ALTO Deployment Considerations

draft-stiemerling-alto-deployments-02
draft-stiemerling-alto-load-reduction-00

Martin Stiemerling and Sebastian Kiesel
martin.stiemerling@neclab.eu
ietf-alto@skiesel.de

IETF-77, Anaheim, CA, USA
March 22, 2010
Goal of Drafts

draft-ietf-alto-protocol defines the ALTO protocol
  ● does not discuss deployments issues
  ● not part of it
already a number of use cases discussed
  ● P2P file sharing
  ● P2P video streaming
  ● locating requestor for CDNs
different use case will need different settings/contstraints of ALTO, e.g.:
  ● P2P file sharing: get closest peer with content
  ● P2P video streaming: get peers with at least x kbit/s upload (lower bound)
document these in a separate draft
Two Drafts…

**draft-stiemerling-alto-deployments-02**
- ALTO server deployments
- ALTO client deployments
- tbd: informational API between application & ALTO client
- initial security considerations
- not discussed ALTO use case

**draft-stiemerling-alto-load-reduction-00**
- ALTO ranking services can face load issues on server
- also true for ALTO H12 service
- discusses this
- intended to be merged into deployments draft later on
Example: ALTO Deployment

Legend:
=== ALTO client protocol
*** Application protocol
Example: ALTO Deployment

Figure 7: Cascaded ALTO Server
P2P operations after an epoch:

- The peer obtains the set of new peers and adds them to its candidate set (either via a resource directory (tracker) or via a peer exchange protocol);
- **The peer queries the ALTO server with the candidate set**;
- The peer takes peers preferred by the ALTO server out of its candidate sets and starts data exchange with them;
- The peer moves a candidate peer to the active set, if the peer has the data of interest and if the peer delivers sufficient throughput (typically above a certain threshold);
- The peer moves a candidate peer to the dead set of drops immediately if the data of interest is not available or if the throughput is below a certain threshold.

**Typical epoch value is 30 seconds**

**ALTO server queried very 30 seconds by numerous peers**

** Might lead to performance issues**
Peer state sets and transitions

**From Tracker**

- ALTO query 1
  - Pending 1
    - test connectivity in order of ALTO rating
      - sorted by cost and expected performance
      - good
      - bad
    - Active Peers Set
      - frequent data exchange with satisfactory performance
      - peer’s performance degraded after a while
      - Dead Peers Set
        - remember not to use these peers
        - remove from blacklist after a while

**From Gossip**

- do we need new peers?
  - No
  - do we need new peers urgently?
    - Yes
      - ALTO query 2
        - Pending 2
          - test connectivity
          - cheap
          - good
          - expensive
          - No
Using track 2 for candidate peers learned from the tracker

From Tracker

- ALTO query 1
  - Pending 1
    - test connectivity in order of ALTO rating
    - sorted by cost and expected performance
    - if some new peer IDs have been accumulated
    - if some new IDs have been accumulated

- Active Peers Set
  - frequent data exchange with satisfactory performance
  - peer’s performance degraded after a while
  - buffer

- Dead Peers Set
  - remember not to use these peers
  - remove from blacklist after a while

From Gossip

- do we need new peers?
  - No
  - if some new peer IDs have been accumulated

- Pending 2
  - test connectivity
  - if some new peer IDs have been accumulated
  - if some new IDs have been accumulated

- Active Peers Set
  - frequent data exchange with satisfactory performance
  - peer’s performance degraded after a while
  - buffer

- Dead Peers Set
  - remember not to use these peers
  - remove from blacklist after a while
Conclusions

- Two drafts discussing deployment issues
  - first versions
  - will evolve in the next few weeks

- Probably nothing new for some folks
  - but you’re not alone
  - other people in 2 years still need to understand

- Does the WG see this to be important?

- Shall this become a WG item?
Empowered by Innovation