

A close-up photograph of several clear, irregular ice cubes resting on a white, textured surface. The lighting is soft, creating gentle shadows and highlighting the facets of the ice. The background is a plain, light-colored surface.

ICE WG @ IETF 94

The beginning of the ICE age

Chairs: Ari Keränen, Peter Thatcher

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Administrativa

- 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."

What is ICE?

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

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

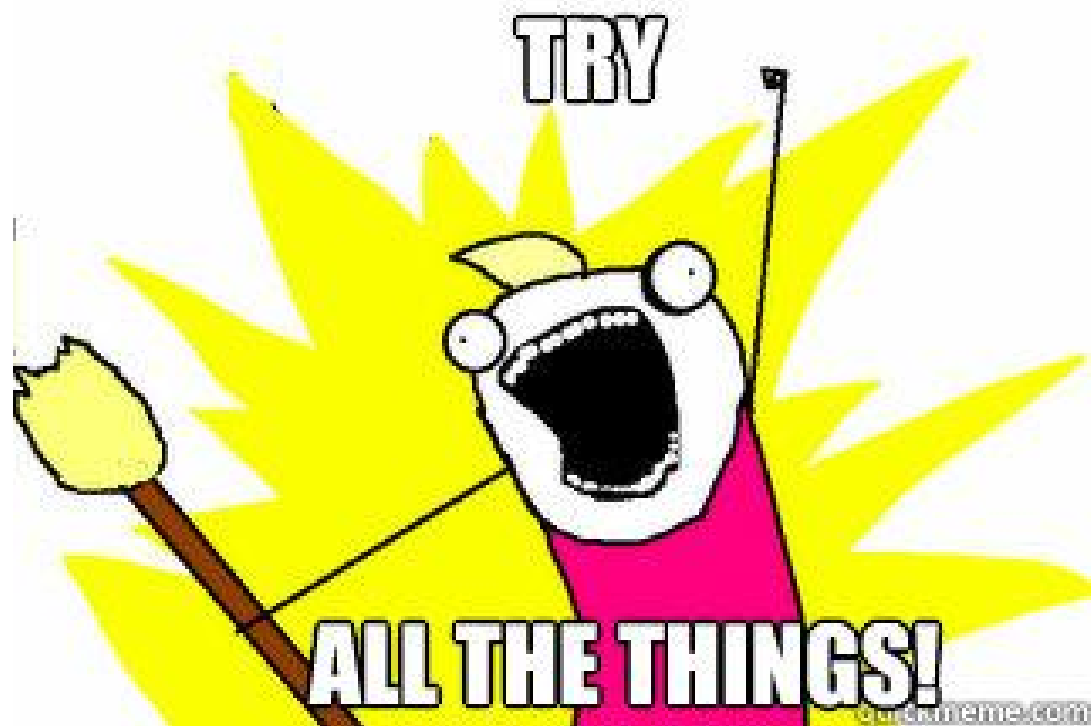
But we don't.

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



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 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?