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

<table>
<thead>
<tr>
<th>Quality</th>
<th>Flowspec</th>
<th>Prior(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>Flowspec1</td>
<td>High</td>
</tr>
<tr>
<td>Medium</td>
<td>Flowspec2</td>
<td>Mid</td>
</tr>
<tr>
<td>Enhanced</td>
<td>Flowspec3</td>
<td>Low</td>
</tr>
</tbody>
</table>

- (*) Preemption Priority = Defending Priority

Figure 1: Multiple Preemption Priority Values for Policy Example 1
Policy Example 2

<table>
<thead>
<tr>
<th>Normal</th>
<th>Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessions</td>
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</tr>
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(*) 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
  \(<\text{preemption priority, defending priority}>\)
  inside RSVP

- **New “Multiple Preemption Priority Policy Element”** allows to convey multiple pairs of
  \(<\text{preemption priority, defending priority}>\)
  inside RSVP, one per FlowSpec
Multiple Preemption Priority Policy Element

Figure 3: Multiple Preemption Priority Policy Element

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>

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

Preemption Priority PE:
[P1/D1]

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

Flowspec1

Flowspec2, Flowspec3
Merging

\[
\text{<WF flow descriptor>} ::= \text{<FLOWSPEC>} [\text{<MULTI-FLOWSPEC>}] \\
\]

- Flowspec1
- Flowspec2, Flowspec3

\[
\text{<WF flow descriptor>} ::= \text{<FLOWSPEC>} [\text{<MULTI-FLOWSPEC>}] \\
\]

- Flowspec1'
- Flowspec2', Flowspec3'

\[
\text{<WF flow descriptor>} ::= \text{<FLOWSPEC>} [\text{<MULTI-FLOWSPEC>}] \\
\]

- Flowspec1 or 1'
- Flowspec2, Flowspec2', Flowspec3, Flowspec3'
Q&A