

# Enter the Matrix: Communications Reloaded

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KWLUG — November 4, 2019

# 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>

# 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://www.hello-matrix.net/public\\_servers.php](https://www.hello-matrix.net/public_servers.php)
  - <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