

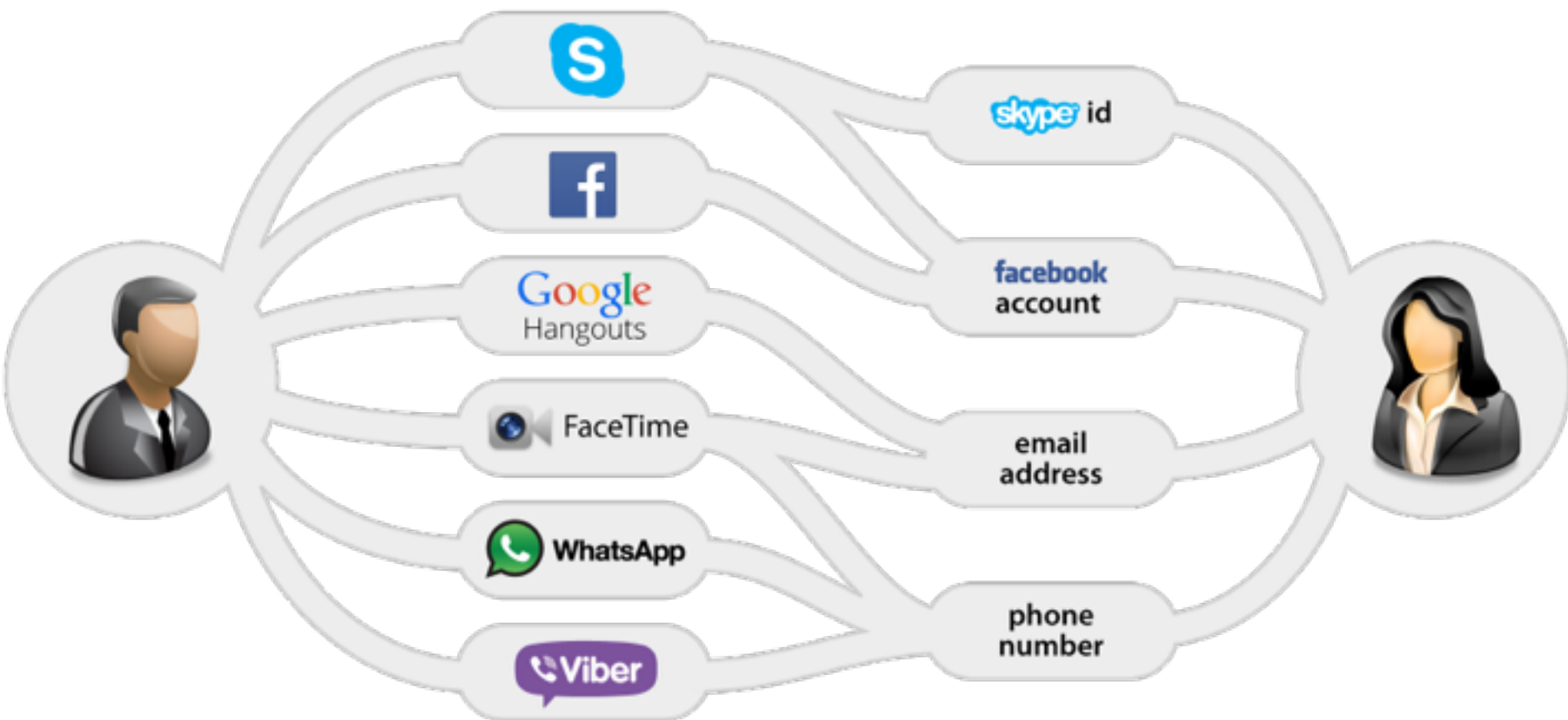


**Enhancing your web app with
decentralised communication via Matrix**

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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.**

[matrix]



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" }
```

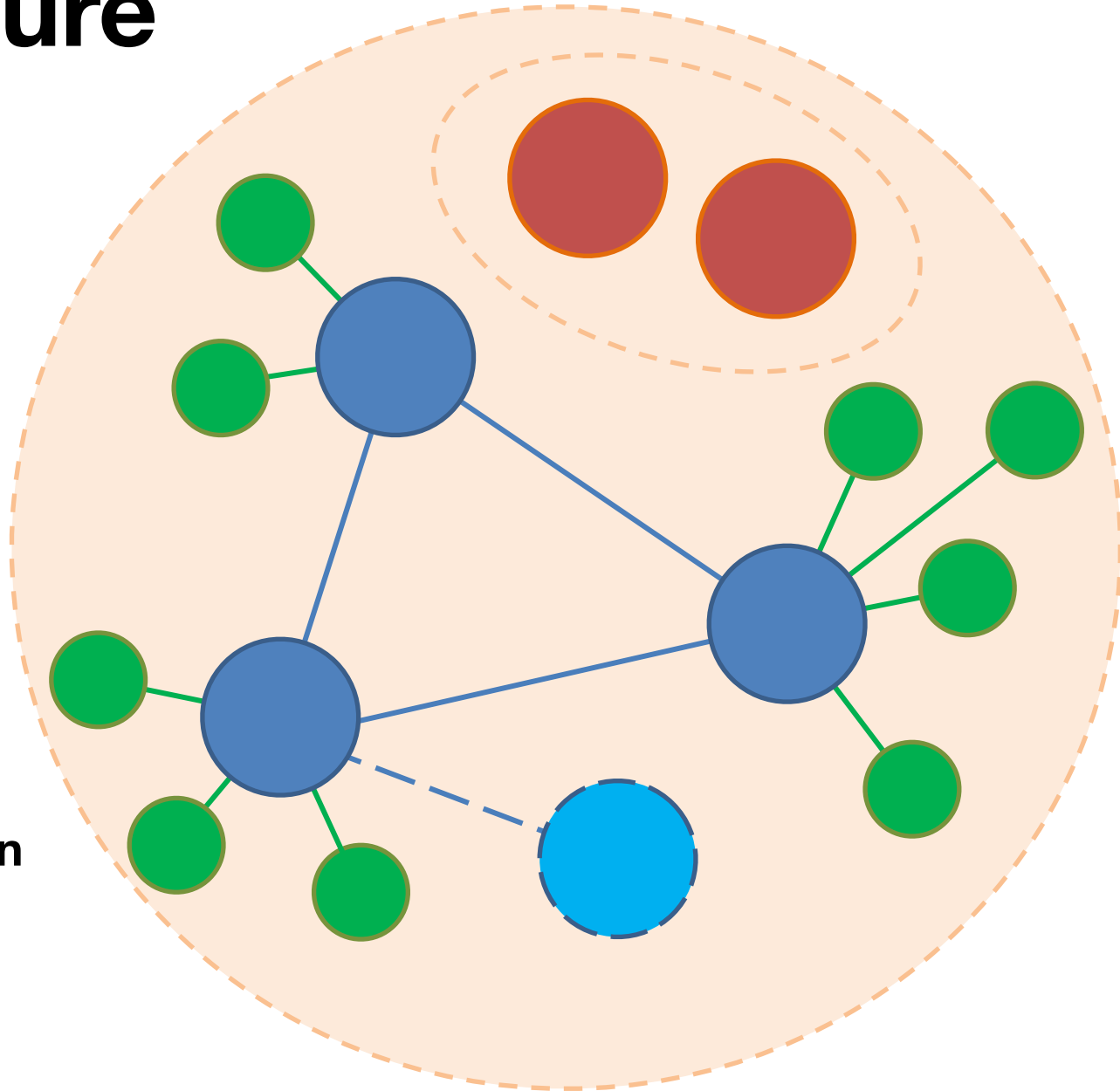
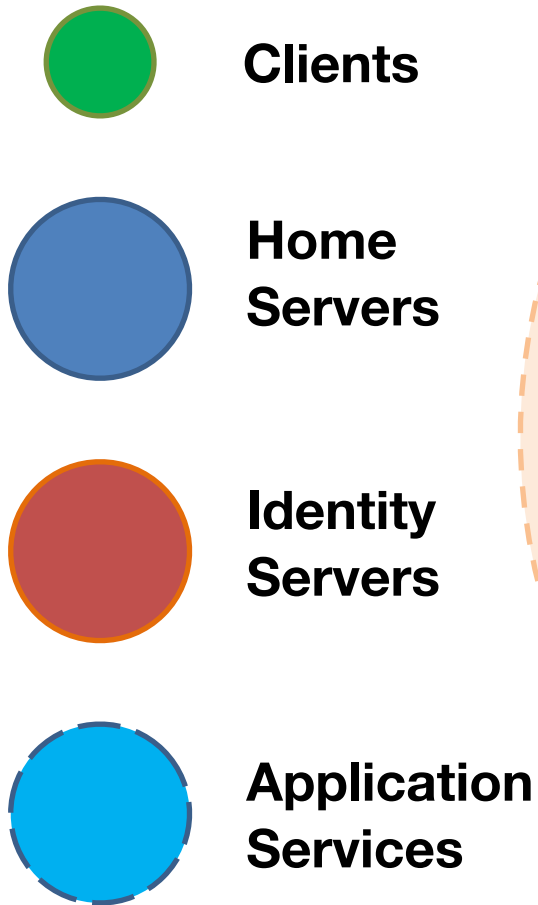
The Client-Server API

To persist some MIDI:

```
curl -XPOST -d '{\
  "note": "71",\
  "velocity": 68,\
  "state": "on",\
  "channel": 1,\
  "midi_ts": 374023441\
}' "https://alice.com:8448/_matrix/client/api/v1/\
rooms/ROOM_ID/send/org.matrix.midi?\
access_token=ACCESS_TOKEN"

{ "event_id": "ORzcZn2" }
```


Architecture



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>

[**matrix**]

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THANKS!

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