IDR FSv2 Interim Design Team 2: Upper Layer

5/6/2024

Time: 10-11:30am ET

Agenda for Design Team 2 (DT2)
FSv2 for Basic IP

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4) IP Application layer - UDP and Payload [10 minutes]

4a) Uses UDP Filter [5 minutes]

draft-dmc-idr-flowspec-tn-aware-mobility

[Linda Dunbar, Kausik Majumdar, and Uma Chunduri]

4b) Payload – Packet content Filter for BGP Flow Spec [5 minutes]

draft-cui-idr-content-filter-flowspec-00: Payload filter

[Yong Cui and Yujia Gao]

BGP Dissemination of FSv2 for Transport-Aware Mobility

draft-dmc-idr-flowspec-tn-aware-mobility-04

authors: Dunbar, Majumdar, and Chunduri

Filters:

- FSv1 UDP range
- Source/destination prefix

Match Action:
Generalized Indirection ID

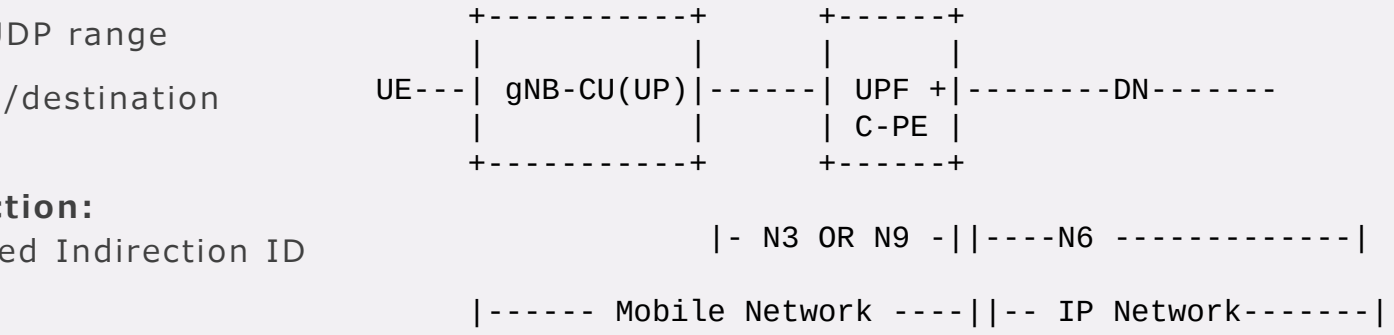


Figure 1: Mobile and IP Data Network for UE

Filter UDP port range: i > UDP port < j

using User ordered Port filters

Encoding

```
<Type = 6, [numeric_op1,i][numberic_op2, j]>
<Type = 2, [numeric_op3, Src-Prefix]>
<Type = 1, [numeric_op4, Dest-prefix]>
```

Numberic_Op1 is:

```
      0    1   2   3   4   5   6   7
     +---+---+---+---+---+---+---+---+
     | e | a | len   | 0 |lt |gt |eq |
     | 0 | 1 |  00   | 0 | 0 | 1 | 0 |
     +---+---+---+---+---+---+---+---+
```

Where:

len ==0 - indicates two bytes of value [i] follow numeric_op1

Numberic_Op2 is:

```
      0    1   2   3   4   5   6   7
     +---+---+---+---+---+---+---+---+
     | e | a | len   | 0 |lt |gt |eq |
     | 1 | 1 |  00   | 0 | 1 | 0 | 0 |
     +---+---+---+---+---+---+---+---+
```

Where:

len == 0 – indicates two bytes of value [j] follow numeric_op2.

3 Rules
User-Order 1: Looks for UDP port range
User-Order 2: numeric_op3: compares source addresses
User-Order 3: numeric_op4: compares destination addresses

Action: FSv2 Redirect to Indirection-ID Non-Transitive Extended Community IPsec SA

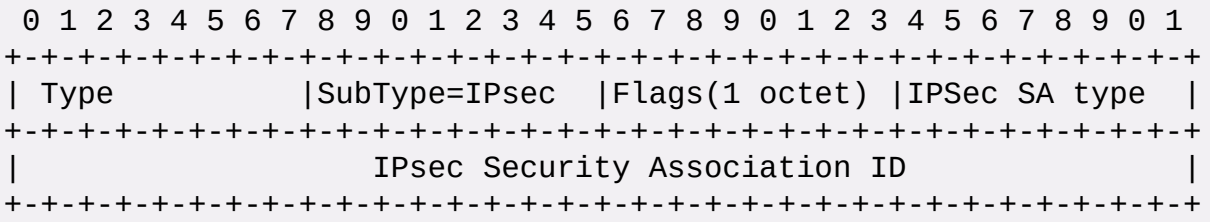
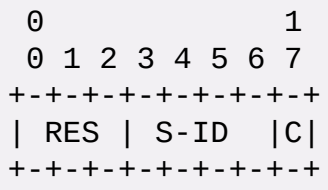


Figure 3: Redirect to Ind-ID Ext Community IPsec SA

Flag Byte:



Where:

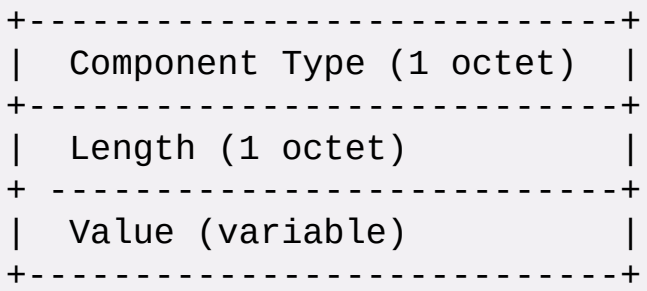
- **Type** = 0x49 Non-Transitive FSv2 Redirect to Indirection-ID Extended Community for IPSec Tunnel ID.
- **Subtype** = 1 octet – IPSec (value = TBD). This value indicates that the 4octet indirection ID is IPSec Security Association ID (IPsec SA ID)
- **Flags**
  Res = Reserved, C = copy
  S-ID – 4-bit sequence ID field (0 – not set, non-zero – sequence)

Packet Content Filter for BGP Flowspec

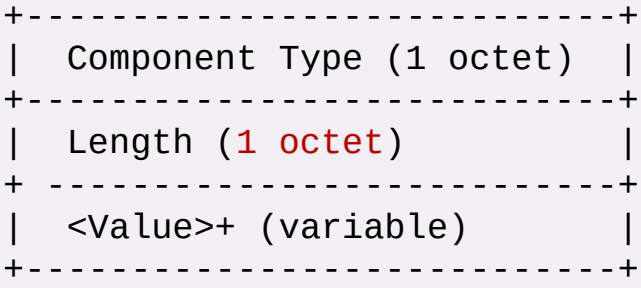
draft-cui-idr-content-filter-flowspec-00
authors: Yong Cui and Yujia Gao

Focus: DDOS – filters based on payloads content
Filter: Packet Content Filter Component– specifies a list of content filters.
Actions: DDOS actions (e.g. drop, copy, rate limit, or redirect)

FSv2 Component TLVs are:



Packet Content Filter TLVs are:



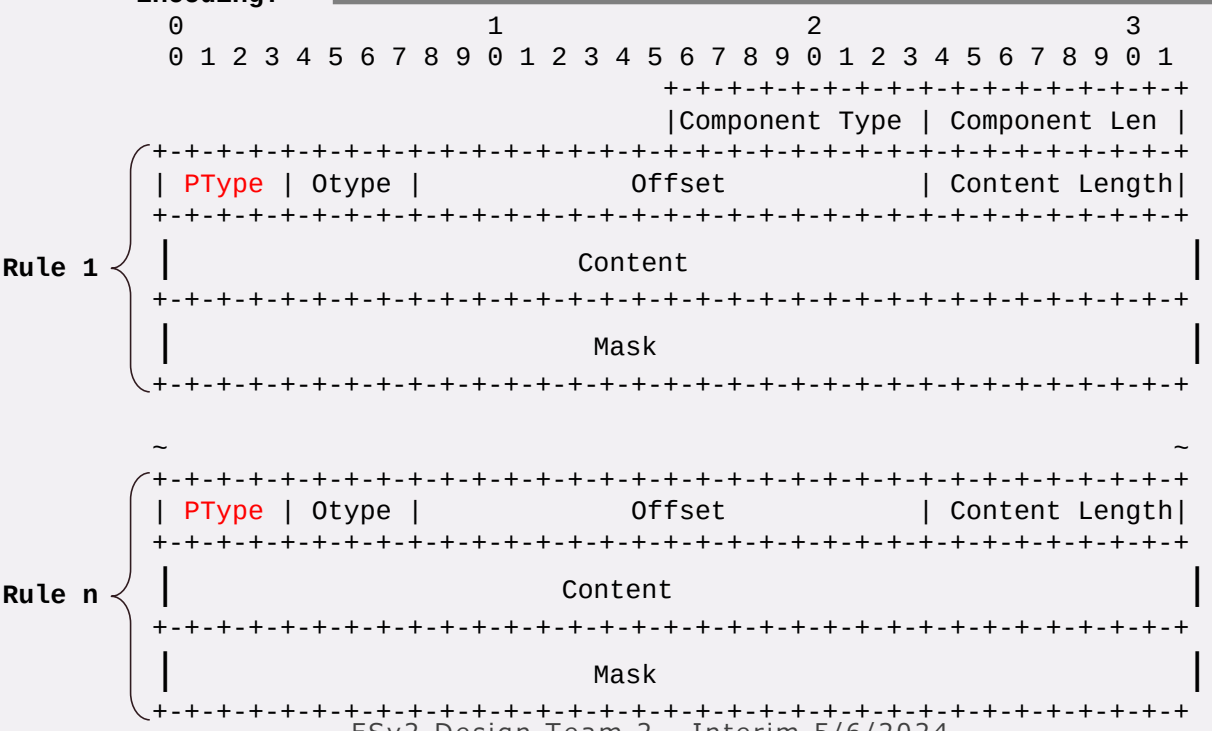
Recall question: Should component length be more than 1 octet?

Packet Content Filter for BGP Flowspec

draft-cui-idr-content-filter-flowspec-00

authors: Yong Cui and Yujia Gao

Encoding:



Where:

- Component type (1 octet)
- Component len (1 octet) length

<Value>+

- **Ptype** = (4 bits) Packet type
  - 1 = IPv4
  - 2 = IPv6
- **Otype** = (4 bits) Offset type
  - 1 = IP Header
  - 2 = IP Payload
  - 3 = TCP/UDP Payload

- **Offset** = (2 octets) offset from the beginning field specified in the offset type
- **Content Length** = (1 octet) Length of Content and Mask field
- **Content** = (variable) string to be matched
- **Mask** = (variable) string for masking (contains 0 or 1)

Questions?

Next on Agenda for Design Team 2 (DT2)
FSv2 – More IP Filters

5) Group by Action - FSv1 Inteface set [5 minutes]

draft-ietf-idr-flowspec-interfaceset-05 [Hares or Haas]

6) Emerging filters by Groups [15 minutes]

6a) CATS [5 minutes] [TBD]

[draft-lin-idr-cats-flowspec-ts]

6b) SAVnet [5 minutes] [TBD]

[draft-geng-idr-flowspec-sav-03

6c) APN – [5 minutes] [TBD]