DNSSD Discovery Proxy
DNSSD Relay
DNSSD SRP

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Discovery Proxy implementation report

- We have a clean, fully-featured DNSSD Discovery Proxy
- Apache 2.0 license
- Uses mDNSResponder for mDNS and DNS resolution
- Listens on port 53 for regular DNS queries
- Listens on port 853 for DNS Push connections
- Serves as an authoritative server for proxied links
- Serves as a recursive resolver for other queries
- In other news, MacOS Catalina and friends support DNS Push.
DNSSD Discovery Proxy

- Comments/questions?
DNSSD Discovery Relay

- This is intended mostly for situations where DHCP relay would make sense
- Document has not been updated recently
- It has been suggested that this would be easily addressed with a tunneling protocol
- That’s true, but not always easy to configure, particularly in the sense that tunnels are general, and can tunnel traffic that shouldn’t be tunneled.
- So we think there is value in this approach
- How do we get to publication?
- If this WG doesn’t care about this, we could try ISE?
- We should ask on the list.
Discovery Relay implementation

- Code is in an outdated branch of mDNSResponder on the IETF hackathon github repo
- The code works, and much of it has been integrated into mDNSResponder for DNS Push (more on that later)
- I have a new version that is not yet ready for use, but is based on the newer dnssd-proxy/dnssd-srp code base
- This should get pushed out before Singapore
Discovery Relay

- Comments/questions?
SRP Updates
(to the document)

- services.arpa -> service.arpa
- Add support for TLS (thanks for suggesting this, Tom)
Tom’s comments

• The term “update” is overloaded
  • Right now “update” means both “SRP Update” and “RR update.”
  • Tom found this confusing, and it’s pretty obvious why now that he’s pointed it out.
  • I think we need to use a new name, either “RR Update” or “RR Add.” Thotz?
• Tom also found the discussion of validation somewhat confusing generally. I need to fix this, but have not yet done so. I think it’s fairly clear what to do.
Tom on Security

- Tom asked if we can support TLS; I think this makes sense and have added TLS support.
- Should we require TLS?
Tom on Security 2

- Anycast routing:
  - currently we have a global anycast address
  - this means an SRP update can escape to the Internet
  - We should prevent this
- Possible solutions:
  - A site-scoped anycast address
  - Make this a transport-specific feature
    - e.g., Thread could define a well-known mesh-local address for this.
  - Thotz?
Sleep Proxy

• Tom points out:
  • SRP is a routed unicast protocol
  • Sleep Proxy requires a presence on-link
• Sleep proxy was included in SRP because it’s very similar
• But it’s not the same
• Either we need to add some more text explaining this, or
• Make Sleep Proxy a separate document
• Thotz?
I have an implementation of the constrained SRP protocol which fits nicely on a small 802.15.4 development board.

Total size of the code is <10k, including key generation and ECDSA SIG(0) signing.

This is a very simple service registration, for a single service.

Registration, including signature, is about 320 bytes.
SRP Proxy

- Listens for DNS updates on port 53
- Validates them as legitimate SRP updates
- Performs required DNS update(s) to do the SRP update.
- Best cases: new or no change: 1 message
- If a service instance has been removed or added,
  - add the service instances
  - then the host record and PTR records
  - We first try to refresh, then add new
- If any of these fail, we have to delete everything we added
- It all seems to work (I think I tested all the possible cases)
Future Work

• Homenet integration
  • HNCP link identification generation
  • Packages for OpenWRT
  • Default install on OpenWRT that actually works
• Fully-featured SRP client
  • Would need to discover the dnssd-srp-tls:* SRV RR
  • Would need to set up communication over TCP or TLS
  • Otherwise it’s pretty similar to srp-simple, but would be nice to make it more general
• SRP in a DNS auth server
  • Some work Mark Andrews has done should enable this
  • I’m hoping to get around to hacking this before Singapore, but no promises.
• SRP Relay
  • This might be a nice thing to have if we wind up using a link-local anycast address for srp-simple
Future of SRP

• The document got one review during last call (Thanks, Tom!)
• The chairs decided this wasn’t enough!
• We had a homenet informal meeting on Tuesday, and I asked the folks in the room, who are working on DNS for homenet, whether they thought SRP was useful. Answer: yes. Why didn’t they respond to last call? They didn’t see it.
• I do not think it makes sense to just drop this work—it’s an essential piece of the DNSSD puzzle.
• Therefore I propose that after I update the document again, we do another last call, and include homenet and perhaps DNSOP in the announcement.