SRP Requirement for Compatibility with RSVP

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SRP is used in local network for stream reservation protocol.

In Video-Phone, SRP should be able to work across several different Provider Networks.

RSVP is widely deployed in Provider Networks.

SRP↔RSVP conversion may be necessary at provider edge.

SRP need to be compatible with RSVP.
When RSVP seats on top of SRP, complex protocol interaction is necessary
  - RSVP need ARP & SRP for layer-2 resolution
  - SIP need RSVP for network-wide reservation
SRP & RSVP in effect perform similar work
  - resource reservation, admission control, etc..
Heavy protocol stacks in SIP terminal
RSVP v.s. SRP

- RSVP may be deployed in Bridges instead of SRP
  - e.g) SBM(RFC2814) or GELS(GMPLS Ethernet Label Switching)

- RSVP is heavier than SRP, but overall procedure is less complex than interacting with both stacks (RSVP+SRP)

- When the Scope is NOT confined to Local Network, RSVP may provide better global connectivity, UNLESS !! SRP can provide similar connectivity
Suggestion: Direct SRP to RSVP Conversion

- Applications may sit directly on top of SRP
- SRP may transparently carry some application specific data & IP addresses
- In PE, direct SRP ↔ RSVP mapping & conversion should be possible (no information loss)
  - RSVP provides role of SRP relay
- Then, SIP terminals may not need RSVP
Three Interconnection Models

1. Two SRP terminals are interconnected via RSVP domain

2. Two RSVP terminals are interconnected via SRP domain

3. A SRP terminal is interconnected with RSVP terminal
1. SRP procedure, semantics of parameter, timing, type codes need to be congruent to RSVP

E.g.) **Message Mapping:**
- RSVP-Path, Path-Tear $\rightarrow$ ?, ?
- RSVP-Resv, Resv-Tear $\rightarrow$ SRP Resv, SRP Tear
- RSVP-Error $\rightarrow$ SRP Error (?)

**QoS Parameters:** Token Bucket Size, Token Rate, Peak Rate, ..
% If it is different, edges may not perform admission control to backbone properly.

**Timing & Sequence:** Path State Refreshment, Soft-state Cleanup, Error Recovery, etc..

**Type Codes:** Error Codes, Policy Codes, Cryptographic Key..
2. Identifier for Stream need to be understandable to both SRP & RSVP (Session Object)

   e.g) There are several **Session Object** types in RSVP :
   (RFC2205) = (Dst-IP, IP-Protocol Number, UDP/TCP Port)
   (RFC3209) = (Dst-IP, Tunnel-ID, Src-IP)

   **Issue-1:** How can PE compose RSVP Session Object using stream info in SRP ?

   **Issue-2:** How can error report in RSVP domain can be delivered to corresponding SRP entity ?

   **A Proposal:** SRP may need to carry IPv4/IPv6 information in order to provide global compatibility
Other Requirements

- SRP should give sufficient information for resource control in RSVP network.

- SRP should minimize overhead for conversion between SRP ↔ RSVP

- SRP should be able to carry **Policy Data, User Authentication Info.** for admission control, security check, charging, etc. ... in provider network.

- SRP need to have strong protection from DoS attack, refresh storm, and other user initiated security threats.