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:

<table>
<thead>
<tr>
<th>Service</th>
<th>Proto</th>
<th>Name</th>
<th>TTL</th>
<th>Class</th>
<th>SRV</th>
<th>Priority</th>
<th>Weight</th>
<th>Port</th>
<th>Target</th>
</tr>
</thead>
</table>

• We define:

<table>
<thead>
<tr>
<th>Service</th>
<th>Proto</th>
</tr>
</thead>
<tbody>
<tr>
<td>alto</td>
<td>tcp</td>
</tr>
</tbody>
</table>

• 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?
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