DOTS Server(s) Discovery

https://tools.ietf.org/html/draft-boucadair-dots-server-discovery

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Context & Motivation

- A DOTS client needs to learn the IP reachability information to contact its DOTS server(s)
  - Idem for a DOTS gateway
- The DOTS architecture does not specify how such information is provided to DOTS clients
- **This document is filling this void**

DOTS Single Discovery is Unlikely

Use Case	Requires a CPE	The Network Provider is also the DDoS Mitigation Provider
End-customer with single or multiple upstream transit provider(s) offering DDoS mitigation services	Yes	Yes
End-customer with an overlay DDoS mitigation managed security service provider (MSSP)	Yes	No
End-customer operating an application or service with an integrated DOTS client	Yes	Yes/No
End-customer operating a CPE network infrastructure device with an integrated DOTS client	Yes	Yes
Suppression of outbound DDoS traffic originating from a consumer broadband access network	Yes	Yes
DDoS Orchestration	No	N/A

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Resolving a DOTS server domain name offered by the upstream transit provider provisioned to a DOTS client into IP address(es) require the use of the appropriate DNS resolvers; otherwise, resolving those names will fail (hence, DHCP)

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It is intuitive to leverage on existing mechanisms such as **DHCP** to provision the CPE acting as a DOTS client with the DOTS server(s).
The use of protocols such as DHCP does allow to associate provisioned DOTS server domain names with a list of DNS servers to be used for name resolution

Unified Discovery Mechanism For DOTS

- DOTS clients MUST follow these steps to build a DOTS server(s) list to contact:
  1. Use any local explicit configuration: local, manual, or DHCP-based DOTS configuration
  2. Proceed with service resolution of DOTS names
  3. Run DNS-SD/mDNS
  4. Use DOTS anycast address(es)
- An implementation may choose to perform all the above steps in parallel for discovery or choose to follow any desired order and stop the discovery procedure if a mechanism succeeds

More in the draft

- Specify "DOTS" application service tag and "signal.udp”, "signal.tcp“, and "data.tcp" as application protocol tags
- Describe the procedure for S-NAPTR lookup, DNS-SD and mDNS
- Request DOTS IPv4/IPv6 anycast addresses
- Specify DOTS DHCP options

What is Next?

- The floor is yours to comment about the proposed approach and/or to ask questions

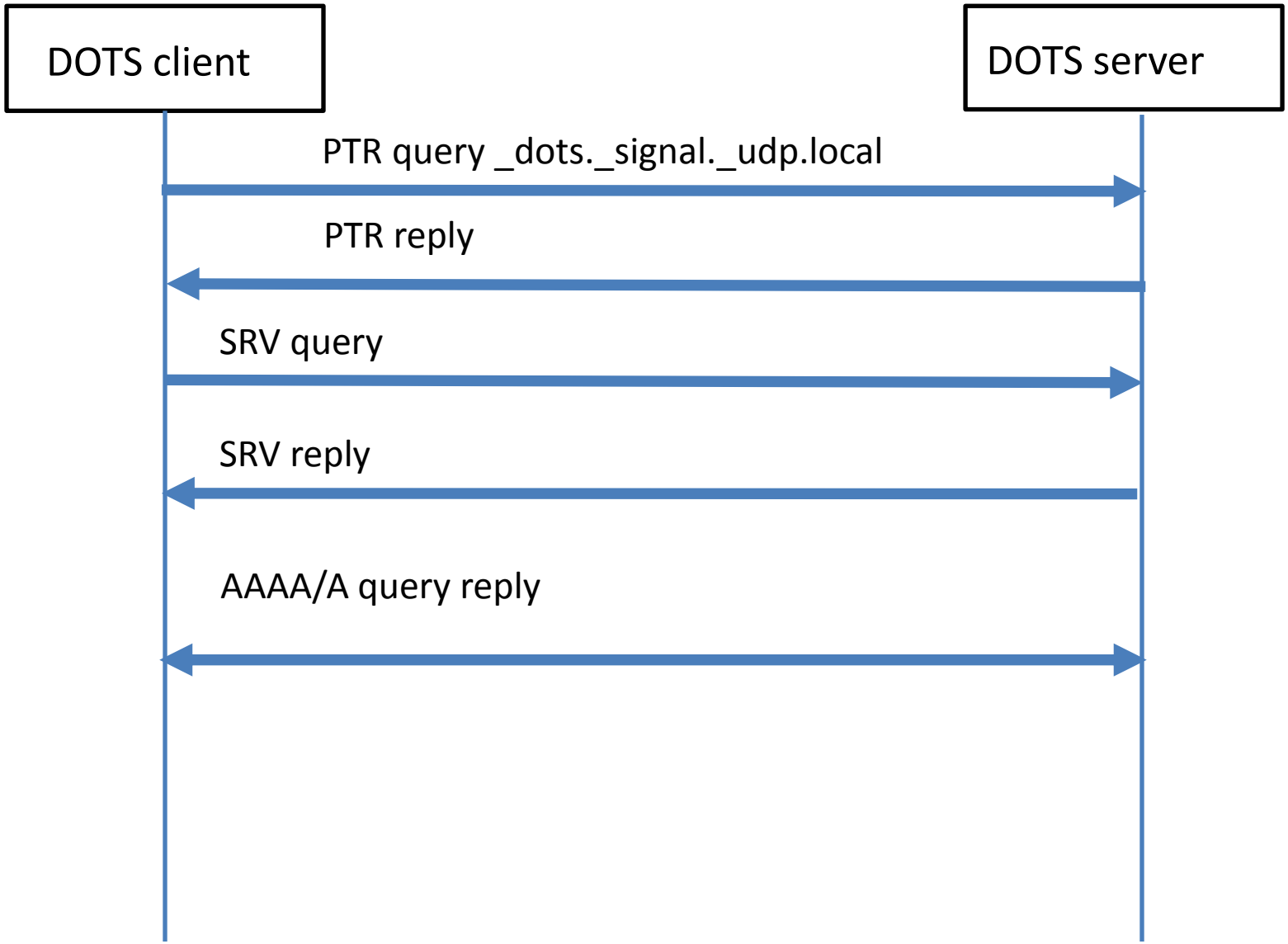
- Consider adoption of the draft

Backup

Discovery: Service Resolution

```
example.net.
 IN NAPTR 100 10 "" DOTS:signal.udp "" signal.example.net.
 IN NAPTR 200 10 "" DOTS:signal.tcp "" signal.example.net.
 IN NAPTR 300 10 "" DOTS:data.tcp "" data.example.net.

 signal.example.net.
 IN NAPTR 100 10 S DOTS:signal.udp "" _dots._signal._udp.example.net.
 IN NAPTR 200 10 S DOTS:signal.tcp "" _dots._signal._tcp.example.net.

 data.example.net.
 IN NAPTR 100 10 S DOTS:data.tcp "" _dots._data._tcp.example.net.

 _dots._signal._udp.example.net.
 IN SRV   0 0 5000 a.example.net.

 _dots._signal._tcp.example.net.
 IN SRV   0 0 5001 a.example.net.

 _dots._data._tcp.example.net.
 IN SRV   0 0 5002 a.example.net.

 a.example.net.
 IN AAAA  2001:db8::1
```

mDNS


DOTS client
DOTS server
PTR query _dots._signal._udp.local
PTR reply
SRV query
SRV reply
AAAA/A query reply

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