ALTO home proxy

draft-picconi-alto-home-proxy-00

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ALTO home proxy

- idea: run an ALTO proxy inside the home network
  - fetches ALTO information from ALTO server
  - replies to queries from local network devices
  - ideally runs on always-on device (home gateway or NAS)
ALTO home proxy

**benefits of ALTO home proxies**

- reduces load on ALTO server (bandwidth and computation)
- reduces query latency
- easy to discover (SLP, uPnP, Bonjour)
- fetches ALTO information updates during off-peak hours
- performs redistribution (even if application does not)
- enhances user privacy
Devices to run home proxies

- ISP-managed home gateways
  - proxy installed through maintenance firmware upgrade

- user-managed devices (e.g., home NAS)
  - proxy installed through firmware upgrade or APT-style package
Proxy configuration parameters

- default ALTO proxy
  - user input, DHCP, reverse DNS lookup
    (see draft-ietf-alto-server-discovery-02)

- proxy behavior
  - caching proxy or local server

- other configuration parameters
  - maximum cache size, default expiration time, etc.
Proxy behavior

- transparent vs. non-transparent

- transparent
  - proxy resides on home gateway
  - application is not aware of its presence

- non-transparent
  - application is configured to use the proxy
  - useful if transparent proxy is not available
Proxy behavior

- caching proxy vs. local server

  - caching proxy
    - behaves as HTTP cache
    - pros: simplicity
    - cons: specific requests (e.g., filtered maps) generate cache miss

  - local server
    - behaves as remote ALTO proxy
    - pros: can serve client-specific requests locally
    - cons: may not be able to duplicate real server behavior (signed data, non-public cost models)
Security issues

- clients using SSL/TLS
  - cannot intercept request (transparent proxies)
  - cannot impersonate remote ALTO server
  - solutions:
    - switch back to HTTP (home network is typically trusted)
    - provide SSL/TLS + ALTO certificate to home proxy

- user privacy
  - application queries are NOT sent to remote ALTO server
  - home proxies should enhance user privacy
ALTO protocol

- do we need to modify the ALTO protocol?

- additional headers for proxies acting as local servers?
  - to control behavior of intercepting proxies?
  - to force update on ALTO information?
Questions?