

Third-party ALTO server discovery

draft-kiesel-alto-3pdisc-01.txt

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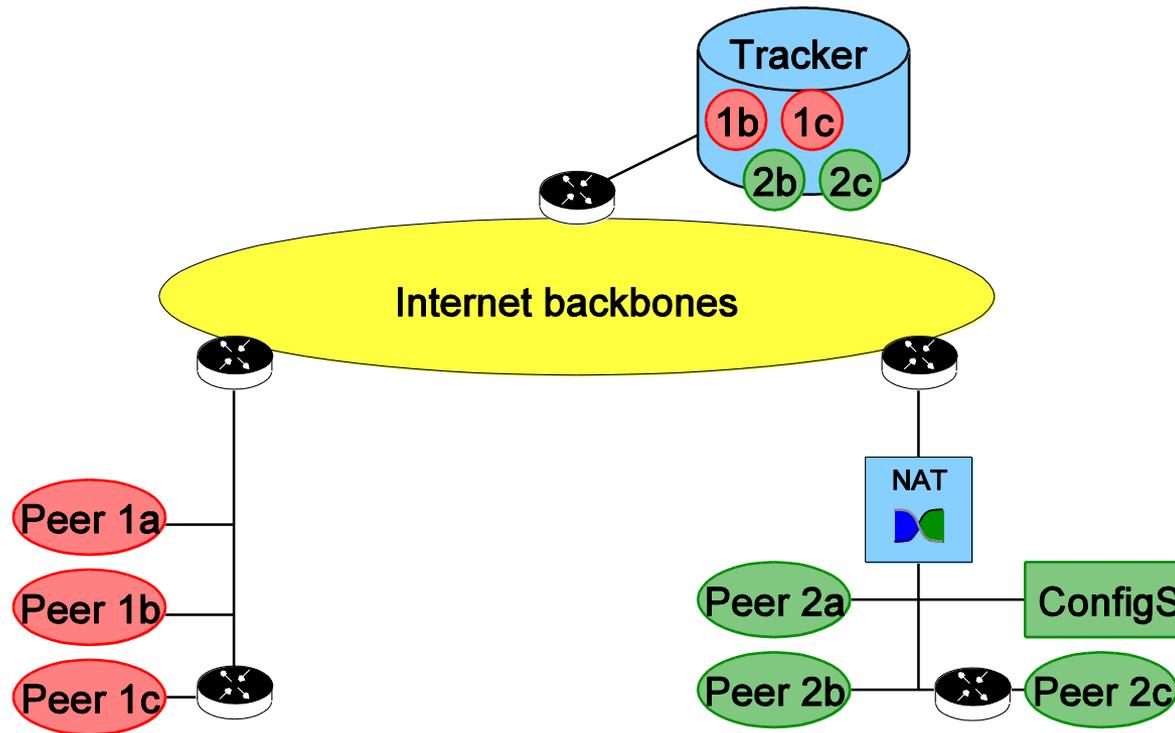
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Agenda

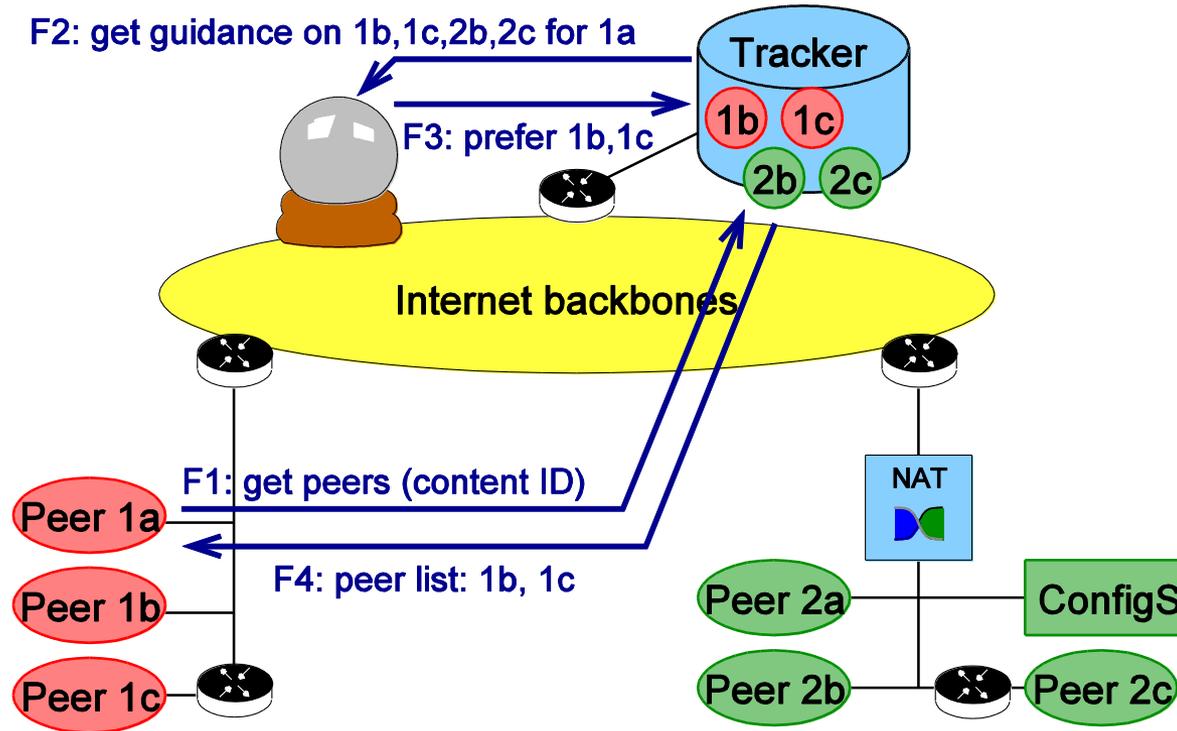
- Why third-party ALTO queries?
- Why third-party ALTO server discovery?
- Six solution approaches
- Open issues

Why third-party ALTO queries?



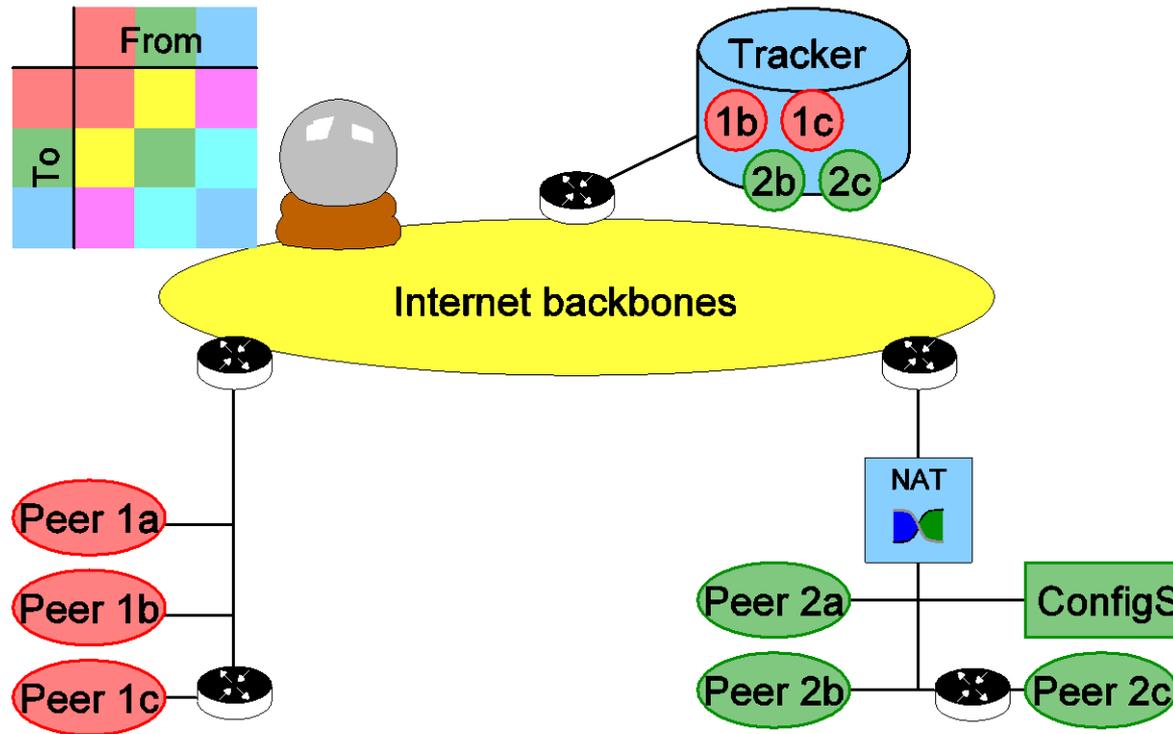
- Network topology with 3 ISP networks, tracker-based P2P app
- Tracker knows that peers 1b, 1c, 2a, 2b are already in swarm
- Peer 1a wants to join, sends query to the tracker

Why third-party ALTO queries?



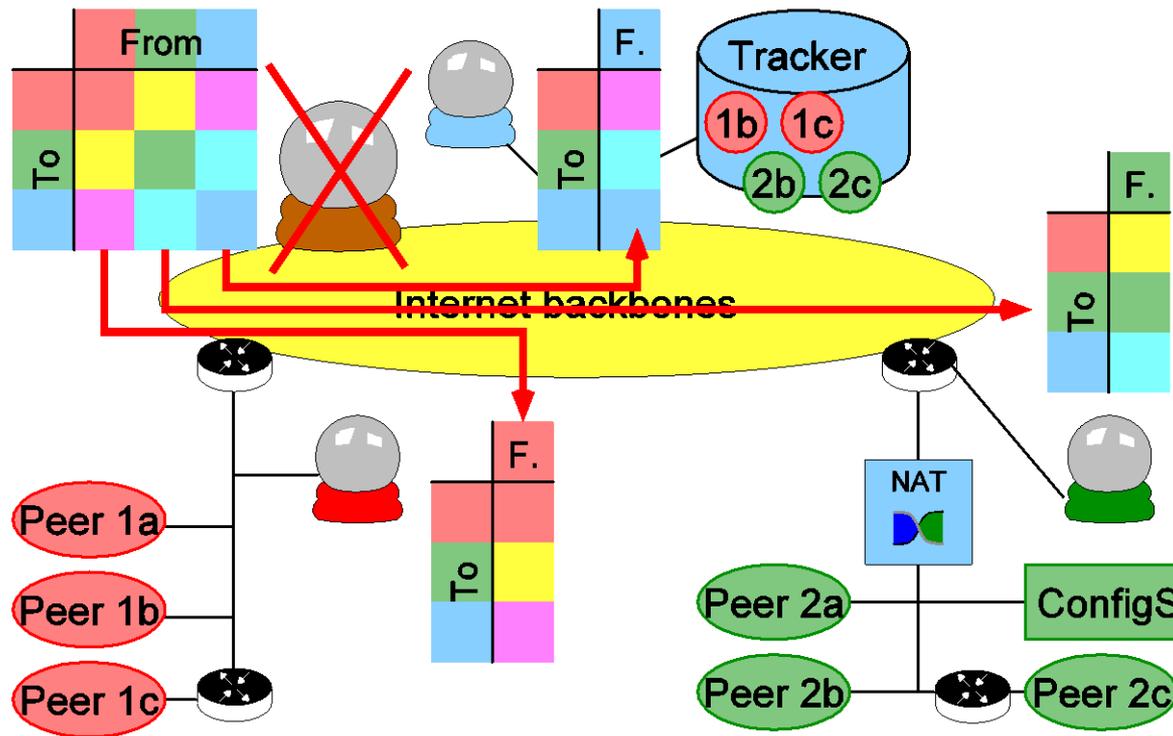
- Tracker can ask ALTO about all known peers, return “good” ones (probably using P4P/infoexport, not oracle-style query)
- Third-party query needs to consider res. consumer’s location

Why third-party ALTO discovery?



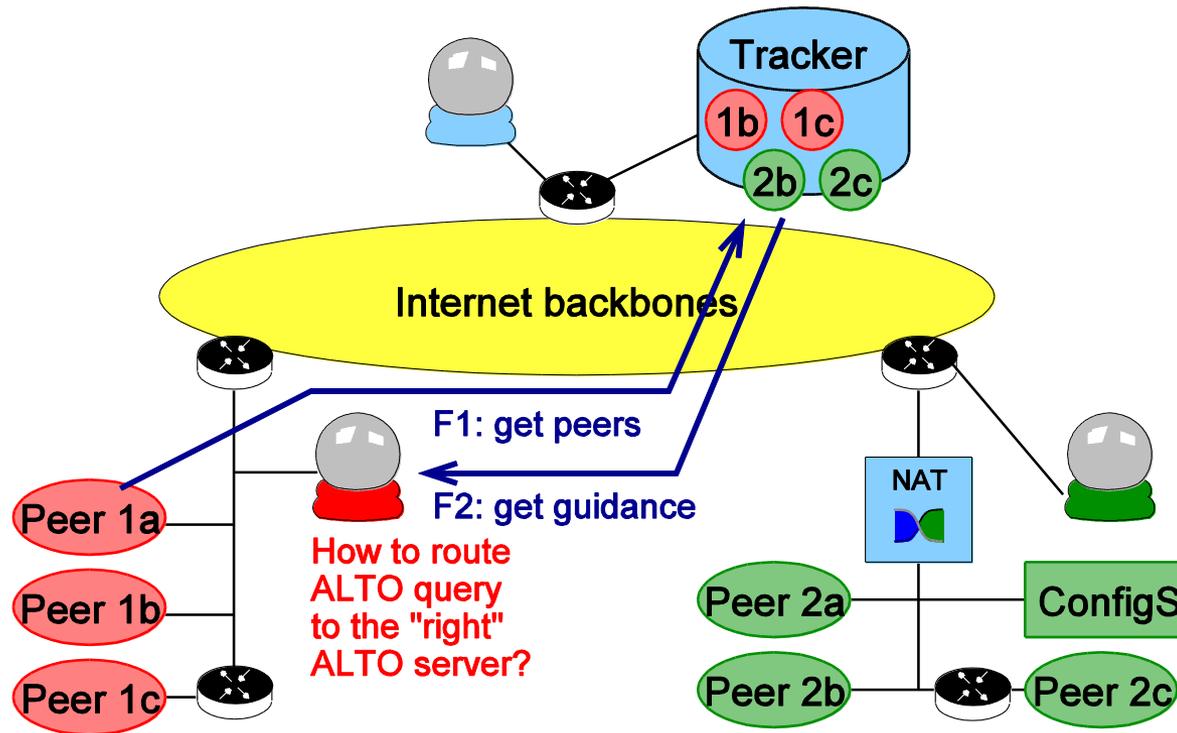
- Theoretically feasible: one (group of) centralized ALTO server(s)
- Needs to know full *from* \times *to* \rightarrow *rating* table
- Scalability, administrative responsibility?

Why third-party ALTO discovery?



- More likely: distribute ALTO knowledge on many servers
- Each ISP operates an ALTO server that can provide guidance to resource consumers in his networks

Why third-party ALTO discovery?



- For third-party ALTO queries: how to make sure that an ALTO query on behalf of a specific resource consumer is answered by the corresponding ALTO server?

Six solution approaches

- #1 ALTO client in tracker calls **external lookup** mechanism to map *peer's IP addr.* → *“right” ALTO server's IP addr.* (DNS is probably a good choice, maybe similar to BEP-22)
- #2 **Inter-ALTO server protocol** (let them know each other), forward/redirect ALTO query based on peer's IP address
- #3 =#1, #4=#2, but introduce **peer ID** (e.g., assigned by DHCP) to distinguish peers behind carrier grade NAT
- #5 **Peer discovers its ALTO server's** IP address (e.g., by DHCP), forwards it to the tracker
- #6 **Peer** discovers (e.g., by DHCP) and **queries ALTO server** (P4P /infoexport style), forwards reply (+local prefs.) to tracker

Evaluation

- Many criteria, see draft
- Author's conclusion: we should further investigate and specify Approach #1, i.e., *use DNS to map peer's IP addr. → "right" ALTO server's IP addr.*
 - No assumptions on (P2P) application protocol needed
 - No inter-ALTO server protocol needed
 - ALTO client protocol and discovery mechanism can be specified independently
 - DNS is proven to work and scale, ISPs know it

Open issues

- Do we need third-party ALTO server discovery?
 - Technical reasoning: see above, BUT:
 - Will network operators allow their ALTO servers being queried by remote, untrusted trackers?
 - Will trackers bother querying ALTO servers on behalf of the peers?
- Do we need to support large domains behind NAT?
- Many approaches assume that for any given peer, there is exactly one (ISP provided) “authoritative” ALTO server (may be replicated). Is this acceptable?
- Which approach to follow? How to move forward?

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