

BGP SR Policy Extensions to Enable IFIT

draft-qin-idr-sr-policy-ifit-02

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Background and Motivation

- ❑ In-situ Flow Information Telemetry (**IFIT**) refers to network OAM applications that apply dataplane on-path telemetry techniques, including In-situ OAM (**IOAM**) (draft-ietf-ippm-ioam-data) and **Alternate Marking** (RFC8321)

- ❑ 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,
 - PCE (**draft-ietf-pce-segment-routing-policy-cp**),
 - 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

Changes from -00 to -02

We got some comments during the last presentation at IETF107 Virtual Meeting and regarding the companion **draft-chen-pce-sr-policy-ifat**.

The main questions were about the **applicability** and we clarified it:

- This BGP extension allows to signal the IFIT capabilities together with the SR-policy. In this way IFIT methods are automatically activated and running.
- The flexibility and dynamicity of the IFIT applications are given by the use of additional functions on the controller and on the network nodes, but this is out of scope here.

Another comment was about its possible **generalization** to any data plane:

- Note that the IFIT attributes here described can also be generalized and included as sub-TLVs for other SAFIs and NLRIs.

Reference only to the relevant documents for the **data plane**:

- [draft-ietf-ippm-ioam-ipv6-options](#): IOAM application to IPv6 (and SRv6).
- [draft-ietf-6man-ipv6-alt-mark](#): Alternate Marking application to IPv6 (and SRv6).

Relevant document for the **control plane** are already adopted:

- [draft-ietf-idr-segment-routing-te-policy](#)

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
- WG adoption considering the anchor adopted work
- Welcome questions, comments

Thank you