Alternate Marking Deployment Framework

draft-ietf-ippm-alt-mark-deployment-05

Shenzhen, Mar 2026, IETF 125

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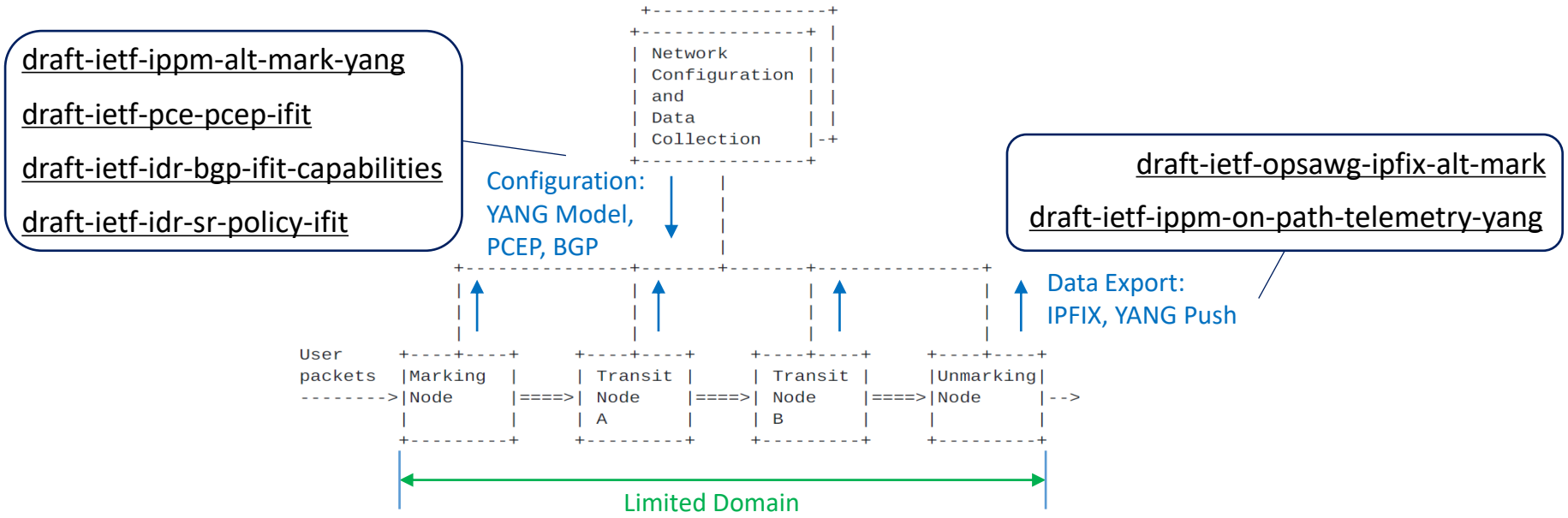
AltMark Framework Summary

- This draft aims to provide guidance for the AltMark (RFC 9341, RFC 9342) deployment, especially with regard to the manageability



The scope is to clarify the following aspects:

- Deployment Domain: **controlled domain** for security and compatibility reasons
- Measurement Nodes: **marking nodes**, **unmarking nodes**, **transit nodes**
- Type of Measurements: **One flag**, **Two flags**
- Configuration Aspects: **YANG** Model, **PCEP**, **BGP**
- Data Export, Collection and Calculation: **IPFIX**, **YANG Push**
- Encapsulations: **IPv6**, **SRv6**, **MPLS**, BIER, SFC, NVO3
- Implementation Guidelines and Security

A YANG Data Model for the Alternate Marking Method

draft-ietf-ippm-alt-mark-yang-02

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AltMark YANG Data Model

This draft defines the AltMark YANG Data Model

- We agreed on the tree structure and related information
  - same structure as RFC 9617 (IOAM YANG Data Model)

The AltMark YANG model is shown below:

```
+--rw altmark
   +--ro altmark-info
   |  +--ro timestamp-type?
   |  +--ro available-interface*         [if-name]
   |  |  +--ro if-name                  if:interface-ref
   +--rw altmark-profiles
      +--rw admin-config
      |  +--rw enabled?                  boolean
      +--rw altmark-profile*             [profile-name]
         +--rw profile-name              string
         +--rw filter
         |  +--rw filter-type?           altmark-filter-type
         |  +--rw ace-name?              -> /acl:acls/acl/aces/ace/name
         +--rw method-type?               altmark-method-type
         +--rw protocol-type?             altmark-protocol-type
         +--rw node-action               altmark-node-action
         +--rw measurement-period?       uint64
         +--rw flow-mon-id?              uint32
         +--rw measurement-mode?         altmark-measurement-mode
         +--rw enable-loss-measurement?   boolean
         +--rw enable-delay-measurement?  boolean
```

On-path Telemetry YANG Data Model

draft-ietf-ippm-on-path-telemetry-yang-02

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On-path Telemetry YANG Data Model

This document proposes a YANG data model for monitoring on-path telemetry information.

```
+--ro on-path-telemetry-data
    +--ro interface*                    [if-name]
      +--ro if-name                     if:interface-ref
      +--ro profile-name                  string
      +--ro filter
      |  +--ro filter-type?             telemetry-filter-type
      |  +--ro ace-name?                -> /acl:acls/acl/aces/ace/name
      +--ro protocol-type?                telemetry-protocol-type
      +--ro node-action                 telemetry-node-action
      +--ro measurement-period?           uint64
      +--ro measurement-period-number?    uint64
      +--ro flow-mon-id?                  uint32
      +--ro method-type?                  altmark-method-type
      +--ro altmark-loss-measurement?
      |  +--ro in-traffic-pkts?           yang:counter64
      |  +--ro out-traffic-pkts?          yang:counter64
      |  +--ro in-traffic-bytes?          uint64
      |  +--ro out-traffic-bytes?         uint64
      +--ro altmark-delay-measurement?
      |  +--ro pkts-timestamps?
      |     +--ro pkt-timestamp?          yang:date-and-time
      |     +--ro pkt-seq-num?            yang:counter32
      +--ro path-delay?
      |  +--ro path-delay-mean            uint32
      |  +--ro path-delay-min             uint32
      |  +--ro path-delay-max             uint32
      |  +--ro path-delay-sum             uint64
      +--ro ioam-incremental-tracing?
      |  +--ro incremental-tracing*       ioam-trace-data
      +--ro ioam-preallocated-tracing?
      |  +--ro preallocated-tracing*      ioam-trace-data
      +--ro ioam-direct-export?
      |  +--ro direct-export*             ioam-trace-data
      +--ro ioam-proof-of-transit?
      |  +--ro proof-of-transit*          ioam-pot-data
      +--ro ioam-edge-to-edge?
        +--ro edge-to-edge*               ioam-e2e-data
```

The "on-path-telemetry-data" contains the detailed information for AltMark and IOAM telemetry data.

Application Scenario

RFC8641 subscription model

- For example, network telemetry updates can be subscribed to and obtained through on-change or periodic notifications to get real-time performance data.

On-Path Telemetry for Active Performance Measurements

draft-ietf-ippm-on-path-active-measurements-02

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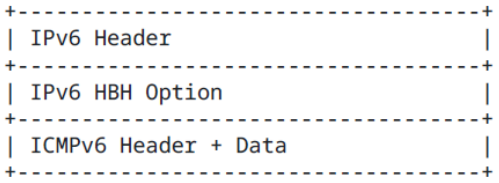
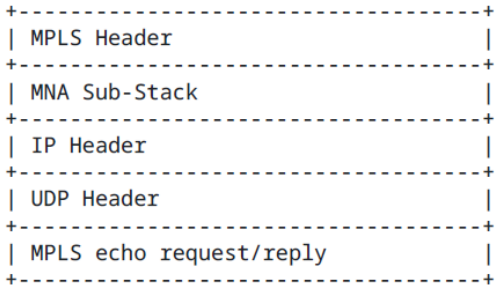
On-Path Telemetry for HBH (beyond E2E) active measurements

In several scenarios it is beneficial to perform HBH and E2E active measurements.

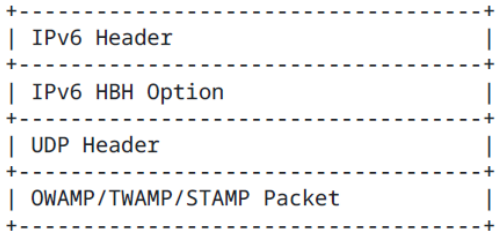
- Active test packets can be used in combination with Hybrid Methods: On-path Active Performance Measurements.

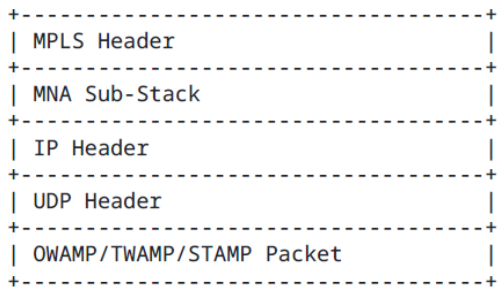
ICMP, ICMPv6, LSP Ping





OWAMP, TWAMP and STAMP





Next Steps

- These drafts are ready for WGLC
  - The AltMark deployment framework, together with the YANG Models, complete the AltMark documentation
  - The On-Path Telemetry for Active Performance Measurements is general and can be referenced by all drafts using the mechanism

Comments are always welcome!

Thank You