# ICE

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# Changes

- alt->candidate
- removed derived-from
- username SDP attribute to user-frag
- XML schema allows both IPv4 and IPv6 default
- Added hints on masking allocation latency
- TURN and STUN to SHOULD for address allocation + caveats
- MAY use other allocation protocols
- User/pass different for each transport address
- Discuss Pete’s misrouting scenario

# Changes

- Removed mid-session checks
- STUN runs until media packet received, then you can revert to RTP
- Add discussion on selecting default address
- One local transport address for each usable address
- Added section on application layer keepalives
- Rewrote security considerations
- Described re-invite handling

# Changes

- IANA registration details
- TURN normative reference
- Added space between RTP/RTCP in grammar
- RTCP informational optional in SDP
- Justify inclusion of id component
- Describe what goes in CHANGED-ADDRESS

# Mid Session Checks

- Serve the purposes of
  - Binding Keepalives
  - Detection of Interface Failure
  - Detection of NAT failure
  - Bandwidth probing
- Need to specify
  - Frequency of transmission
  - Definition of failure
  - Protection against flapping

# Choices

- STUN-Based
  - (+) Codec/Transport independent
  - (-) Requires RTP/STUN demux
  - (?) Can be done even if a transport address not in use
  - (-) Hard to specify timers
  - (-) Failure detection/recovery partial solution
- App-Based (i.e., punt)
  - (-) app-specific
  - (+) Clean STUN/RTP handoff point
  - (+) timers, failure detection become app specific
  - (+) separation of problems, limit scope
- Hybrid
  - Mostly inherits complexities of both

# Recommendation

- Keep STUN keepalives

# STUN vs. STUN over RTP

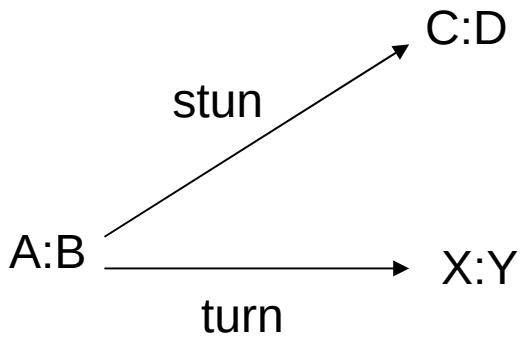
- Cons
  - Request/Response protocol mismatch for RTP
  - Tunneling STUN over RTCP ugly
  - Timestamp jumps – not really media
  - Need to complete SRTP keying before you can use it
  - RTP Specific
- Pros
  - Avoids STUN/RTP demux
    - Does it matter if we don’t do mid-call checks?

# Forcing Symmetry

- Problem
  - Current algorithm can result in different send/receive ports
  - RTP keepalives wouldn’t work
- Proposed solution
  - MUST send from port on which you last received RTP
  - SHOULD use highest priority address you got STUN request on otherwise
  - SHOULD use highest priority address otherwise

# Local to Derived Mapping

- Previously, one local address could have multiple derived addresses
- Problems introduced
  - Can’t tell when to disable STUN server on A:B
    - Would need to be timeout
  - Username/address selection complexity
  - Hard to assess which address was used in the end




- Cons
  - Lots of port usage – is this an issue?
  - Now worried about small footprint devices..
- Proposal
  - Go back to one to many
  - Use timeout