Third-party ALTO server discovery

draft-kiesel-alto-3pdisc-03.txt

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Outline

- Types of ALTO server discovery
- Why DNS based alto discovery?
- ALTO service resource record format
- Lookup procedure
- Conclusion & Next steps

Types of ALTO server discovery

- "Normal" discovery
  ALTO discovery entity is located in the resource consumer (peer), which will eventually access the resource
  - scenario and candidate solution approaches discussed in
    `draft-song-alto-server-discovery-0{0,1,2,3}.txt`
  - DNS SRV records listed as one promising approach amongst many others

- Third-party discovery
  ALTO discovery entity is located in resource directory (tracker) and requests ALTO guidance on behalf of resource consumer
  - the "normal" discovery above is a special case of that
  - scenario and candidate solution approaches discussed in
    `draft-kiesel-alto-3pdisc-0{0,1,2}.txt`
  - DNS SRV records is the only promising approach

- `draft-kiesel-alto-3pdisc-03.txt`:
  First version of **a specification** of DNS based discovery, both for the "normal" and 3p discovery use case

Why DNS based alto discovery?

- DNS is deployed all over the Internet.

  - DHCP and IP multicasting are not.

- Most residential gateways / broadband NAT-routers know how to forward DNS from the outside to the inside.

  - Critical for DHCP.

- User can influence ALTO service instance selection

  - by entering (parts of) a DNS domain name (see below), in-line with ARv05-23/24

- DNS allows queries between different operator's networks

  important for 3rd party discovery

- DNS is a proven technology

  - operators are used to it

  - DNS SRV used by SIP, Jabber, etc.

ALTO service resource record format

- General SRV resource record format:

  ```
  _Service._Proto.Name TTL Class SRV Priority Weight Port Target
  ```

- We define:

  ```
  Service      alto
  Proto        tcp
  ```

- Other fields according to standard DNS meaning [RFC2782]

- Example for querying the ALTO service record running in the domain myisp.net:

  ```
  _alto._tcp.myisp.net IN SRV 1 0 80 alto-srv01.myisp.net
  ```

Lookup procedure

- Two use cases:
  - (a) ALTO service instance is provided by the access network provider
  - (b) User configures a specific ALTO service instance
- Step 1: Finding the IP address
  - Determine the IP address(es) of resource consumer
  - Use STUN or Bittorrent's BEP24 if needed
- Step 2: Determining the DNS suffix
  - (a) Resolve IP address by DNS PTR query to FQDN
    A lookup for `d.c.b.a.in-addr.apra` might resolve to:
    `d-c-b-a.dsl.westcoast.myisp.net`
  - (b) User specifies the DNS suffix on its own (e.g. in a config file option)
    For example
    `myaltoprovider.org`

Lookup procedure

- ## Step 3: Lookup SRV record
  - DNS suffix part not obvious. Possibly multiple SRV lookups needed to get a PTR reply
  - (a) Create SRV RR. Shorten by one part if lookup fails. For example:
    ```
    _alto._tcp.d-c-b-a.dsl.westcoast.myisp.net.
    _alto._tcp.dsl.westcoast.myisp.net.
    _alto._tcp.westcoast.myisp.net.
    ```
  - (b) Extend the DNS suffix by IP address in reverse order. Shorten by one part if lookup fails. For example:
    ```
    _alto._tcp.d.c.b.a.myaltoprovider.org.
    _alto._tcp.c.b.a.myaltoprovider.org.
    _alto._tcp.b.a.myaltoprovider.org.
    ```

- ## Step 4: Final lookup
  - Process PTR records
  - Perform final DNS lookup on A record
  - Forward the contact information to ALTO client

Conclusion & Further steps

- `draft-kiesel-alto-3pdisc-03.txt`:
  - First version of **a specification** of DNS based discovery
  - Covers both the "normal" discovery
  - and 3rd party discovery

- Adapt draft's name to new scope
- Probably incorporate overview text from draft-song…
- Refine the specification

- Adopt this draft as a WG item?

Acknowledgements