

# **JSEP Update**

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# Updates and Open Issues

- Updates
  - Trickle ICE dependencies
  - ICE candidate gathering
  - ICE Restart
  - Description rollback
- Open Issues
  - Rehydration v3
  - PRANSWER, revisited\*
  - Normative API specification\*
- Covered elsewhere
  - Media stream taxonomy
  - m= line mapping

# Trickle ICE

New draft, draft-ivov-mmusic-trickle-ice-01, imposes a few requirements on JSEP:

- Indication of end-of-candidates MUST be provided on a per-transport basis (compared to per-session today)
- a=mid MUST be used to support identification of m= lines
- "null address" of 0.0.0.1:9 (TBD) to be used when no candidates have been gathered yet

# ICE Candidate Gathering

Trickle ICE work indicated there was confusion around when candidates are gathered; now specified explicitly in latest JSEP draft:

- **setLocalDescription** causes the browser to gather any needed candidates and issue the necessary candidate callbacks, based on number of m= lines and BUNDLE state in supplied description
- If candidates have been pre-allocated using the "candidate pool" technique, those candidates are stored internally, but supplied to the application as above.  
IOW, the candidate callbacks occur immediately.
- **createOffer/createAnswer** never trigger candidate gathering, but include any candidates that have previously been supplied to the application.

# ICE Restart

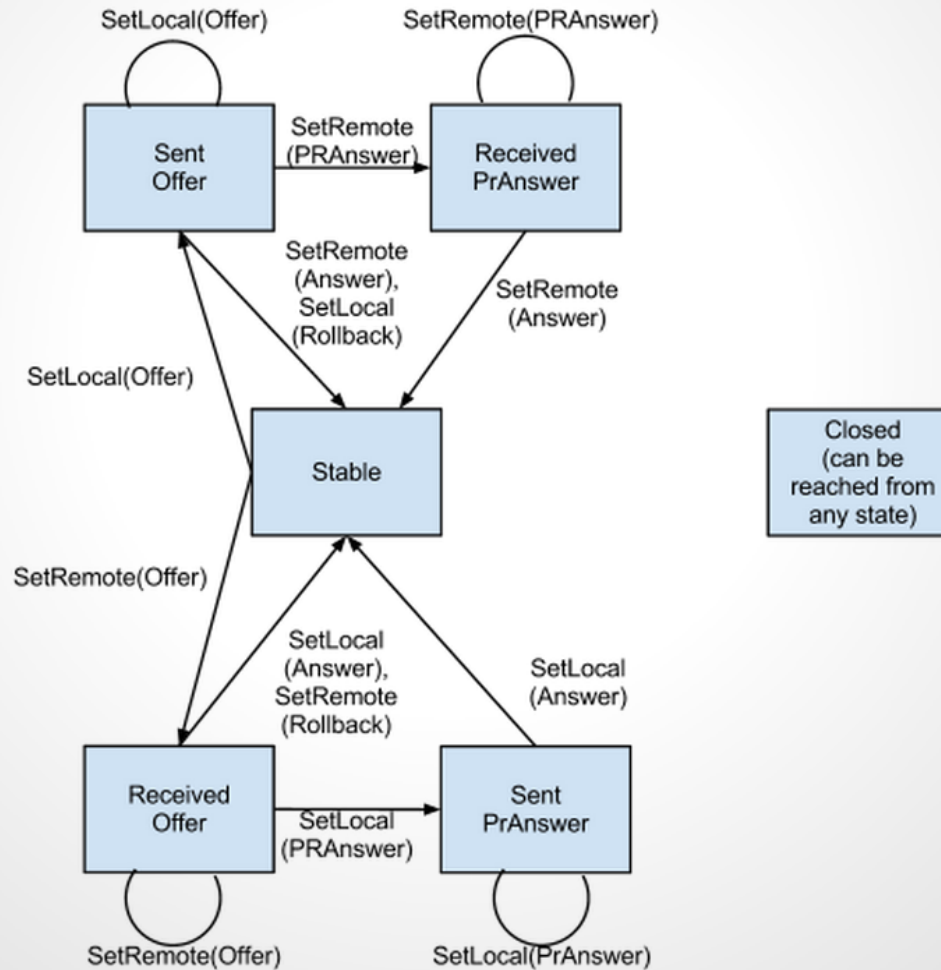
Work on implementing ICE Restart indicated gaps in the spec. Expected sequence (A talking to B):

- A: **createOffer(IceRestart)** triggers generation of an offer with a new ICE ufrag/pwd
- A: **setLocalDescription** with A's new ICE creds triggers gathering of new candidates
- B: **setRemoteDescription** with new ICE creds causes B: **createAnswer()** to generate an answer with a new ICE ufrag/pwd
- B: **setLocalDescription** with B's new ICE creds triggers gathering of new candidates
- A and B's ICE Agents now try to bring up a connection using the new candidates, and transition media to it, as specified in RFC 5245

# Description Rollback

- Rollback involves a transition to the previous signaling state
- Use case: make offer, offer rejected
  - **Stable -> have-local-offer -> Rollback to Stable**
- Use case: receive updated offer, apply offer, decide it's no good, reject it
  - **Stable -> have-remote-offer -> Rollback to Stable**

# Description Rollback



# Rehydration v3

**Problem statement:** Maintain call with remote endpoint across a local page reload, with no special action needed from remote endpoint.

- Save MediaStream info from existing session, reload
- After reload, create new PeerConnection
- Attach same MediaStreams as before (using sourceId); **maintain the MSIDs**
- Use createOffer to create a new offer
- Remote side will process this as an re-INVITE (with ICE restart and key change, if needed) and answer it accordingly
- Call is re-established

# Questions