ICE Network Cost

draft-thatcher-ice-network-cost

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Problem

Allow applications to explicitly consider network type when selecting a candidate pair.

For example, prefer WiFi over cellular.

Why not use candidate priority?

We'll get to that at the end.

Challenges to using network type in candidate pair selection

- The controlling side doesn't know the remote network interface.
- The controlling side doesn't know *how much* the remote side prefers one network interface to another.

Solution

The controlled side tells the controlling side the "**network cost**" via signalling and **STUN attribute**

```
a=candidate:1 1 UDP 111 1.1.1.1 111 typ host
  network-id 1 network-cost 100
```

Now the controlling side has the information it needs to prioritize low-cost networks (if it chooses)

Network ID also useful

Knowing the network ID (a different ID for each network interface) gives the controlling side more information about when a network interface changes on the remote side, even if the network costs are the same. This is also useful for bandwidth estimation.

Why not use candidate priorities?

- Candidate priority currently places candidate type as the most important metric.
- Candidate priority mixes lots of different kinds of information. The controlling side doesn't know the information embedded in it.
- Candidate priority can't change (such as when changing network interface and using TURN mobility)
- Candidate priority must affect the check list order