P2PSIP
Concepts & Terminology

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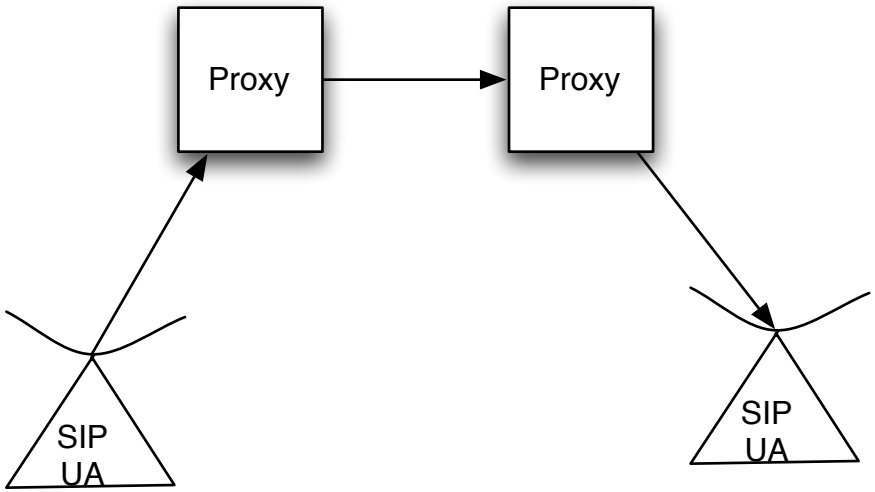
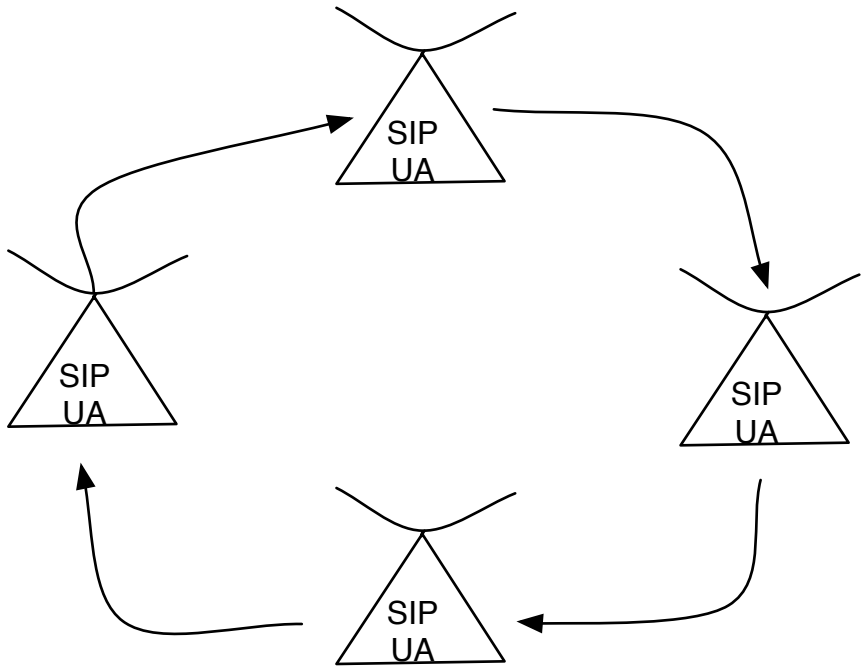
Background

- First P2PSIP BOF very confusing due to mismatches in terminology and conceptual model.
- David Bryan, Eunsoo Shim, Philip Matthews, Henning Schulzrinne, Cullen Jennings, and Dean Willis held about 80 hours of conference calls and worked out the material documented in:
- draft-willis-p2psip-concepts-00

P2PSIP

A model for SIP using peer-to-peer organization rather than traditional client-server organization where feasible.





vs.

P2PSIP Overlay

- An association group of P2PSIP nodes that shares a common namespace and that collaborates to perform SIP functions.
- Probably maps to a “domain”, but might not in some cases.
- Example: If Skype used P2PSIP, then skype.com would be a P2PSIP overlay.
- Some people talk about “network”, but we’re really just talking signaling and media relay.

P2PSIP Peer

- A network node.
- Participates in and understands the P2PSIP outing topology.
- Provides route storage and retrieval services to other nodes.
- Unique identifier in the overlay.
- May forward SIP requests for other nodes.
- Also called “supernode”.

P2PSIP Client

- Also, a network node.
- Uses the P2PSIP overlay.
- Does NOT provide route storage and retrieval services.
- Does NOT require a unique ID within the overlay.
- Might also forward SIP requests for other nodes.

P2PSIP User Agent

- A SIP user agent that is coupled to a P2PSIP Overlay Peer or P2PSIP Overlay Client.
- The P2PSIP Overlay Peer or Client assists the SIP User Agent with request routing as an alternative to RFC 3263 procedures.

P2PSIP User

- An addressable user endpoint, entity, service, or function within a P2PSIP Overlay.
- Examples include but are not limited to:

  Humans, automata, bridges, mixers, media relays, gateways, and media storage

- Has a unique identifier within the P2PSIP overlay that is presumably equivalent to an Address of Record.

P2PSIP Node Roles

- User Agent: a phone, voice mail server, bridge, or other device that initiates or terminates session requests.
- Media relay: a peer or client capable of relaying RTP sessions, aka STUN/TURN
- Gateway: a peer or client that converts from P2PSIP to some other protocol, such as PSTN.
- Redirector or Location Server: a peer or client that, given a SIP INVITE to a P2PSIP overlay resource identifier, returns the route to a resource in a 302 or 305 response.
- Registrar: A peer or client that processes SIP REGISTER requests, either storing or retrieving the contact information to/from the routing data of the P2PSIP Overlay.
- Proxy: A peer or client that accepts SIP requests, resolves the next hop or hops using the routing information of the P2PSIP Overlay, and passes the request on towards the next hop.

Enrollment vs Insertion

- Enrollment: Gaining a user or peer ID and credentials needed to access the overlay.

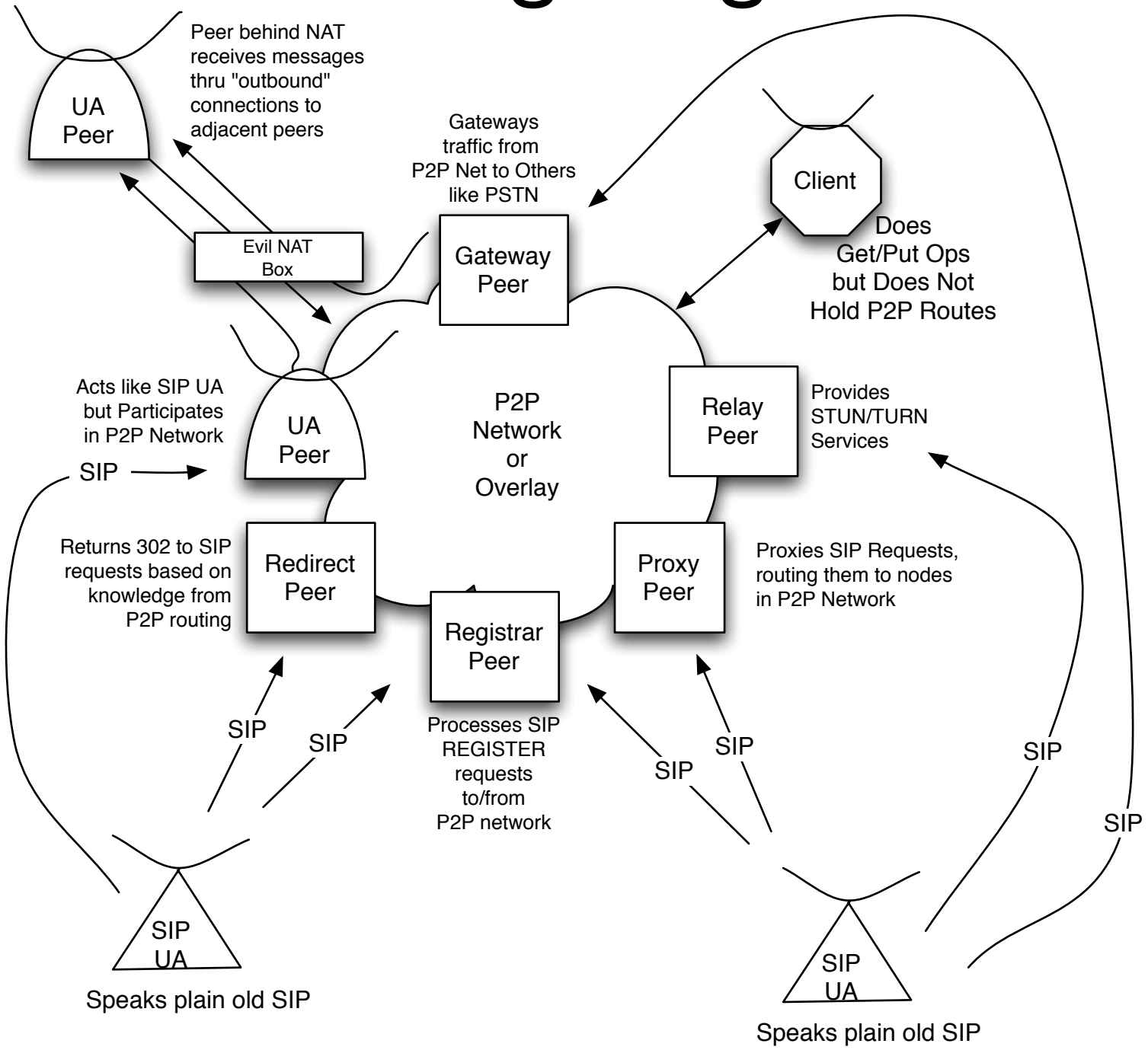
  We probably won't specify a process here, just mandate what the results of any process would have to be.

- Insertion: Connecting to an overlay and adding routing information to that overlay so that the inserting node can be found.

  Equivalent to SIP "Registration" process.

1) Enroll. 2) Insert. 3) Make or take a call.

Working Diagram



Open Questions

- Peer vs client Protocol: Are these the same things, or not? Are either SIP?
- How to find a media relay? Does it have to be network-path optimal?
- How best to arrange NAT traversal?
- Cryptotransparency and security.
- Credentials. Certs from a CA? Self-signed?
- Bootstrapping. How to start from zero?