

The eXtensible Peer Protocol (XPP)

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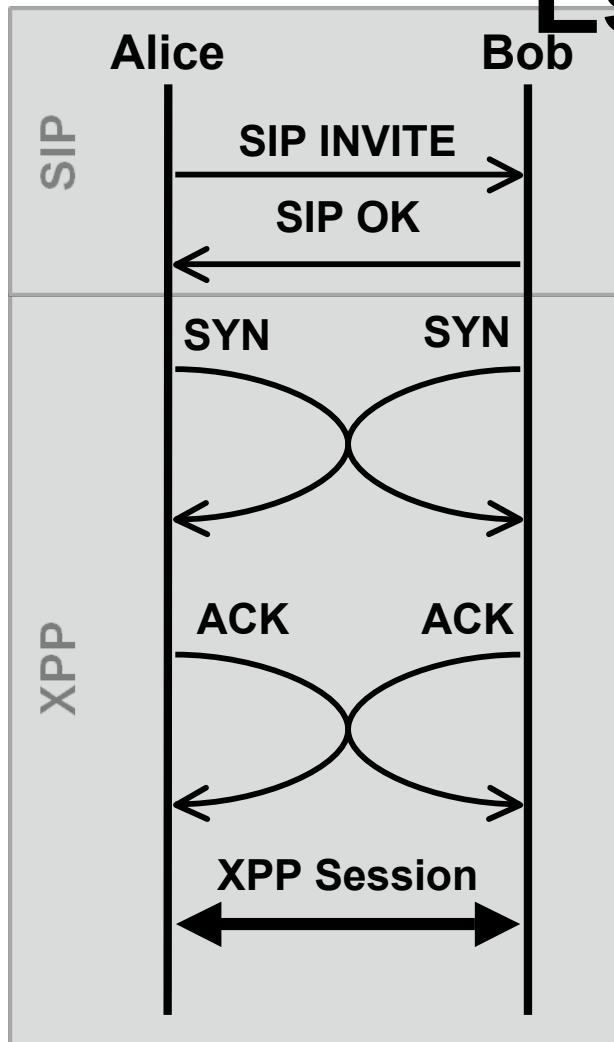
Design Choices

- XPP uses UDP (only)
 - Simple & Reliable NAT Traversal
 - Allows turning off reliability
- Small and simple header with TLV options
- Sessions
 - Sessions are established and ended with SIP
- Where is the DHT?

Routing	XPP-PCAN
DHT Put	
DHT Get	
Location	
Identity Assertion	
Fragmentation	XPP
Reliability	
Transport Security	

Use Cases

Simultaneous Session Establishment



Alice's SIP INVITE:

INVITE sip:bob@biloxi.com SIP/2.0

To: Bob <sip:bob@biloxi.com>

From: Alice <sip:alice@atlanta.com>;tag=1928301774

...

c=IN IP4 130.79.90.54

*m=application 1234 UDP/XPP **

a=itag: 0xAAAA

...

Bob's SIP OK:

SIP/2.0 200 OK

To: Bob <sip:bob@biloxi.com>;tag=a6c85cf

From: Alice <sip:alice@atlanta.com>;tag=1928301774...

...

c=IN IP4 103.97.9.45

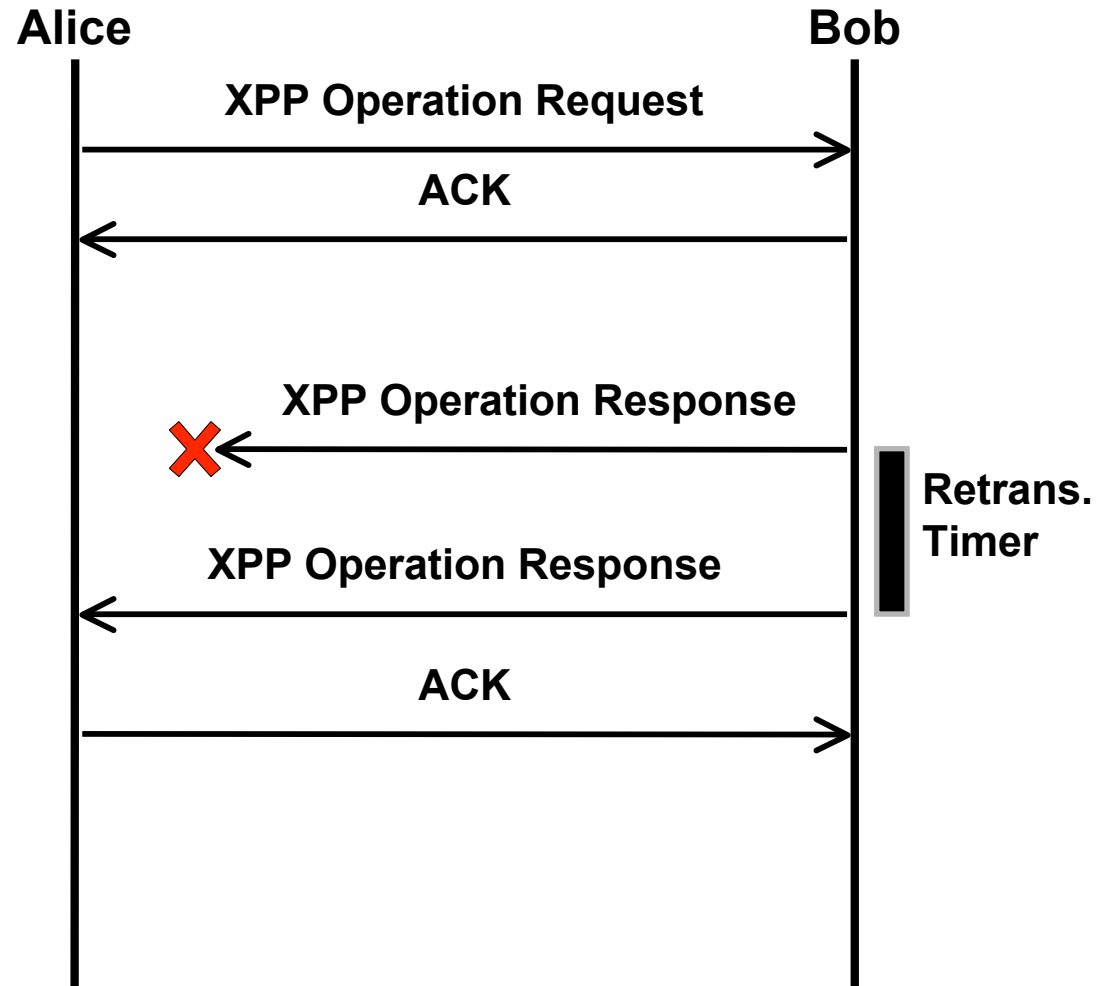
*m=application 4321 UDP/XPP **

a=itag: 0xB BBBB

...

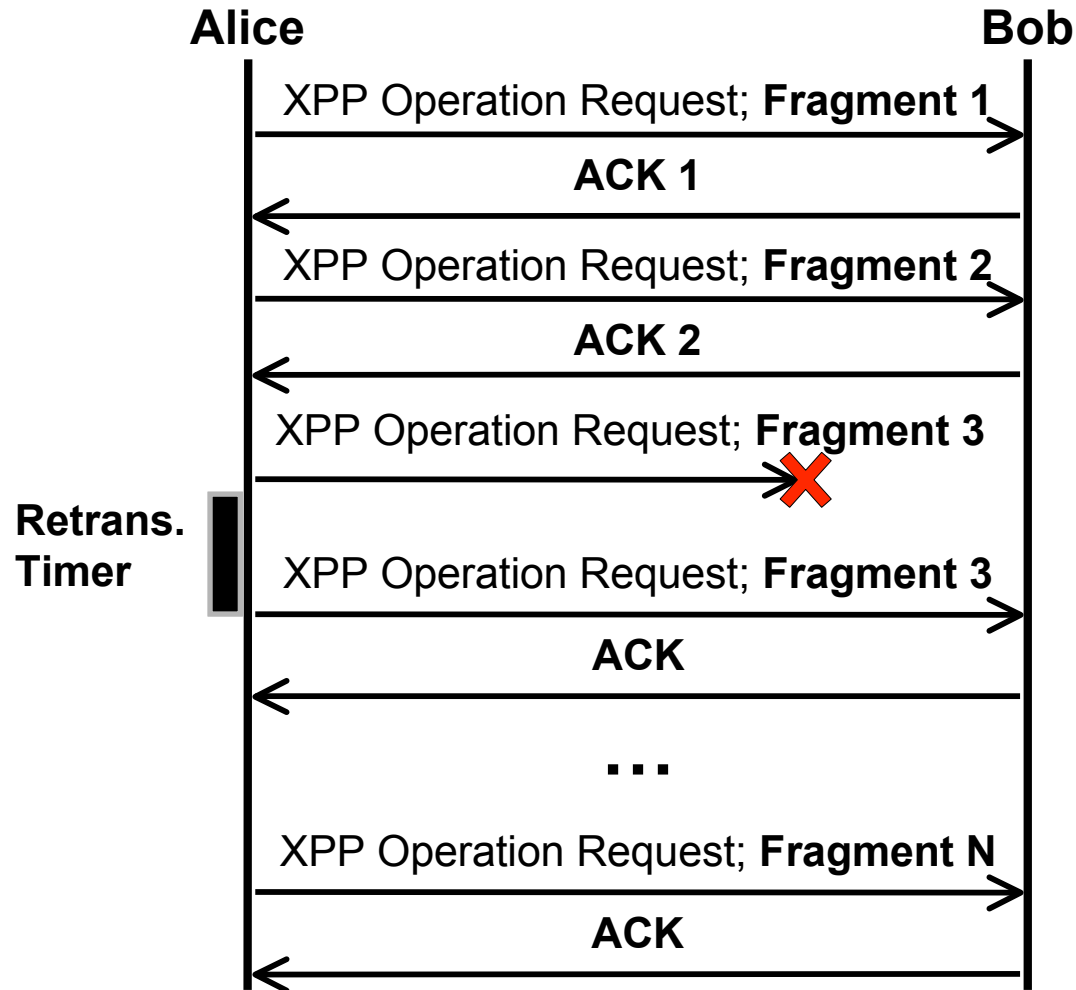
Use Cases

A Sample XPP Operation

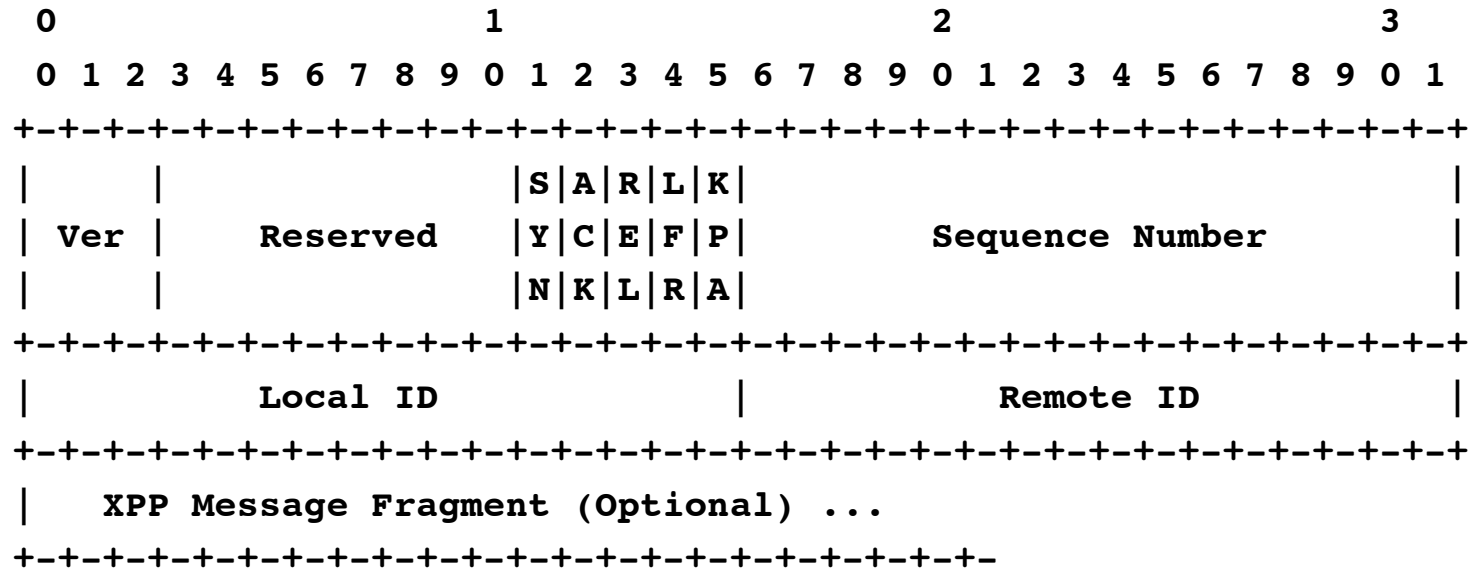


Use Cases

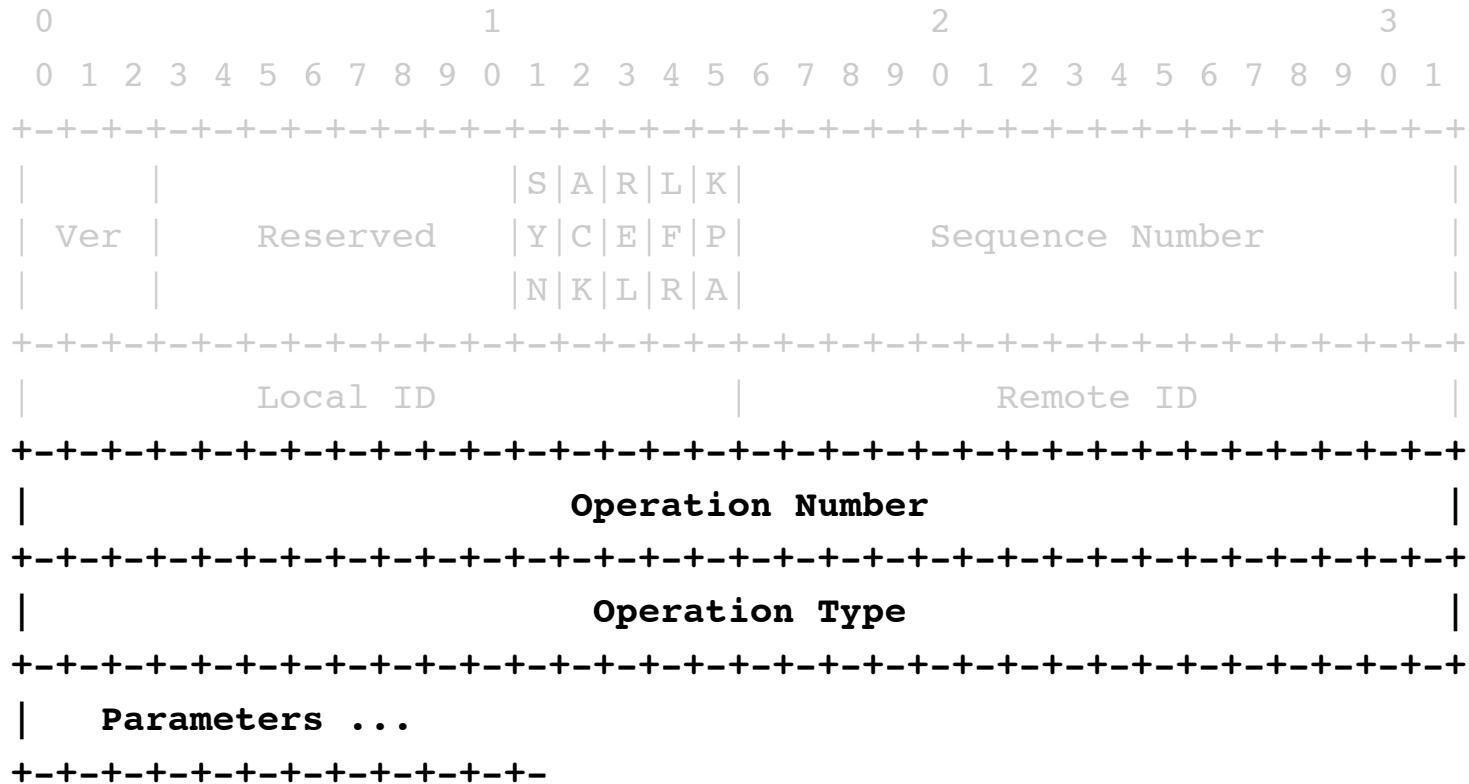
XPP Message Fragmentation



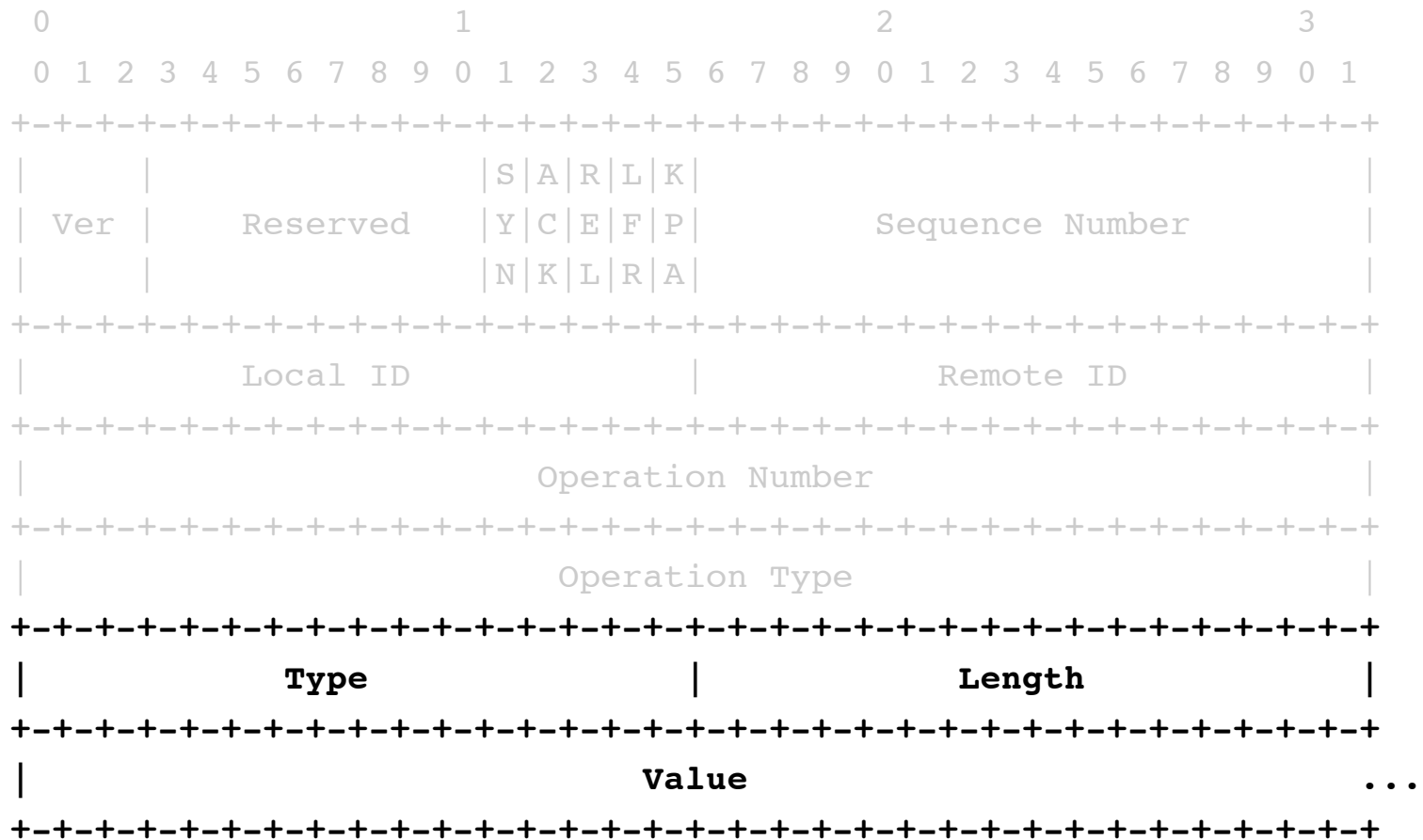
XPP Fragment Header



XPP Messages

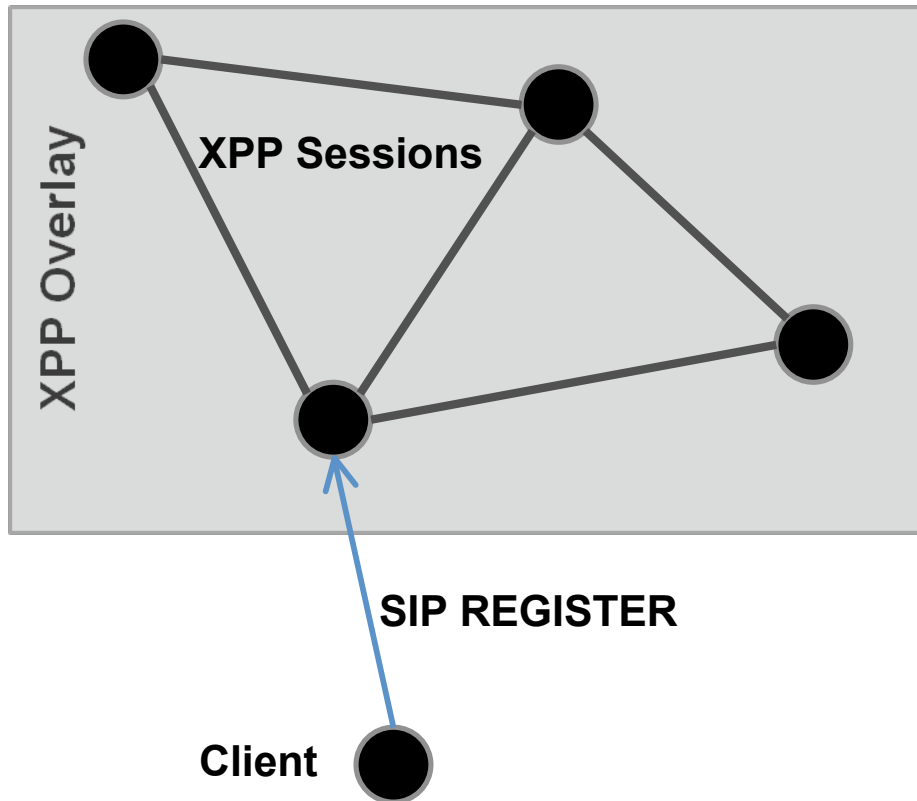


XPP TLV Options

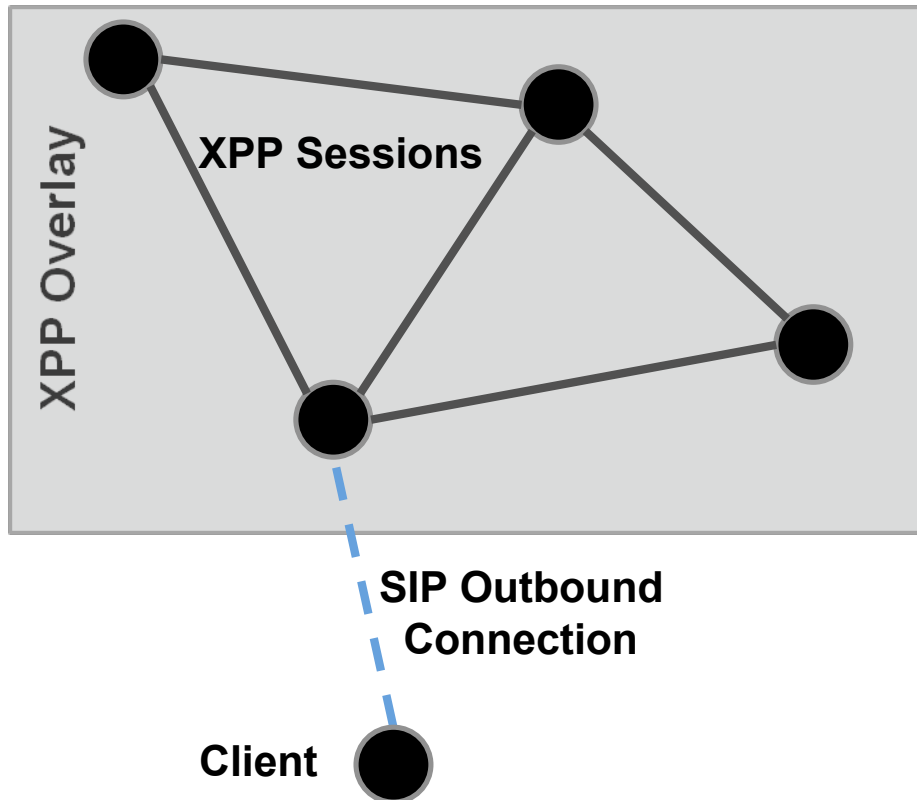


XPP-PCAN's Passive Approach

- A P2PSIP client registers with the overlay just as it would register with any other SIP registrar

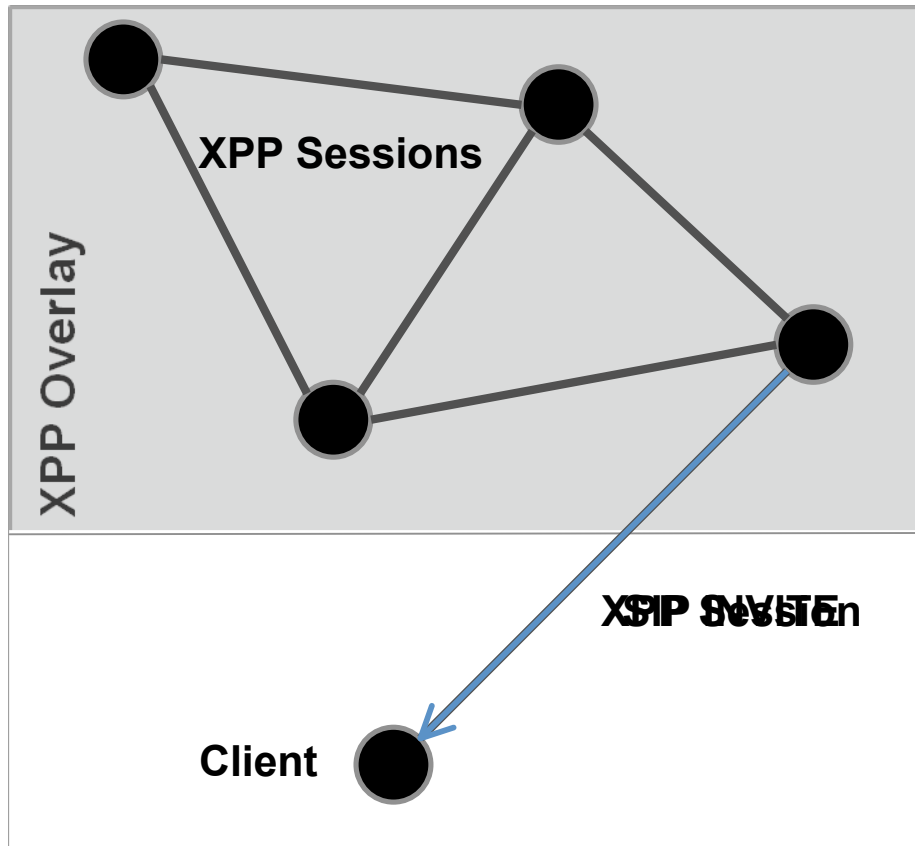


XPP-PCAN's Passive Approach



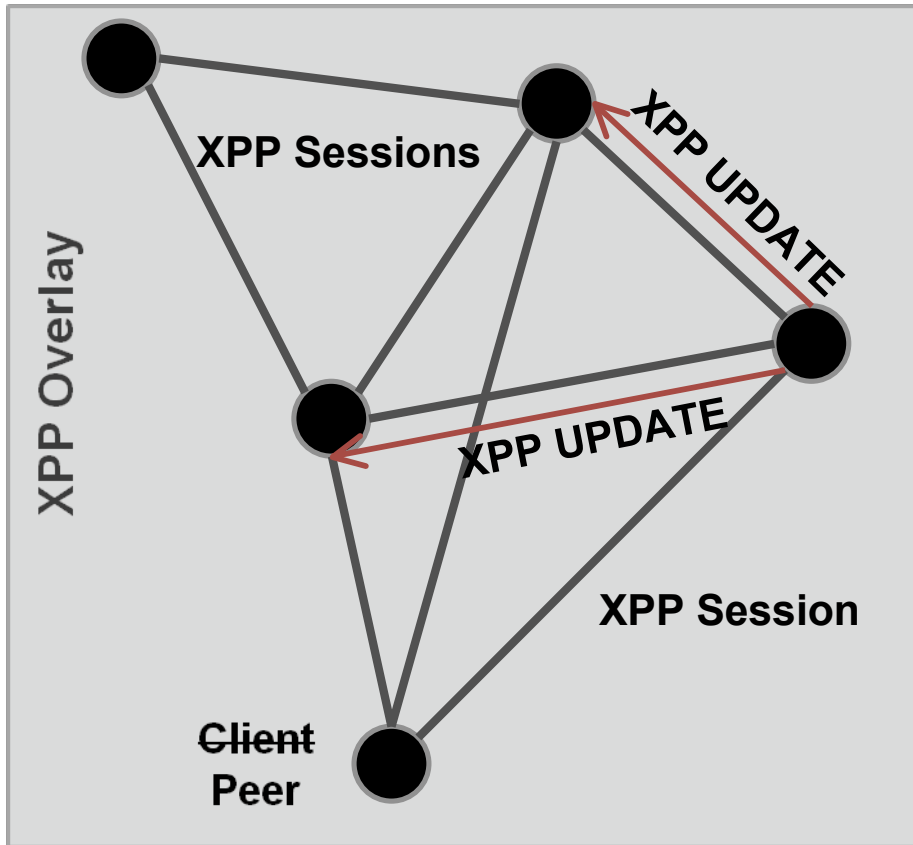
- A P2PSIP client registers with the overlay just as it would register with any other SIP registrar
- During the initial registration the P2PSIP client asserts its identity against the credentials stored in the overlay. Once this phase completed, the client starts maintaining a SIP Outbound connection with a peer in the overlay.

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- At some point of time an existing peer may decide to invite it to join the overlay and establish an XPP session with it.

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- During the initial registration the P2PSIP client asserts its identity against the credentials stored in the overlay. Once this phase completed, the client starts maintaining a SIP Outbound connection with a peer in the overlay.
- At some point of time an existing peer may decide to invite it to join the overlay and establish an XPP session with it.
- The inviting peer would also advertise the arrival of the new peer to all its future neighbors.¹³

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