

Multi-part TLVs in IS-IS

draft-pkaneria-lsr-multi-tlv-04

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Context

IS-IS TLV encoding uses an 8-bit length, limiting content to 255 octets
New technologies (SR, Flex-algo, Traffic Engineering extensions)
increase demand for advertising more than 255 octets of information
per object (links, prefixes)

Multi-part TLVs have been explicitly defined for some TLVs:

- GMPLS-SRLG [RFC5307]
- Router Capability TLV [RFC7981]
- IPv6 SRLG [RFC6119]
- ASLA SRLG [RFC8919]
- ASLA sub-TLV [RFC8919]

Extending the use of MP to other TLVs builds on the existing protocol framework

Some implementations have implemented MP for neighbor/prefix TLVs

With partial deployment behavior is unpredictable

Changes in V4 of the draft

Clarifies that MP can apply to any codepoint which supports sub-TLVs

Adds Capability Advertisement: Support for MP for TLVs which do not have explicit specification

Introduction of PICS support via YANG
(draft-qgp-lsr-isis-pics-yang)

Router Capability sub-TLV

MP-TLV Support for TLVs with implicit support

`“Nodes which support MP-TLV for codepoints for which existing specifications do not explicitly define such support, but for which MP-TLV is applicable, SHOULD include this sub-TLV in a Router Capability TLV.”`

Important Notes:

- Informational only – no impact on protocol operation
- Not per codepoint
- Not intended use of Capability Advertisement
- **Exception made due to operator concerns about the disruptiveness of partial deployment in this case**
- Not a model for future uses

PICS Support via YANG

Interoperability issues w partial deployment of MP-TLV support illustrate operator need to know what implementations support

Advertising PICS by the routing protocol is a poor choice

- Large amount of data required

- Data is duplicated on every router

Introduction of PICS support via YANG

(draft-qgp-lsr-isis-pics-yang)

Next Steps

WG adoption for draft-pkaneria-lsr-multi-tlv

The need to send > 255 bytes exists today

There are existing interoperable implementations deployed

Draft is two years old – the deployment needs have existed for longer than that

There is no backwards compatible mechanism. Alternatives have been evaluated – they do not help.

This is NOT equivalent to narrow->wide metric transition

No new codepoints have been introduced.

All nodes (legacy and upgraded) have to process all of the sub-TLVs

Concerns regarding interoperability and deployment have been addressed