

ISIS Working Group
Internet-Draft
Intended status: Standards Track
Expires: November 11, 2017

X. Xu
N. Wu
Huawei
H. Shah
Ciena
L. Contreras
Telefonica I+D
May 10, 2017

**Advertising Service Functions Using IS-IS
draft-xu-isis-service-function-adv-05**

Abstract

The MPLS source routing mechanism developed by Source Packet Routing in Networking (SPRING) WG can be leveraged to realize a unified source routing instruction which works across both IPv4 and IPv6 underlays in addition to the MPLS underlay. The unified source routing instruction can be used to realize a transport-independent service function chaining by encoding the service function path information or service function chain information as an MPLS label stack. This document describes how to advertise service functions and their corresponding attributes (e.g., service function label) using IS-IS.

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](#)].

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on November 11, 2017.

Copyright Notice

Copyright (c) 2017 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1.	Introduction	2
2.	Terminology	3
3.	Solution Description	3
3.1.	Service Function Sub-TLV	3
3.2.	SF Label Sub-TLV	4
4.	Acknowledgements	4
5.	IANA Considerations	4
6.	Security Considerations	4
7.	References	4
7.1.	Normative References	4
7.2.	Informative References	5
	Authors' Addresses	5

[1.](#) Introduction

[I-D.xu-mpls-service-chaining] describes how to leverage the unified source routing instruction

[[I-D.xu-mpls-unified-source-routing-instruction](#)] to realize a transport-independent service function chaining by encoding the Service Function Path (SFP) or Service Function Chain (SFC) information as an MPLS label stack. To allow a service classifier to attach the MPLS label stack which represents a particular SFP or SFC to the selected traffic, the service classifier needs to know on which Service Function Forwarder (SFF) a given Service Function (SF) is located and what service function label is used to indicate that SF. This document describes how to advertise SFs and their corresponding attributes (e.g., service function label) using IS-IS.

Sub-TLVs: contains zero or more sub-TLVs corresponding to the particular attributes of a given SF. The SF Label sub-TLV as defined in [Section 3.2](#) is one such sub-TLV. Other sub-TLVs are to be defined in the future.

3.2. SF Label Sub-TLV

```

      0                   1                   2                   3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|  Type=TBD2   |   Length   |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|  Resv  |                               SF Label                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

Type: TBD2.

Length: 3.

Value: The rightmost 20 bits represent an MPLS label which is the SF Label of the corresponding SF.

4. Acknowledgements

TBD.

5. IANA Considerations

This document includes a request to IANA for allocating type codes for the Service Function sub-TLV and the SF Label sub-TLV.

6. Security Considerations

This document does not introduce any new security risk.

7. References

7.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.
- [RFC4971] Vasseur, JP., Ed., Shen, N., Ed., and R. Aggarwal, Ed., "Intermediate System to Intermediate System (IS-IS) Extensions for Advertising Router Information", [RFC 4971](#), DOI 10.17487/RFC4971, July 2007, <<http://www.rfc-editor.org/info/rfc4971>>.

7.2. Informative References

[I-D.ietf-sfc-architecture]

Halpern, J. and C. Pignataro, "Service Function Chaining (SFC) Architecture", [draft-ietf-sfc-architecture-11](#) (work in progress), July 2015.

[I-D.xu-mpls-service-chaining]

Xu, X., Bryant, S., Assarpour, H., Shah, H., Contreras, L., and d. daniel.bernier@bell.ca, "Service Chaining using MPLS Source Routing", [draft-xu-mpls-service-chaining-00](#) (work in progress), October 2016.

[I-D.xu-mpls-unified-source-routing-instruction]

Xu, X., Bryant, S., Raszuk, R., Chunduri, U., Contreras, L., Jalil, L., and H. Assarpour, "Unified Source Routing Instruction using MPLS Label Stack", [draft-xu-mpls-unified-source-routing-instruction-00](#) (work in progress), March 2017.

Authors' Addresses

Xiaohu Xu
Huawei

Email: xuxiaohu@huawei.com

Nan Wu
Huawei

Email: eric.wu@huawei.com

Himanshu Shah
Ciena

Email: hshah@ciena.com

Luis M. Contreras
Telefonica I+D
Ronda de la Comunicacion, s/n
Sur-3 building, 3rd floor
Madrid, 28050
Spain

Email: luismiguel.contrerasmurillo@telefonica.com
URI: <http://people.tid.es/LuisM.Contreras/>