Extended RSVP-Routing Interface

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(draft-guerin-ext-rsvp-routing-intf-00.txt)

Outline

- The need for a broader RSVP-routing interface
- Interface requirements
  - support for explicit route
  - support for QoS routing
- Summary

Motivations

- Resource reservation is meant to provide service differentiation to flows
- Service differentiation may require/benefit from a specific path, e.g., explicit routing, QoS routing, policy routing, etc.

  ⇒ Routing must be provided with the necessary information to make its decision
- Goal: RSVP should support a variety of routing mechanisms without taking on routing responsibilities
- Approach:
  - Broaden RSVP-Routing interface to pass **all** the necessary information
  - Allow RSVP to carry opaque routing objects

Support for Explicit Routes

- Resource reservation along explicit paths is useful in the context of MPLS and QOSR.
- IP source route option does not work with RSVP.
- Two options:
  1. Use a separate explicit path set up routing protocol for RSVP flows
  2. Use RSVP as *"carrier"* of routing information $\surd$

$\Rightarrow$ Explicit route object

- Opaque object carried in RSVP PATH messages
- Passed to routing as part of route query
- Modified object returned by routing along with next hop information (draft-guerin-expl-path-rsvp-00.txt).

Support for QoS Routing

- Selection of QoS path benefits from knowing QoS requirement, e.g., T_SPEC, ADSPEC

- Management of QoS path requires interactions between RSVP and routing
  - Routing's awareness of certain RSVP events, e.g., change in PATH state, RESV failure, receipt of a PATH_ERR, etc.
  - Routing's ability to notify RSVP of path changes, e.g., route change notification, trigger sending of a PATH_ERR message, etc.

⇒ Enable passing of necessary information and notifications across interface between routing and RSVP

Proposed RSVP - Routing Interface

- `Route_Query( flow_id, Network header, Transport Header, notify_flag, sender_TSPEC, ADSPEC, opaque_object1, opaque_object2, ...)`
- `Route_Reply(flow_id, notify_flag, outgoing_interface_mask, opaque_object1, opaque_object2, ...)`
- `Routing_Event(flow_id, event_code, event_value)`

  (generalizes route change notification from routing to RSVP)
- `RSVP_Event(flow_id, event_code, event_value)`

  (provides for notification of significant events by RSVP to routing)

Summary

- Different routing (and forwarding) schemes can benefit from a broader RSVP-routing interface and addition of opaque routing objects to RSVP
  - Availability of *all* relevant information (routing decides what is relevant)
  - Interactions to support QoS path management