DNSSD
Implementation Report

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Specifications implemented

- RFC8490 (DNS Stateful Operations)
- draft-ietf-dnssd-hybrid (Discovery Proxy)
- draft-ietf-dnssd-push (DNS Push)
- draft-ietf-dnsssd-srp (Service Registration Protocol)
- draft-ietf-dnssd-mdns-relay (Discovery Relay)
DNS Stateful Operations

• Implemented in mDNSResponder
• Code is here:
  • https://github.com/IETF-Hackathon/mDNSResponder/tree/master/mDNSResponder/DSO
• Currently used by:
  • Discovery Proxy (DNS Push)
  • Discovery Relay client
  • Discovery Relay server
• Remaining work:
  • Server-side keepalive code
Discovery Proxy

- Implemented as a standalone DNS proxy/authoritative server
- Relies on mDNSResponder daemon for mDNS resolution and caching
- Implements DNS Push
- Code is here:
  - https://github.com/IETF-Hackathon/mDNSResponder/tree/master/mDNSResponder/ServiceRegistration
- Remaining work:
  - Currently does not name individual links
  - Not yet packaged for use with OpenWRT
DNS Push

- Discovery Proxy implementation is a DNS Push server
- Open source mDNSResponder is a DNS Push client
- This code can be run on MacOS and works nicely
- Source here:
  - https://github.com/IETF-Hackathon/mDNSResponder/tree/master/mDNSResponder
- Remaining work:
  - DSO keepalive support for server implemented
  - DSO keepalive support for client tested
DNSSD Service Registration Protocol

- Simple SRP client
  - Updates default.service.arpa
  - Uses anycast to reach server
  - SIG(0) signature is done with ECDSA
  - SIG(0) signature has been successfully tested against BIND 9.
- SRP Proxy
  - Receives updates on port 53 from simple client
  - Validates update to make sure it is an SRP update (as specified)
  - Validates the signature on the update
- Remaining work:
  - SRP client that discovers SRP registration server rather than anycasting, and that can update the SRP registration domain
  - SRP proxy that actually issues DNS updates (possibly in mDNSResponder)
  - SRP support for BIND 9?
- Code is here:
  - [https://github.com/IETF-Hackathon/mDNSResponder/tree/master/mDNSResponder/ServiceRegistration](https://github.com/IETF-Hackathon/mDNSResponder/tree/master/mDNSResponder/ServiceRegistration)
DNSSD Discovery Relay

- Both client and server implemented
- Source code here:
  - [https://opensource.apple.com/tarballs/mDNSResponder/IETF/mDNSResponder-IETF103.tar.gz](https://opensource.apple.com/tarballs/mDNSResponder/IETF/mDNSResponder-IETF103.tar.gz)
- Remaining work:
  - Integrate into current mDNSResponder source
  - TLS support
Lessons learned

• Numerous trivial issues and a few significant minor issues
• Drafts updated to address these issues
• Based on the implementation work we’ve done, we feel confident that the drafts are all ready
• Action items:
  • It would be nice to have second implementations
  • We request WGLC on:
    • draft-ietf-dnssd-mdns-relay (passed last call, but has been updated)
    • draft-ietf-dnssd-srp
    • draft-ietf-dnssd-push (some minor changes after WGLC, Stuart will discuss further)