ICE WG @ IETF 94

The beginning of the ICE age

Chairs: Ari Keränen, Peter Thatcher
Note Well

Any submission to the IETF intended by the Contributor for publication as all or part of an IETF Internet-Draft or RFC and any statement made within the context of an IETF activity is considered an "IETF Contribution". Such statements include oral statements in IETF sessions, as well as written and electronic communications made at any time or place, which are addressed to:

- The IETF plenary session
- The IESG, or any member thereof on behalf of the IESG
- Any IETF mailing list, including the IETF list itself, any working group or design team list, or any other list functioning under IETF auspices
- Any IETF working group or portion thereof
- Any Birds of a Feather (BOF) session
- The IAB or any member thereof on behalf of the IAB
- The RFC Editor or the Internet-Drafts function

All IETF Contributions are subject to the rules of RFC 5378 and RFC 3979 (updated by RFC 4879). Statements made outside of an IETF session, mailing list or other function, that are clearly not intended to be input to an IETF activity, group or function, are not IETF Contributions in the context of this notice. Please consult RFC 5378 and RFC 3979 for details.

A participant in any IETF activity is deemed to accept all IETF rules of process, as documented in Best Current Practices RFCs and IESG Statements.

A participant in any IETF activity acknowledges that written, audio and video records of meetings may be made and may be available to the public.
Administrativia

● Please sign the blue sheet
● Jabber scribe?
● Note takers?
● When you speak
  ○ Please use the microphone
  ○ Please state your name
Agenda

09:00-09:30 Introduction and Status Update (30 mins, Chairs)
\[draft-ietf-ice-dualstack-fairness-00\]

09:30-10:00 Trickle ICE (30 mins, Peter Saint-Andre)
\[draft-ietf-ice-trickle-00\]

10:00-10:45 Timing of STUN messages (Ta) (45 mins, Pål-Erik Martinsen, Chairs)
\[draft-ietf-ice-rfc5245bis-00\]
\[draft-martinsen-ice-ice-timers-00\]

10:45-11:15 ICEbis (30 mins, Ari Keränen)
\[draft-ietf-ice-rfc5245bis-00\]

11:15-11:30 Future improvements to ICE (15 mins)
Passive Aggressive?
Walk out the door problem?
Intro to WG

"The goal of the ICE Working Group is ...
Current work ...
an updated version of the ICE RFC (ICEbis),
Trickle ICE,
and dualstack/multihomed fairness
... make ICE more flexible, robust and more suitable for changing mobile environments without major changes to the original ICE RFC."

- https://datatracker.ietf.org/wg/ice(charter/)
What is ICE?

We wish we had a global network of endpoints with unique addresses:

    send(from: address, to: address, payload: packet)

But we don't.

So we hack around the Internet we do have.
What is ICE?

There are lots of NATs and firewalls that only allow outgoing connections, not incoming ones.

- Sometimes NAT traversal (STUN) works
- Sometimes a relayed connection works
- Sometimes TCP works
- Sometimes one network interface works
- Sometimes IPv6 works
- Sometimes many work
TRY
ALL THE THINGS!
ICE Candidates

("host", "srflx", and "relay")

x (UDP, TCP)

x (ipv4, ipv6)

x (wifi, 3g, ...)

Each one is a "candidate".

host = this side of the NAT

srflx = other side of the NAT

relay = someone else on the other side of the NAT
Pair up the candidates!

Local Candidates
(host, udp, ipv4, wifi)
(stun, udp, ipv4, wifi)
(turn, udp, ipv4, wifi)
(host, udp, ipv6, 3g)
(host, tcp, ipv6, 3g)

Remote Candidates
(host, udp, ipv4, wifi)
(stun, udp, ipv4, wifi)
(turn, udp, ipv4, wifi)
(host, udp, ipv6, 3g)
(host, tcp, ipv6, 3g)
Ping ping ping ping ping ping ping ping nominate select prune

- Every "Ta", send a "binding request" (ping)
- If you ever get back a "binding response", a candidate pair actually worked!
- There might be many that work. One side (the "controlling" side) gets to "nominate" a pair.
- Each side "selects" a candidate pair to use.
- The extra candidate pairs and candidates are "pruned".
Success!

- Media flows (for whatever definition of media the protocol is using)
Restart

If anything goes wrong, the whole thing can be restarted.
Status

● WGLC
  ○ draft-ietf-ice-dualstack-fairness
● On agenda
  ○ draft-ietf-ice-trickle
  ○ draft-ietf-ice-rfc5245bis
  ○ draft-martinsen-ice-ice-timers
● Future improvements
  ○ Passive Aggressive
  ○ ???
How are we going to operate

- Mailing list: ice@ietf.org
- Face-to-face meetings
- Possibly (virtual) interims
- Issue Tracker or Github?