

BGP SR Policy Extensions to Enable IFIT

draft-qin-idr-sr-policy-ifit-00

Virtual Meeting, Mar 2020, IETF 107

Fengwei Qin (China Mobile)

Hang Yuan (UnionPay)

Tianran Zhou (Huawei)

Min Liu (Huawei)

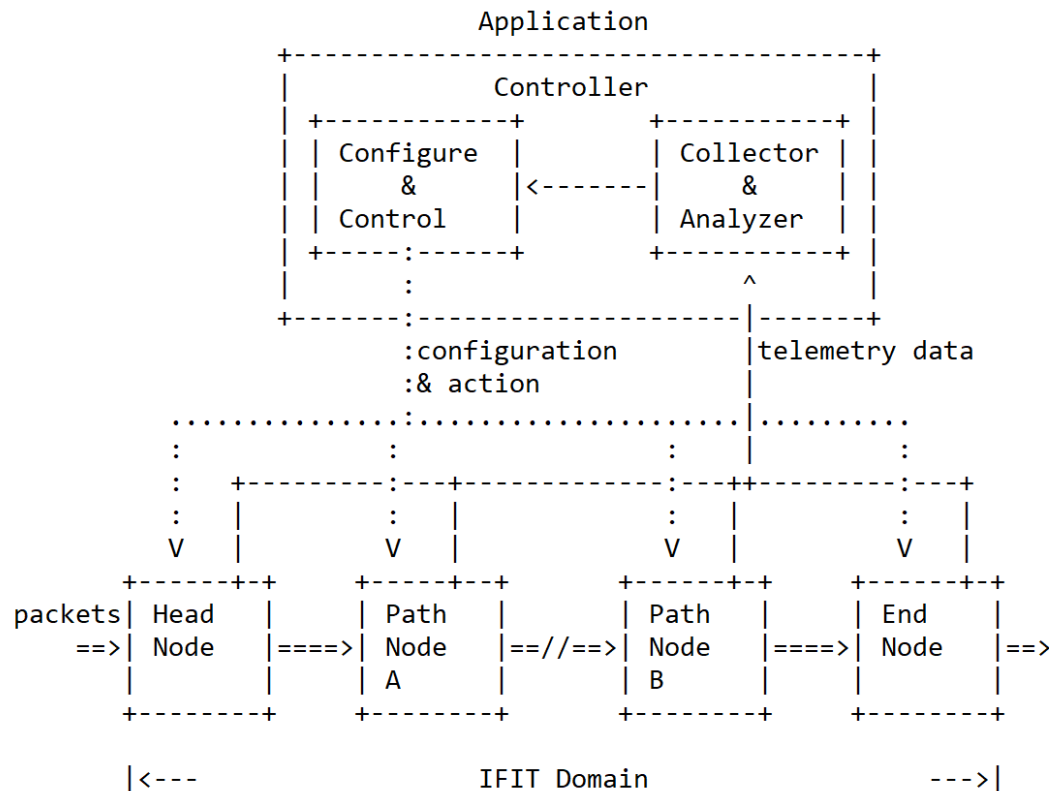
Giuseppe Fioccola (Huawei)

Background and Motivation

- An SR Policy is identified through the tuple <headend, color, endpoint>
- A headend may be informed about a candidate path for an SR Policy by various means including:
 - ❑ via configuration,
 - ❑ PCEP (**RFC8281**),
 - ❑ BGP (**draft-ietf-idr-segment-routing-te-policy**).
- This document defines **extensions to BGP to distribute SR policies** carrying **In-situ Flow Information Telemetry (IFIT)** information.
- So data plane on-path telemetry methods, like IOAM and Alternate Marking, can be enabled automatically when the SR policy is applied

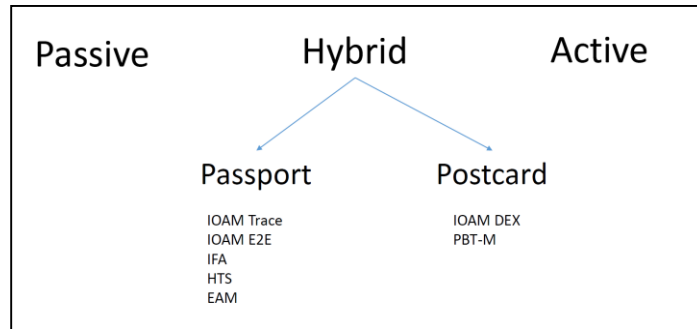
IFIT Reference Architecture

- IFIT (draft-song-opsawg-ifit-framework) is a high level architectural framework that supports OAM applications to apply data plane on-path telemetry techniques:
 - In-situ OAM (IOAM) (draft-ietf-ippm-ioam-data),
 - Alternate Marking (RFC 8321 and draft-ietf-ippm-multipoint-alt-mark)
 - ...
- IFIT presents the potential to apply such a framework to realize reflection-loop telemetry application

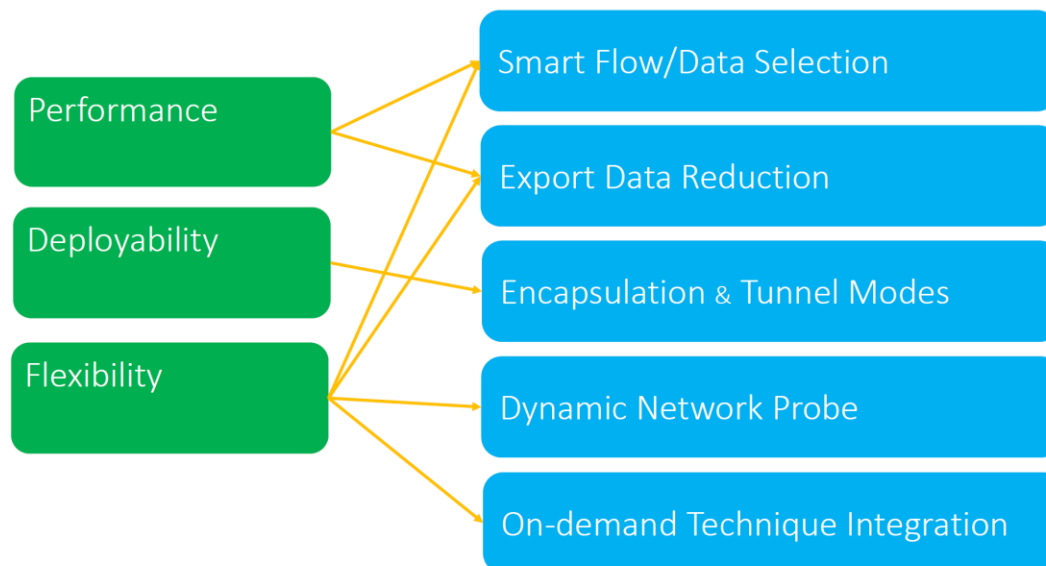


On-path Data Plane Telemetry for SR Policies

An automatic network requires SLA monitoring on the deployed service and several On-path Data Plane Telemetry methods are available



The framework architecture allows to address the deployment challenges of these On-path Data Plane Telemetry methods



IFIT Attributes in SR Policy

The **new SR Policy encoding structure** is reported below, and IFIT can be applied to the candidate path so that all the SR paths can be monitored in the same way.

- **IFIT attributes** can be attached at the candidate path level as **sub-TLVs**

SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>

Attributes:

 Tunnel Encaps Attribute (23)

 Tunnel Type: SR Policy

 Binding SID

 Preference

 Priority

 Policy Name

 Explicit NULL Label Policy (ENLP)

 IFIT Attributes

 Segment List

 Weight

 Segment

 Segment

 ...

 ...

SR Policy for IOAM

When SR policy enables the IOAM, the IOAM header will be inserted into every packet of the traffic that is steered into the SR paths:

- IOAM Pre-allocated Trace Option Sub-TLV and IOAM Incremental Trace Option Sub-TLV

Type	Length	Namespace ID
IOAM Trace Type	Flags	Rsvd

- IOAM Directly Export Option Sub-TLV

Type	Length
Namespace ID	Flags
IOAM Trace Type	Rsvd
Flow ID	

- IOAM Edge-to-Edge Option Sub-TLV

Type	Length
Namespace ID	IOAM E2E Type

SR Policy for Alternate Marking

SR Policy for Enhanced Alternate Marking to apply both RFC 8321 and draft-ietf-ippm-multipoint-alt-mark

- Enhanced Alternate Marking (EAM) Sub-TLV

Type	Length
FlowMonID	Period Rsvd

Discussion & Next Steps

- Collect feedbacks
- Welcome questions, comments

Thank you