A Time-Since-Registered RRtype for mDNS

Ted Lemon <elemon@apple.com>
Liang Qin <leonqin0101@gmail.com>

The Problem

- Independent Advertising Proxies updated via SRP:
  - If a client chooses one SRP+AP at time A, and another one at time A+K, and K < lease time, the second registration will produce an mDNS name conflict
- Advertising Proxies updated via SRP with Replication:
  - An update received at time A on server A is replicated to server B
  - At time A+K, where K < lease time, client renews on server A
  - Server A advertises new information using mDNS
  - Old information advertised by server B produces conflict

Why this happens

- mDNS has a first-come, first-served policy:
  - When you add a new light bulb to the network, it gets a name, e.g. "Acme Light Bulb"
  - When you add a second light bulb of the same type, it tries to get the same name
  - You already know that "Acme Light Bulb" is the light bulb in the kitchen, and you don't want that name to suddenly belong to the light bulb in the TV room
  - So the first light bulb wins, and the second one has to choose a new name
- This is correct behavior for DNSSD services using mDNS

Why it doesn't work right for SRP+AP

- SRP+AP is not advertising on its own behalf.
- SRP provides first-come, first-served naming using public/private key-based authentication: SIG(0).
- Any renaming should be happening in the SRP protocol, not in mDNS
- Notionally, SRP is updating a DNS zone, not an advertising proxy
- So, when there is a "name conflict," we don't want the oldest version—we want the newest version

Proposed solution

- Add a new resource record, for mDNS only: TSR
- TSR indicates when the service being advertised is received
- The TSR record is only included in mDNS probes
- All proxies provide a TSR time to their mDNS server
- When an mDNS server receives a probe with a TSR, for a record it also has, which also has a TSR, it only indicates a conflict if its TSR is more recent than the probe TSR
- No support for automatic renaming
- Non-implementing mDNS servers behave as usual, and aren't used with proxies
- Services registered without TSR are still given precedence

Request to the WG

• Please review this

• It's pretty simple, shouldn't be a major task for the WG

• Please consider adopting this work