draft-lefaucheur-tsvwg-rsvp-multiple-preemption-00.txt

Multiple Preemption Priority Policy Element for RSVP

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Introduction (1/2)

- **Modern Audio/Video endpoints support multiple encoding schemes, with better quality scheme requiring more bandwidth**

- →**Value in dynamic encoding adjustments based on current network conditions**

- **draft-westerlund-avt-ecn-for-rtp discusses how to achieve that in the absence of resource reservation**

- **RSVP being extended to facilitate this in the presence of resource reservation**

Introduction (2/2)

- **polk-tsvwg-intserv-multiple-tspec allows:**

  - sender to signal multiple "bandwidth" at which it can transmit

  - Receiver to signal multiple bandwidth in preference order when making the reservation

  - RSVP routers to grant the highest/preferred bandwidth currently achievable among the signaled ones

- **The present I-D defines a complementary extension allowing to associate a separate preemption priority to each signaled bandwidth**

Policy Example 1

```
                              +----------+
                              | All      |
                              | Sessions |
        +--------+----------+----------+
        | Quality | Flowspec  | Prior(*) |
        +--------+----------+----------+
        +--------+----------+----------+
        | Base    | Flowspec1 | High     |
        +--------+----------+----------+
        | Medium  | Flowspec2 | Mid      |
        +--------+----------+----------+
        | Enhanced| Flowspec3 | Low      |
        +--------+----------+----------+
```

- (*) Preemption Priority = Defending Priority

Figure 1: Multiple Preemption Priority Values for Policy Example 1

Policy Example 2

```
                                      +----------+----------+
                                      | Normal   | Premium  |
                                      | Sessions | Sessions |
         +--------+----------+----------+----------+
         | Quality | Flowspec  | Prior(*) | Prior(*) |
         +--------+----------+----------+----------+
         +--------+----------+----------+----------+
         | Base    | Flowspec1 | High     | High     |
         +--------+----------+----------+----------+
         | Medium  | Flowspec2 | Mid      | High     |
         +--------+----------+----------+----------+
         | Enhanced| Flowspec3 | Low      | Low      |
         +--------+----------+----------+----------+

   (*) Preemption Priority = Defending Priority

 Figure 2: Multiple Preemption Priority Values for
  Policy Example 2
```

Multiple Preemption Priority Policy Element

- **Existing "Preemption Priority Policy Element"
  allows to convey one pair of
  \<preemption priority, defending priority\>
  inside RSVP**

- **New "Multiple Preemption Priority Policy Element"
  allows to convey multiple pairs of
  \<preemption priority, defending priority\>
  inside RSVP, one per FlowSpec**
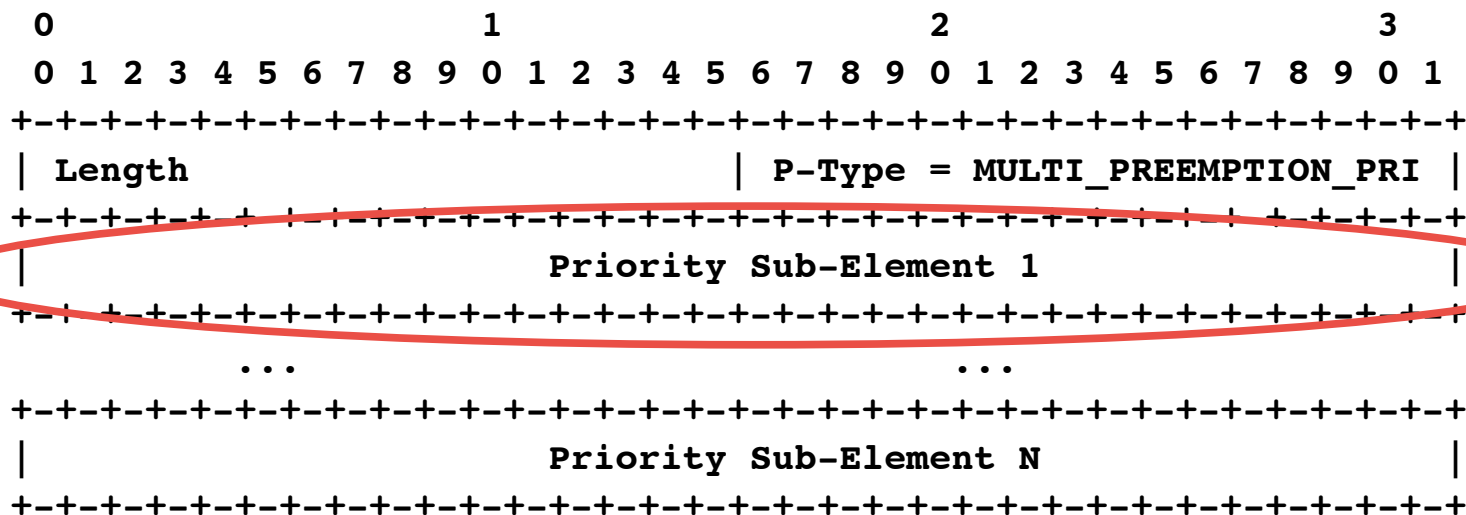
Multiple Preemption Priority Policy Element

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Length                        | P-Type = MULTI_PREEMPTION_PRI |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                      Priority Sub-Element 1                   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
            ...                              ...
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                      Priority Sub-Element N                   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

     Figure 3: Multiple Preemption Priority Policy Element
```

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|       Preemption Priority     |       Defending Priority      |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

            Figure 4: Priority Sub-Element
```
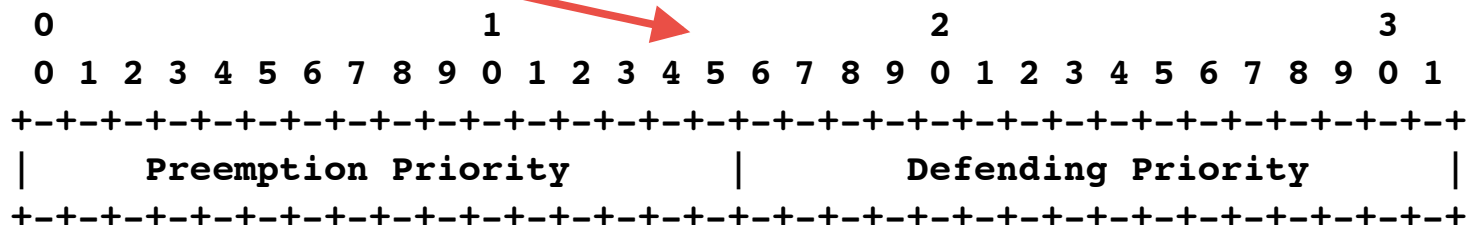
Associating Priorities with TSPECs and FLOWSPECs

```
<Resv Message> ::= <Common Header> [ <INTEGRITY> ]

                        <SESSION>  <RSVP_HOP>

                        <TIME_VALUES>

                        [ <RESV_CONFIRM> ] [ <SCOPE> ]

                        [ <POLICY_DATA> ... ]

                        <STYLE> <flow descriptor list>
```

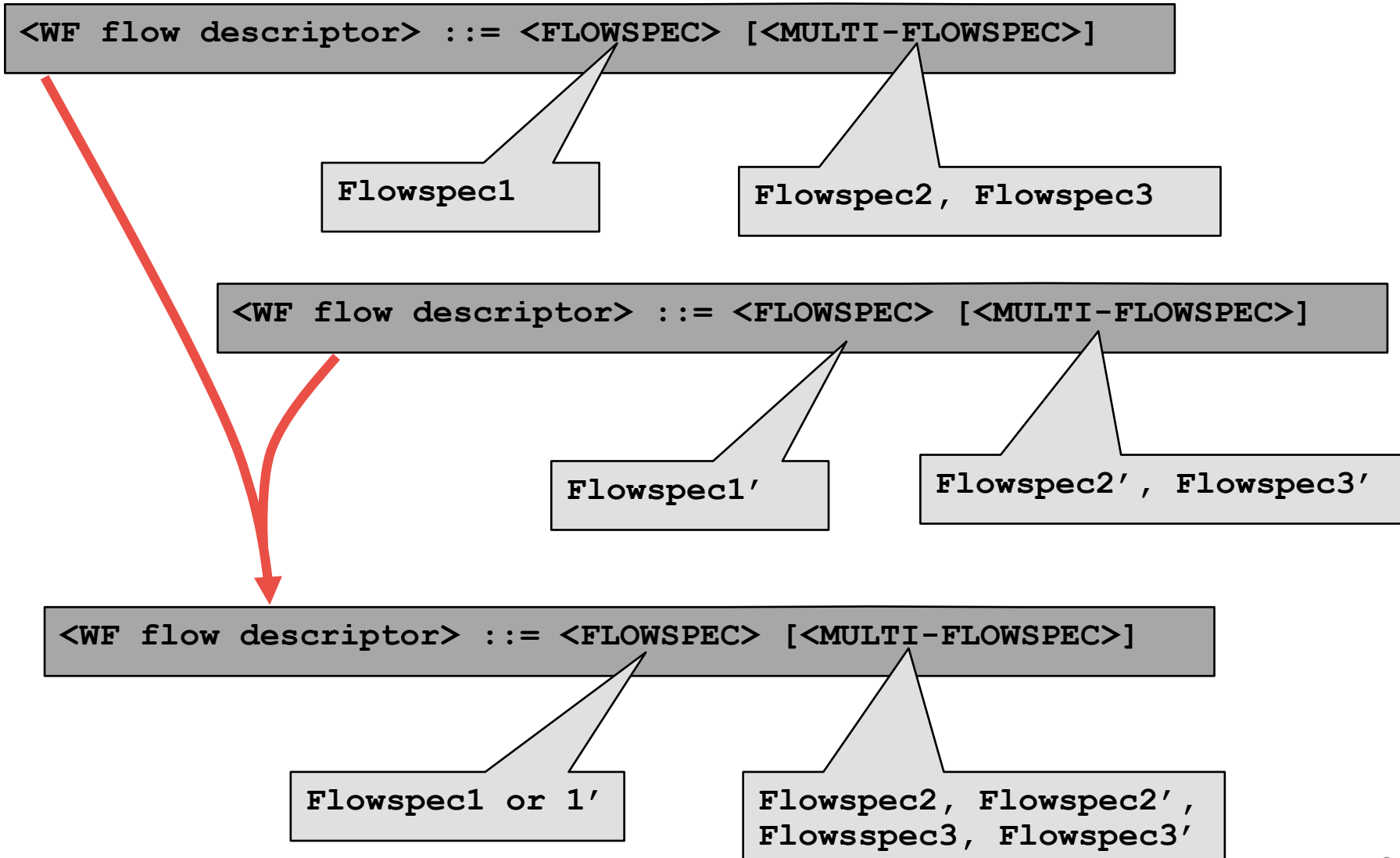Preemption Priority PE:
[P1/D1]
Multiple Preemption Priority PE:
[P2/D2   P3/D3]

```
<WF flow descriptor> ::= <FLOWSPEC> [<MULTI-FLOWSPEC>]
```

Flowspec1

Flowspec2, Flowspec3

Merging

`<WF flow descriptor> ::= <FLOWSPEC> [<MULTI-FLOWSPEC>]`

Flowspec1

Flowspec2, Flowspec3

`<WF flow descriptor> ::= <FLOWSPEC> [<MULTI-FLOWSPEC>]`

Flowspec1'

Flowspec2', Flowspec3'

`<WF flow descriptor> ::= <FLOWSPEC> [<MULTI-FLOWSPEC>]`

Flowspec1 or 1'

Flowspec2, Flowspec2', Flowsspec3, Flowspec3'

Q&A