

What is Beeper Working On?

Sumner Evans

27 August 2022

Beeper

A bit about me

My name is Sumner, I'm a **software engineer at Beeper**.

- I graduated from Colorado School of Mines in 2019 with a master's in CS.
- I teach as an adjunct professor at my alma mater.
- I enjoy skiing, volleyball, and football (soccer).
- I'm a 4th degree black belt in ATA taekwondo.

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Overview

1. A bit about Beeper
2. What we've built
3. Current challenges
4. What it's like to work at Beeper

This talk is interactive!

If you have questions at any point, feel free to interrupt me.

A bit about Beeper

Our mission is to:

make it easy for everyone on Earth to chat with each other.

We specifically chose the word “chat” rather than “communicate” because we are focusing on *people talking to one another*.

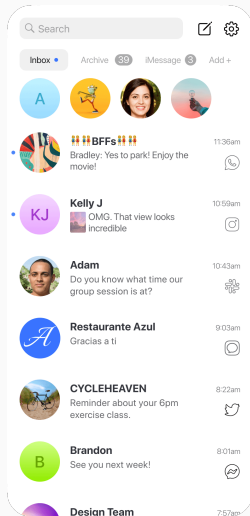
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What is Beeper?

Beeper is an app that brings all of your chat networks together into a single inbox.



What is Beeper?

Beeper allows you to consolidate messages from 15+ chat apps into a single inbox.

- Beeper is available on macOS, Windows, Linux iPhone, iPad, Android and Chrome OS.
- Beeper is built on top of the Matrix protocol.
- Beeper encrypts all chats, including bridged chats, by default¹.

¹We have to momentarily decrypt your chat messages to translate from the other network to Matrix, but we never log or store your unencrypted messages.

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We are targeting individuals, not enterprises

We want to beat WhatsApp, not Slack.

Our core competency is the 50th highest priority at the big tech companies.

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How we make money

We charge a flat \$10/month fee to use Beeper. This fee allows users to connect as many chat networks as they want.

No ads. No data mining. We take advantage of Matrix's E2EE to add additional privacy guarantees.

The transaction is simple:
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Bridging to a glorious Matrix future

We see bridges as a way to onboard users into the Matrix ecosystem.

Users can switch to a new app without losing a single conversation!

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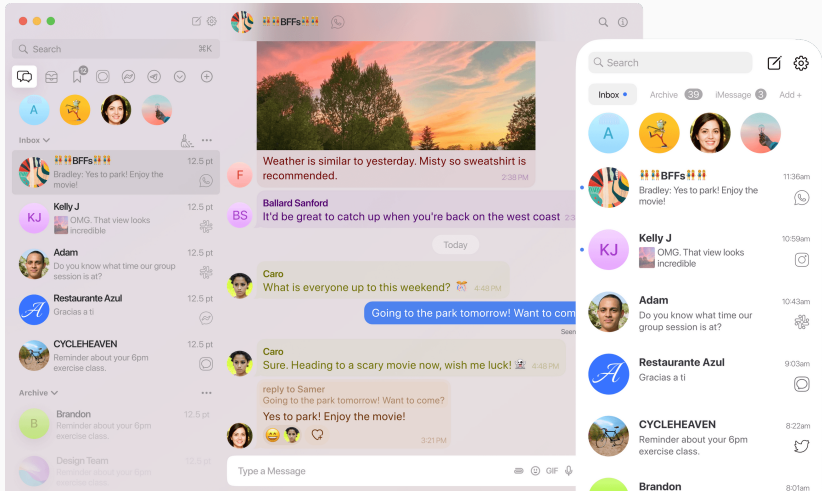
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What we've built

Custom clients for desktop and mobile

We forked Element, and added custom features.



Bridges, bridges, and more bridges!

We have built bridges to 15 networks:

- iMessage
- WhatsApp
- Facebook Messenger
- SMS (Android)
- Telegram
- Signal
- LinkedIn
- Instagram
- Twitter
- Google Chat

We are actively developing new matrix-based bridges to Discord and Slack.

You can also connect to IRC (via the Libera.chat bridge) and the rest of the Matrix federation.

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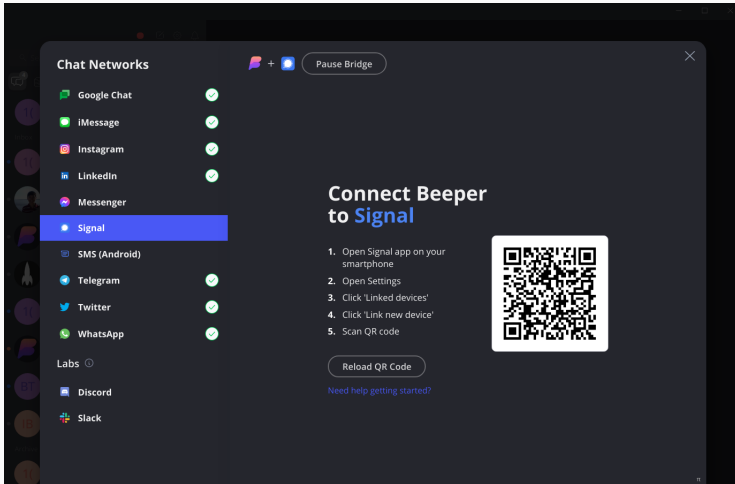
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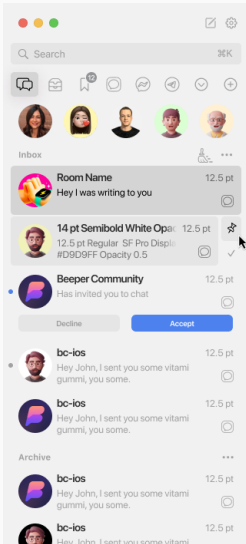
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Easy chat network connection from clients



I'll demo this later!

Chat inbox management tools



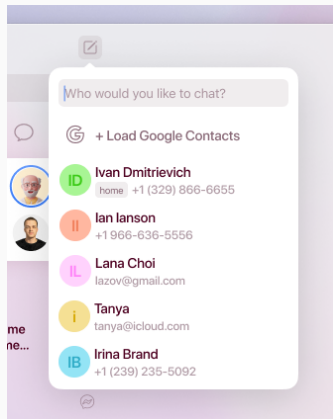
We've implemented lots of useful inbox management features such as:

- chat pinning
- chat archiving
- configurable auto-archive
- mark as read
- chat muting

Start new chat

On some networks, you can start a new chat directly from Beeper.

You can also load your Google Contacts to get the correct names on your chats.



Much, much, more!

- Message send status
- E2BE on all bridges
- Scheduled messages
- Per-network spaces

Current challenges

Each user gets their own bridge for each network they connect.

That means we run a lot of bridges, and each bridge brings more traffic!

- On average, each user brings **4716 puppeted users**.
- On average, each user and their puppets collectively account for **100k events!**

None of the bridge traffic is federated, but Synapse is aggressively federated.

Scaling: Problem

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We are building a homeserver optimized for unfederated bridge traffic called hungryserv.

By siphoning off unfederated bridge traffic to a different service, we allow Synapse to do what it does best: federate with other Matrix homeservers.

We can also optimize operations such as room deletion and infinite backfill.

Because it's unfederated, we don't have to implement state resolution.

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The iOS app

Beeper's clients are forks of Element's clients. Having the Element codebase as a starting point has been hugely beneficial to us.

However, the iOS app needs some love.

Element is currently working on Element X for iOS which uses the Rust SDK.

We are taking a different approach: **rewriting the iOS app piece-by-piece and changing the architecture as necessary.**

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What it's like to work at Beeper

What I work on at Beeper

I am on the newly created *Scaling* team.

Our current objective is to prepare Beeper for rocket-ship growth.

I was previously part of the *Bridges* team.

Notable projects included:

- Writing the LinkedIn bridge
- Adding bridge status reporting and message send status.
- Implementing massive stability improvements in the Signal bridge
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BRAD days: hacking to make Beeper a better company

Every third Friday, we have a Beeper Radical Awesomeness Day (BRAD).

- BRAD is an optional day to build whatever you want to make Beeper a better company to work at.
- Some BRAD day projects have made it into clients such as scheduled messages.
- Other projects include internal tools such as bots, build automations, POCs, and more.

Team Retreats

About three times a year, we have a team retreat.



You can read more about them on my blog at sumnerevans.com/categories/work-retreats.

Questions?