A view of the MIMI discovery problem

as described in draft-bertola-mimi-discovery-dns-00

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Part 1
Problem requirements

Defining the discovery problem

multiple 1-to-many non-exclusive unidirectional relations

Use cases

1. User A wants user B to contact them, and gives them a MIMI-specific identifier

2. User A wants user B to contact them, and gives them an «external» identifier from another service (email address, telephone number)

3. User B already knows user A's «external» identifier in another service (email address, telephone number) and wants to try contacting them

Requirements on user identifiers

- Being reachable on MIMI by an external identifier is optional and subject to the identified user's active consent
  - This implies that we also need MIMI-specific user identifiers
- MIMI-specific identifiers should be simple and human-friendly (writeable, speakable, transmittable)
- Both users and providers (and anyone else) could create, own and manage MIMI-specific identifiers
- The MIMI-specific identifier does not change when the user changes MIMI service, unless it is owned by the old service provider
- Identifiers cannot be easily guessed if the user wants so

Requirements on the solution

- Supports any number of 1-to-many non-exclusive unidirectional relations; can easily scale
- As decentralised as possible, to prevent points of surveillance
- Offers security and privacy; it is not easy to learn other people's identifiers in transit or acquire batches of identifiers and connections
- Allows for any number of discovery providers; anyone should be able to (self-)host a MIMI service, including discovery at least of their MIMI-specific identifiers
- Uses open standards, with as many implementations as possible; barriers to entry should be as low as possible

Requirements on the solution (non-tech)

- Does not create intellectual property issues (e.g. ownership of identifiers)
- Does not pose significant legal and regulatory issues, or require significant regulatory work; in particular, it is compatible with the main data protection regimes
- Is cost-effective
- Has a business model

Part 2
Can DNS be useful?

Why (not) DNS?

- DNS is already the discovery technology for most basic applications
  - Email, web etc…
  - Readily available, tons of implementations, well known, well regulated
- However, DNS works if the identifier is in a hostname-like format
  - Totally suitable for new, MIMI-specific identifiers that we could define
  - Also suitable for e-mail addresses, but with ownership issues (should my email provider supply the discovery record for my MIMI provider, and why, if they are not the same?)
  - Hardly suitable for telephone numbers
- We almost certainly still need «oracles» for «external» identifiers

Straight DNS-based discovery

1. Start with a hostname-like MIMI identifier
2. Query for a discovery record (TXT or new RR)
3. Get all the information you need (even on multiple MIMI accounts)
4. Done

```
mymimi.example.com MIMI
"v=MIMI1; p=2; a=+15551234567; e=mimi.whatsapp.com; s=whatsapp"
mymimi.example.com MIMI
"v=MIMI1; p=1; a=myname99; e=im.telegram.org; s=telegram"
```

More privacy-friendly DNS-based discovery

1. Start with a hostname-like MIMI identifier
2. Query for a discovery record (TXT or new RR)
3. Get the list of providers
4. Contact one or more of them for the private information (account name)
5. Done

```
mymimi.example.com MIMI
"v=MIMI1; p=2; e=mimi.whatsapp.com; s=whatsapp"
mymimi.example.com MIMI
"v=MIMI1; p=1; e=im.telegram.org; s=telegram"
```

The preliminary question

Should we at least consider
the possibility of
new, MIMI-specific identifiers?