Enter the Matrix: Communications Reloaded

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Communications protocol

- federated (like email)
  - users connect to their server ("homeserver")
  - servers communicate with each other
- real-time
- persisted history
- JSON data over HTTP (as a baseline)
• different uses
  ▪ instant messaging (1-on-1 chats, private groups, public discussion groups)
  ▪ IoT
  ▪ VR
  ▪ collaborative document editing
  ▪ blogs
Decentralized

- federated (like email)
- users connect to their server ("homeserver")
- servers communicate with each other
- Matrix IDs look like @user:example.com
- rooms are shared between servers that have users in them
  - if any server goes down (even the one that created the room), everyone else can still talk
Open standard

- use whatever client you want
  - Riot, Nheko, Quaternion, Spectral, Fractal, weechat plugin, Miitrix, bashtrix
- write bots in (almost) any language
- contribute to the spec
- features appear slower than centralized services, but more freedom
Bridges to other networks

- IRC, XMPP, Gitter, Slack, Hangouts, Discord, Telegram
- How the bridge works depends on what the other network allows
- [https://matrix.org/bridges](https://matrix.org/bridges)
End to end encryption

- uses Signal's Double Ratchet, plus another layer to make it more efficient
- audited by the NCC Group
- not many clients support it, but can use a proxy
Can be self-hosted

- homeserver: synapse
  - .deb packages
  - docker, Kubernetes
  - ansible playbook
  - needs a lot of memory/disk if you join large rooms, but needs less for small groups
  - use PostgreSQL for any production deployment (SQLite is only for testing)
- identity server (*ma1sd*)
- integration manager (*dimension*)
- bridges
- bots
The future of Matrix

- communities done right
- portable accounts
- easier end-to-end encryption, and enabling it by default
Join the Matrix Revolution

- pick a server and create an account
  - https://the-federation.info/protocol/matrix
- host your own
- https://modular.im/
- join a room
  - e.g. #freenode_kwlug:matrix.org
- or chat with someone