Enhancing your web app with decentralised communication via Matrix

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Agenda:

• What problem is Matrix trying to solve?
• What is Matrix and how does it work?
• Case study: adding Matrix to your JS app
• Current status and looking ahead
Enter Matrix:

Open Decentralised Eventually Consistent Cryptographically Secure Messaging Database with JSON-over-HTTP APIs.
Demo

https://matrix.org/beta
The Client-Server API

To send a message:

curl -XPOST -d '{"msgtype":"m.text", "body":"hello"}'
"https://alice.com:8448/_matrix/client/api/v1/rooms/
ROOM_ID/send/m.room.message?
access_token=ACCESS_TOKEN"

{
   "event_id": "YUwRidLecu"
}


The Client-Server API

To set up a WebRTC call:

curl -XPOST -d '{
    "version": 0,
    "call_id": "12345",
    "offer": {
        "type": "offer",
        "sdp": "v=0\r\no=- 658458 2 IN IP4 127.0.0.1..."
    }
}' "https://alice.com:8448/_matrix/client/api/v1/rooms/ROOM_ID/send/m.call.invite?access_token=ACCESS_TOKEN"

{ "event_id": "ZruiCZBu" }
The Client-Server API

To persist some MIDI:

curl -XPOST -d '{
   "note": "71",
   "velocity": 68,
   "state": "on",
   "channel": 1,
   "midi_ts": 374023441

{ "event_id": "ORzcZn2" }
Functional Responsibilities

- **Clients**: Talks simple HTTP APIs to homeservers to push and pull messages and metadata. May be as thin or thick a client as desired.

- **Homeservers**: Stores all the data for a user - the history of the rooms in which they participate; their public profile data.

- **Identity Servers**: Trusted clique of servers (think DNS root servers): maps 3rd party IDs to matrix IDs.

- **Application Services**: Optional; delivers application layer logic on top of Matrix (Gateways, Conferencing, Archiving, Search etc). Can actively intercept messages if required.
How does federation work?
http://matrix.org/matrix-graph.html
Case study: adding Matrix to your JS app
Current Progress

- Funded May 2014
- Launched alpha Sept 2014
- Entered beta Dec 2014
- May 2014: v1.0 release?!

Remaining:
- Performance improvements in reference impls
- Build more gateways
- Finalise spec
- End-to-End Encryption
- v2 Client-Server API

Won Audience Choice & Best Social Integration awards at WebRTC Expo 2014 and Best Innovation at WebRTC Paris 2014
We need help!

• We need more people using it!
• We need people to run their own homeservers
• We need feedback on the APIs
Come chat to us in exhibition booth #208!

http://matrix.org
THANKS!

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