

Application-Layer Traffic Optimization (ALTO) Requirements
draft-ietf-alto-reqs-01.txt

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Recent document history

- draft-kiesel-alto-reqs-02
 - adopted as WG item at IETF-74 in San Francisco
- draft-ietf-alto-reqs-00
 - published 2009-03-09
 - reflects status change and includes minor editorial fixes
- draft-ietf-alto-reqs-01
 - published 2009-07-13
 - some changes to the actual requirements, which will be discussed now ...

Once again: terminology

- The “host location attribute” caused some confusion
 - see, e.g., the mailing list thread “*ALTO client protocol and Autonomous System Numbers*” started on 2009-04-20
 - abandoned it, defined three new terms:
- **Host Group Descriptor**
 - **WHAT** we want to have rated (client) or publish info about (server)
 - eventually, the resource consumer will **connect ()** to it → IP addr.
 - indirections & anonymity groups possible → not called “identifier”
- **Rating Criterion**
 - **HOW** we want to have it rated
 - The condition / relation that determines the “better” in better-than-random peer selection
- **Host Characteristics Attribute**
 - The data evaluated according to the rating criterion

So why all this fuss about Host Group Desc. vs. Host Characteristics Attribute?

Goal: allow protocol extensibility, i.e., definition of new HGD **and** HCA types, **but** be more strict regarding HGDs

1. “Peers in IP prefix 1.1.1.0/24 are better than those in 2.2.2.0/24, considering number of AS hops from your location”
 2. “You should prefer peers in AS #1 over peers in AS #2, because of less AS hops from your location”
- Statement #1 can be understood by an ALTO client (peer), that has no idea what an AS is
 - Statement #2 needs a mapping mechanism to IP addresses, because eventually a peer will **connect ()** to an IP address
- ➔ Avoid Statement #2 without providing mapping mechanism

Host Group Descriptor requirements

- (6) ALTO client protocol MUST support multiple HGD types
- (7) proto. specification MUST define basic set of HGDs, which
- (8) MUST include at least IPv4 & IPv6 prefix
- (9) MUST define extension procedure (e.g., IANA registry)
- (10) client & server MUST identify type of each HGD used
- If HGD type is neither IPv4 prefix nor IPv6 prefix
 - (11) there MUST be a reference to a translator to IPv4/6 prefix
 - (12) this translation mechanism SHOULD be designed and specified as part of the ALTO client protocol, and SHOULD be made available by the entity that wants to use the HGD type
- (13) client & server MUST be able to tell that they cannot understand or map a HGD type used by the other party

Rating Criteria requirements

- (14) ALTO client protocol MUST support multiple RC types
- (15) specification MUST define basic set of RC types which
- (16) MUST include at least “relative operator’s preference”
- (17) MUST define extension procedure (e.g., IANA registry)
- (18) client SHOULD be able to express which RC to consider
- (19) server SHOULD be able to express which RC have been considered
- (20) client & server MUST be able to tell that they cannot understand a RC type used by the other party

ALTO Server Discovery requirements

- (37) MUST support ALTO client in resource consumer (peer)
- (38) MUST support ALTO client in resource directory (tracker), which performs third-party queries on behalf of distant peers

Assuming that there are several ALTO servers, each being able to give guidance only to resource consumers in its neighborhood (“My Internet view”), we have two options for 3rd party queries:

- ALTO client in tracker can use the discovery mechanism for finding the “right” ALTO server
- ALTO client in tracker can use the discovery mechanism for finding only a nearby ALTO server, which will use the ALTO client protocol for redirecting it to the “right” one

Should we document a preference for one of these options?

ALTO Server Discovery requirements

- (39) MUST function if client behind NAT
- (40) some candidate “base protocols” (e.g. DNS) are more widespread than others (e.g., DHCP) – designers should try to limit number of different mechanisms while supporting as many deployment scenarios as possible

not a protocol/mechanism req. but a process req. – useful?

Security requirements: authentication

- OLD:

ARv00-27: ALTO client protocol MUST support mechanisms for mutual authentication of clients and servers

- NEW:

ARv01-43: ALTO client protocol MUST support mechanisms for authentication of servers

ARv01-44: ALTO client protocol MUST support mechanisms for authentication of clients

→ Clarify that this may be different mechanisms

Next steps

- Questions?
- Reviews?
- Comments?

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Related research projects

- NAPA-WINE (EC 7th FP) [NEC people]
- P4P working group [L. Popkin, Y.R. Yang]

Discussions before ALTO WG mailing list was established:

- <http://ubiq.tilab.com/pipermail/alto-reqs/> (archives)

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draft-ietf-alto-reqs-01.txt

Appendix B. Acknowledgments

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