

mDNS Time-since-received

Status update

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- Original TSR DNS option didn't address the right problem
- We saw lots of name conflicts and excessive mDNS traffic
- That led to a re-think, which you heard about at IETF 119:
 - TSR is about asserting authority and freshness, not about conflict resolution
 - TSR needs to be included in all messages, not just probes
 - This means it needs to be an EDNS0 option, to avoid spurious TSR data showing up on non-conforming mDNS responders

What it looks like now

- TSR is now represented as an EDNS(0) option
- Timestamp handled the same
 - in flight, it is represented as time relative to mDNS message
 - at rest, it is an absolute time, in our case relative to system start, but who cares?
- We now include a key hash, which represents authority

New “conflict” resolution process

- Have data with TSR, get data with no TSR, that’s a conflict
- Have data with no TSR, get data with a TSR, that’s a conflict
- Have data with TSR, get data with a TSR with a different key hash, that’s a conflict
- Have data with TSR, get data with TSR with same key hash, that’s never a conflict, BUT:
 - If new data has more recent timestamp, our data is stale and is flushed
 - If new data has less recent timestamp, we ignore it

Cache vs authority database

- Handling of cache versus authority is necessarily different
- If we get a local registration that conflicts with cache, we flush the cache and probe
- This can result in a new “error” response: “Stale Data”
- Similarly, if we have published data and we subsequently receive fresher data via mDNS, we cache the fresh data and fail the registration with “Stale Data”

Results

- This new approach means that we no longer need to probe on replication
 - We know that the server that shared the data with us has already probed
- Skipping probing substantially reduces the amount of multicast traffic produced by a set of advertising proxies doing SRP replication
- We no longer see spurious conflicts
- Implementation is very recent, so we don't have a lot of miles on it
- Will report again (and hopefully publish an updated draft) in November