A packet based method for passive performance monitoring

draft-tempia-ippm-p3m-02

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Document changes: -00 to -01 to -02

Interim -01 draft submitted on September 21; -02 on October 19

Important Modifications:

- Document restructuring
  - Section "Detailed description of the method"
    - includes a general description of the alternate marking principle.

  - Section "Implementation and deployment"
    - now includes the Alternate Marking Use Cases
    - Telecom Italia application is one of the many Use Cases

- Metric transparency
  - network elements outside the monitoring domain are totally anaware that packets were marked

Update on Alternate Marking Use Cases

Where draft-tempia-ippm-p3m is a reference:

- draft-chen-ippm-coloring-based-ipfpm-framework
- draft-morton-ippm-active-passive
- draft-bryant-mpls-flow-ident
- draft-bryant-mpls-sfl-control
- draft-bryant-mpls-synonymous-flow-labels
- draft-bryant-mpls-rfc6374-over-udp
- **draft-bryant-mpls-sfl-framework**
- **draft-bryant-mpls-rfc6374-sfl**
- draft-ietf-bier-mpls-encapsulation
- **draft-mirsky-bier-pmmm-oam**
- draft-fioccola-ippm-rfc6812-alt-mark-ext
- …

Update on Alternate Marking Use Cases

from *draft-bryant-mpls-sfl-framework*:
This document describes a method of providing flow identification information in order to mark packets when making RFC6374 performance measurements.

from *draft-mirsky-bier-pmmm-oam*:
This document describes a passive performance measurement method for multicast service over Bit Index Explicit Replication (BIER) domain, by using alternate marking.

Next Steps

The purpose to generalize the description of the alternate marking principle for a generic packet flow (transport agnostic) is achieved.

This document could give a Unique denomination and become a General reference for other solutions based on the alternate marking.

How much more should the authors do before asking WG adoption

Reviews and comments always welcome

Alternate Marking Extension to Cisco SLA Protocol RFC6812

draft-fioccola-ippm-rfc6812-alt-mark-ext-00

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High level view

- Cisco's Service-Level Assurance Protocol [RFC6812] is a widely deployed Performance Measurement protocol.

- An extension to the Cisco SLA Protocol is presented in order to implement alternate marking methodology detailed in [I-D.tempia-ippm-p3m].

- Two end points (Sender and Responder) exchange two equal alternate marking data flows:
  - Measurements: Packet Loss, Delay for each packet or Average Delay

```
+-+-+-+-+-+-+-+                                    +-+-+-+-+-+-+-+
|             |                                    |             |
|   Sender    |                                    |  Responder  |
|             |================================>|             |
|             |<================================|             |
+-+-+-+-+-+-+-+          Traffic flow              +-+-+-+-+-+-+-+
              .                                    .
              .                                    .
              <----------------------------------->
         End-to-End Packet loss, Delay and Jitter
```

Benefits

- Improve time precision (It takes the packet timestamp at the transmission instant, not when packet is created).

- Reduce computational load (no sequence numbers and no timestamps into the measurement packets).

- Enable intermediate measurement points ("Hybrid" measurements) thanks to the Alternate Marking.
  - In the intermediate points artificial traffic is managed in the same way as real traffic and measured as specified for passive methodology.

Protocol Extension

The Alternate Marking extension to Cisco SLA Protocol consists of three distinct phases:

- Control Phase
- Measurement Phase
- Calculation Phase

To utilize Cisco SLA Protocol, some extensions are needed:

- Most protocol specifications are the same described in RFC 6812

- New fields have been added to RFC 6812 Control Protocol

- The measurement messages is simplified in comparison to RFC 6812

(see the document for more details)

Next Steps

- Update the Document with new specifications

- Welcome inputs from the WG

- We will have a new version for Argentina

Reviews and comments always welcome