BGP Flow Specification for SRv6

draft-li-idr-flowspec-srv6-07

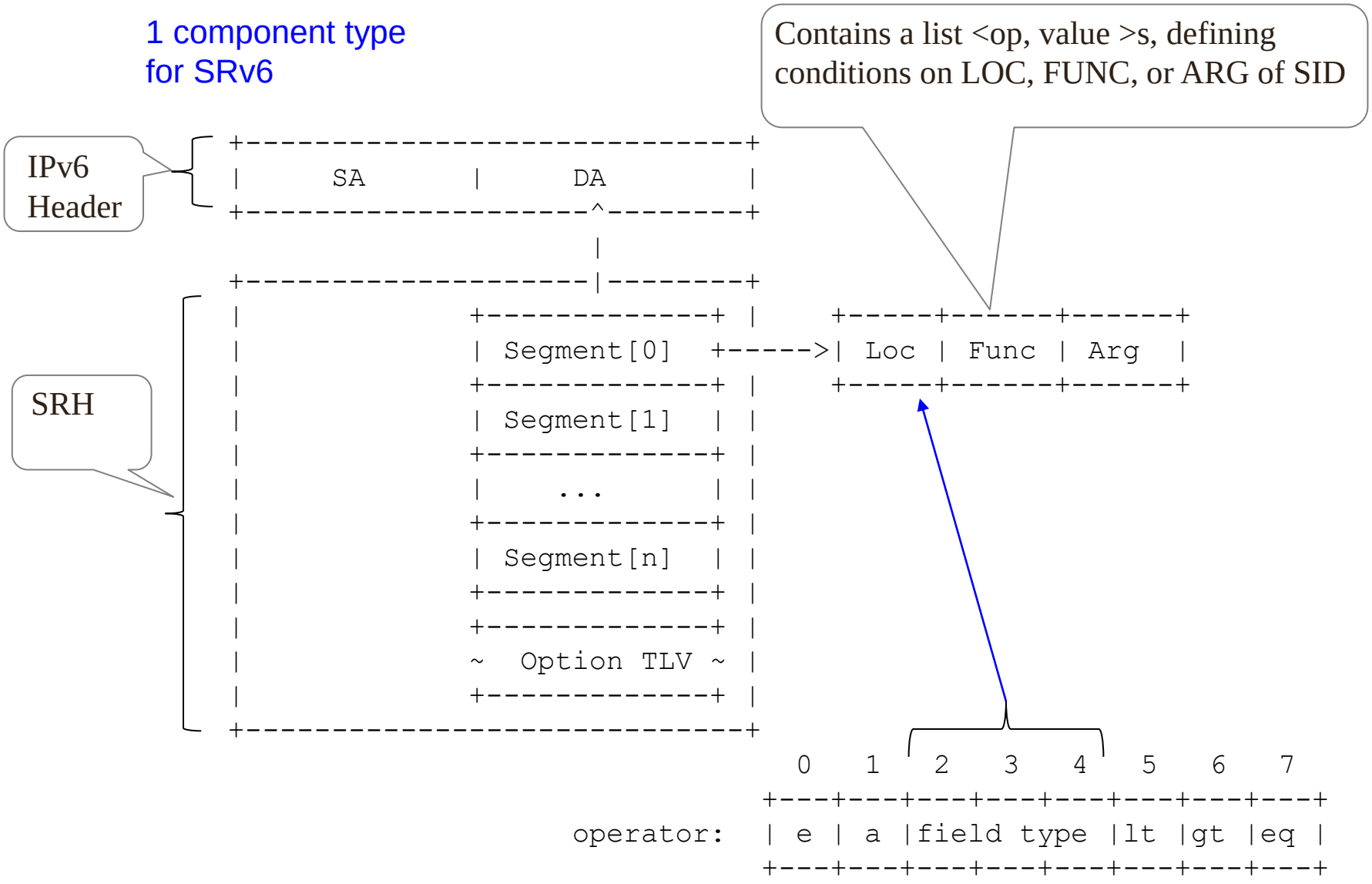
Robin Li, Lily Li (Huawei)
Huaimo Chen (Futurewei)
Christoph Loibl (Next Layer Communications)
Yongqing Zhu(China Telecom)
Lei Liu (Fujitsu)
Xufeng Liu (Volta Networks)

Flowspec Interim 9-27-2021

Overview

1 component type
for SRv6

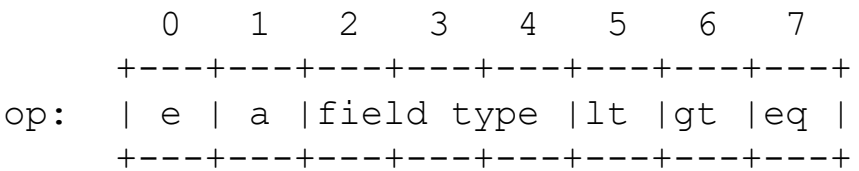
Contains a list <op, value >s, defining conditions on LOC, FUNC, or ARG of SID



Component Type for SRv6

Encoding: <type, LOC-Len, FUNCT-Len, ARG-Len, [op, value]+>

- type (1 octet): This indicates the new component type (TBD1, which is to be assigned by IANA).
- LOC-Len (1 octet): This indicates the length in bits of LOC in SID.
- FUNCT-Len (1 octet): This indicates the length in bits of FUNCT in SID.
- ARG-Len (1 octet): This indicates the length in bits of ARG in SID.
- [op, value]+: This contains a list of {operator, value} pairs that are used to match some parts of SID. The operator (op) byte is encoded as:



behavior of each op bit has clear symmetry with that of [RFC8955]'s Numeric Operator field

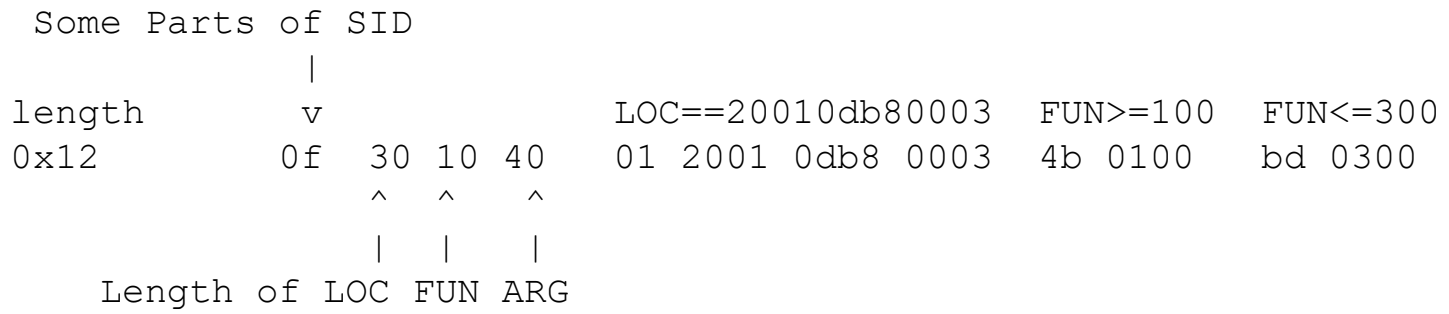
Field type:

000: SID's LOC
001: SID's FUNCT
010: SID's ARG
011: SID's LOC:FUNCT
100: SID's FUNCT:ARG
101: SID's LOC:FUNCT:ARG

The value field depends on the field type and has the value of SID's some parts rounding up to bytes

Encoding Example

An example of a Flow Specification NLRI encoding for:
all SRv6 packets to LOC 2001:db8:3::/48 and FUNCT {range [0100, 0300]}.



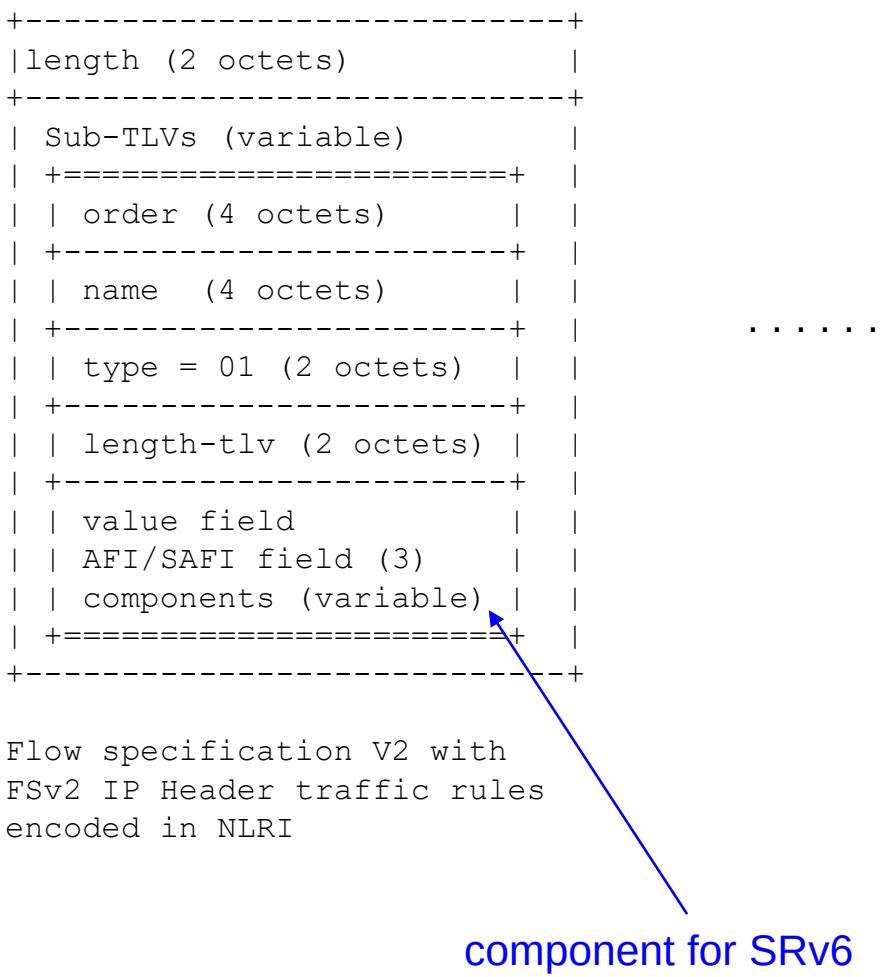
Decoded:

Value		
0x12	length	18 octets (if len<240, 1 octet)
TBD1(0x0f)	type	type TBD1(0x0f) - Some Parts of SID
0x30	LOC Length	= 48 (bits)
0x10	FUNCT Length	= 16 (bits)
0x40	ARG Length	= 64 (bits)
0x01	op	LOC ==
0x2001	value	LOC's value = 2001:db8:3
0x0db8		
0x0003		
0x4b	op	"AND", FUNCT >=
0x0100	value	FUNCT's value = 0100
0xbd	op	end-of-list, "AND", FUNCT <=
0x0300	value	FUNCT's value = 0300

component for SRv6

Under FlowSpec V2

Component for SRv6 can be in FlowSpec V2 NLRI or changed to align to new/updated encoding of V2

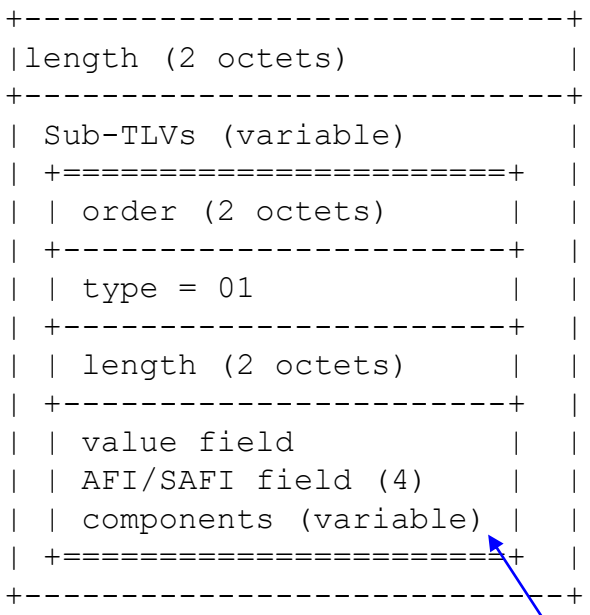


Thanks

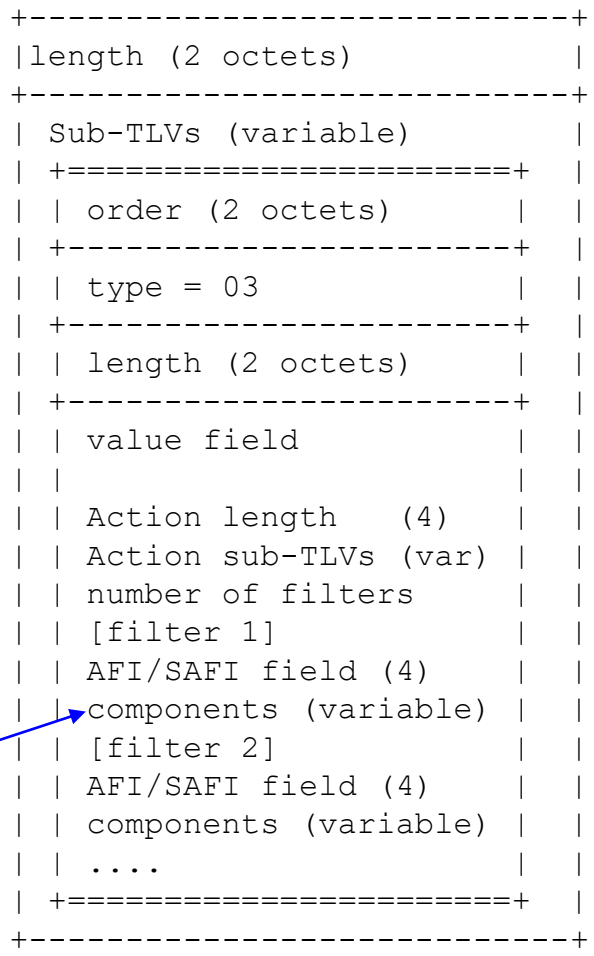
Comments

Under FlowSpec V2

Component for SRv6 may be in FlowSpec V2 NLRI or changed to align to new/updated encoding of V2



Flow specification V2 with default Block traffic flow encoded in NLRI



Flow Specification V2 with Actions encoded in NLRI

component for SRv6

IPv6 Flow Specification Components

Type 1 - Destination IPv6 Prefix

Encoding: <type (1 octet), length (1 octet), offset (1 octet), pattern (variable), padding (variable)

length: This indicates the N-th most significant bit in the address where bitwise pattern matching stops.

offset: This indicates the number of most significant address bits to skip before bitwise pattern matching starts.

pattern: This contains the matching pattern. The length of the pattern is defined by the number of bits needed for pattern matching (length minus offset).