TRICKLE ICE

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draft-ietf-mmusic-trickle-ice

Emil Ivov, Eric Rescorla, Justin Uberti

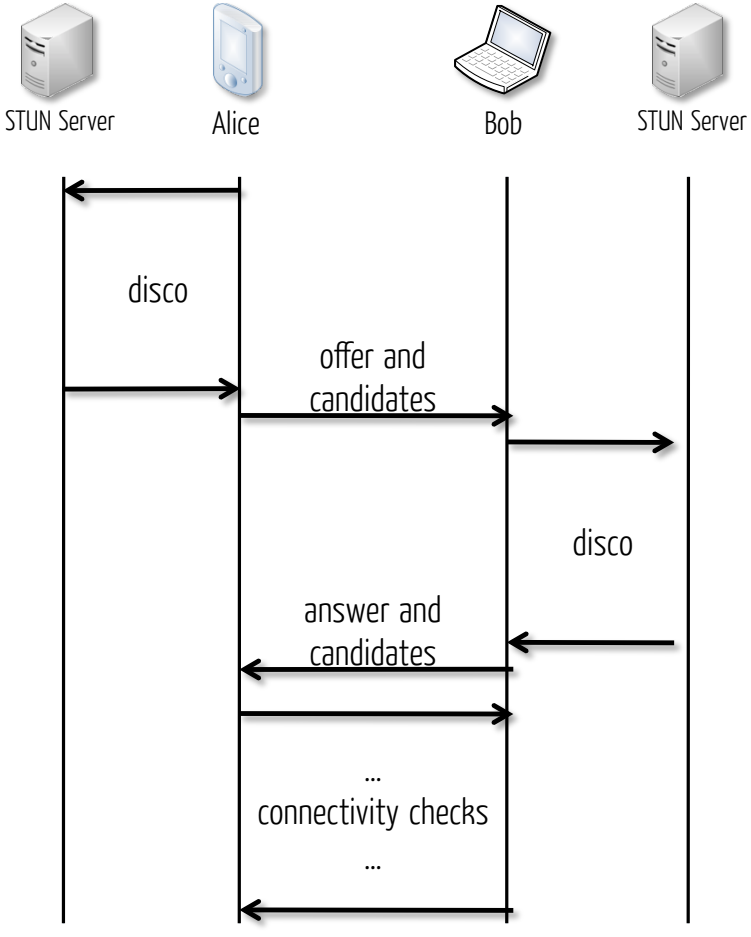
draft-ietf-mmusic-trickle-ice-sip

Emil Ivov, Enrico Marocco, Christer Holmberg

draft-ivov-disspatch-sdpfrag-03

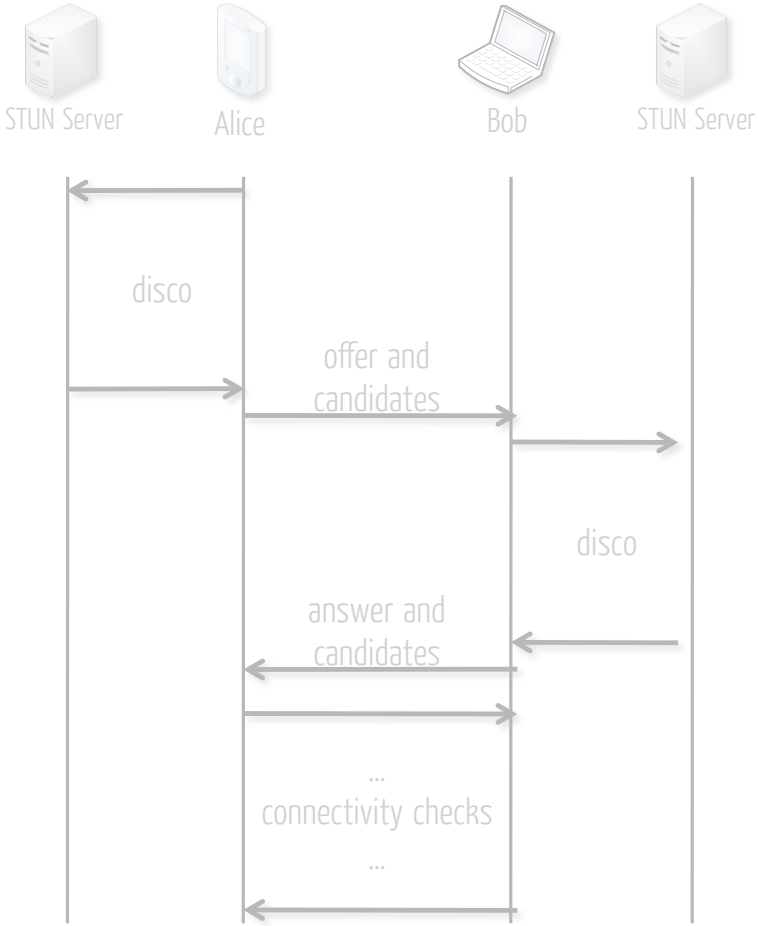
Emil Ivov, Adam Roach, Anyone Else?

Reminder: Vanilla ICE

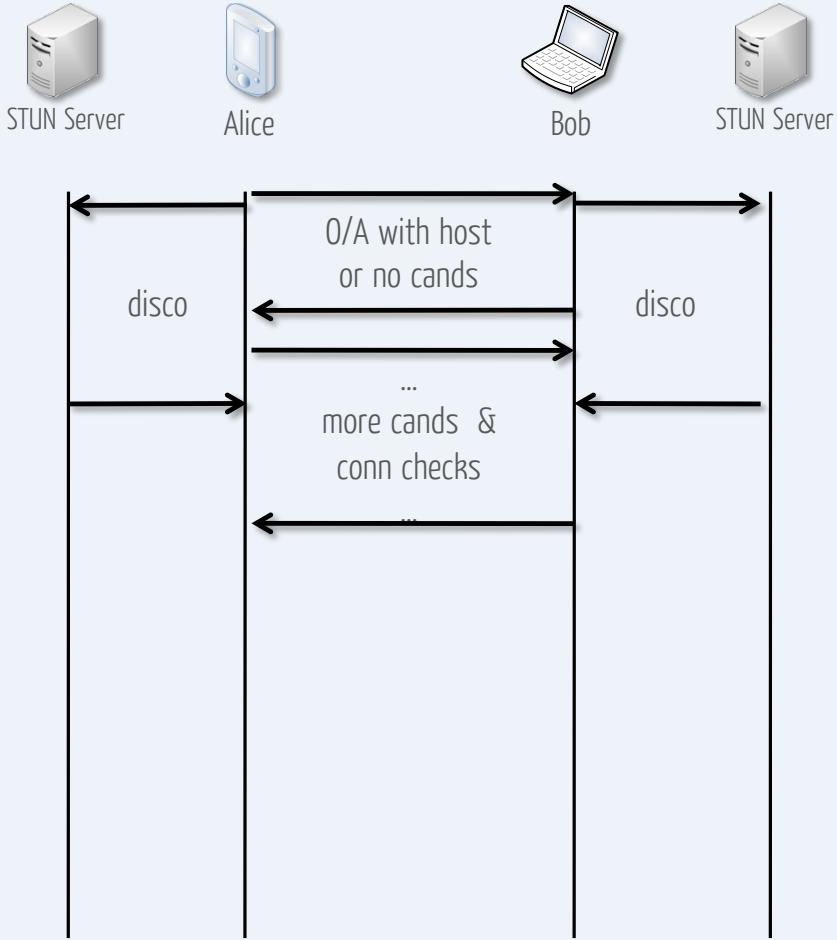


Vanilla ICE as per RFC 5245

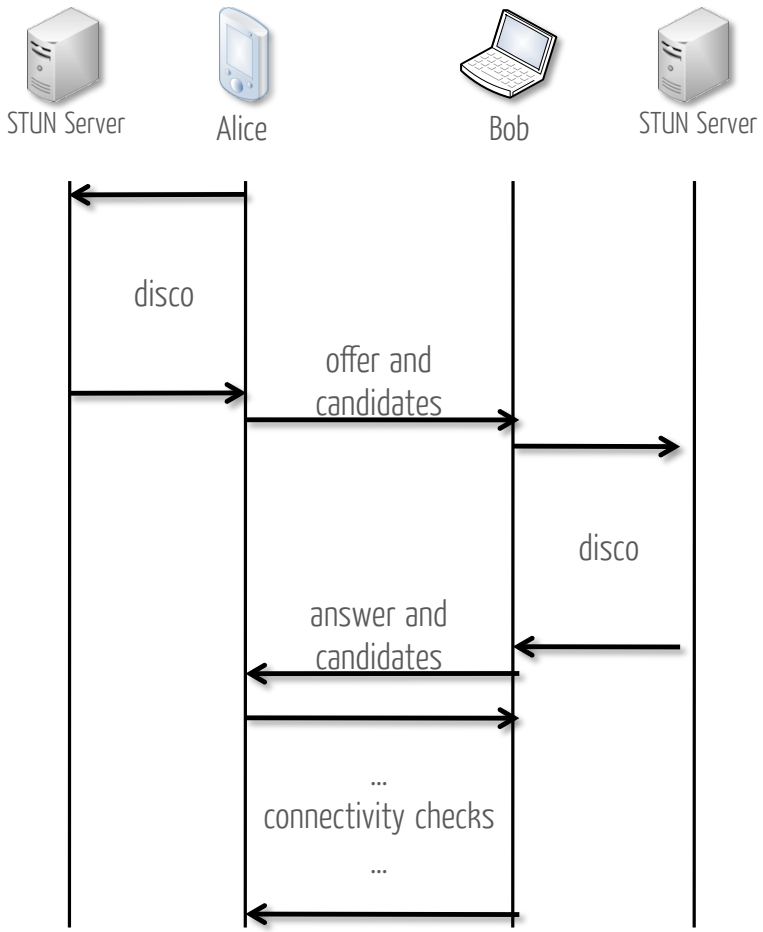
Reminder: Vanilla ICE vs Trickle ICE



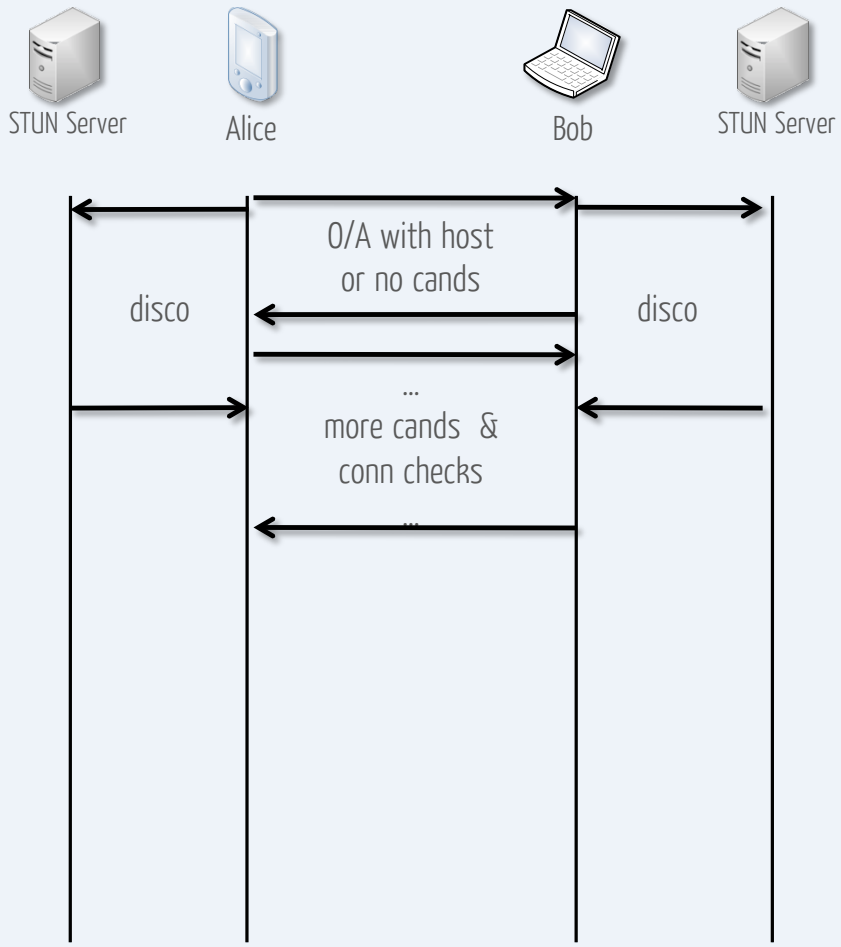
Vanilla ICE as per RFC 5245



Trickle ICE



Vanilla ICE as per RFC 5245



Trickle ICE

draft-ietf-mmusic-trickle-ice

Emil Ivov, Eric Rescorla, Justin Uberti

there was this one issue:

```
v=0
…
c=IN IP6 ::
a=ice-options:trickle
a=ice-pwd:asd88fgpdd7
a=ice-ufrag:8hhY
m=audio 9 RTP/AVP 0 96
a=rtpmap:0 PCMU/8000
a=rtpmap:96 opus/48000/2
m=audio 9 RTP/AVP 0 97
a=rtpmap:0 PCMU/8000
a=rtpmap:97 opus/48000/2
m=video 9 RTP/AVP 0 98
a=rtpmap:98 VP8/90000
m=video 9 RTP/AVP 0 99
a=rtpmap:99 VP8/90000
```

concerns that multiple 9s may anger bundle/jsep

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a=rtpmap:96 opus/48000/2
m=audio 9 RTP/AVP 0 97
a=rtpmap:0 PCMU/8000
a=rtpmap:97 opus/48000/2
m=video 9 RTP/AVP 0 98
a=rtpmap:98 VP8/90000
m=video 9 RTP/AVP 0 99
a=rtpmap:99 VP8/90000
```

concerns that multiple 9s may anger bundle/jsep

resolved in bundle/jsep

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THERE HAVE BEEN NO CHANGES SINCE LAST TIME (IETF89) BUT THE DOCUMENT IS PRETTY MUCH READY FOR WORKING GROUP LAST CALL, SO PLEASE HAVE A READ

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draft-ivov-disspatch-sdpfrag-03

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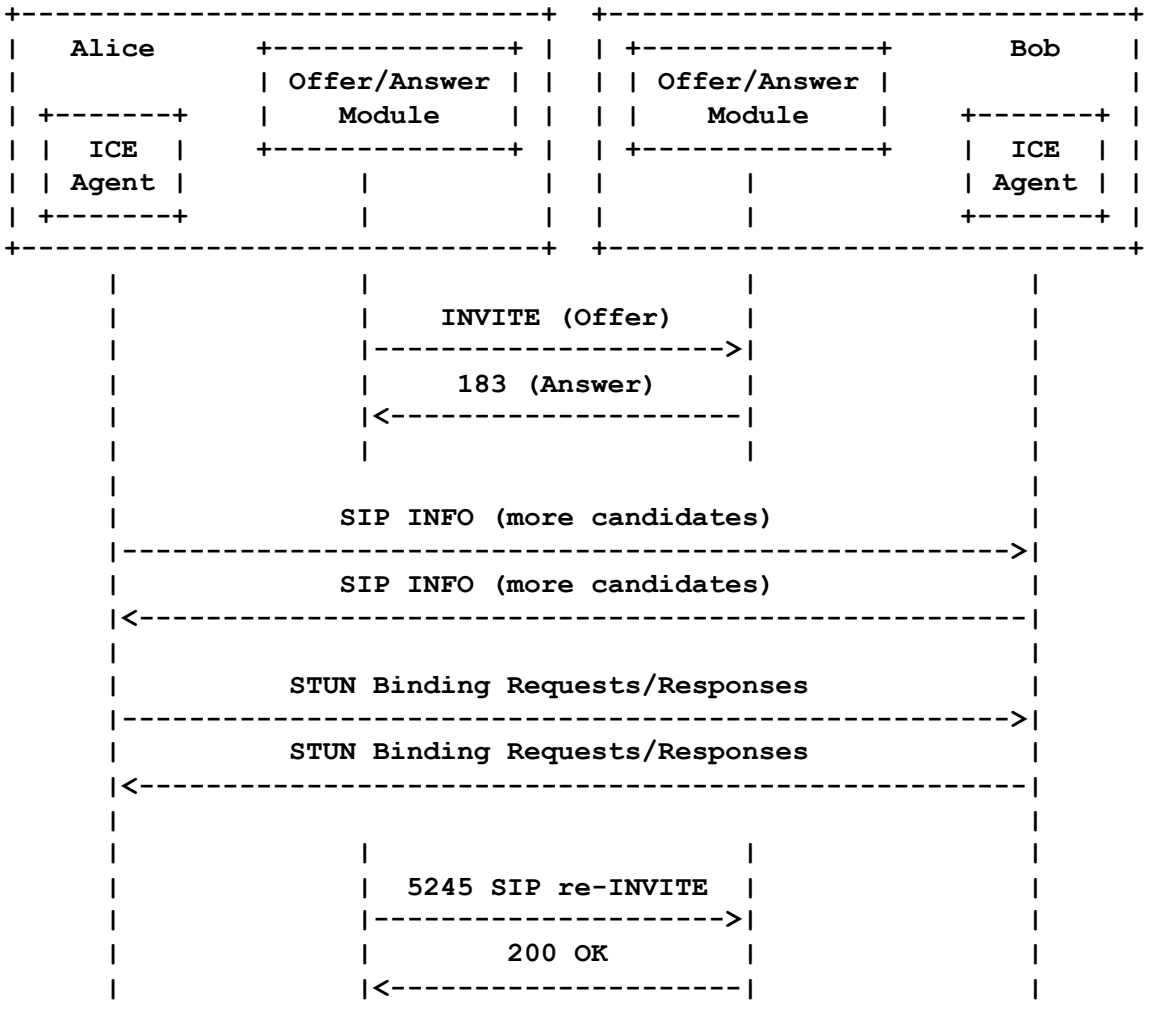
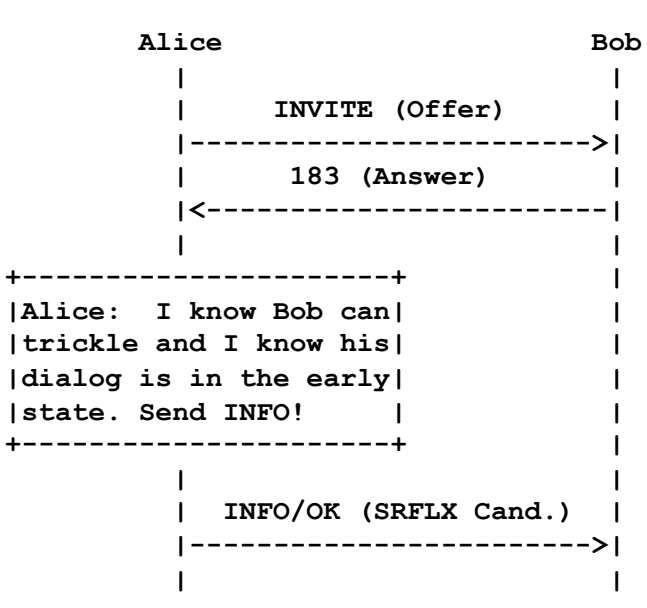
ΔS since individual-01

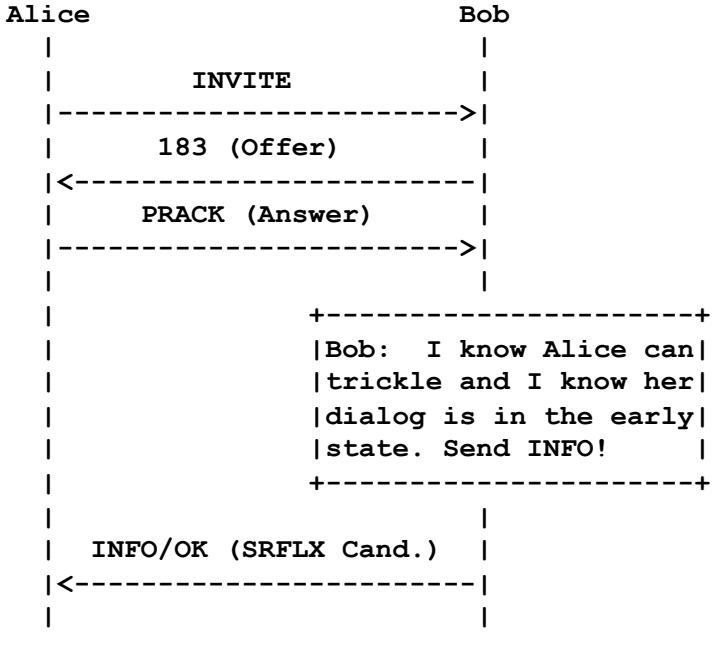
this is the boring part

added protocol overview and rationale

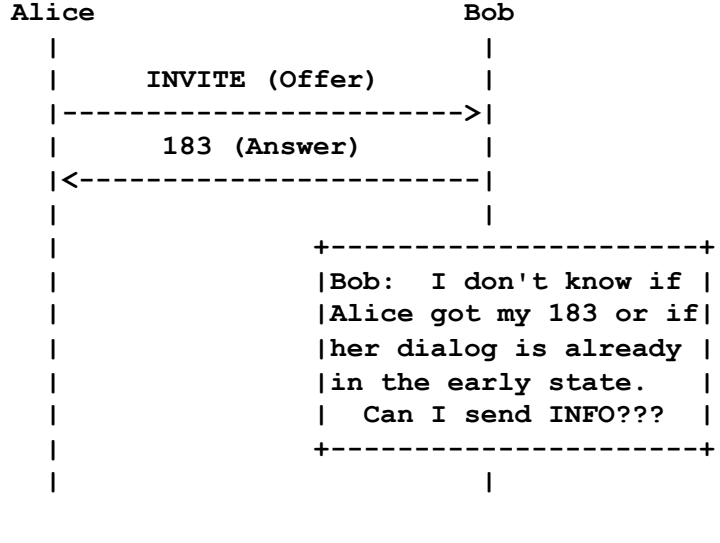


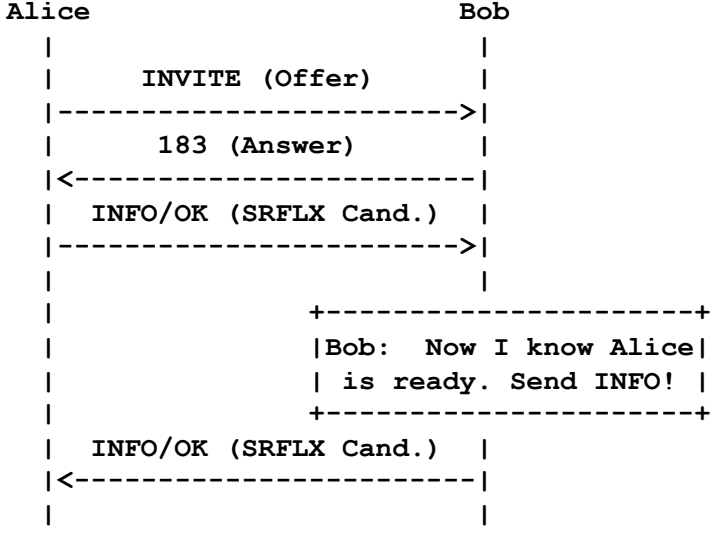
asserting offer/answer delivery and state





offer/answer and working around the PRACK





5 other ways trickle ICE makes the world a better place

1. Candidates are sent incrementally. In addition to the newly discovered candidates, every INFO message contains all local candidates an agent has previously sent. This allows misordered/lost INFOs to not be a problem.

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2. INFO requests must always carry the a=ice-ufrag and a=ice-pwd attributes (as either session or media-level attributes) so that the requests can be matched to a specific ICE generation (i.e., or an offer/answer negotiation).

```
a=ice-pwd:asd88fgpdd777uzjYhagZg
a=ice-ufrag:8hhY
a=mid:1
a=candidate:1 1 UDP 1658497328 192.168.100.33 5000 typ host
a=candidate:2 1 UDP 1658497328 96.1.2.3 5000 typ srflx
a=mid:2
a=candidate:2 1 UDP 1658497328 96.1.2.3 5002 typ srflx
a=end-of-candidates
```

5 other ways trickle ICE makes the world a better place

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3. SIP User Agents may be configured to force use of full trickle where maintainers expect all endpoints to support it. This would likely be the case for WebRTC environments.

4. Support for trickle ICE may also be dynamically discover with RFC 3840 but ***only if*** GRUU is also supported (otherwise there is no way to guarantee that the endpoint responding to caps query will be the same as the one that will get a subsequent INVITE

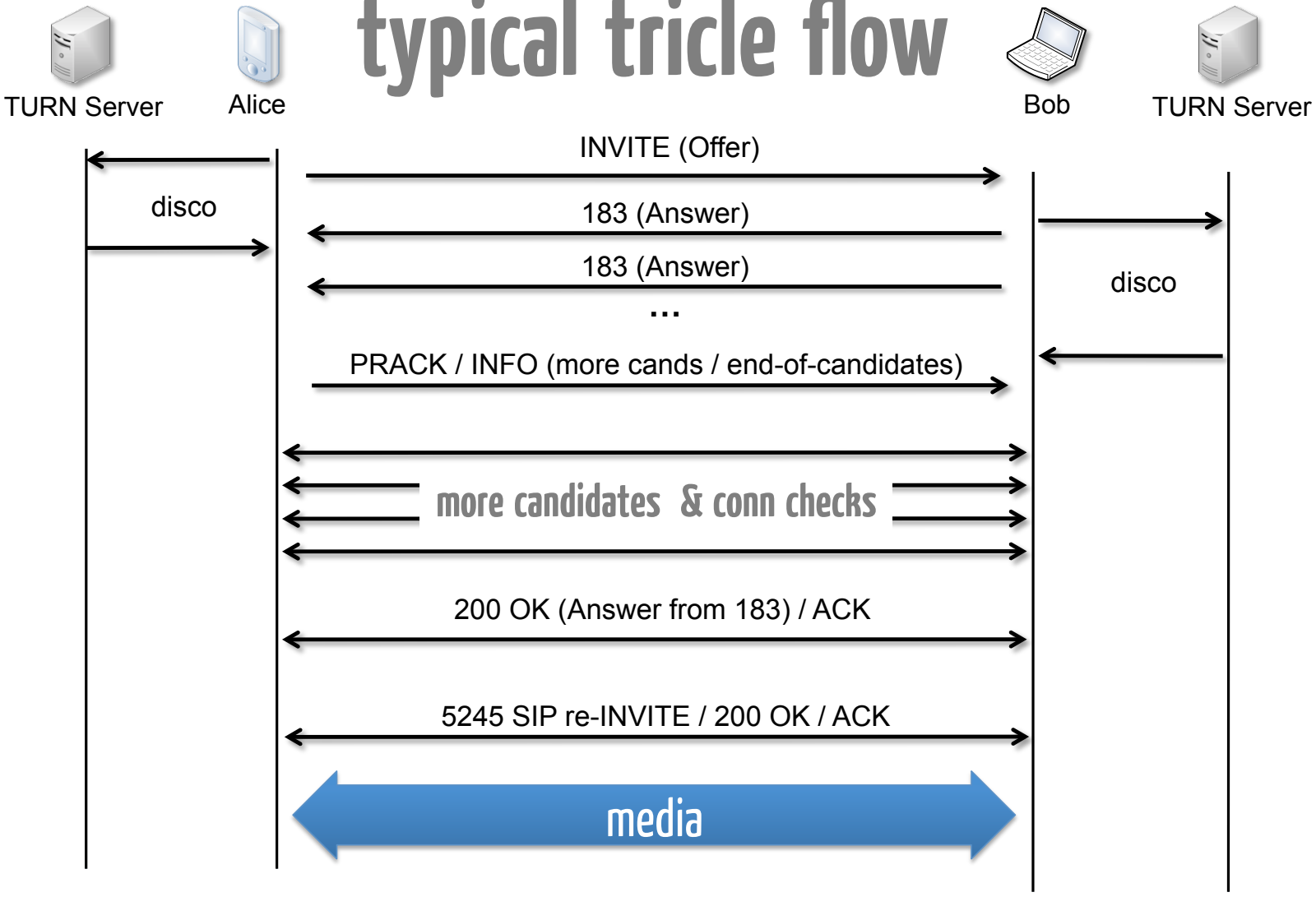
5. For those with an aversion to the above discovery hacks, trickle ICE for SIP can also be used in half trickle mode where the offerer starts with a regular ICE offer and, if the answerer can trickle, it just does.

new suggestion

courtesy of Thomas Stach. thanks!

this is the fun part!

typical tricle flow



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a=candidate:2 1 UDP 1658497328 96.1.2.3 5002 typ srflx
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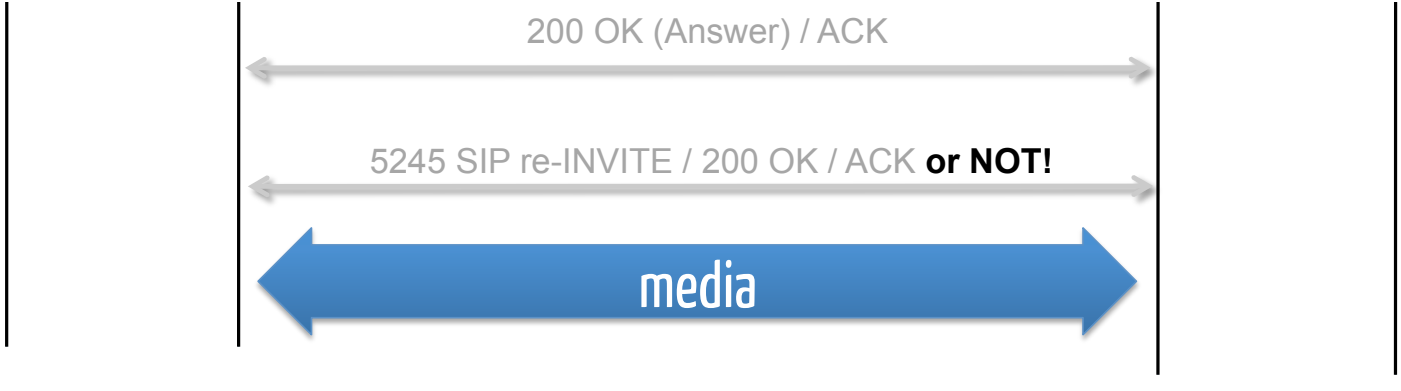

draft-ivov-disspatch-sdpfrag-03

Emil Ivov, Adam Roach, Anyone Else?

Content-Type: application/sdpfrag

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Content-Type: application/sdpfrag

means: any syntactically valid line of SDP

any combination of such lines in no particular order

```
a=ice-pwd:asd88fgpdd777uzjYhagZg
a=ice-ufrag:8hhY
a=mid:1
a=candidate:1 1 UDP 165 1.18.10.33 5000 typ host
a=candidate:2 1 UDP 168 91.21.2.3 5000 typ srflx
a=mid:2
a=candidate:2 1 UDP 164 96.11.2.3 5002 typ srflx
a=end-of-candidates
```

draft-ivov-disspatch-sdpfrag-03

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Content-Type: application/sdpfrag

London: why don't we give it some structure

```
a=ice-pwd:asd88fgpdd777uzjYhagZg
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a=end-of-candidates
```

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London: why don't we give it some structure

but then how would that work with POF/PAN?

```
a=ice-pwd:asd88fgpdd777uzjYhagZg
a=ice-ufrag:8hhY
m=audio 54400 RTP/SAVPF 0 96
a=mid:1
a=candidate:1 1 UDP 165 1.18.10.33 5000 typ host
a=candidate:2 1 UDP 168 91.21.2.3 5000 typ srflx
m=video 55400 RTP/SAVPF 96 97
a=mid:2
a=candidate:2 1 UDP 164 96.11.2.3 5002 typ srflx
a=end-of-candidates
```