

# ALTO Server Discovery Protocol

[draft-kiesel-alto-3pdisc-04.txt](#)

Sebastian Kiesel

<sebastian.kiesel@rus.uni-stuttgart.de>

Marco Tomsu

<marco.tomsu@alcatel-lucent.com>

Nico Schwan

<nico.schwan@alcatel-lucent.com>

Michael Scharf

<michael.scharf@alcatel-lucent.com>

**Martin Stiemerling**

<martin.stiemerling@neclab.eu>

IETF-79

Beijing, China

November 10, 2010

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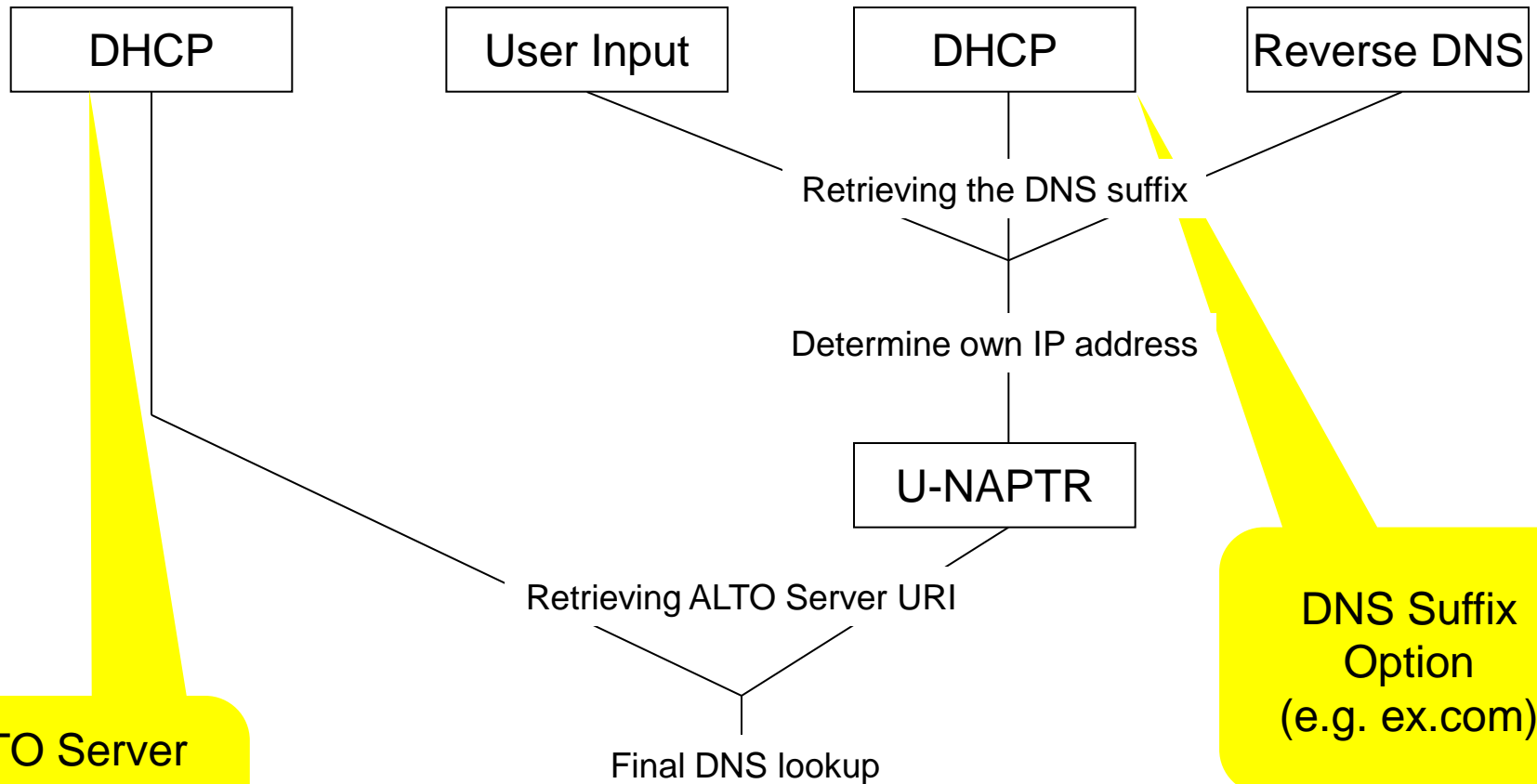
# Draft History

- -00, -01, -02
  - 3<sup>rd</sup> party server discovery
  - Problem Statement, classification & discussion of solution approaches
- -03
  - peer and 3<sup>rd</sup> party server discovery
  - based on reverse FQDN lookup
  - based on SRV records
- -04 (present version)
  - peer and 3<sup>rd</sup> party server discovery
  - uses a procedure to determine ALTO server
  - includes multiple ways to cope with the various deployments

# Requirements & Pre-Conditions

- ALTO has only moderate security requirements compared to GEOPRIV
  - In GEOPRIV a failure has severe impacts (e.g. loss of life)
  - In ALTO a wrong, missing, or forged guidance does not prevent the application to operate
- We assume that the ALTO server discovery procedure
  - is executed on a per IP address base
  - is executed on a per IP family base
  - might have a different result in case the IP address of an interface changes

# Protocol Overview



ALTO Server  
FQDN  
Option  
(e.g. a.ex.com)

DNS Suffix  
Option  
(e.g. ex.com)

# Retrieving the server URI by DHCP

- DHCP option for direct ALTO Server URI configuration by access network provider in case DHCP is deployed
- `draft-kiesel-alto-3pdisc-04.txt` specifies
  - ALTO Server Domain Name Encoding
  - ALTO Server DHCPv4 Option
  - ALTO Server DHCPv6 Option
- For example:
  - Client retrieves `altoserver.example.com` by DHCP
  - Protocol defaults to HTTP
  - Client contacts ALTO server under  
`http://altoserver.example.com/`

# Retrieving the URI by U-NAPTR

- U-NAPTR [RFC4848] Resolution for retrieval of ALTO Server URI in case of DHCP deployment issues based on `draft-stiemerling-alto-dns-discovery-00.txt`
- 2 Steps:
  - Retrieve domain name of access network
  - Retrieve ALTO Server URI through U-NAPTR resolution
- `draft-kiesel-alto-3pdisc-04.txt` specifies DNS entries for HTTP and HTTPS:

```
example.com.  
IN NAPTR 100 10 "u" "ALTO:https"  
"!.*!https://altoserver.example.com/secure!" ""  
IN NAPTR 200 10 "u" "ALTO:http"  
"!.*!http://altoserver.example.com!" ""
```

# Retrieving the Domain Name

- Access network domain name required as input for U-NAPTR
- Option 1: User Input
  - Allow user configuration of third party ALTO server instance
  - User specifies DNS suffix (e.g. `myaltoprovider.com`)
  - Use IP address as prefix (e.g. `d.c.b.a.myaltoprovider.com`)
  - Shorten domain name until successful U-NAPTR lookup
    - `d.c.b.a.myaltoprovider.com`
    - `c.b.a.myaltoprovider.com`
    - `b.a.myaltoprovider.com`
- Option 2: DHCP
  - Use DHCP option to retrieve access network domain name [RFC5986]
- Option 3: Reverse DNS Lookup
  - Resolve IP address to FQDN through DNS PTR lookup (e.g. `d-c-b-a.dsl.westcoast.myisp.net`)
  - Shorten FQDN name until successful U-NAPTR lookup



# Open Issues & Conclusion

- Open Issues
  - Reverse DNS lookup vor IPv6
  - Missing reverse DNS entries
  - Handling of multiple results
  - Suffix issues
- `draft-kiesel-alto-3pdisc-04.txt`:
  - First version of a **specified ALTO server discovery** procedure
  - Several options depending what is workable in deployment
    - DHCP based discovery
    - DNS based discovery (UNAPTR)
  - Covers both, the "**normal**" and **3<sup>rd</sup> party** discovery use case
- Refine the specification
- Accept as a WG item?