

Generic Aggregation of Resource Reservation Protocol (RSVP) for IPv4 and IPv6 Reservation over PCN domains

draft-ietf-tsvwg-rsvp-pcn-01

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Outline

- ❑ Main Changes
- ❑ Open issues
- ❑ Next steps



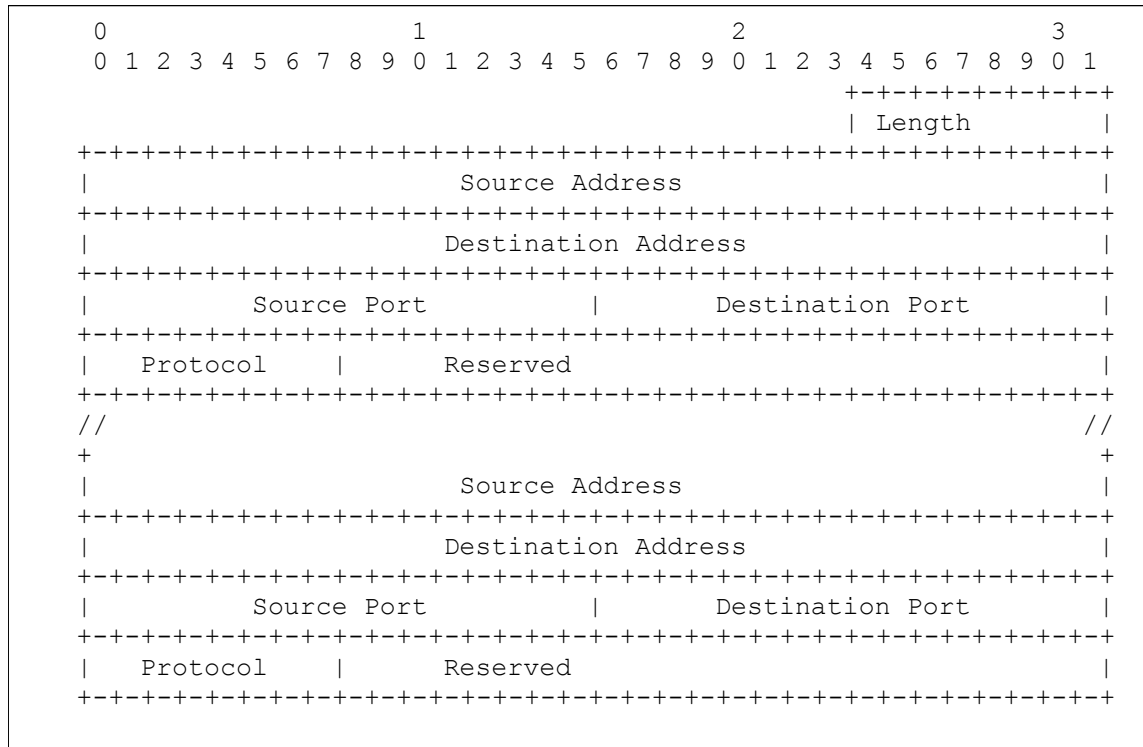
Main changes

- ❑ Congestion-Level-Estimate field removed from Single Marking (SM) PCN and Controlled (CL) PCN objects (for both IPv4 and IPv6 object versions)
- ❑ two new objects (IPv4 and IPv6) to be used with the PCN CL edge behavior (+ open issue)
 - ❑ two new CL based PCN objects defined used to carry number of flow identifiers for individual flows within an ingress-egress-aggregate that have recently experienced excess-marking

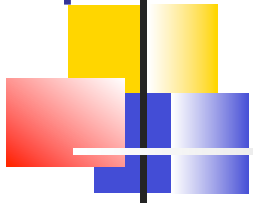


Main changes

- C-Type = RSVP-AGGREGATE-IPv4-PCN-CL-FLIDS

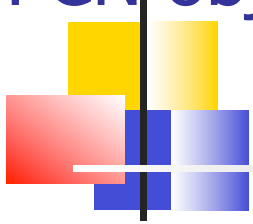


Open issues



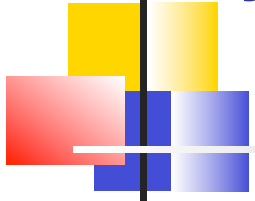
- ❑ two possible options of carrying PCN objects of C-Type: RSVP-AGGREGATE-IPv4-PCN-CL-FLIDs or RSVP-AGGREGATE-IPv6-PCN-CL-FLIDs (see slide 6,7)
- ❑ comments provided on the list:
 - ❑ increase clarity of the draft (including examples)
 - ❑ Will be worked out
 - ❑ Changes on relation between PCN ingress-egress-aggregate and RSVP generic aggregated reservation states:
 - ❑ Each ingress – egress pair supports only one PCN IEA
 - ❑ More than one RSVP generic aggregated reservation states can be mapped to the PCN IEA (instead of mapping one RSVP generic aggregated reservation state to one PCN IEA)
 - ❑ Changes in terminology, Section 3.1 and 3.11 need to be worked out
 - ❑ reducing bandwidth without terminating flow (see slides 8, 9)

Open issues: possible options carrying new C-type CL PCN objects



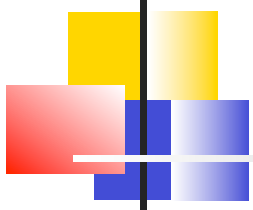
- ❑ Option 1: PCN objects of C-Types (RSVP-AGGREGATE-IPv4-PCN-CL-FLIDs or RSVP-AGGREGATE-IPv6-PCN-CL-FLIDs) **MUST** be carried by the aggregated Resv message together with other PCN object C-Types
 - ❑ Advantage:
 - ❑ No new message type needs to be used by signaling protocol
 - ❑ Disadvantage:
 - ❑ objects can become larger than maximum transmission unit (MTU) along a path to Aggregator
 - ❑ Comment sent to tsvwg list on disadvantage:
 - ❑ number of flows is chosen such that objects do not become larger than (MTU) along a path to Aggregator

Open issues: possible options carrying new C-type CL PCN objects



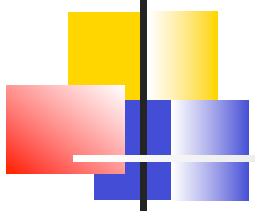
- Option 2: PCN objects of C-Types (RSVP-AGGREGATE-IPv4-PCN-CL-FLIDs or RSVP-AGGREGATE-IPv6-PCN-CL-FLIDs) **MUST** be carried by NOTIFY messages (<flow descriptor list>) [RFC3473]
 - Advantage:
 - total list of flow IDs that need to be sent to Aggregator can be divided in smaller sets
 - each of these sets can be then carried by one NOTIFY message, without fragmentation
 - Disadvantage:
 - signaling protocol needs to use an additional message type

Open issues: reducing bandwidth without terminating flow



- PCN-ingress-node should be able to reduce bandwidth of an individual flow without terminating the flow
 - Why?:
 - flows will not be terminated unnecessary and at the same time the IEA bandwidth is reduced to solve the severe congestion
 - How?:
 - When for IEA supported by PCN-ingress-node incoming traffic needs to be reduced then:
 - based on a local policy and for same IEA, selects a number of e2e RSVP sessions (individual flows) to be either terminated or reserved bandwidth of e2e RSVP sessions (individual flows) is reduced

Open issues: reducing bandwidth without terminating flow



- Solution proposed on list:
 - specify situation that in case of severe congestion flows are terminated
 - also emphasize that in some situations different policies can be used to specify that instead of terminating complete bandwidth allocated to one or more flows, and by using mechanisms specified by RFC4680 and RFC 4495, only a percentage of bandwidth allocated to one or more flows is reduced



Next steps

- ❑ Update draft based on received comments
- ❑ Assign one or more reviewers
- ❑ Other