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SR Policies Extensions for NRP in BGP-LS
draft-chen-idr-bgp-ls-sr-policy-nrp-00

Abstract

This document defines a new TLV which enable the headed to report the configuration and the states of SR policies carrying NRP information by using BPG-LS.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on 24 October 2022.

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1. Introduction

SR Policy is an ordered list of segments (i.e. instructions) that represent a source-routed policy. Packet flows are steered into a SR Policy on a node where it is instantiated called a headend node. The packets steered into an SR Policy carry an ordered list of segments associated with that SR Policy.[I-D.ietf-idr-te-lsp-distribution] describes a mechanism to distribute traffic engineering policy information (SR Policies , TE-LSPs, etc) to external components using BGP-LS.

[I-D.bestbar-teas-ns-packet] introduces a Slice-Flow Aggregate as the collection of packets (from one or more IETF network slice traffic streams) that match an NRP Policy selection criteria and are offered the same forwarding treatment. The NRP Policy is used to realize an NRP by instantiating specific control and data plane resources on select topological elements in an IP/MPLS network. The NRP Identifier (NRP-ID) is globally unique within an NRP domain and that can be used in the control or management plane to identify the resources associated with the NRP.

Based on the mechanism defined in [I-D.ietf-idr-te-lsp-distribution], this document defines a new TLV which enable the headed to report the configuration and the states of SR policies carrying NRP information by using BPG-LS.

2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

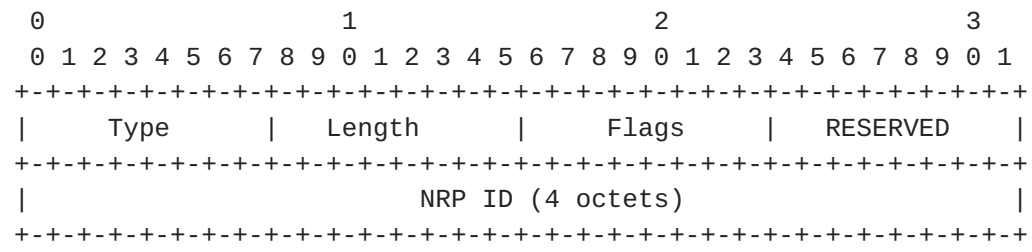
cloud transport network: It is usually a national or province backbone network to achieve interconnection between multiple regional clouds/core clouds deployed in the country/province.

3. Carrying NRP Sub-TLV in BGP-LS

[I-D.liu-idr-bgp-network-slicing] and [I-D.dong-idr-sr-policy-nrp] define extensions to BGP in order to advertise NRP in SR policies.

In order to collect configuration and states of the NRP SR policies, this document defines a new SR Policy state TLV.

The TLV has the following format:



where:

Type: TBD1.

Length: 6 octets.

Flags: 1 octet of flags. None are defined at this stage. Flags SHOULD be set to zero on transmission and MUST be ignored on receipt.

RESERVED: 1 octet of reserved bits. SHOULD be set to zero on transmission and MUST be ignored on receipt.

NRP: 4 octet global identifier of Network Resource Partition.

4. Acknowledgements

TBD.

5. IANA Considerations

TBD.

6. Security Considerations

TBD.

7. Normative References

[I-D.bestbar-teas-ns-packet]
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[I-D.dong-idr-sr-policy-nrp]
Dong, J., Hu, Z., and R. Pang, "BGP SR Policy Extensions for Network Resource Partition", Work in Progress, Internet-Draft, draft-dong-idr-sr-policy-nrp-00, 3 March 2022, <https://datatracker.ietf.org/doc/html/draft-dong-idr-sr-policy-nrp-00>.

[I-D.ietf-idr-te-lsp-distribution]
Previdi, S., Talaulikar, K., Dong, J., Chen, M., Gredler, H., and J. Tantsura, "Distribution of Traffic Engineering (TE) Policies and State using BGP-LS", Work in Progress, Internet-Draft, draft-ietf-idr-te-lsp-distribution-16, 22 October 2021, <https://datatracker.ietf.org/doc/html/draft-ietf-idr-te-lsp-distribution-16>.

[I-D.liu-idr-bgp-network-slicing]
Yao, L. and P. Shaofu, "BGP Extensions to Support Packet Network Slicing in SR Policy", Work in Progress, Internet-Draft, draft-liu-idr-bgp-network-slicing-01, 15 October 2020, <https://datatracker.ietf.org/doc/html/draft-liu-idr-bgp-network-slicing-01>.

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