SRP Requirement for Compatibility with RSVP

2006. 7.

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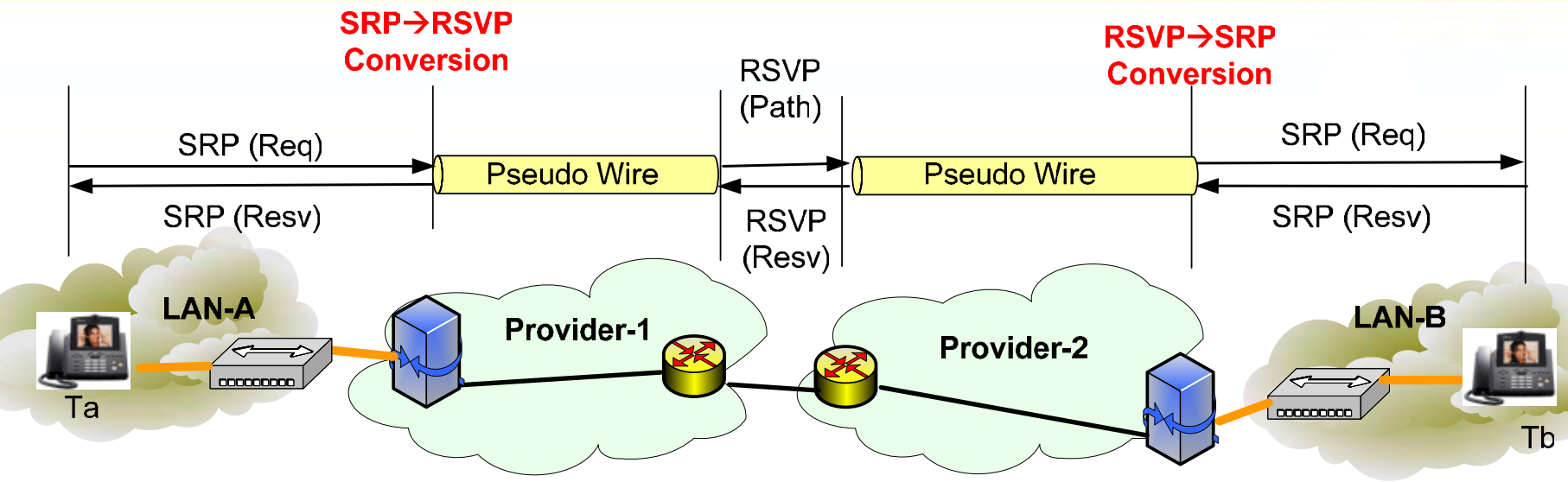
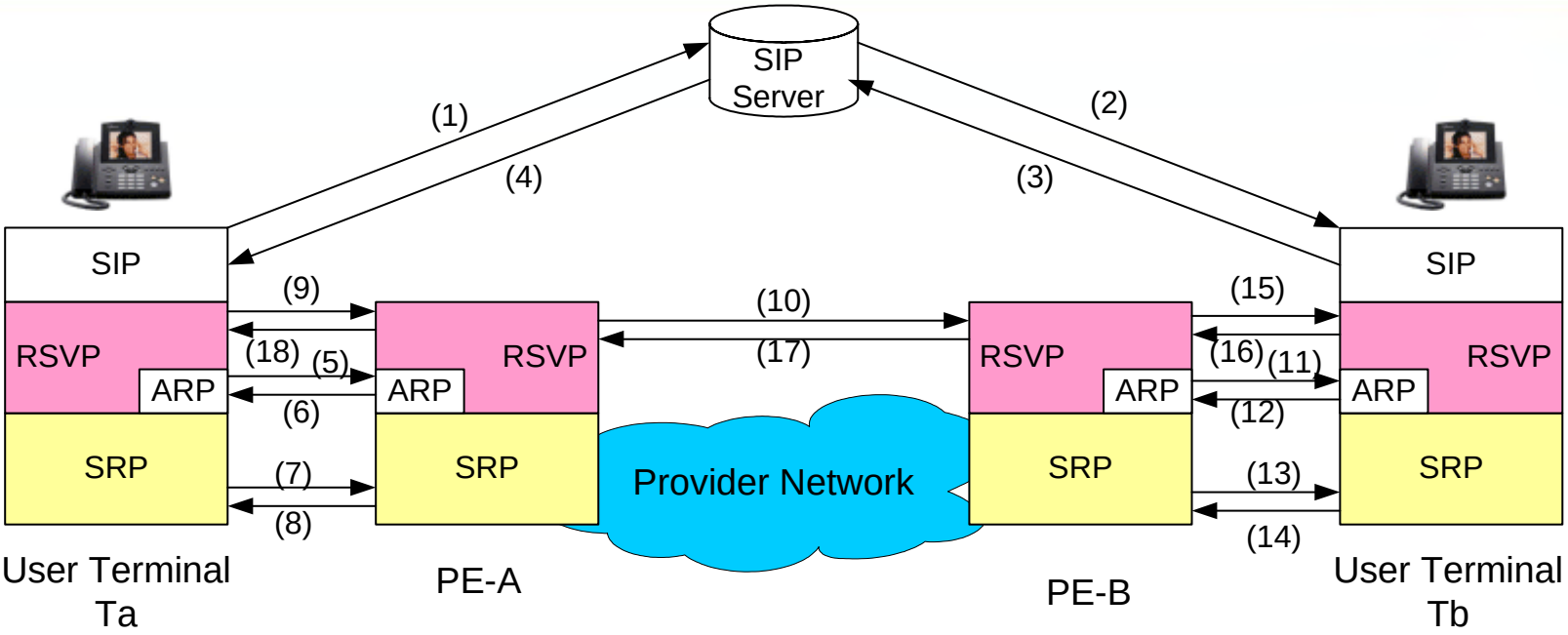
Application Case : Video-Phone Communication



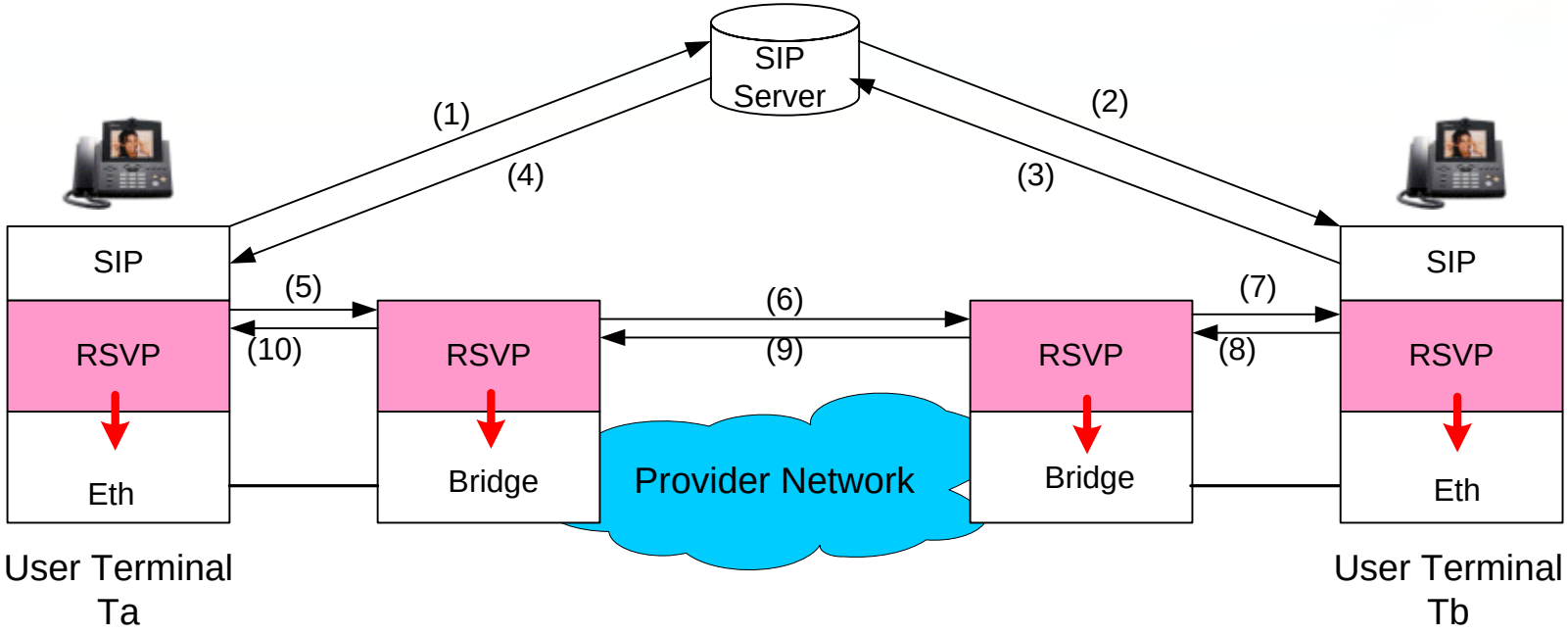
- SRP is used in local network for stream reservation protocol
- In **Video-Phone**, SRP should be able to work across several different **Provider Networks**
- RSVP is widely deployed in **Provider Networks**
- SRP←→RSVP conversion may be necessary at provider edge
- **SRP need to be compatible with RSVP**

Complexity of Layered Protocol Interaction



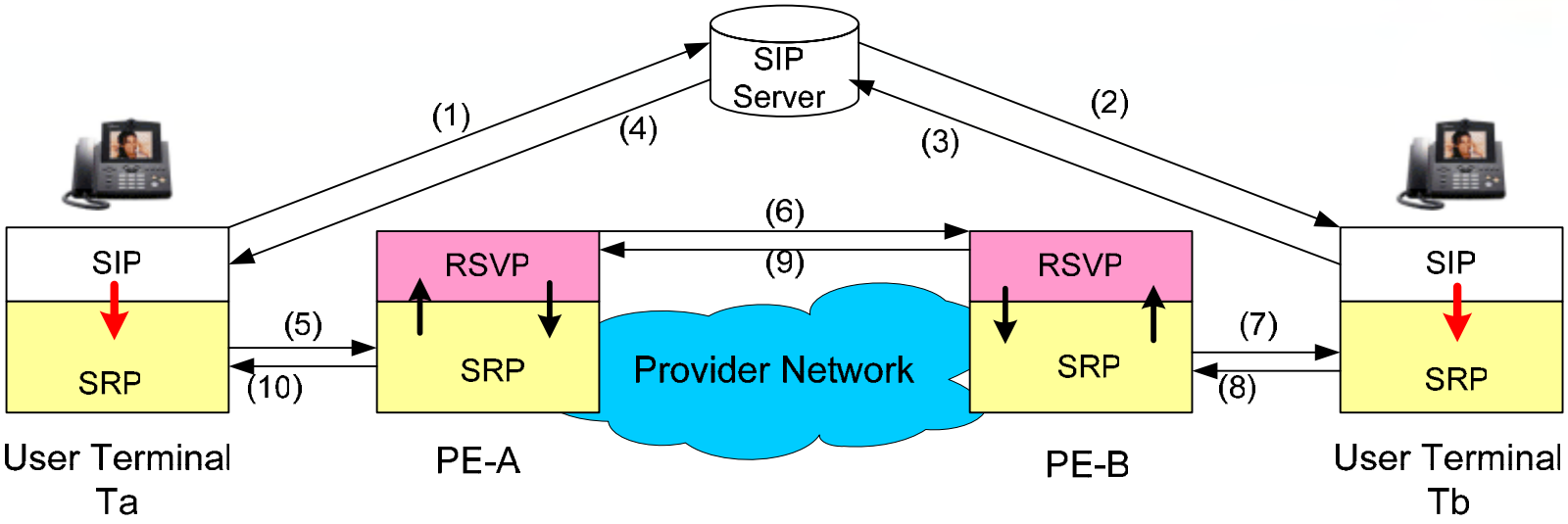
- When RSVP seats on top of SRP, complex protocol interaction is necessary
  - RSVP need ARP & SRP for layer-2 resolution
  - SIP need RSVP for network-wide reservation
- SRP & RSVP in effect perform similar work
  - resource reservation, admission control, etc..
- Heavy protocol stacks in SIP terminal

RSVP v.s. SRP



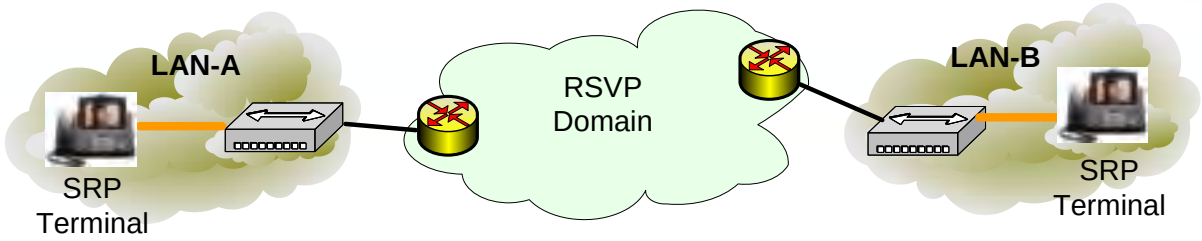
- RSVP may be deployed in Bridges instead of SRP
  - e.g) SBM(RFC2814) or GELS(GMPLS Ethernet Label Switching)
- RSVP is heavier than SRP, but overall procedure is less complex than interacting with both stacks (RSVP+SRP)
- When the Scope is **NOT** confined to **Local Network**, RSVP may provide better global connectivity, **UNLESS !!** SRP can provide similar connectivity

Suggestion: Direct SRP to RSVP Conversion

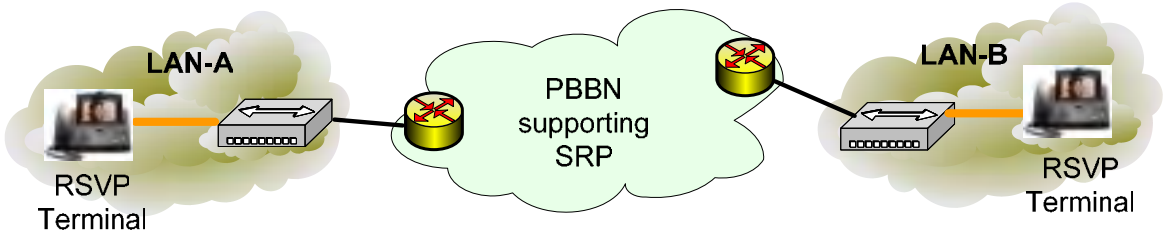


- Applications may sit directly on top of SRP
- SRP may transparently carry some application specific data & IP addresses
- In PE, direct SRP←→RSVP mapping & conversion should be possible (no information loss)
  - RSVP provides role of SRP relay
- Then, SIP terminals may not need RSVP

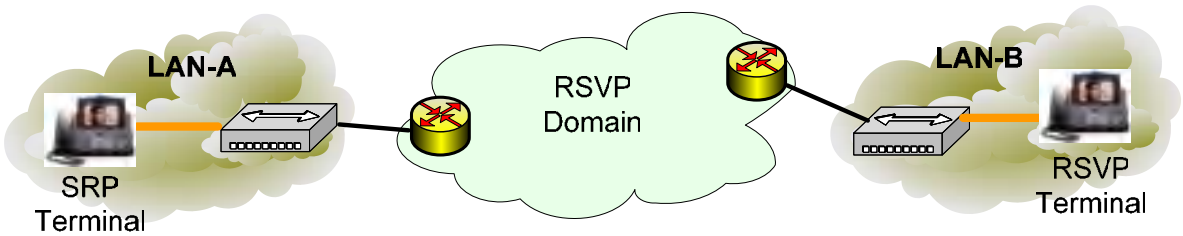
Three Interconnection Models



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

Requirement for SRP (1)

1. SRP procedure, semantics of parameter, timing, type codes need to be congruent to RSVP

e.g) **Message Mapping :**

RSVP-Path,Path-Tear → ? , ?

RSVP-Resv,Resv-Tear → SRP Resv, SRP Tear

RSVP-Error → 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..

Requirement for SRP (2)

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/v6** 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.