  |              ietf:     tunnel-pm|
   |     |    YANG Data Node  <-------|Subobject               |               |              metric                       |
  +--->  /Data Object 2    |      \  F  /                     |tunnel-svc/ max-latency |              ietf:     tunnel-pm|
   +------------------+              \----/                     |               |              metric                       |
  Figure 1: The Relation between Object, Property and Metric    +-----------------------+----------------------------------------------------+
```

Issue: Context Information tag

```
module: ietf-data-object-tags
  augment /tags:module-tags/tags:module:
    +--rw data-object-tags
      +--rw data-object* [object-name]
        +--rw object-name    nacm:node-instance-identifier
        +--rw tag*           tags:tag
        +--rw masked-tag*    tags:tag
```

" ietf-data-object-tags" module augments Module tag model and provides tag management.

- In addition to opm-tag, two context information tags are introduced which can be used to correlate data object from different module
  - metric-group extension statement: Provide metric subobjects classification (e.g., loss, jitter, delay) within the YANG module.
  - multi-source-tag extension statement: Identify multi-source aggregation type (e.g., aggregated, non-aggregated) related to metric subobject.
- The metric-group tag and multi-source-tag will be maintained in the tag list under /tags:module-tag/tags:module/ntags:data-object-tags/ntags:tag
  and only use tag name to distinguish from each other.

Next Step

- Comments have been addressed
- Adopt it as WG work item?