ALTO Server Discovery

IETF#85, Atlanta, 2012-11-07

Sebastian Kiesel, Martin Stiemerling, Nico Schwan, Michael Scharf, Haibin Song
Outline

1. Recap, document history, architecture

2. draft-ietf-alto-server-discovery-05
   – WG document –

3. draft-kist-alto-3pdisc-01
   – individual contribution –
Recap (1)

ALTO server discovery mechanisms need to support two scenarios:

• Resource consumer initiated discovery  
  (Requirement AR-32 in RFC 6708)

• Third-party discovery  
  (Requirement AR-33 in RFC 6708)
Res. Consumer Initiated Discovery

Legend:

=== ALTO client protocol
*** Application protocol
... Provisioning protocol

Figure: see draft-ietf-alto-deployments-05
3rd Party Server Discovery

Legend:
- === ALTO client protocol
- *** Application protocol
- ... Provisioning protocol

Figure: see draft-ietf-alto-deployments-05
Recap (2)

• **Resource consumer initiated discovery**
  - Used if ALTO client is embedded into resource consumer
  - May query user, read local configuration file, or use mechanisms specific to the access network (e.g., DHCP)
  - Could be seen as a special case of 3\textsuperscript{rd} party discovery (do a lookup on your own IP address). If there were simple mechanisms for 3\textsuperscript{rd} party discovery ...

• **Third-party discovery**
  - Used if ALTO client is embedded into 3\textsuperscript{rd} party, e.g., P2P tracker
  - In tracker-based systems, ALTO should be done in the tracker, not in the client for good optimization results (see Section 4.1 of draft-ietf-alto-deployments)
  - Client’s IP address is only input parameter
  - Proposed mechanism is based on reverse DNS lookup (PTR lookup)
  → issues/headaches with deployment scenarios, IPv6, IETF DNS experts, etc.
Documents History

res.c. initiated disc. 3rd party discovery

draft-song-alto-server-discovery -00 .. -03

draft-kiesel-alto-3pdisc -00 .. -03

draft-kiesel-alto-3pdisc -04 .. -05

draft-iietf-alto-server-discovery -00 .. -03

draft-iietf-alto-server-discovery -04 .. -05

draft-kist-alto-3pdisc -00 .. -01

res.c. initiated disc.
one architecture – two drafts

Step 1:
- user input config file
- DHCP option
- PPP option
- DNS PTR lookup

Step 2:
- U-NAPTR lookup
- ALTO srv.’s URI
one architecture – two drafts

Step 1:
- User input config file
- DHCP option
- PPP option
- DNS PTR lookup

Domain Name

U-NAPTR lookup

ALTO srv.’s URI

Step 2:

Scope of draft-ietf-alto-s.disc.-03
Reverse DNS issues threatened to block whole document
one architecture – two drafts

Step 1:
- user input config file
- DHCP option
- PPP option
- DNS PTR lookup

Step 2:
- U-NAPTR lookup
- ALTO srv.’s URI

Scope of draft-ietf-alto-s.disc.-05

draft-kist-alto-3pdisc-01

abandoned
ALTO Server Discovery

draft-ietf-alto-server-discovery-05

IETF#85, Atlanta, 2012-11-07

Sebastian Kiesel, Martin Stiemerling,
Nico Schwan, Michael Scharf, Haibin Song
The document is aWG document

“The easy parts”, fulfills only AR-32, not AR-33!

Changes since -04

- Significant document cleanup
  - Leave motivation and architectural considerations up to the requirements and deployment considerations documents
  - Remove leftover text from 3rd party discovery

- Remove PPP option
  - Adding new options to PPP not a good way forward
  - DHCP considered even in PPP networks
  - Leaves manual configuration and DHCP

Stable specification, next step: WGLC
Third-Party ALTO Server Discovery

draft-kist-alto-3pdisc-01
IETF#85, Atlanta, 2012-11-07

Sebastian Kiesel, Martin Stiemerling
• Individual draft, again
• The more controversial, DNS PTR lookup based 3rd party discovery part, fulfills AR-33 (and AR-32)
• Changes since -00
  – Significant document cleanup
  – Add flow chart to illustrate the algorithm
    TBD: Textual specification of algorithms in flow chart
IPv4 address IPv6 address

PTR lookup

no result result1 no result

FAIL

PTR lookup on (addr/64)

result1 no result

FAIL

NAPTR lookup on result1

result2 no result

shorten result1 by one component from the left, including first dot

second NAPTR lookup on shortened name

result2 no result

FAIL

Third-party ALTO server discovery procedure's output is: result2
• Individual draft, again
• The more controversial, DNS PTR lookup based 3rd party discovery part, fulfills AR-33 (and AR-32)
• Changes since -00
  – Significant document cleanup
  – Add flow chart to illustrate the algorithm
    TBD: Textual specification of algorithms in flow chart
• Next steps
  – Further exploration of problem and solution spaces
  – Designed as “plugin” to the other discovery document
    → may update RFC ... in the future
  – Is ALTO WG interested in solving AR-33 at all?
Acknowledgments

• Michael Scharf is supported by the German-Lab project (http://www.german-lab.de) funded by the German Federal Ministry of Education and Research (BMBF).

• Martin Stiemerlung is partially supported by the CHANGE project (http://www.change-project.eu), a research project supported by the European Commission under its 7th Framework Program (contract no. 257422). The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official policies or endorsements, either expressed or implied, of the CHANGE project or the European Commission.