ALTO Deployment Considerations
draft-ietf-alto-deployments-03

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Changes in -03

- new Section 5. about ALTO for CDNs
- new Section 4.1. about Using ALTO for Tracker-based Peer-to-Peer
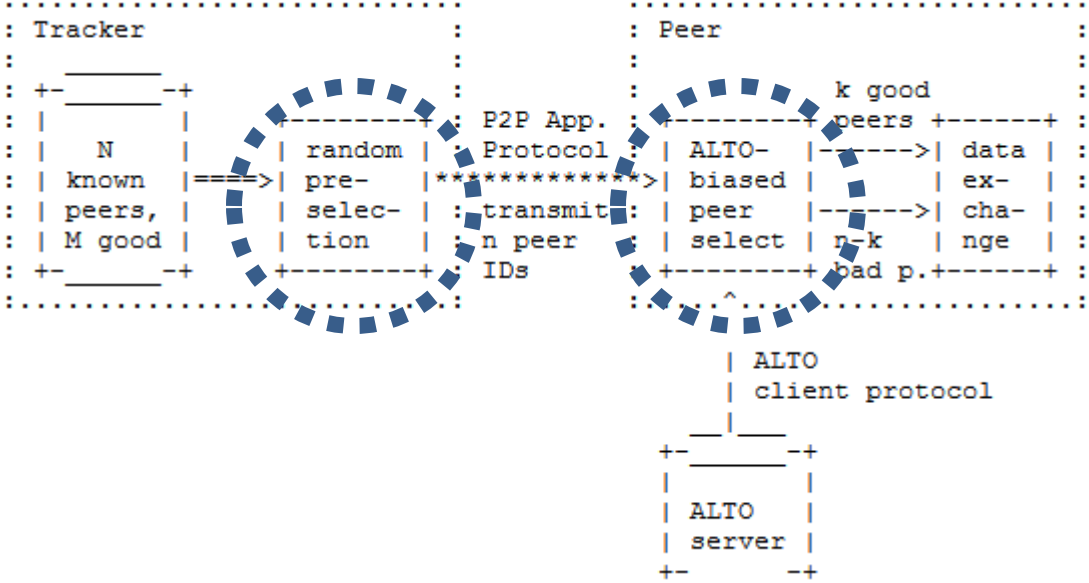
ALTO for CDNs

- Request Routing using the Endpoint Cost Service
  - ALTO Topology Vs. Network Topology
  - Topology Computation and ECS Delivery
  - Ranking Service
  - Ranking and Network Events
  - Caching and Lifetime
  - Redirection
  - Groups and Costs
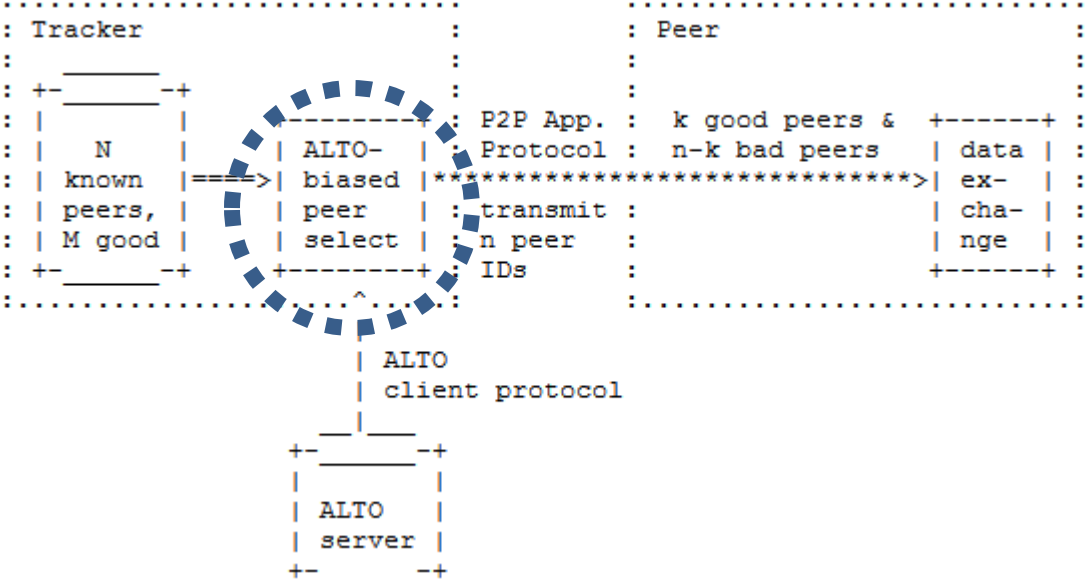
Using ALTO for Tracker-based Peer-to-Peer

- Section provides reasoning why combining ALTO with a tracker is a good thing

Recap: Who is querying ALTO?
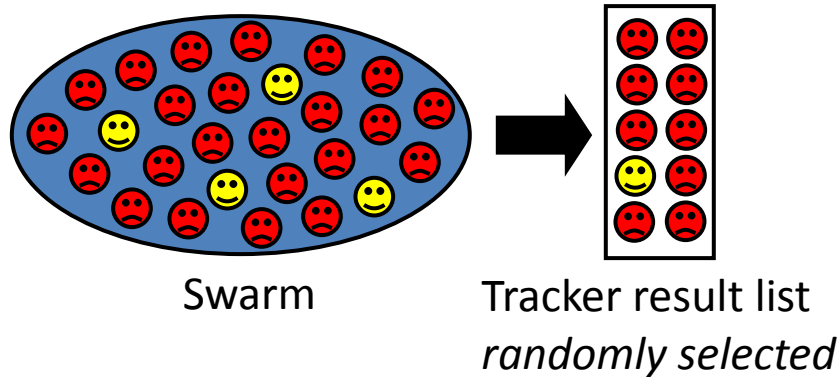
Peer is querying ALTO

```
: Tracker                      :    : Peer                                    :
:                              :    :                                         :
: +-_____-+                   :    :                    k good               :
: |        |   +--------+      : P2P App. +--------+ peers +------+            :
: |   N    |   | random |      : Protocol | ALTO-  |------>| data |            :
: | known  |==>| pre-   |*************>| biased |       | ex-  |             :
: | peers, |   | selec- | : transmit | peer   |------>| cha- |             :
: | M good |   | tion   | : n peer   | select | n-k   | nge  |             :
: +-_____-+   +--------+ : IDs       +--------+ bad p.+------+             :
:..........................:    :.............^...........................:
                                              |
                                              | ALTO
                                              | client protocol
                                            __|___
                                          +-_____-+
                                          |        |
                                          | ALTO   |
                                          | server |
                                          +-_____-+
```
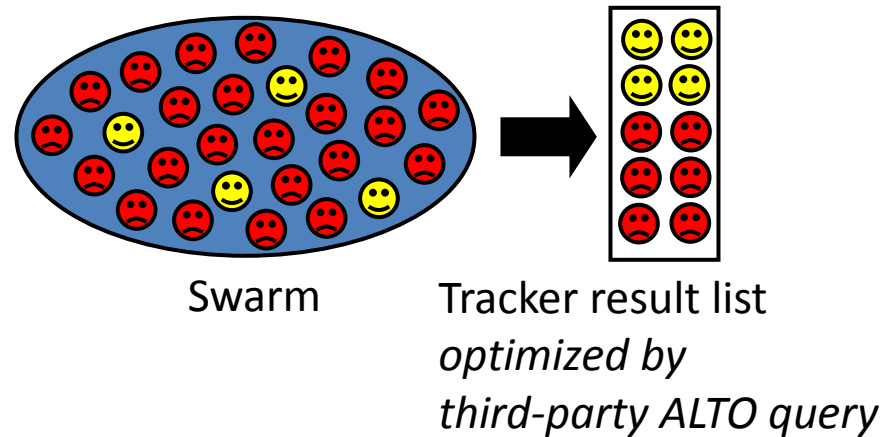
Tracker is querying ALTO

```
: Tracker                      :    : Peer                                    :
:                              :    :                                         :
: +-_____-+                   :    :                                         :
: |        |   +--------+      : P2P App. :  k good peers &   +------+        :
: |   N    |   | ALTO-  |      : Protocol :  n-k bad peers    | data |        :
: | known  |==>| biased |****************************>| ex-  |        :
: | peers, |   | peer   | : transmit :                   | cha- |        :
: | M good |   | select | : n peer   :                   | nge  |        :
: +-_____-+   +--------+ : IDs       :                   +------+        :
:..................^.........:    :.........................................:
                   |
                   | ALTO
                   | client protocol
                 __|___
               +-_____-+
               |        |
               | ALTO   |
               | server |
               +-_____-+
```

The need for 3rd party ALTO queries
Why a peer-based solution may be not sufficient

- **Peer-based ALTO queries**

Swarm → Tracker result list *randomly selected*

Tracker-based ALTO queries

Swarm → Tracker result list *optimized by third-party ALTO query*

- **Numerical example**
  - Swarm with 10,000 peers, 100 desirable peers, 100 entries in tracker result list
  - Regular query to the tracker yields (as input for later ALTO query) …
    - With probability 36%, the return list contains *not a single favorable peer*
    - With probability 99%, there are *only four or less of the favorable peers* on the list
  - Peer-based ALTO query does not see enough "good" peers
- ➔ **Peer-based ALTO queries of limited benefit in tracker-based P2P system**

Next Steps

- Adjust list of authors
  - put main contributors up to the authors list
- Needs further input from
  - implementers
  - people who operate ALTO server or clients
- Needs review from the WG

Thank you
and
Time for your questions!