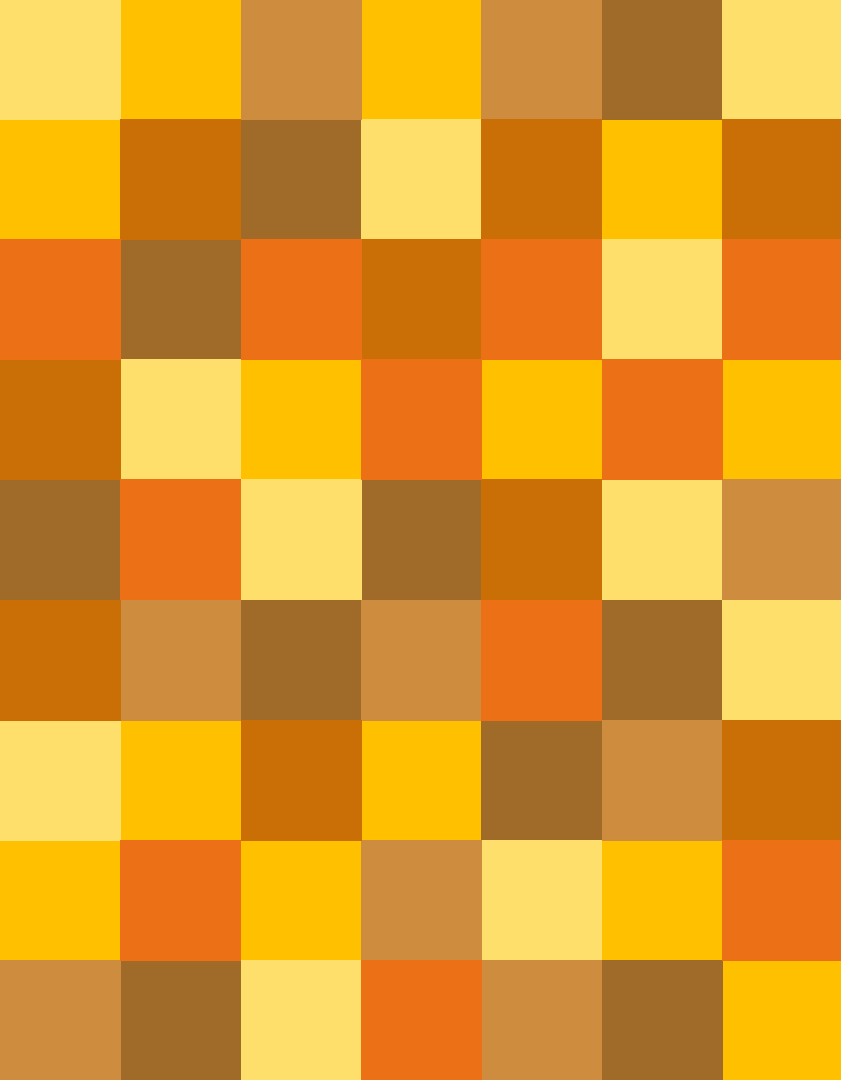




# DNS-based Identifiers for Instant Messaging

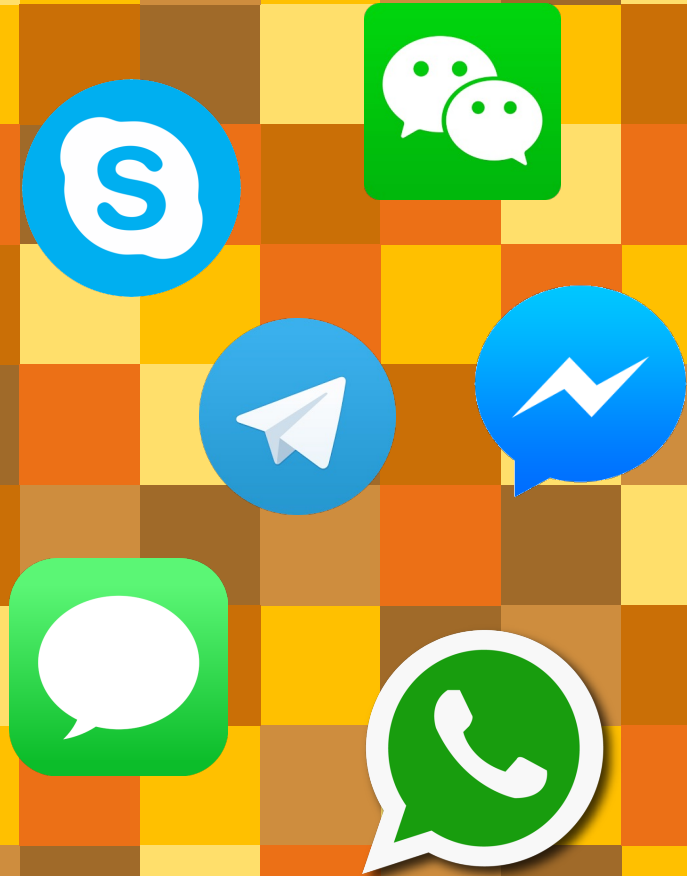
ICANN DNS Symposium, 5 September 2023

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# 1.

## Instant Messaging: The Bigger Problem



# Instant messaging is not interoperable

Each IM service is a walled garden

You cannot communicate with users of other IM services – you need an account on each service

If you move, you lose your contacts and history – you are locked in

Only a few IM services can exist – you cannot compete or run yours

Either standards are closed, or deployments are closed

# Why?

Services born in the «post-mass-Internet» (a.k.a. «greedy VCs») era

Strong business motivation in keeping things as they are, locking users in

Lack of development, standardisation and deployment of federation features

# A problem for everyone else

## End-users

Very limited  
freedom of choice  
Limited privacy  
Loss of data and  
contacts if changing  
service  
Constrained  
functionalities

## Governments

Lack of competition  
All data and taxable  
wealth go to a few  
U.S. companies  
National security  
issue

# Regulation kicks in (in the EU)

The Digital Markets Act requires that «gatekeeper» IM services interoperate with any competitor

First deadline: early 2024 for 1-to-1 conversations with attachments

Additional features required by 2026 (group conversations) and 2028 (voice/video calls)

# The architectural crossroads

## Proprietary APIs

Easier for gatekeepers, harder for everyone else

No common features guaranteed

Mostly useful for third party clients only

## Common standard

True interoperability

E2E encryption

New entrants only implement once

Standard features available across all services

# The tech community's response

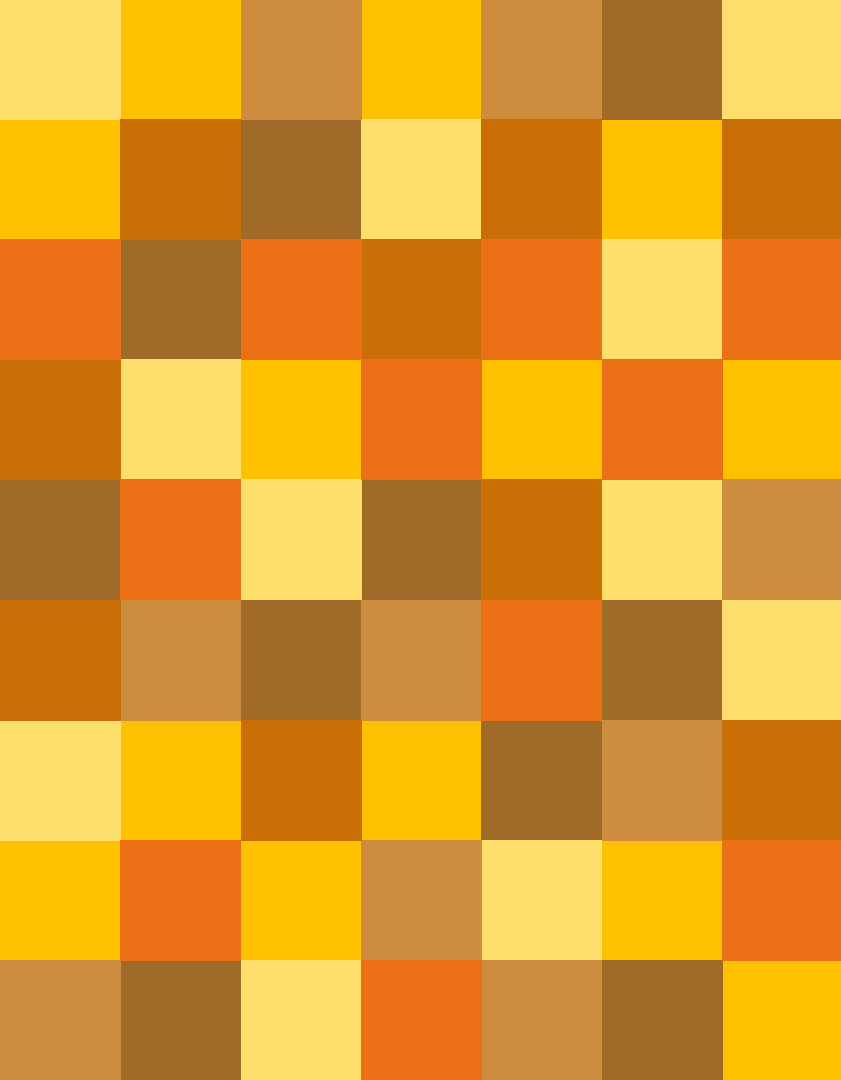
In February 2023, the IETF established the MIMI working group

- More Instant Messaging Interoperability

Tasked with defining an open standard for interoperable instant messaging

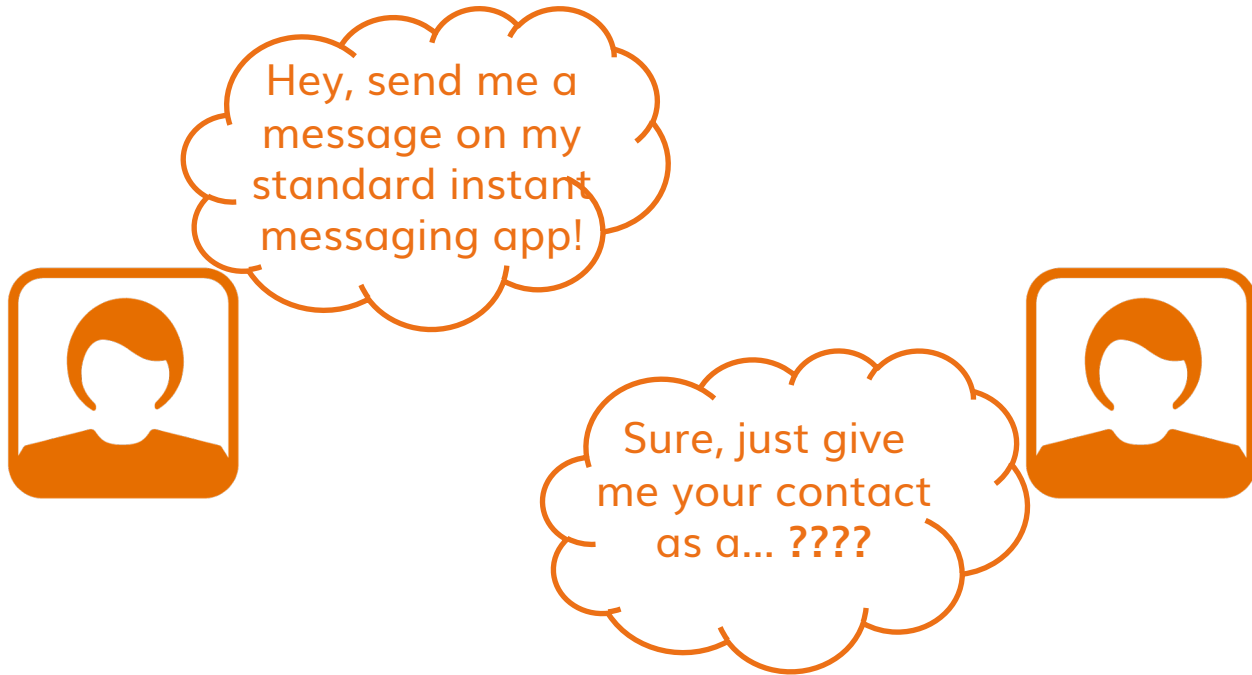
- 1-to-1 and group conversations
- End-to-end encrypted via MLS
- Including a discovery mechanism
- Supporting any type of content (but not voice/video calls for the moment)





# 2.

## The MIMI discovery problem



The MIMI introduction / discovery problem

# Introduction in siloed systems

Each app is also a service provider

Each app sets up its own independent user account identification system

- ❑ Whatsapp uses telephone numbers
- ❑ Skype uses usernames and email addresses
- ❑ Telegram can use almost everything

Users specify both app and account

- ❑ «Ping me on Whatsapp, here's my number»  
(or a QR code that contains the number)

# Introduction in federated systems

Before the introduction, you need discovery

- Which app(s) (service providers) does the other user have?
- What's their account name there?

In full federations, you do not know all apps and service providers in advance

- You must be able to discover service providers from scratch and connect to them



Hey, this  
looks so  
hard!

No, it's just  
how email  
works!



# Old or new identifiers?

We need to support current apps which use old identifiers

We could use only the old ones

- ❑ Build a big centralized database of telephone numbers and email addresses
- ❑ Store each user's service details there

Or we could introduce a new identifier

- ❑ A self-contained string including both the account name and the service provider
- ❑ Like an email address!

# Current status

The MIMI WG is gathering proposals (Internet drafts) before starting a discussion

The initial proposals were around the centralized database idea

- Then decided to break it down into national databases for manageability
- Then entered into the problem of who manages them, and how to sync them up

# So what do we need?

Ideally, we need a global distributed database for a federated model

- ❑ That offers human-friendly identifiers
- ❑ That can translate an identifier into the information for connecting to a service
- ❑ That can scale to any size
- ❑ That uses open standards and is readily available
- ❑ That offers privacy and security



# It's the DNS!

*(except for privacy and security, maybe)*

*(just kidding)*

# What would a MIMI identifier be?

It could look like a URI, or a hostname, or an email address

- Which would in any case contain a domain name
- Either that of the service provider, or that of the user (like email addresses)

# What information would it offer?

*(totally made-up example – everything is still up for discussion)*

```
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"
```

# How would it deal with old ids?

Email domains could provide a MIMI discovery server

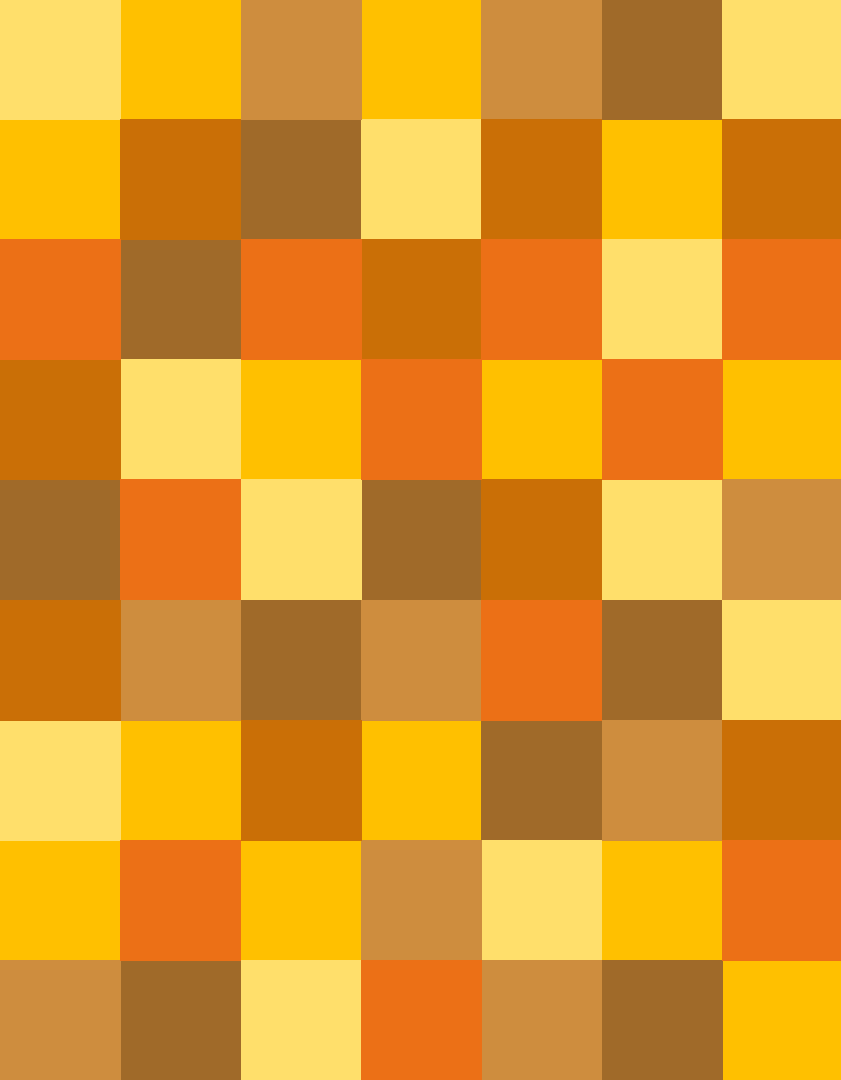
- But not everyone will bother

The DNS has a way to associate information to a telephone number:

ENUM

- But nobody uses it
- And why should telcos promote MIMI?

So, possibly we will still need databases



# 3.

What's in this for the  
DNS community?

# Potential strategic relevance

Keeping the DNS relevant by using it for newer services

- More than just website and email
- MIMI could become the primary form of messaging

Another reason for people to buy a personal domain name

Hosters could host MIMI services

# Something to keep an eye on

In general, not just for identifiers

If you are an IETF regular, join the MIMI working group list

Discovery requirements up for initial discussion at next interim meeting on Sep 13

# Thanks!

Any questions?

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