

Irina Nazarova, EuRuKo 2024

Evolution of real-time, Any and... me Cable Pro



Real-time evolution

PREHISTORIC

DARK AGES

CAMBRIAN EXPLOSION 

FUTURE



PubNub®



ably



APOLLO



PARTY KIT

AI SDK



2005

2007

2011

2012

2014

2017

2021

2024

Trivia



Vote here now!

 **Irina Nazarova** ✓
@inazarova

Do you know what this is (no googling)? Can you guess?



2:26 PM · Jul 1, 2024 · 2,130 Views



Poll Everywhere

Summer 2008



Combinator

Built with



RAILS

Scaled with



AnyCable





When poll is active respond at PollEv.com/realwinter546



Do you know this logo?

bread&bakery
 novidrop rulez
 guliver nil 🗽 web vim hireally non sad
 pushlogo 😊 martians pineapple ne
 cloudamqp websocket io evilidk 🖐️ slither
 faye 💕 idea tuzla firmhouse pooling
 websocnet 😊 cable nope socket 🚀 mhm
 🐕 🐱 cool ruby curse :(){ Ćurug
 tableapple something anycable :& nah websocket
 transformers mom beebop microsoft
 arrow ftw berlin
 omerika 🍍

Trivia

know your heroes



Irina Nazarova ✓

@inazarova



The results are in! 79.2% didn't recognize the logo of [#WebSocket](#). I asked because we sometimes use it in docs and other materials (related to [@any_cable](#)) but I was curious if this is an obvious reference (it's not). Thank you everyone who voted!



Irina Nazarova ✓ @inazarova · Jul 1

Do you know what this is (no googling)? Can you guess?



Real-time evolution

PREHISTORIC

DARK AGES

CAMBRIAN EXPLOSION 

FUTURE



2012

PubNub



2014



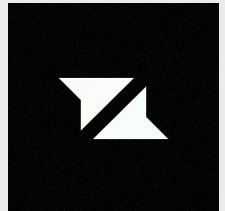
2017



APOLLO



2021



PARTY KIT



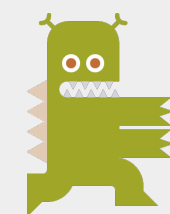
AI SDK

2024

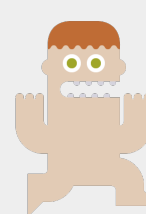
The story of AnyCable



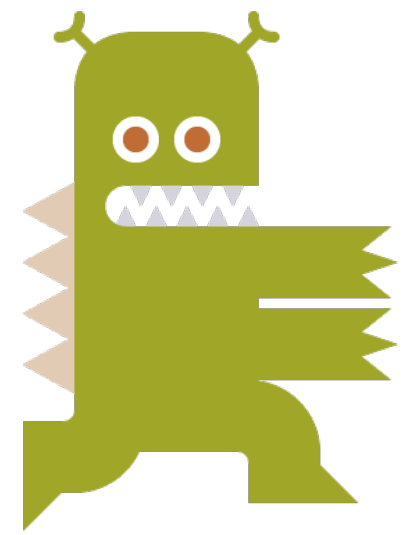
Vova Dementyev
Head of Backend



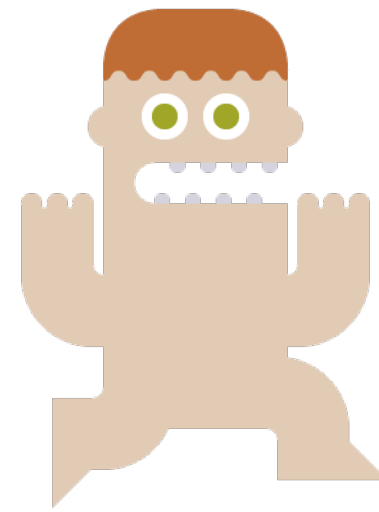
EVIL MARTIANS



Ira Nazarova
CEO



EVIL MARTIANS



📍 NY, CA, Portugal, Japan

Our customers:

🔧 Products for developers

🚆 Startups on Rails

⚡ Real-time and collaboration-heavy apps

🥚 Local-first apps

We do:

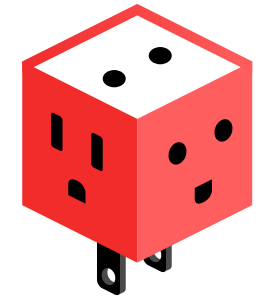
design developer products

build features and products

improve performance and scalability

build ecosystem and SDKS

If you are a startup on Rails, and you have a hard problem, come to us for help



AnyCable



PostCSS



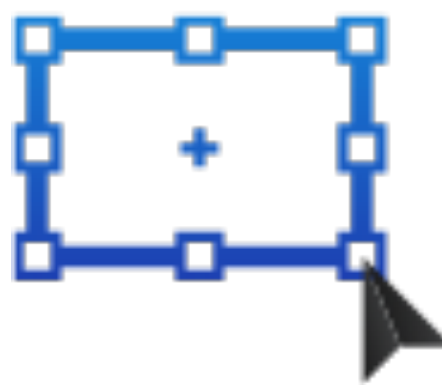
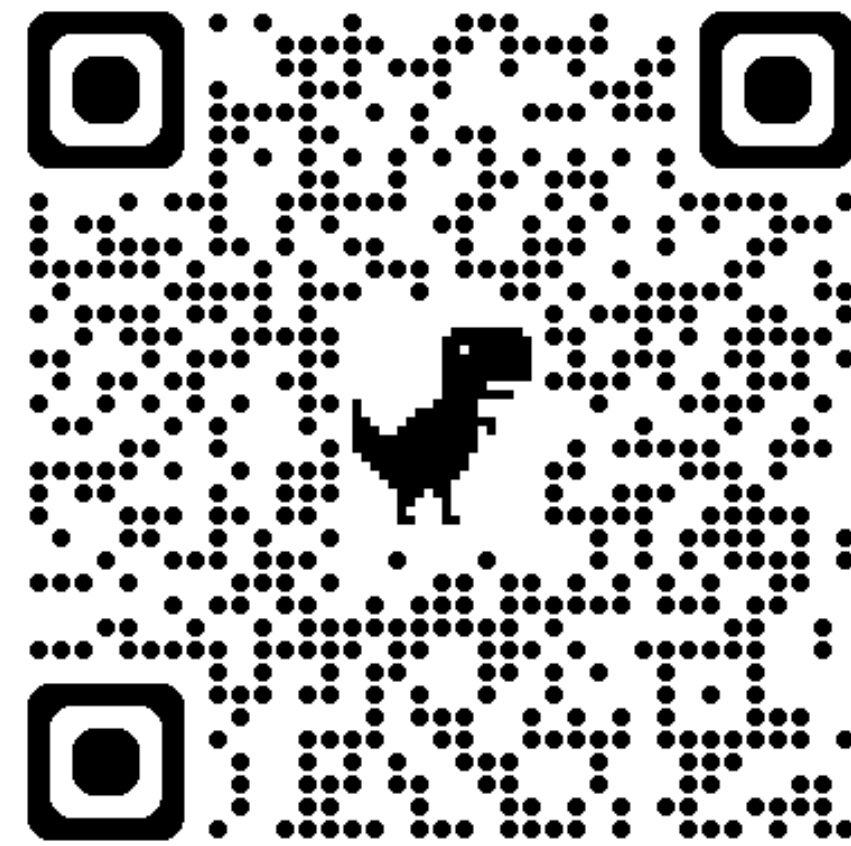
Yabeda



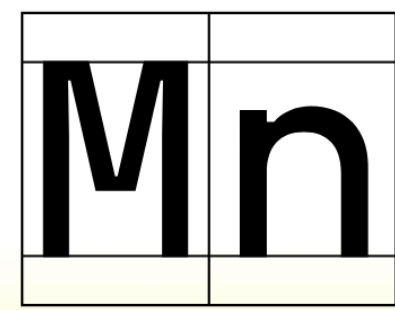
Action
Policy



LEFT
HOOK



imgproxy



evl.ms/railsstack

Running the SF Ruby meetup



**-where does
the story
begin?**

2015-2019

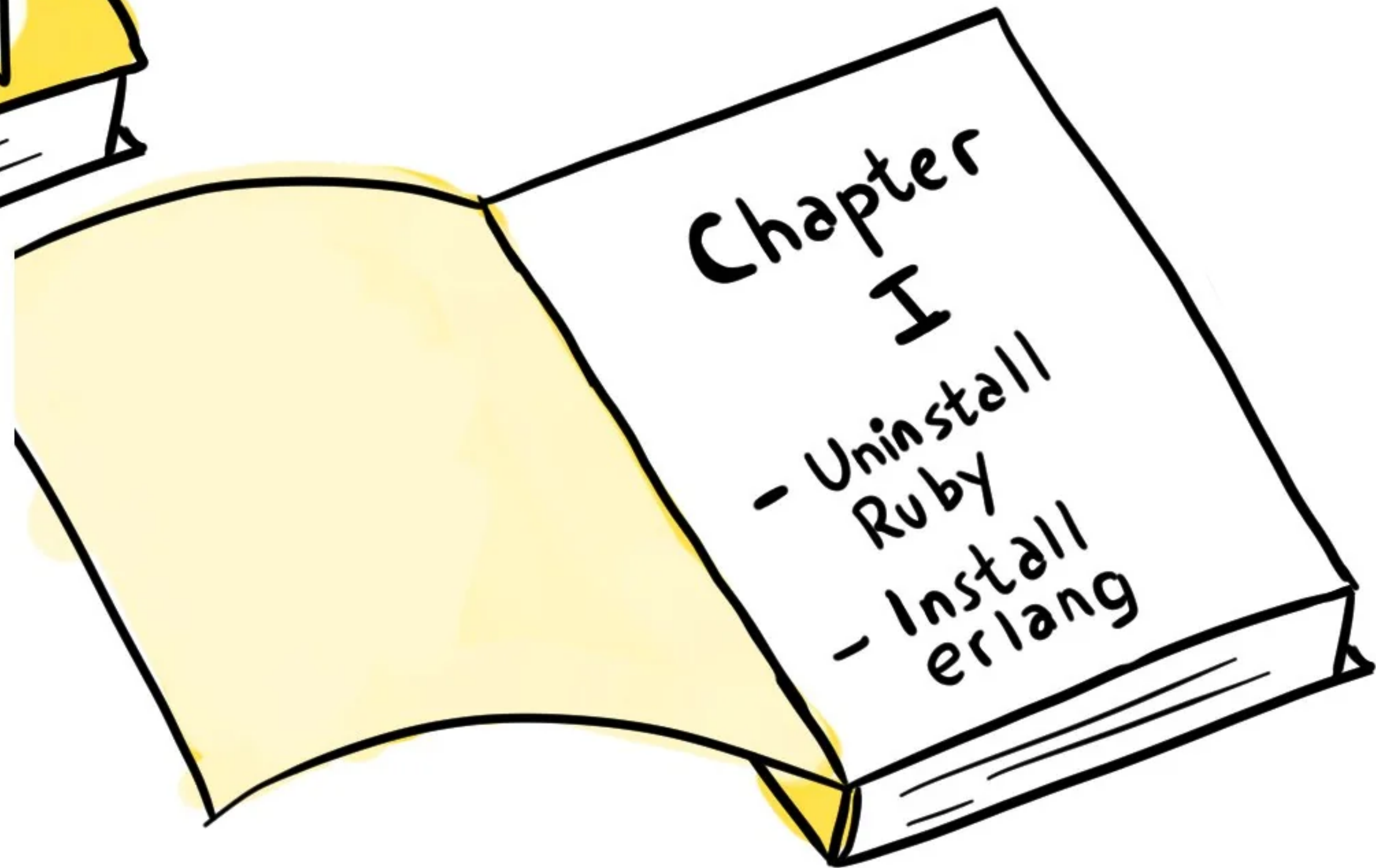
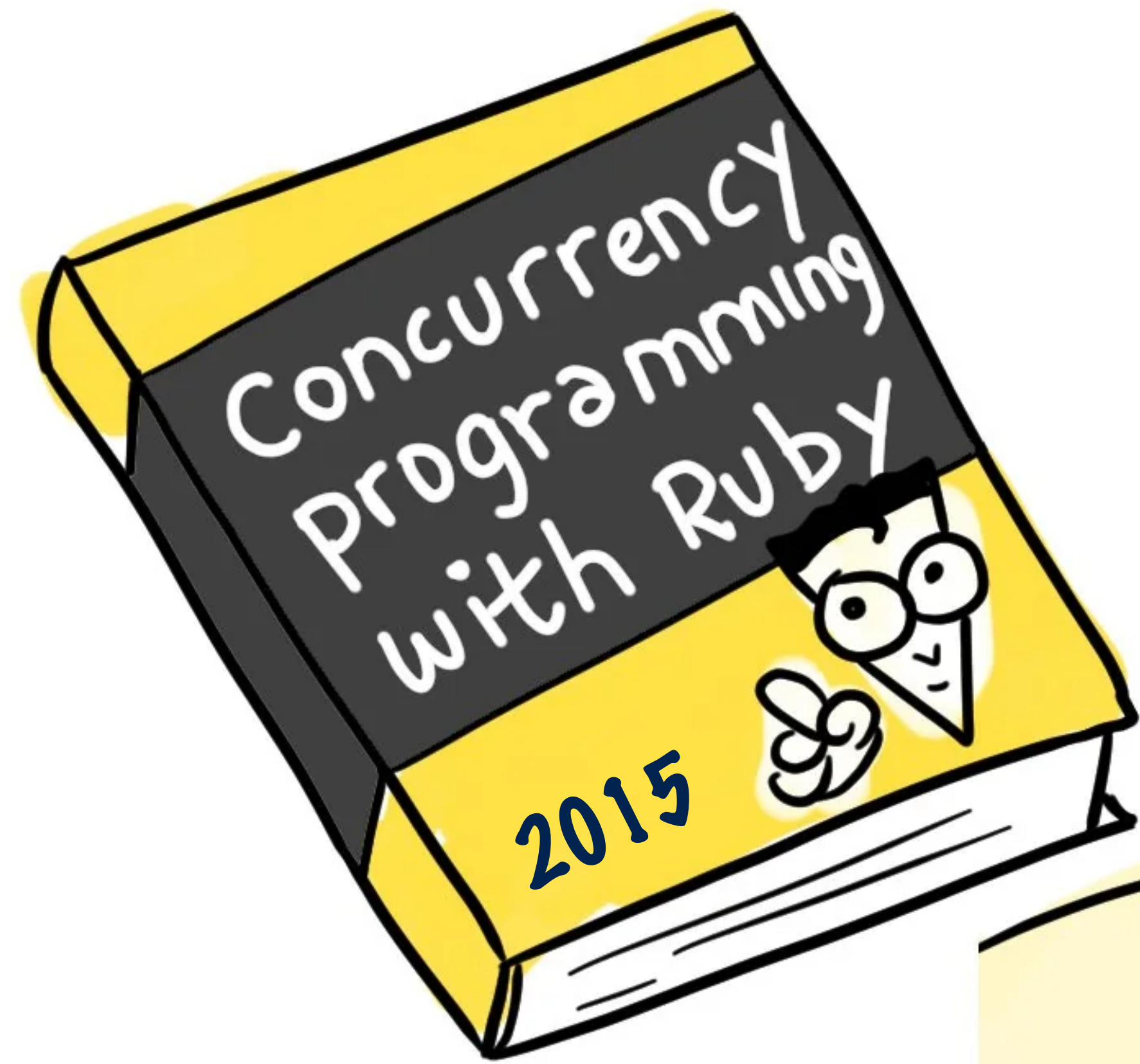
Rails 5 brings Action Cable

2015

- First-class built-in support for WebSockets

Phoenix—2014, Django—2016, Laravel—2024

- Chats, notifications, etc. w/o leaving the comfort zone of the framework



Vova brings AnyCable

2016

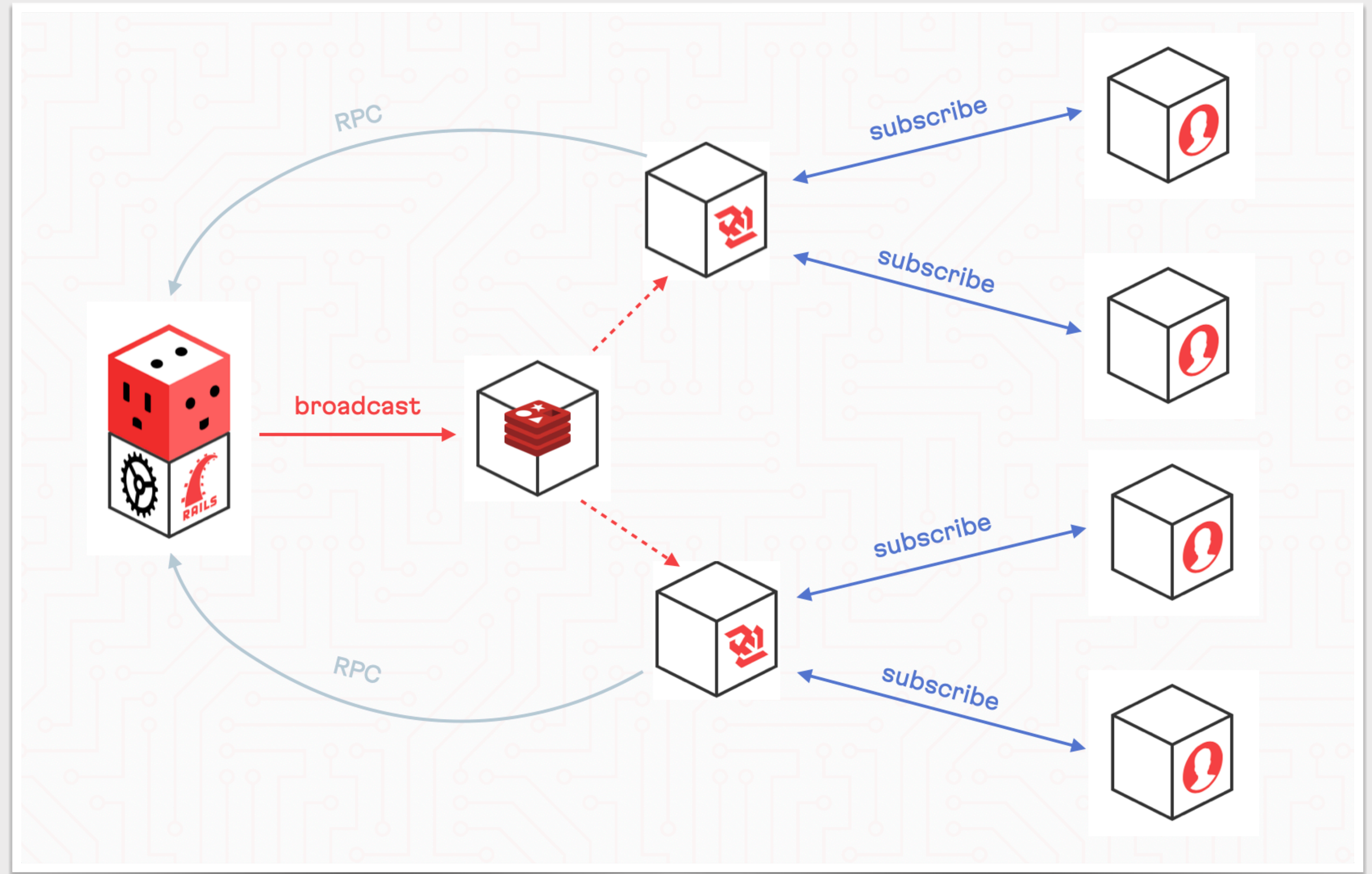
- ~~Erlang~~ Go server
- Redis for multi-node clusters
- Action Cable protocol
- Rails plug-in-play integration
- Open source



AnyCable in a nutshell

System of 3 components:

- WS server (Go)
- Rails with RPC
- Redis



Motto: "Performant WebSockets for Rails"

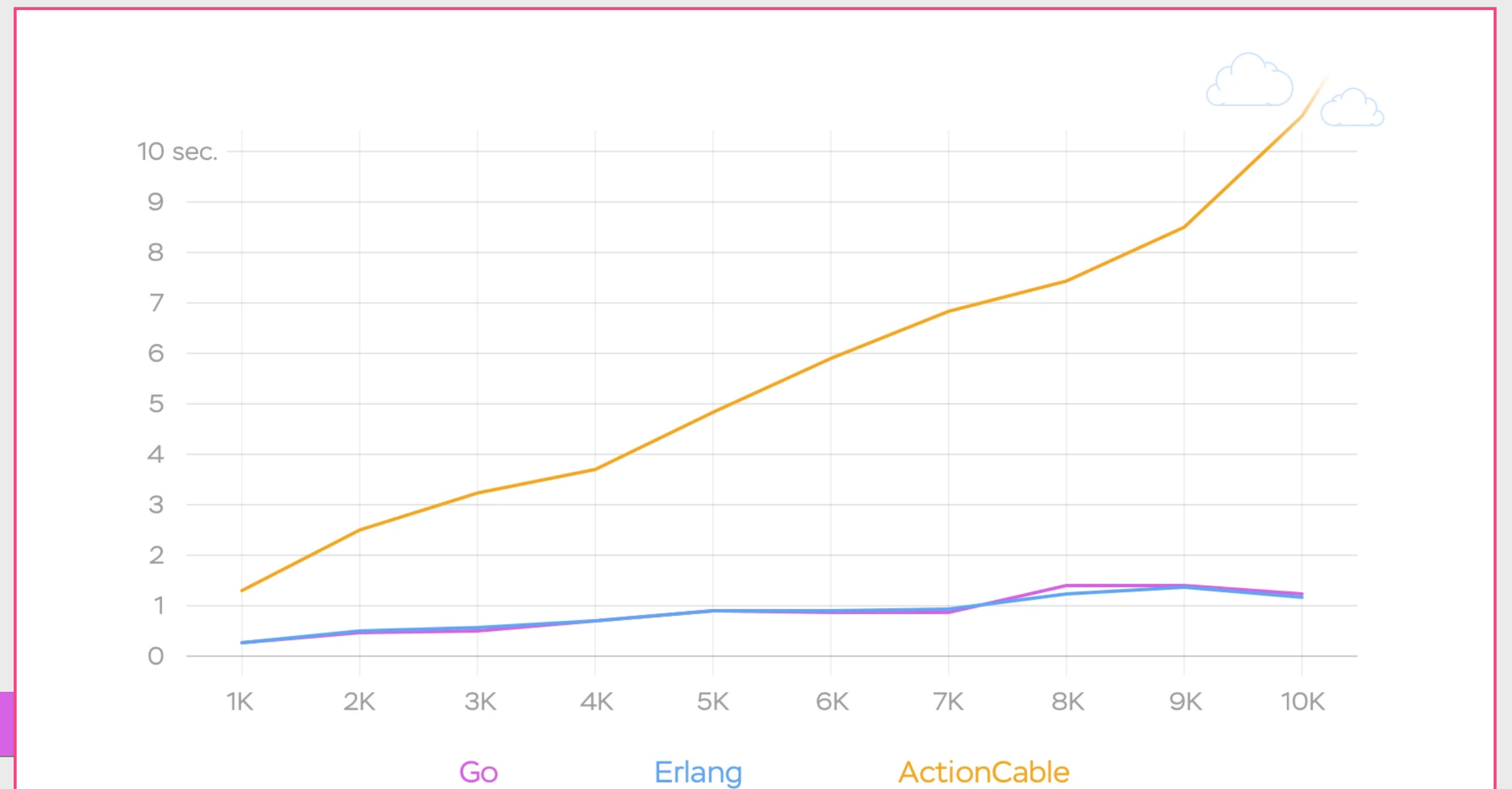
2016

- 10x less RAM usage
- Lower latency at scale



380 MB

Go

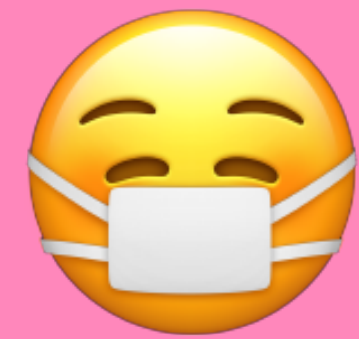


It aged well

WebSockets, caution no longer required!

- Action Cable said “You can build real-time features”
- AnyCable said “And you can scale them”

The only thing missing was...



2020-2021



Switch to all posts



- Home
- Livestream** LIVE
- Catch-up
- EXPO
 - Mastering Nuxt
 - Vue School
 - Vue.js for Companies
 - Jobs
 - Contest
 - Digital SWAG

When do you think is a good time to use the CAPI instead of the Object API?

Schedule

Day 1

6:00 PM Wed, 15th Sep 2021

6:00PM – 6:15PM
Opening



6:15PM – 6:45PM
Nuxt 3 Update



Be among the first to hear about how Nuxt 3 was created, what changes have been made and many more exciting things about the future of Nuxt is framework!

Share your thoughts

0/350

Post

- All
- Following
- My Faves

Joe @Poleski in less than a minute

When would you not use Nuxt?

Alban @AlbanMezino He/Him 1 minute ago

Brand Strategist. CEO at Mental Breakdown.

@atinux @danielroe @pi0

Q: Will vue lazy hydration / nuxt delay hydration be still useful w/ Vue 3 and Nuxt 3?

@sunilrana007 1 minute ago

For how long Nuxt is going to be free and open source?

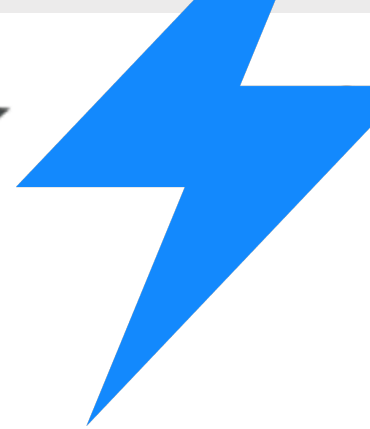
View replies 2

ushironoko @ushironoko 2 minutes ago

It was announced earlier that \$fetch has stale-while-revalidate like functionality. When will the details of this be available?



We got more consulting projects

notifications@typeform.com via [evilmartians.com](#) Apr 8, 2021, 2:35 PM ☆ 

to anycable ▾

- **Your name and title**
Eric Simons, CEO
- **Your company and product**
StackBlitz.com, an online IDE for web development
- **What you want help with**
We're looking to implement real-time code editing on our site and AnyCable looks promising. Our stack is Rails based, and we also have on-prem enterprise customers as well so we can use hosted options like Firebase/etc.

We're interested in learning more about your contracting/consulting options for this.

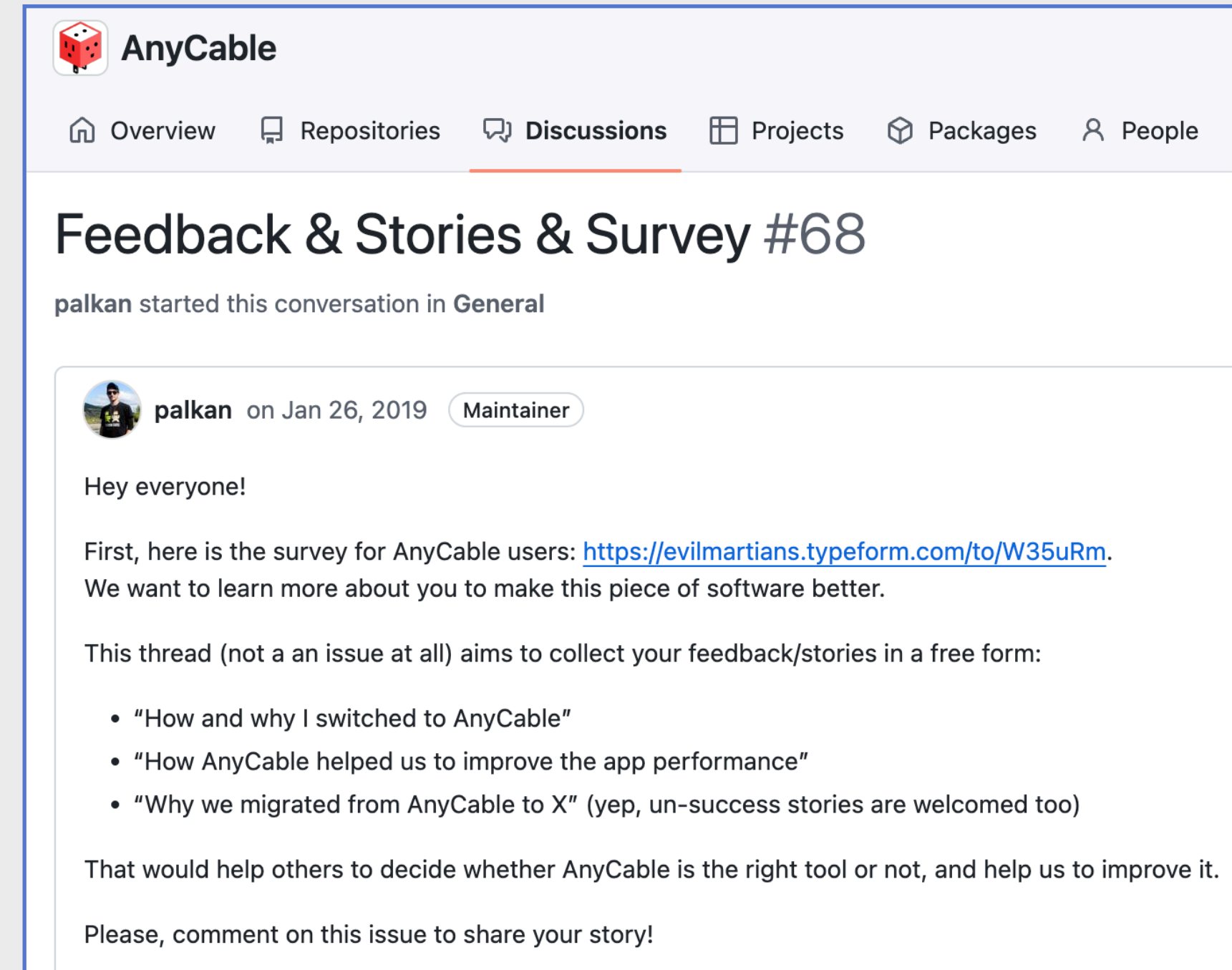
StackBlitz

Stackblitz has been our consulting customer since

Pre Pro era

Consulting gigs

- Working closely with AnyCable users helped us to better understand **our powers** and **their needs**



The screenshot shows a GitHub discussion for the AnyCable project. The discussion is titled "Feedback & Stories & Survey #68" and was started by user "palkan" in the "General" channel on January 26, 2019. The user is identified as a "Maintainer". The message content includes a greeting, a link to a survey, and a list of topics for feedback.

AnyCable

Overview Repositories Discussions Projects Packages People

Feedback & Stories & Survey #68

palkan started this conversation in General

palkan on Jan 26, 2019 **Maintainer**

Hey everyone!

First, here is the survey for AnyCable users: <https://evilmartians.typeform.com/to/W35uRm>. We want to learn more about you to make this piece of software better.

This thread (not a an issue at all) aims to collect your feedback/stories in a free form:

- "How and why I switched to AnyCable"
- "How AnyCable helped us to improve the app performance"
- "Why we migrated from AnyCable to X" (yep, un-success stories are welcomed too)

That would help others to decide whether AnyCable is the right tool or not, and help us to improve it.

Please, comment on this issue to share your story!

Pre Pro era

Consulting gigs

- Working closely with AnyCable users helped us to better understand **our powers** and **their needs**
- We learned use cases and industries: GPS tracking, virtual events, edtech, devtools



Pre Pro era

Consulting gigs

- Working closely with AnyCable users helped us to better understand **our powers** and **their needs**
- We learned use cases and industries: GPS tracking, virtual events, edtech, devtools
- As a result, we launched the first major version 1.0!



AnyCable learnings

Architecture vs. scaling

Realtime requests should be **serviced and scaled** independently from HTTP requests





Imagine your server as a phone line:

☎ HTTP requests are like brief phone calls: you dial, get information, and hang up.

🌐 WebSocket connections are like the dial-up modem

If the two are competing, WebSockets win all resources they need—as seen by our customers

Realtime requests should be **serviced and scaled** independently from HTTP requests



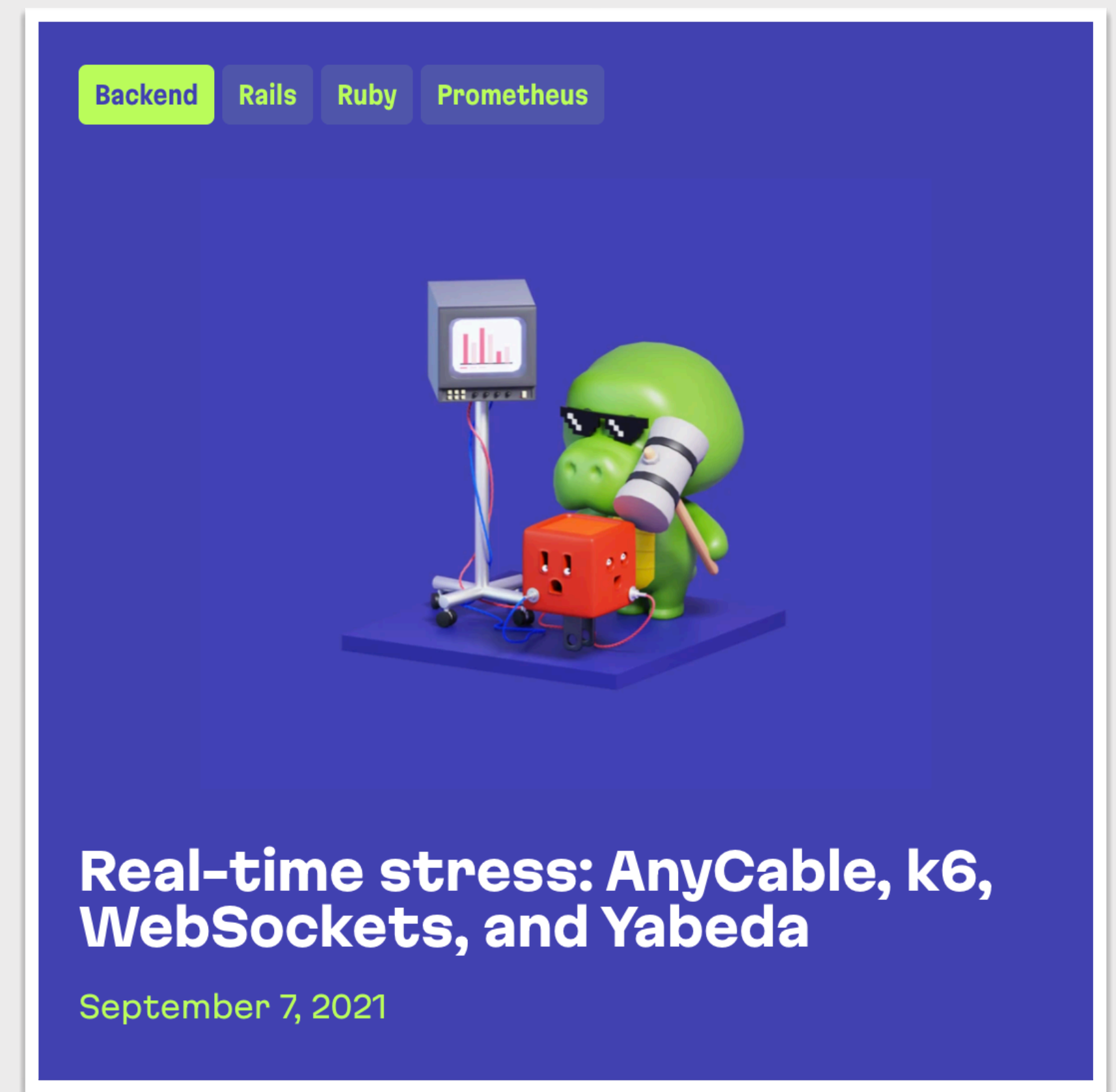
AnyCable learnings

Ecosystem matters

Big apps with scale reached out.

For them, we needed tools:

- xk6-cable for load testing
- wsdirector for scenario-based system tests



AnyCable next

What people wanted

- GraphQL subscriptions
- Long-polling
- Voice applications (Twilio Media Streams)



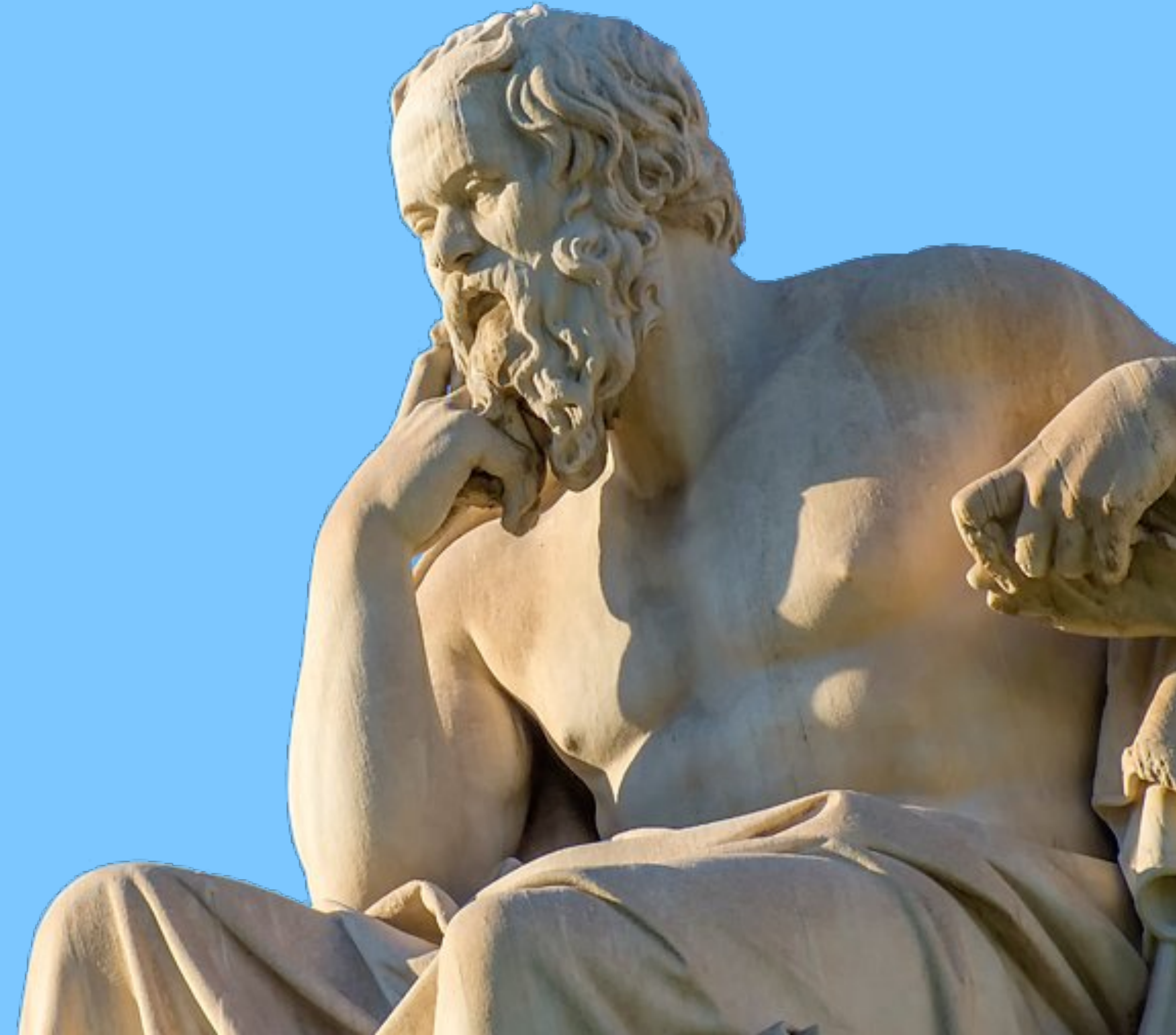
Build it

Why build something?

🧐 Learn

🤝 Connect

🎨 Make the world better



Why **not** build something?

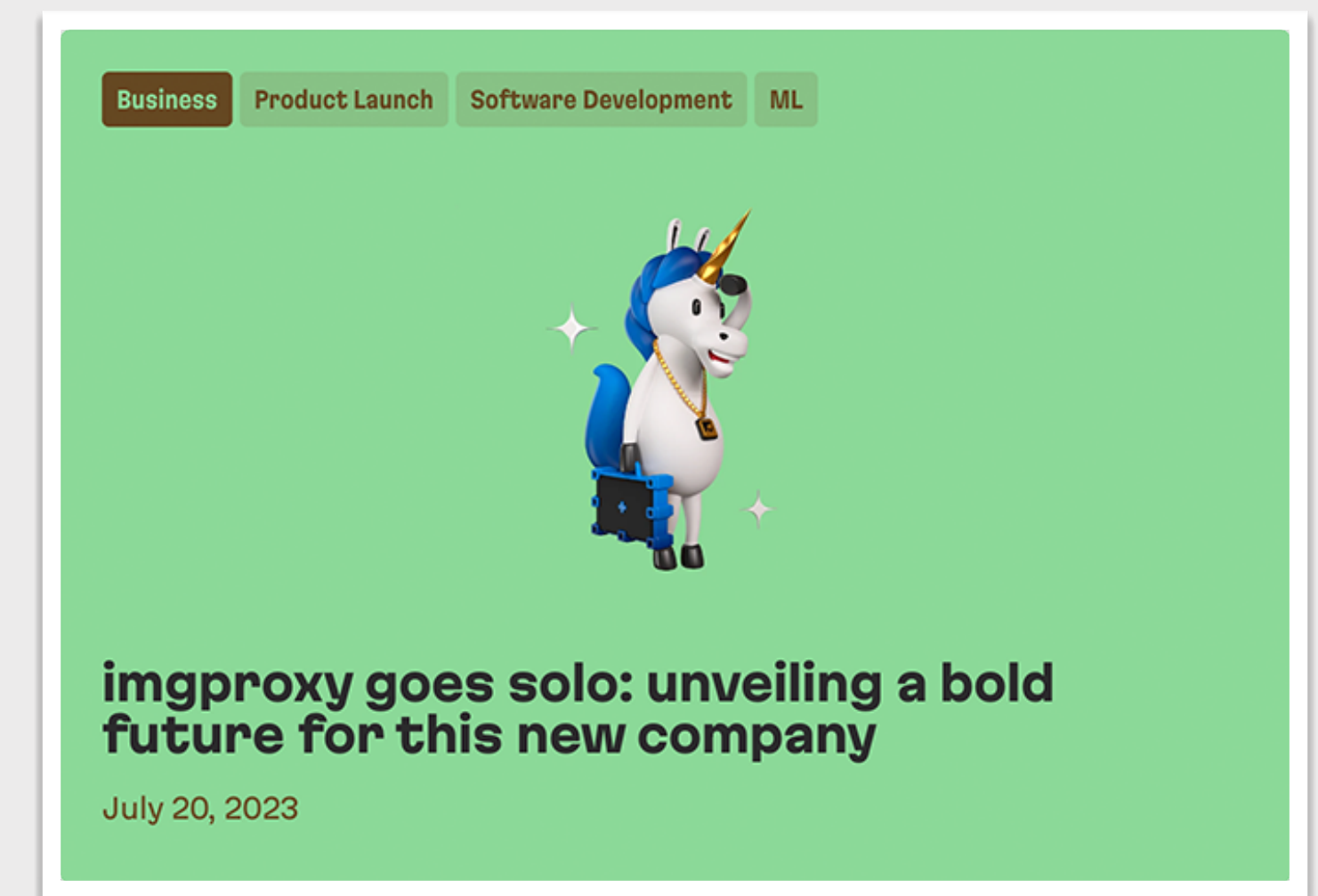
- 🎮 Be in control
- 🖨️ Copy someone's success
- 💰 Get rich fast
- 😞 Prove them wrong

These goals are short-lived and won't lead anywhere



Startups at Evil Martians

- Evil Martians can invest in an internal startup (mostly, team's time), and the process is transparent
- when the startup raises external capital, EM gets a share the new company, based on the valuation with a fixed discount
- project founders remain the majority owners
- it worked with **imgproxy** and CanFy



“ Acquiring CanFY and the platform their team has built allows us to quickly and continuously deliver AI-driven innovations to empower creative professionals worldwide.



Jessica Ko
CEO and Co-Founder of Playbook

PLAY
BOOK 

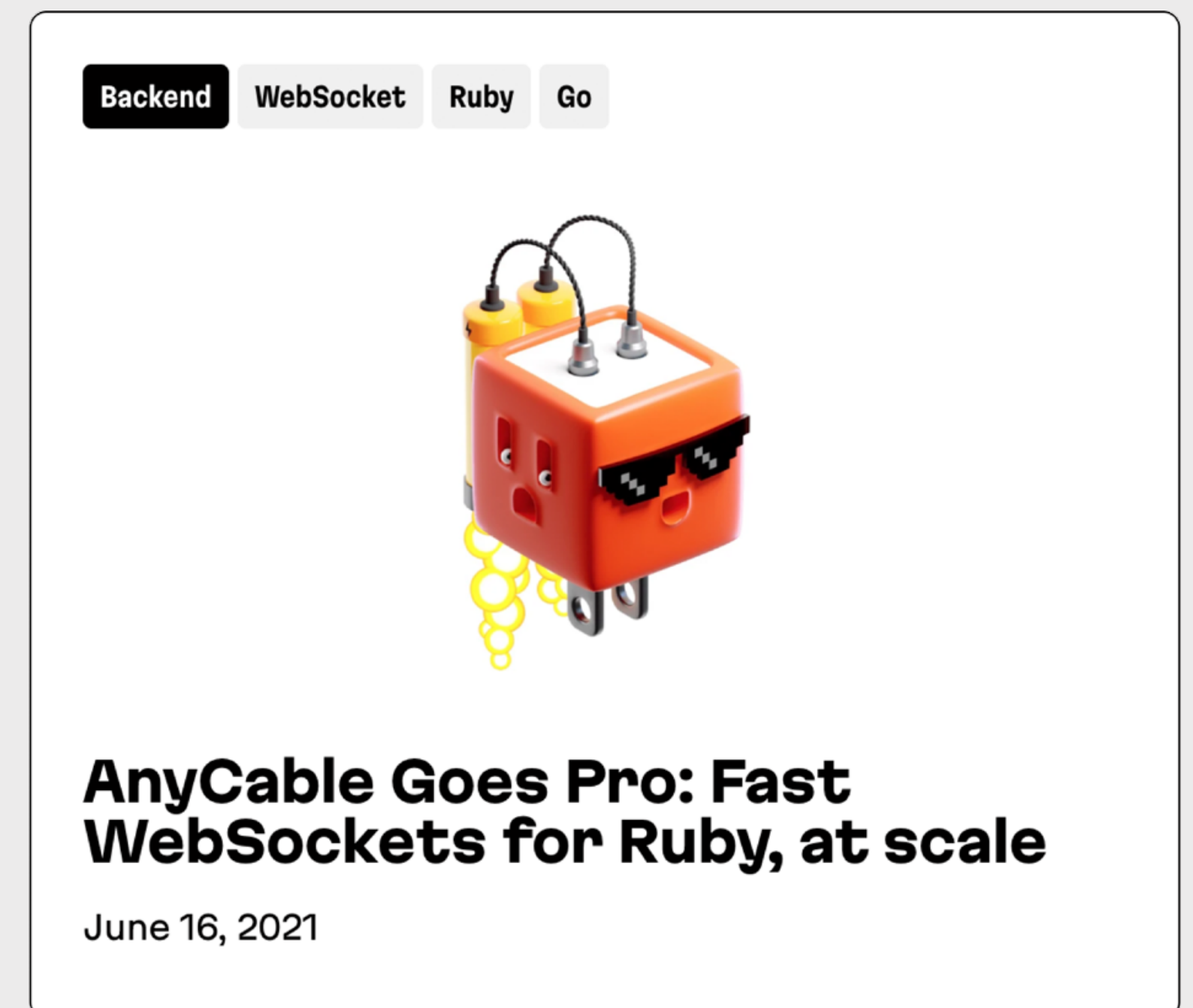
2021 launching the Pro

Key Pro feature:
30-50% RAM savings (vs. OSS)

Binary compression

Apollo GraphQL integration

Priority support




2021 launching the Pro

Keep it simple!

- GitHub Container Registry
- \$990 per year flat price
- EULA
- Typeform for signups
- Manual emails, calls, invoices
- No “license server”

Backend WebSocket Ruby Go



AnyCable Goes Pro: Fast WebSockets for Ruby, at scale

June 16, 2021

Which features
are open-source,
and which are Pro?

Open-source a communal garden



Commercial Pro a professional farm

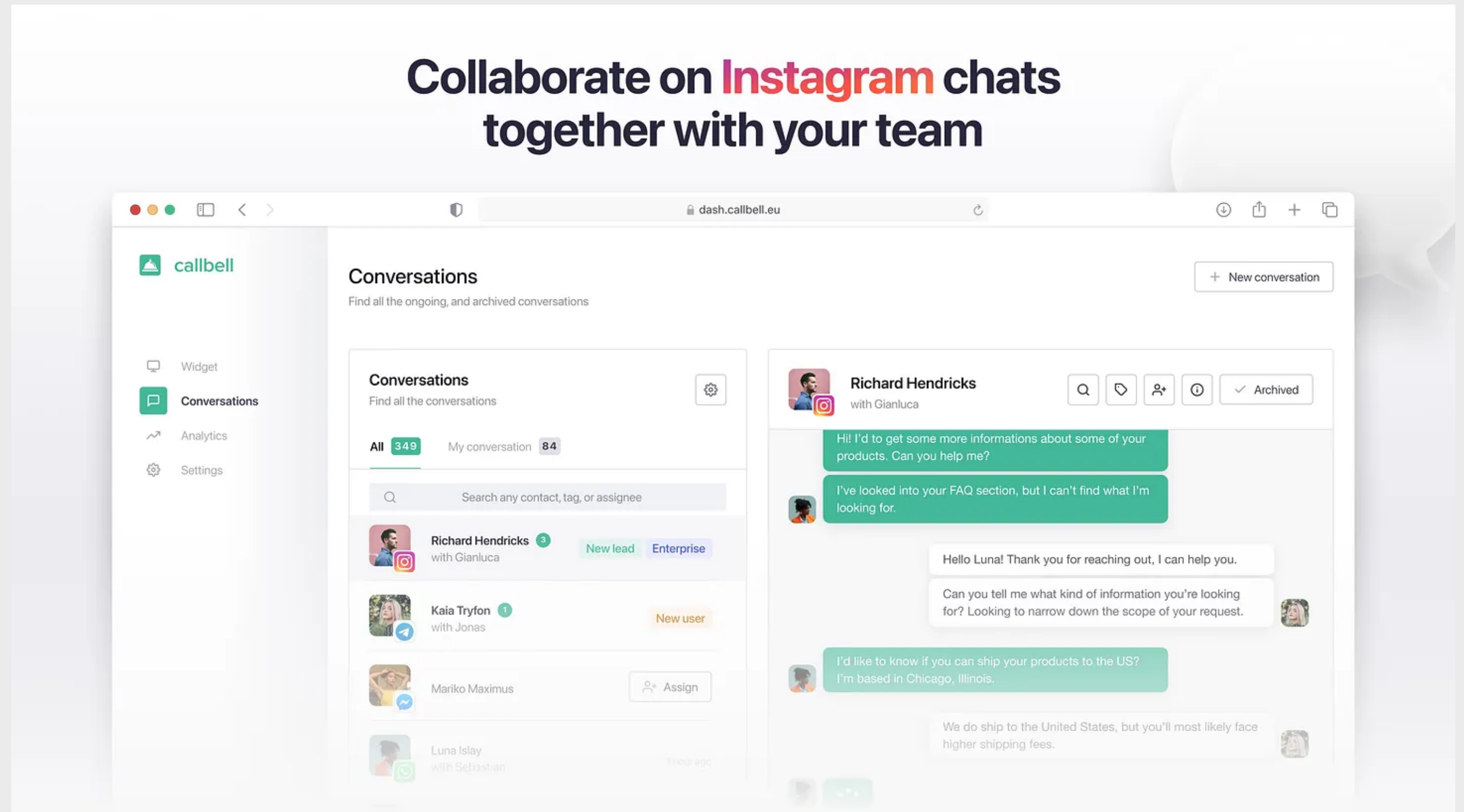


💡 Pro: value-added features for larger use cases—cluster mode, high load, enterprises

🇫🇷 Callbell.eu, our first Pro customer ❤️

For Callbell low latency is crucial

Callbell is 🔥



Shared inbox for support: WhatsApp, Messenger, Instagram, and Telegram

💡 Unexpectedly, paying customers turned out to be **a lot more engaging** and responsive than users of open-source



Today AnyCable is the critical infrastructure powering some of the largest Rails apps

 **doximity** communication platform used by 80% of US doctors

 **click funnels** marketing SaaS with \$160M+ revenue

\$3B legal services SaaS

Leading American transit SaaS

Malaysia's Leading EV Charging Company

**-didn't we jump
ahead?**

2021-2024

2021

Released the client library:

- TypeScript support
- works with any JS runtime: React Native, Ionic, etc.



2021

Pushing backend-rendered templates over WebSocket to all connected clients



2021

We wanted to do something extra

- ✓ Standalone mode for apps only using WS for Hotwire:
 - no RPC server
 - only 2 components out of 3

SEPTEMBER 2021

AnyCable v1.2: JWT identification and "hot streams"

Powering-up efficient Hotwire frontend by moving more functions from Ruby to Go.

SEP 29, 2021 • ANYCABLE

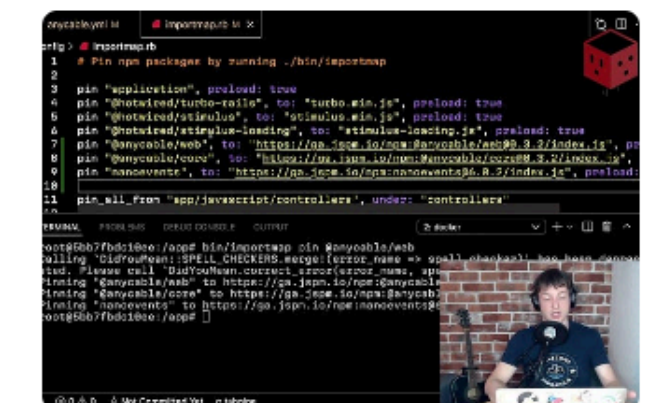


DECEMBER 2021

Exploring Rails 7, Hotwire and AnyCable speedy streams

Video

DEC 22, 2021 • ANYCABLE



2021 results

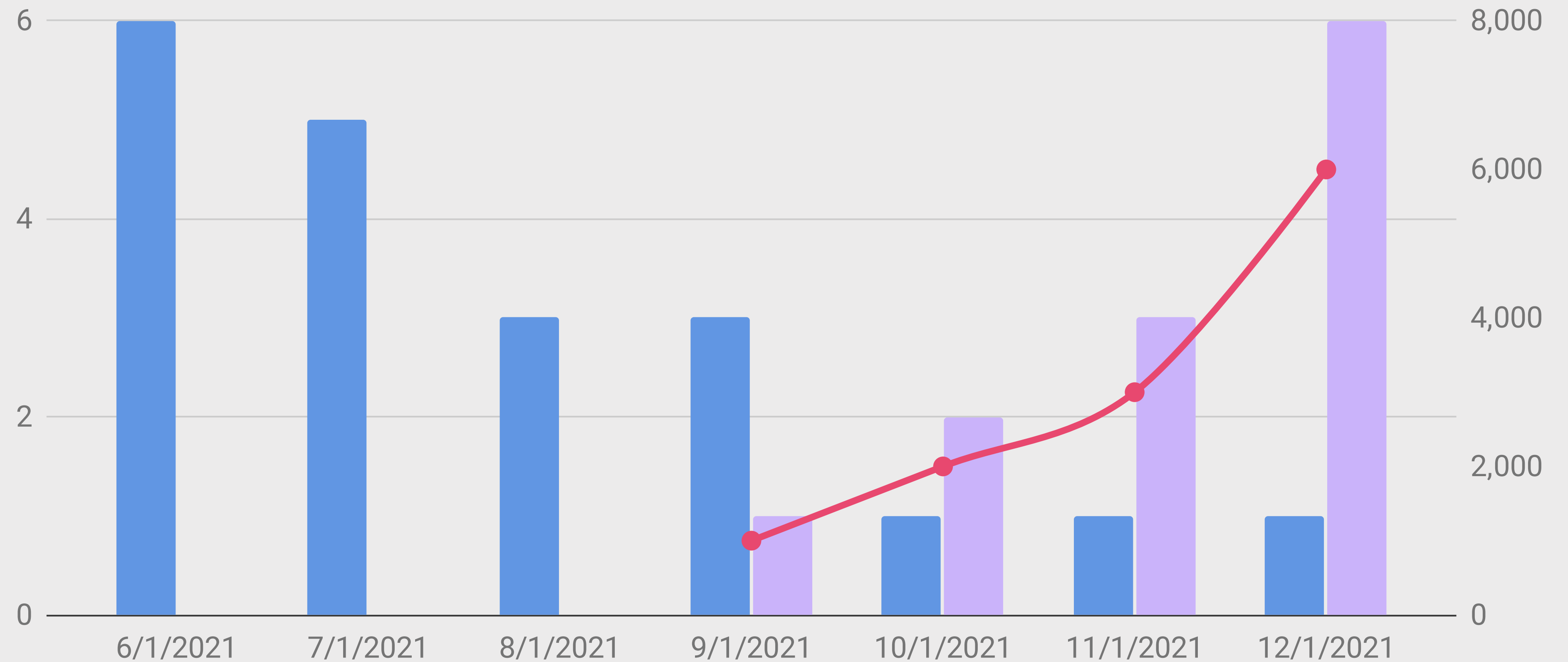
■ New free trials ■ Paying customers ● ARR, \$

Trials: 20

Paying customers: 6

End-year ARR: \$6k

Consulting revenue: \$320k



💡 The results were not stellar, so we had to focus on other things...

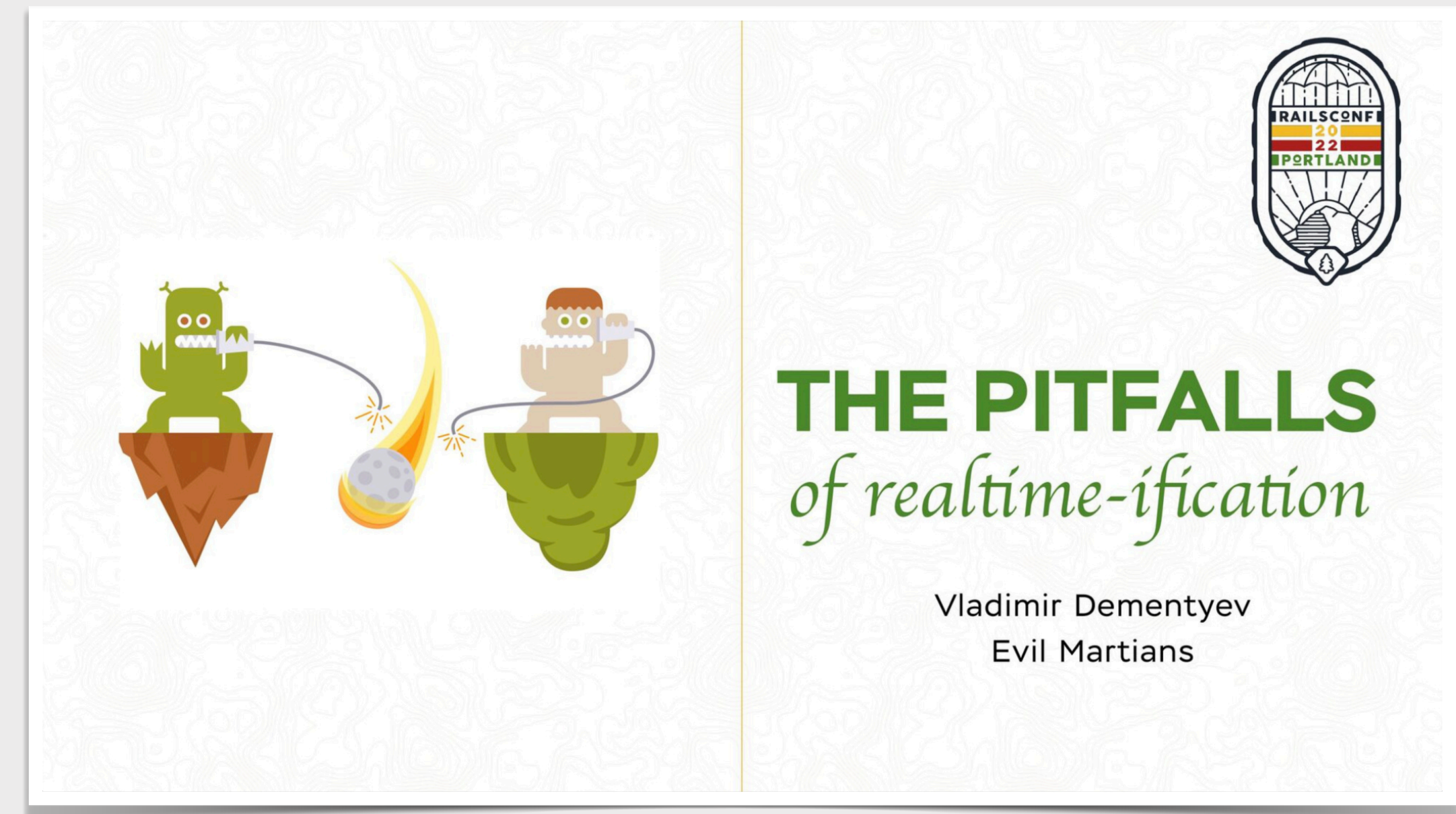
2022

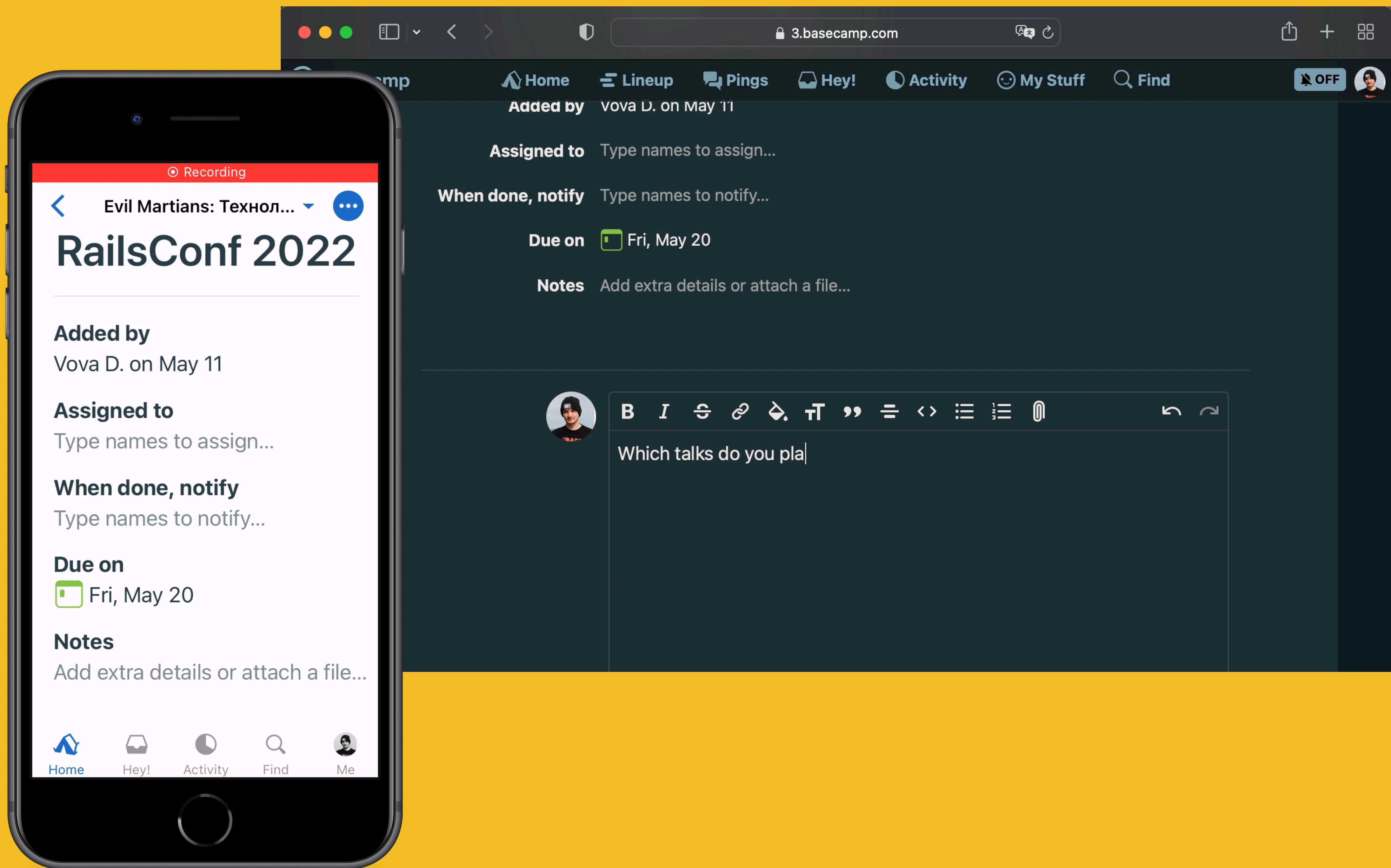
Marketing all-in

RailsConf 2022 “The pitfalls of realtime-ification”

Recorded screencasts

Launched newsletter





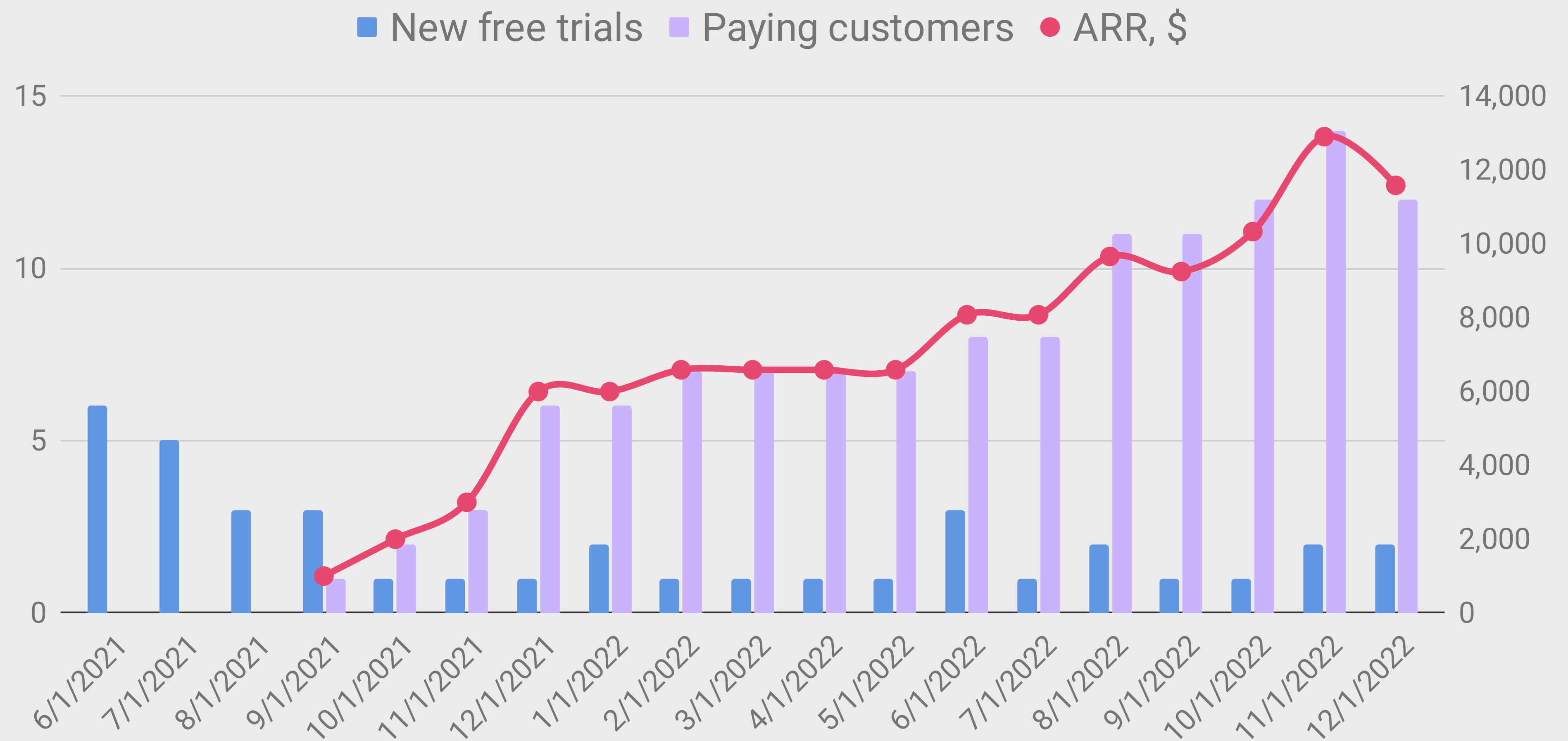
2022 results

Trials: 18

Paying customers: 14

End-year ARR: \$12k

Consulting revenue: \$1M 🎉



💡 With \$1M consulting revenue per year, AnyCable became vital for Evil Martians...

...but the product itself didn't
sky-rocket—marketing is not
enough 🤔

2023

The paradigm shift

Move focus from performance to features and DX:

- Reliable communication
- Simplified infra
- More protocols (Twilio Media Streams, OCPP)
- SSE support

Backend Software Development Rails Hotwire WebSocket



Enter AnyCable v1.4: reliable real-time features for apps of any size

July 14, 2023

Exactly-once delivery in WebSockets with AnyCable

- Exactly-once delivery of real-time data
- Resume WS sessions automatically on deployments (Pro)

Backend

Software Development

Rails

Hotwire

WebSocket



Enter AnyCable v1.4: reliable real-time features for apps of any size

July 14, 2023

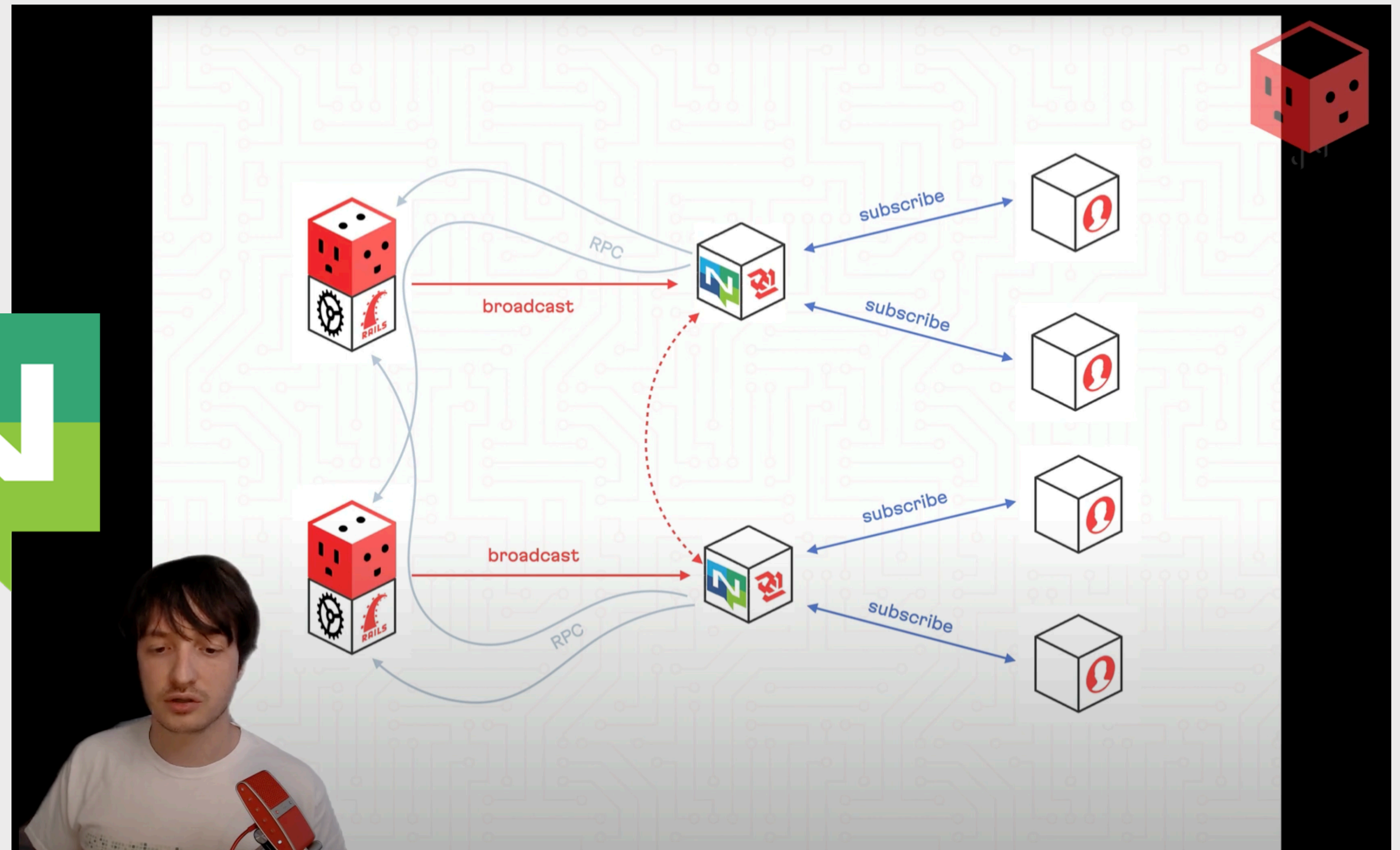
💡 We now recommend
using AnyCable from day 1
for reliable delivery

Simplified setup with NATS

We added embedded NATS to **replace Redis** for multi-region deployments for Fly.io

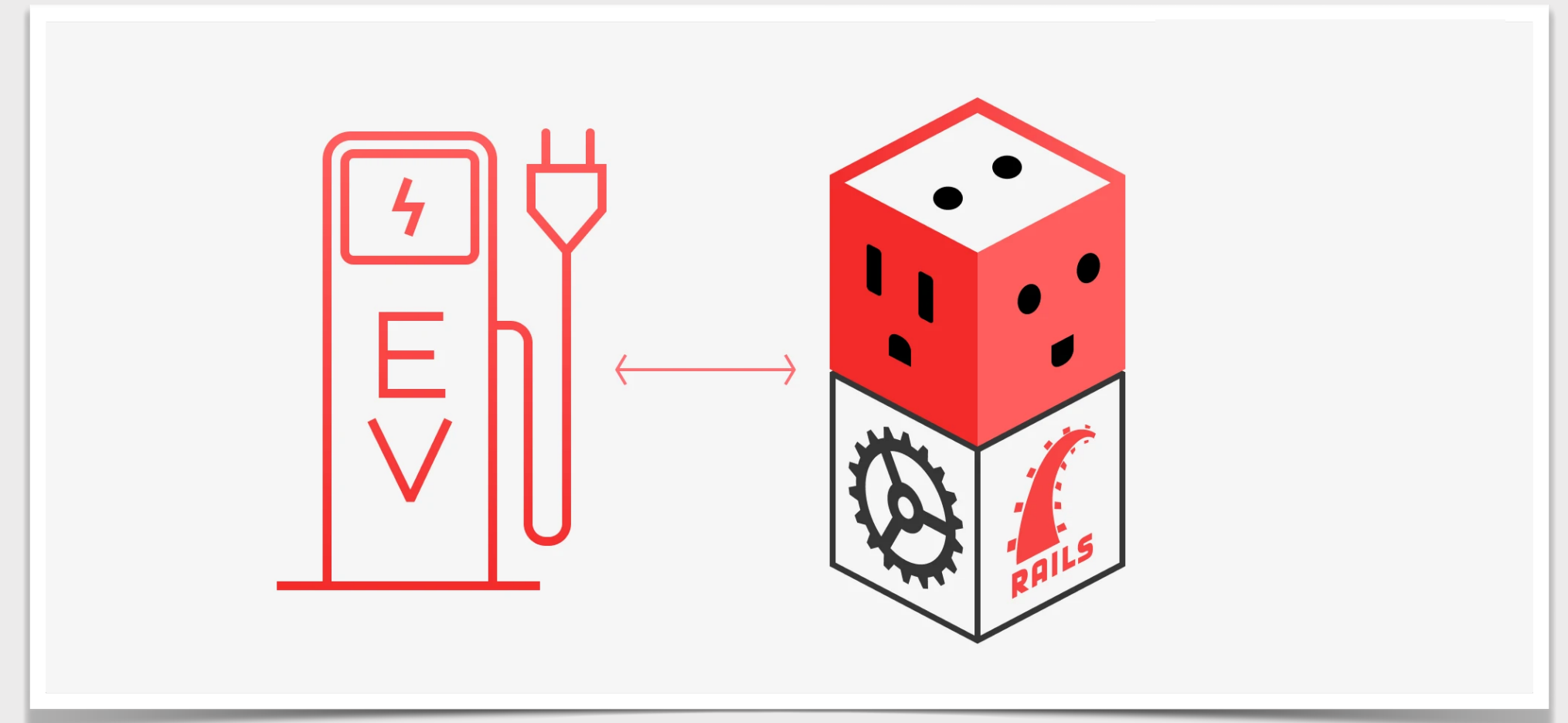


Fly.io



EV-charging protocol support

Use AnyCable to monitor and operate charging stations in real time



docs.anycable.io/anycable-go/ocpp

Customer: Malaysia's leading EV charging provider

Testing: UK's leading EV charging provider

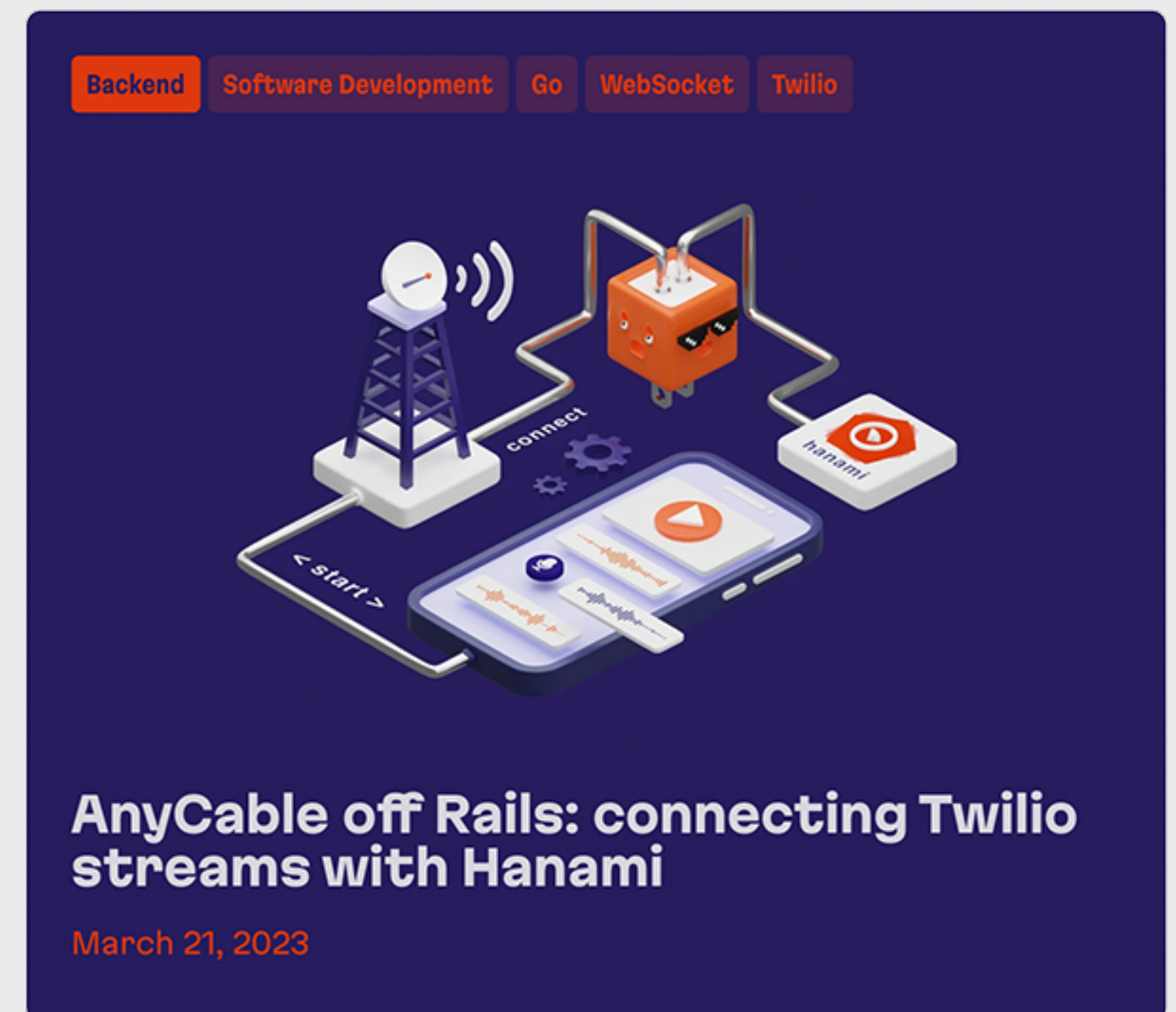
Voice apps

Twilio media streams support

AnyCable:

- Gets a WS voice stream from Twilio
- Sends chunks it to real-time speech-to-text API
- (Proxies other processing steps)
- Notifies Rails

 github.com/anycable/anycable-go-scaffold




Server-sent events

LLMs' native realtime transport

- Safari finally got support
- LLMs (ChatGPT) popularized SSE for response streaming
- Use AnyCable for LLM streaming over WS or SSE

Summary

URL: <https://chat.openai.com/backend-api/conversation>
Status: 200 OK
Source: Network
Initiator: [_app-3f58daded002d67d.js:14:124791](#) 

Request

Content-Type: application/json
Authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCIsImtpZCI6Ikp1UaEVOVUpH'UiOnsiZW1haWwiOiJvYmV5QGV2aWxtYXJ0aWFucy5jb20iLCJlbWFpbF92ZXJpZmlZljoiaHR0cHM6Ly9hdXRoMC5vcGVuYWkuY29tLyIsInN1Yil6ImF1dGgwfdDY0MTk5YTljO LmNvbS91c2VyaW5mbyJdLCJpYXQiOiJlE2ODI4MDg5MDAsImV4cCI6MTY4NDAxODUu WQgbW9kZWwucmVxdWVzdCBvcmdhbml6YXRpb24ucmVhZCBvZmZsaW51X2FjY2V uRiaTUUJpmOTsFj4vJnEzj0T1eKNaZOn4row9fiqu_4_QPaLiP-RLFSrNRAvyU_B6Lz5M3 yay30xvC9zOTtaB1JGlYlaFYiSG2S9kqfJp3GnCaCfcZlJpDxDxNF1hAQ
Accept: text/event-stream
Referer: <https://chat.openai.com/>
Origin: <https://chat.openai.com>
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/605.1.15 (KH

AnyCable over SSE

No libs attached

```
const source = new EventSource("http://localhost:8080/events?  
channel=ChatChannel");  
source.addEventListener("message", (e) => {  
  console.log(JSON.parse(e.data));  
});
```

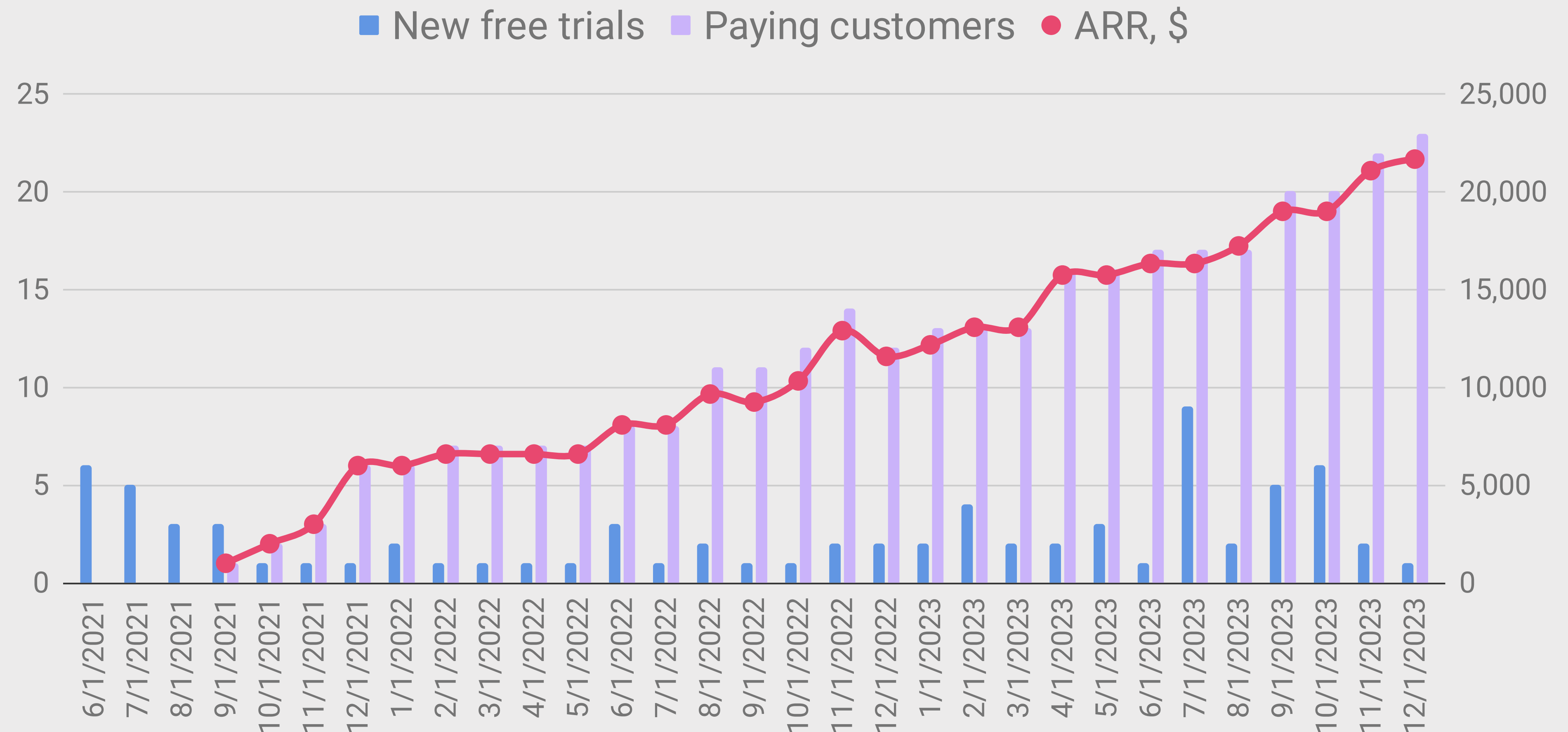
2023 results

Trials: 39

Paying customers: 23

End-year ARR: \$21k

Consulting revenue: \$1M



2024

The even bigger paradigm shift


Go beyond Ruby and Rails:

- Serverless JS and other vercel
- Universal pub/sub interface (no channels attached)
- Managed AnyCable

Vercel Template

Vercel Products Solutions Resources Enterprise Docs Pricing Log In Contact Sign Up

← Back to Templates

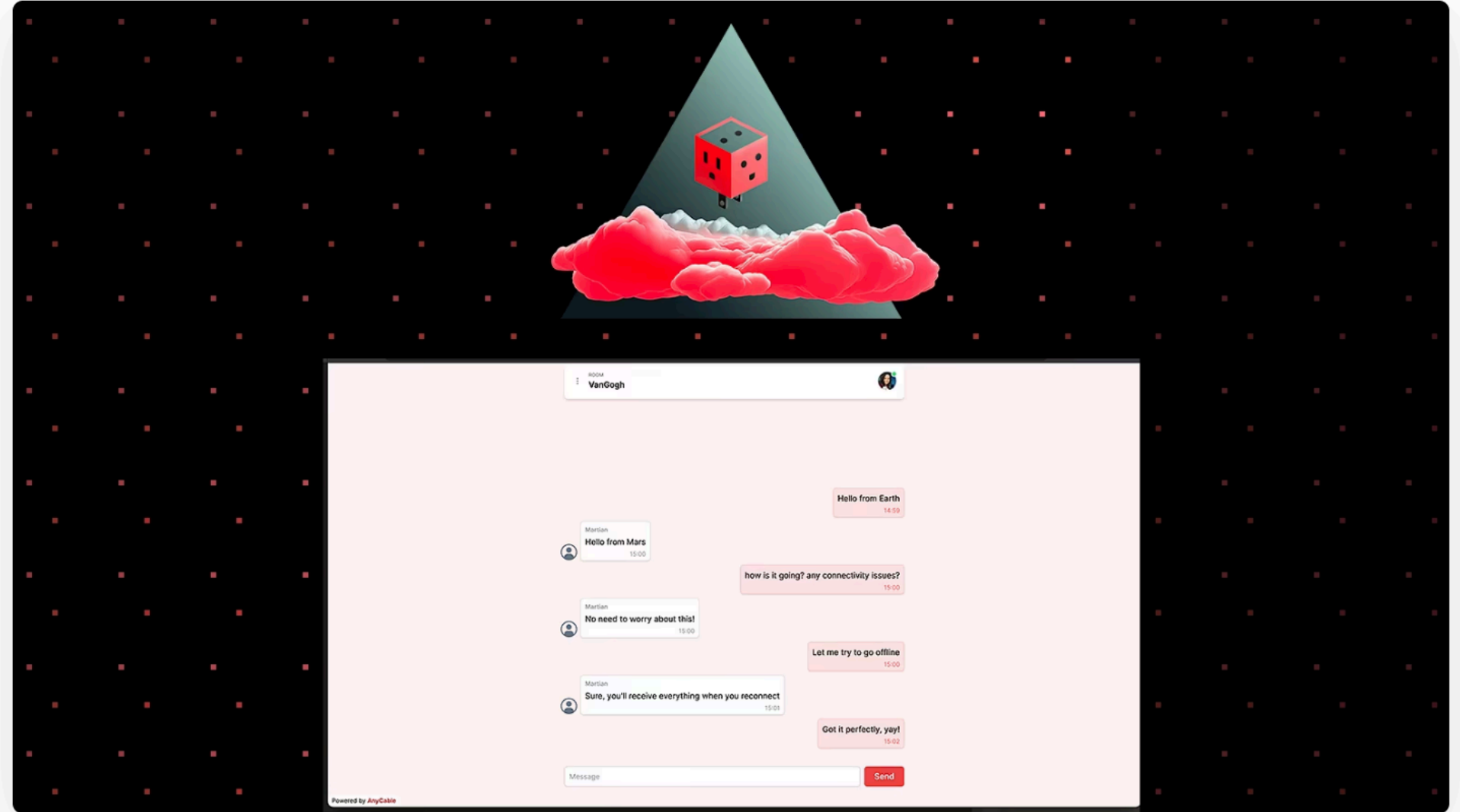
 anycable/vercel-anycable-demo

AnyCable Real-time Starter Kit

AnyCable/Next.js chat application demonstrating how to build real-time features, with all benefits of open-source. No PaaS bills.

[Deploy](#) [View Demo](#)

Framework	Next.js
Use Case	Realtime Apps
CSS	Tailwind



AnyCable Next.js/Vercel Example

This is an example of how to use [AnyCable](#) with [Next.js](#) and [Vercel](#) to build real-time applications.

Learn more about AnyCable for serverless JavaScript apps in [the documentation](#).

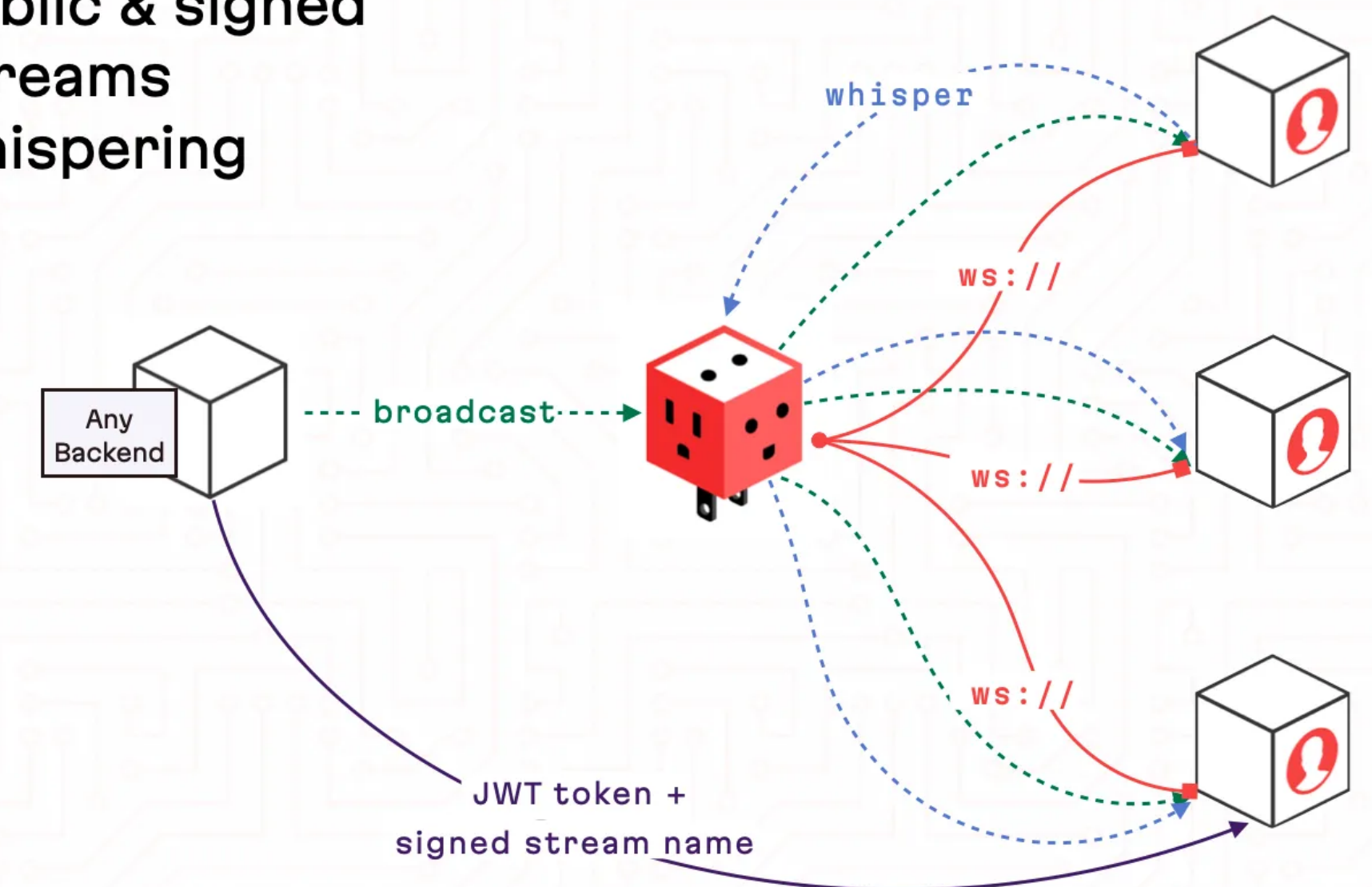
Simplified pub/sub

AnyCable as one component

- No RPC component required
- Only 1 component out of 3
- Whispering support (client-to-client broadcasting)

AnyCable v1.5

- public & signed streams
- whispering



What to whisper



AnyCable^{v1.5}

Realtime server for reliable two-way communication.

Comes in different flavors: open source, managed, on-premise Pro.
Plays nice with Rails, JavaScript/TypeScript, and **any** backend.

Start a **free trial** of SaaS, or on premise Pro

[Sign up](#)

[Learn more about AnyCable](#)

But what about Managed AnyCable?

What's the most efficient way to build a **managed service**? 🤔



We launched Managed AnyCable

in Alpha

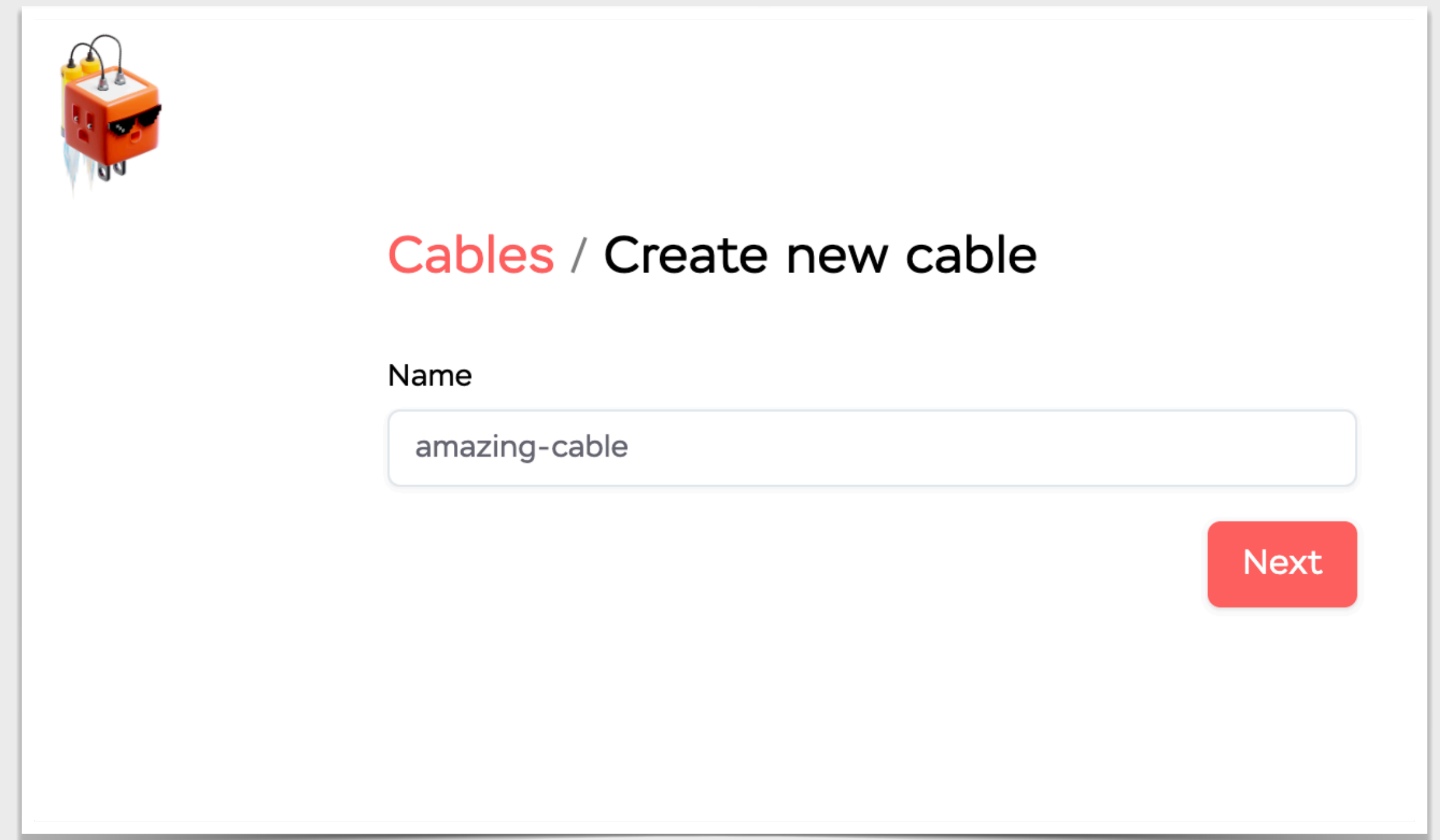
 plus.anycable.io




Action
Policy



 go.anycable.io/gemfile



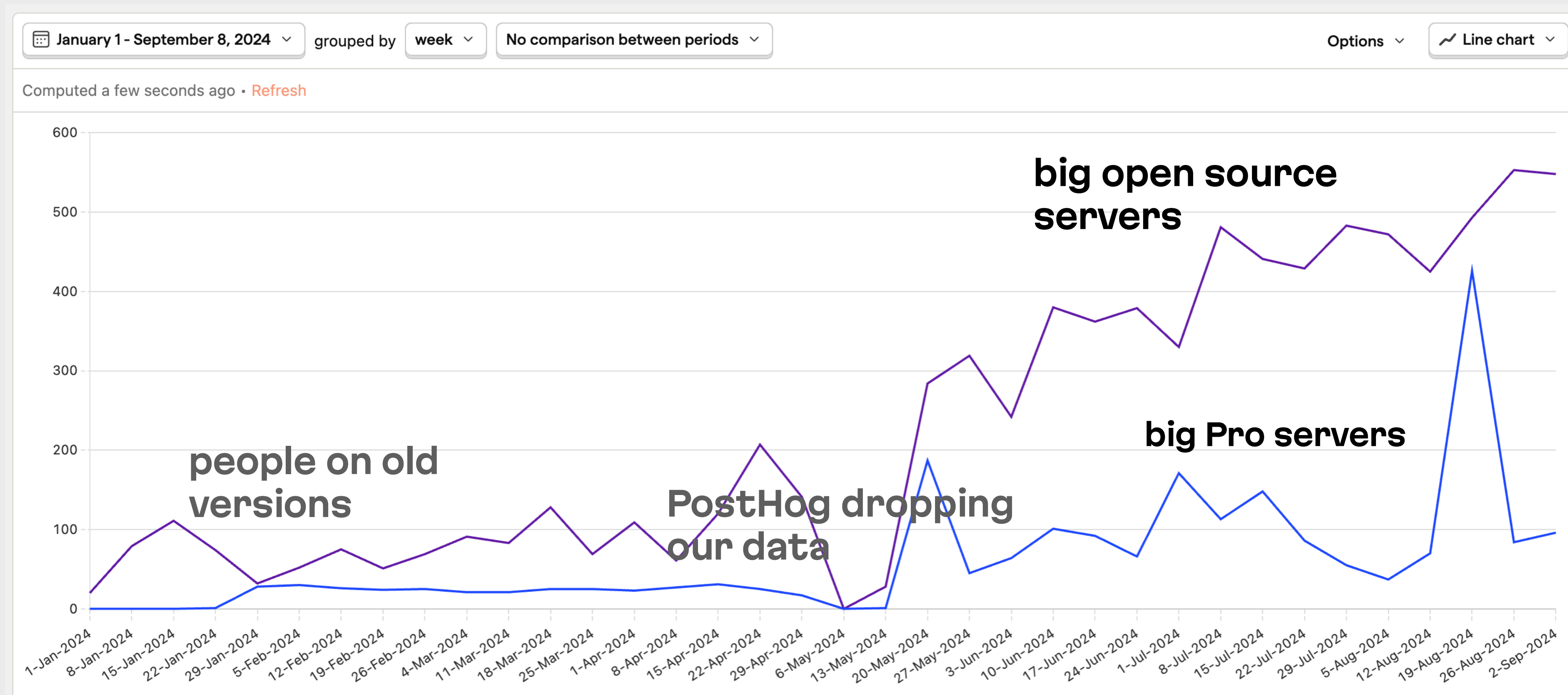
 **Cables** / Create new cable

Name

Next

We added anonymous telemetry to AnyCable-go

Unique servers with over 1k concurrent connections



💡 De-stigmatizing
telemetry in open source is
important for its
sustainability

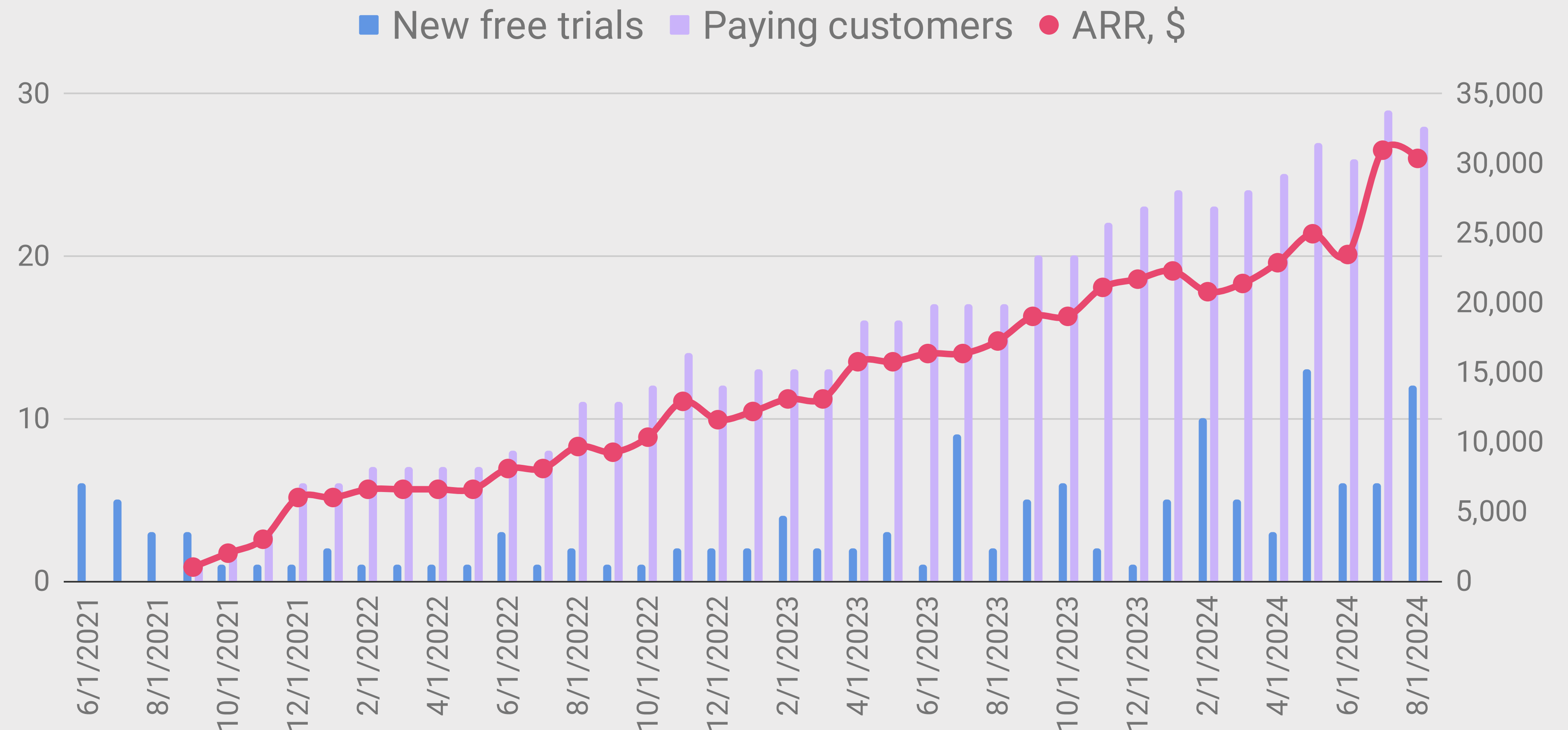
2024 Jan-Aug results

Trials: 60

Paying customers: 29

ARR: \$30k

Consulting revenue: \$480k



💡 New trials are growing
which means that our new
approach works!

AnyCable 2016

Action Cable on steroids



Go server

Action Cable protocol

Redis pub/sub

WebSockets

Rails SDK

Open source

Use cases:

💬🔔 Chats, notifications

📡 GPS data

AnyCable 2024



Reliable realtime server

Go server

Action Cable protocol w/

delivery guarantees

Zero infra deps

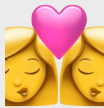
Multi-transport

Framework-agnostic

Open source, Pro, managed

Use cases:

 Voice applications

 Collaborative UI: cursors, comments, editing, presence

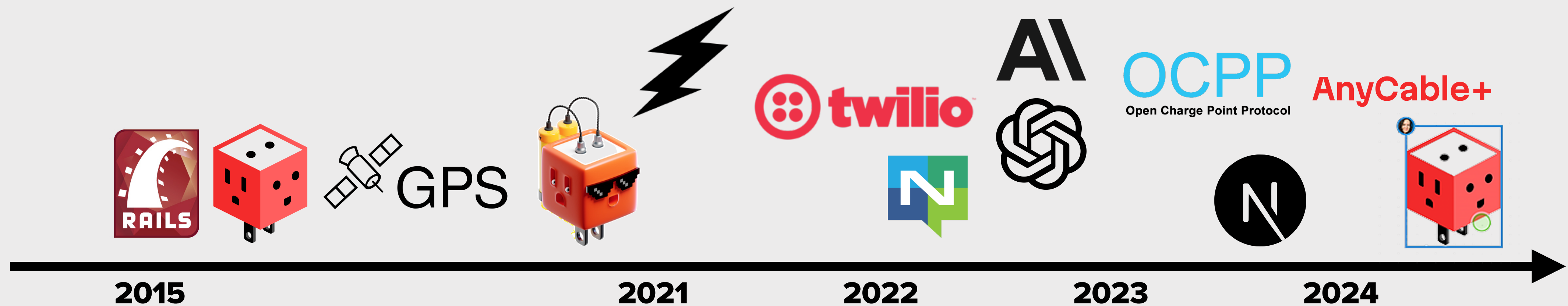
 LLM streaming

 EV charging data (OCPP)

 Chats, notifications

 GPS data

Real-time evolution from the perspective of





Today AnyCable is the critical infrastructure powering some of the largest Rails apps

 **doximity** communication platform
used by 80% of US doctors

 **click funnels** marketing SaaS with \$160M+
revenue

\$3B legal services SaaS

Leading American transit SaaS

Malaysia's Leading EV Charging Company

💡 Our customers and big use cases give us the confidence to move forward

What we have



- ✓ Solve a real problem
- ✓ And for real big use cases
- ✓ And new cases keep coming up

We solved the backend and infra:

- integration
- scaling
- dependability
- reliability
- no lock on cloud provider

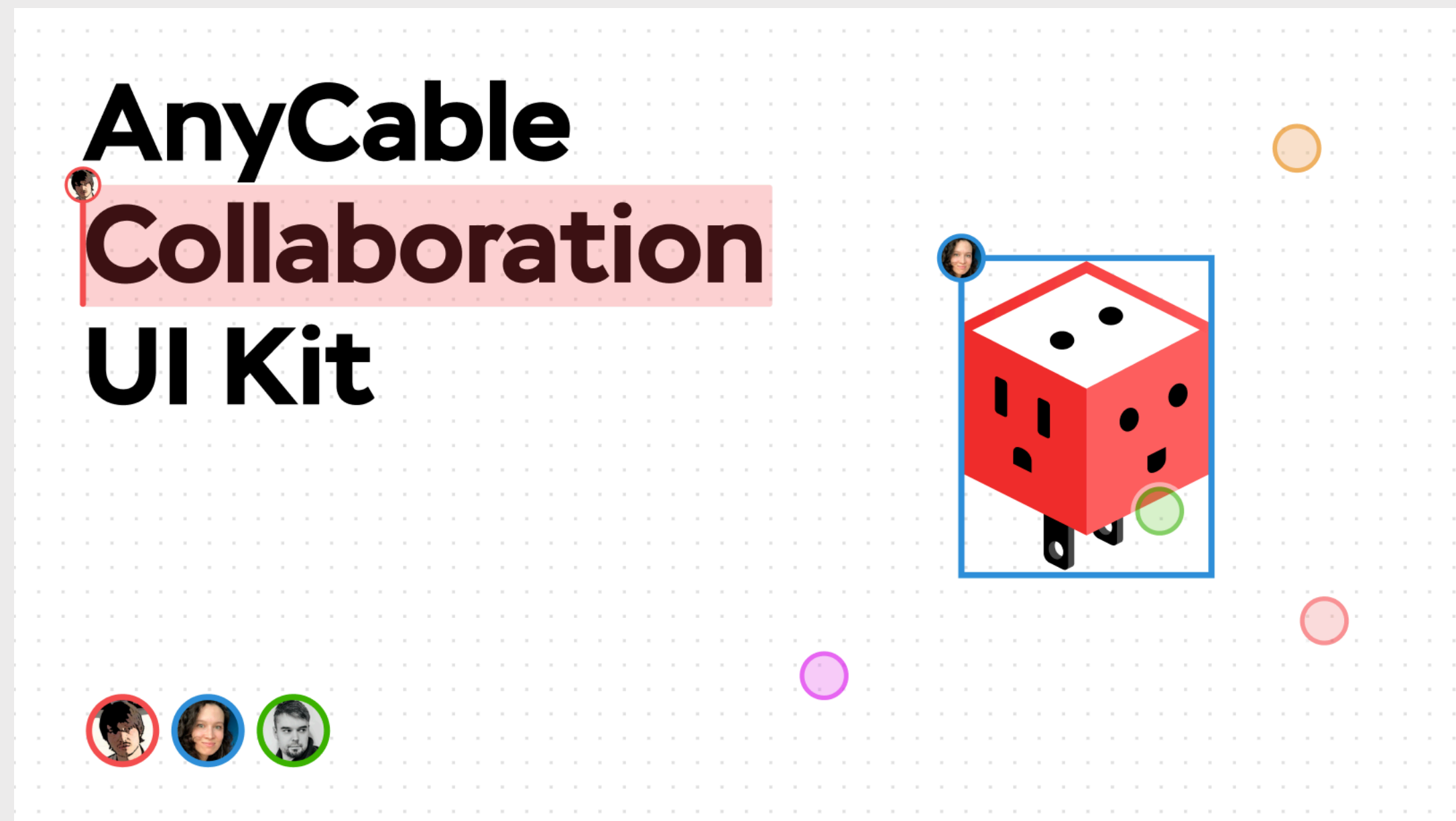
What we don't have

2024-future

Higher-level abstractions

UI-centric real-time

Common tasks must be easy to implement:



- UI kits
- Collaboration SDK

Simplify and simplify again

Make it accessible for more engineers

There's a lot to be done to be AnyCable easier to reach for:

- Guides & tutorials (incl. AI-powered)
- Zero-configuration installs
- Managed AnyCable for production

LLMs vs. realtime

Next-gen collaboration

- Everyone has a robot 🤖 to collaborate with at any time: through chats, voice conversations, git flow, a collaboration in the UI
- This amplifies the need for real-time tech
- Wider adoption requires plug-n-play, easy to use, solutions

Future transports

AnyCable will integrate with the new realtime tech

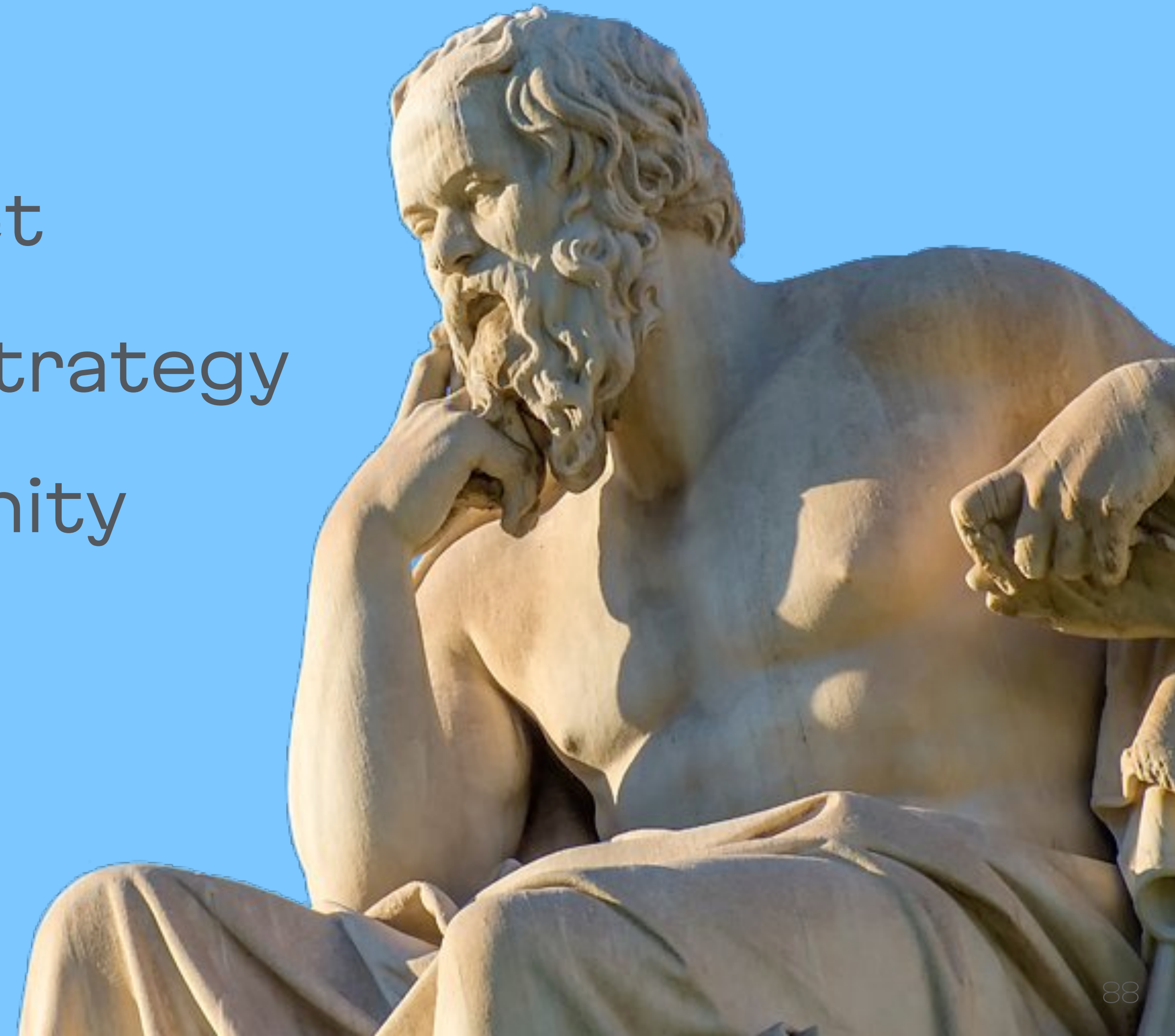
- WebTransport is coming
- Whatever's the next new thing

Evolution of ... myself

Manager → co-founder mindset

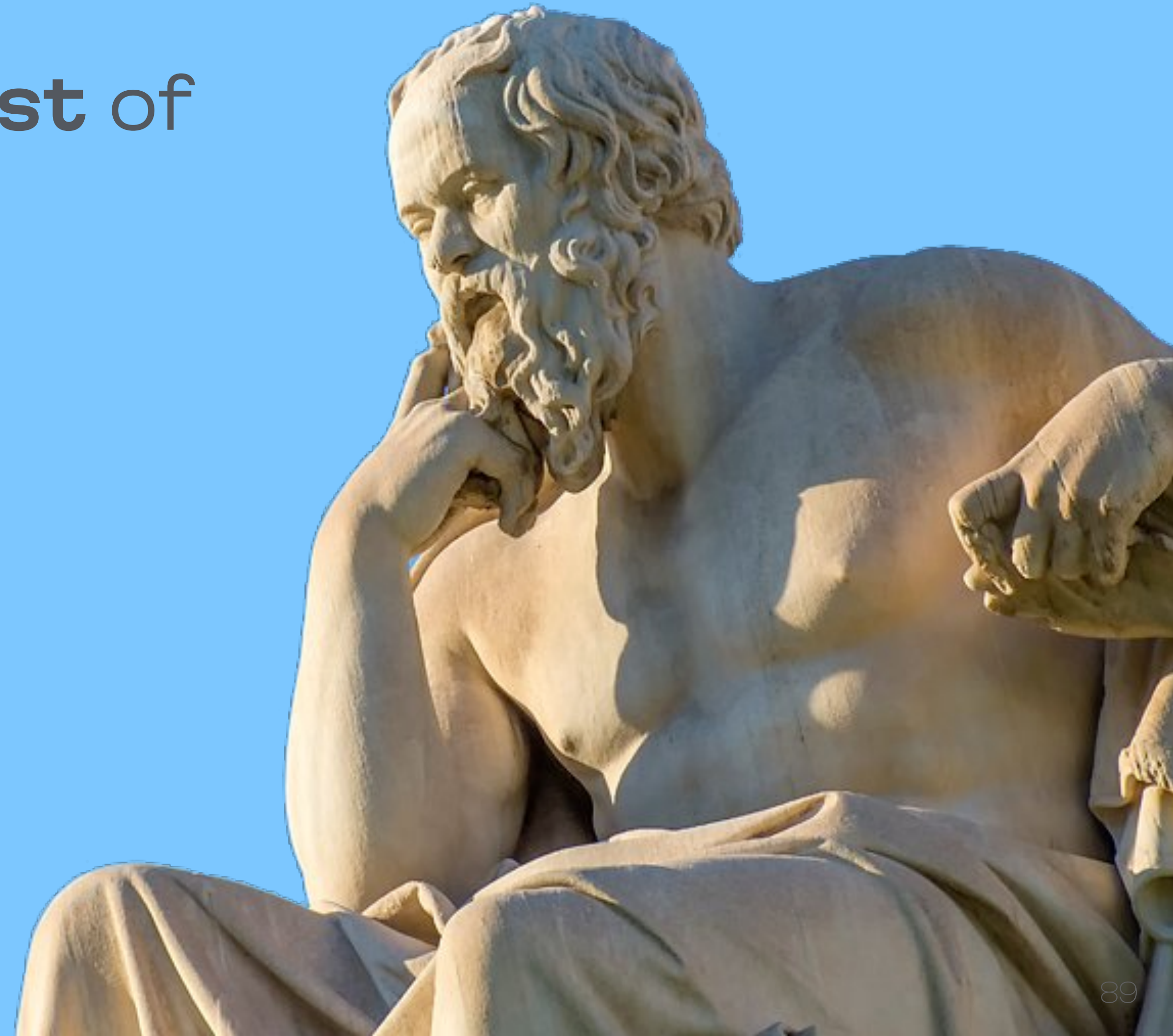
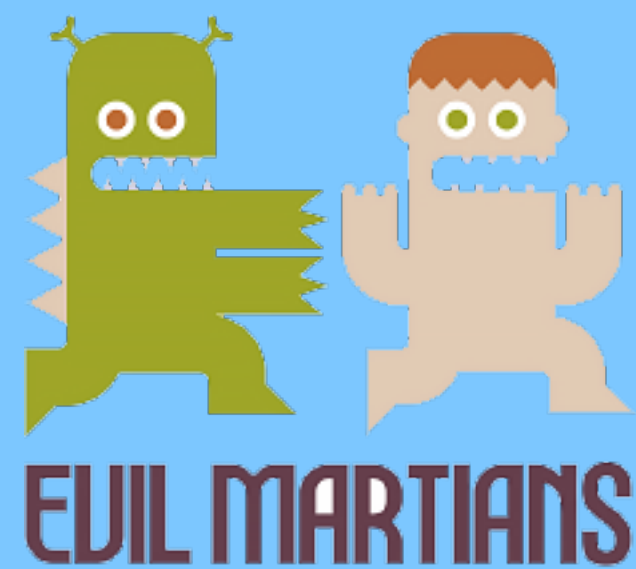
Contributing to the product strategy

A member of the Ruby community




Evolution of ... myself

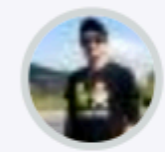
Thanks to the unwavering trust of



Unwavering... almost!

Revert "Change text and add a list on main slide" 

This reverts commit [7b6c3c2](#).



palkan committed last year · ✓ 1 / 1

Thank you!

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