

Get Your Head Out of the Cloud

Embracing Local-First Apps with Nuxt

Ben Hong

<https://www.bencodezen.io>

Nuxt Nation 2024



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Vue Core Team

Nuxt Ambassador

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The screenshot shows the official Vue.js website homepage. At the top, there's a navigation bar with links for Learn, Ecosystem, Resources, Extended LTS (NEW), and Translations. Below the navigation is the Vue.js logo (a stylized 'V' in green and dark blue) and the tagline "The Progressive JavaScript Framework". There are three calls-to-action: "WHY VUE.JS?", "GET STARTED", and a GitHub link. The main content area features a large, bold title "The Progressive JavaScript Framework" in green and blue, followed by a subtitle "An approachable, performant and versatile framework for building web user interfaces." Below this, there are three sections: "Approachable", "Performant", and "Versatile", each with a brief description. At the bottom, there's a "Special Sponsor" section for appwrite, which is described as "Build Fast. Scale Big. All in One Place.".

Vue.js

Learn ▾ Ecosystem ▾ Resources ▾ Extended LTS NEW Translations ▾

The Progressive JavaScript Framework

WHY VUE.JS? GET STARTED GITHUB

Vue.js Search ⌘ K Docs ▾ API Playground Ecosystem ▾ About ▾ Sponsor Partners

The Progressive JavaScript Framework

An approachable, performant and versatile framework for building web user interfaces.

Why Vue Get Started → Install

Special Sponsor appwrite Build Fast. Scale Big. All in One Place.

Approachable
Builds on top of standard HTML, CSS and JavaScript with intuitive API and world-class documentation.

Performant
Truly reactive, compiler-optimized rendering system that rarely requires manual optimization.

Versatile
A rich, incrementally adoptable ecosystem that scales between a library and a full-featured framework.







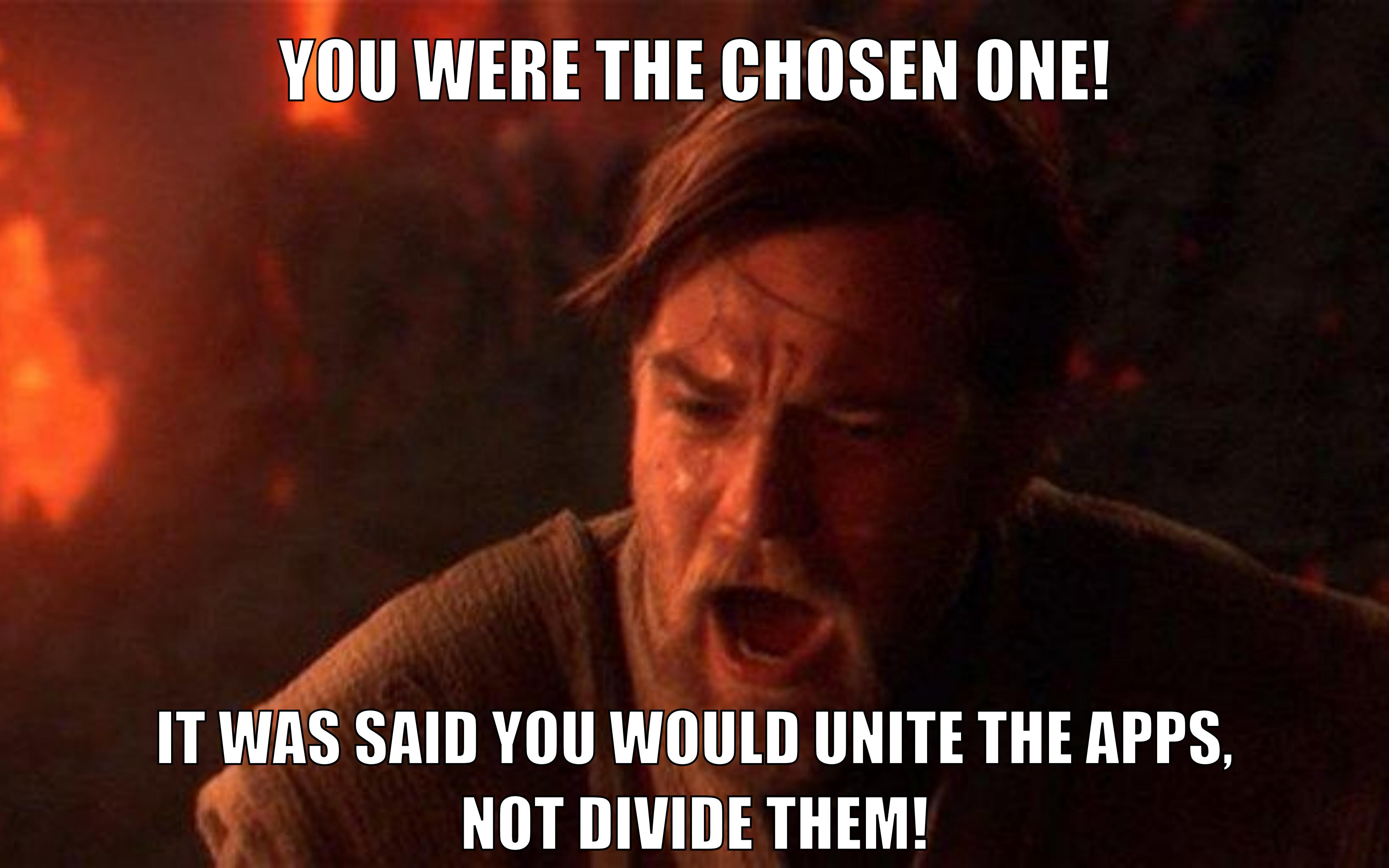




There is no cloud
it's just someone else's computer





A dramatic, low-key lighting portrait of a person's face. The person has long, dark hair and is looking slightly upwards and to the side. A powerful, glowing orange energy field surrounds their head and shoulders, appearing as bright highlights against a dark, shadowed background. The overall mood is mysterious and powerful.

YOU WERE THE CHOSEN ONE!

**IT WAS SAID YOU WOULD UNITE THE APPS,
NOT DIVIDE THEM!**

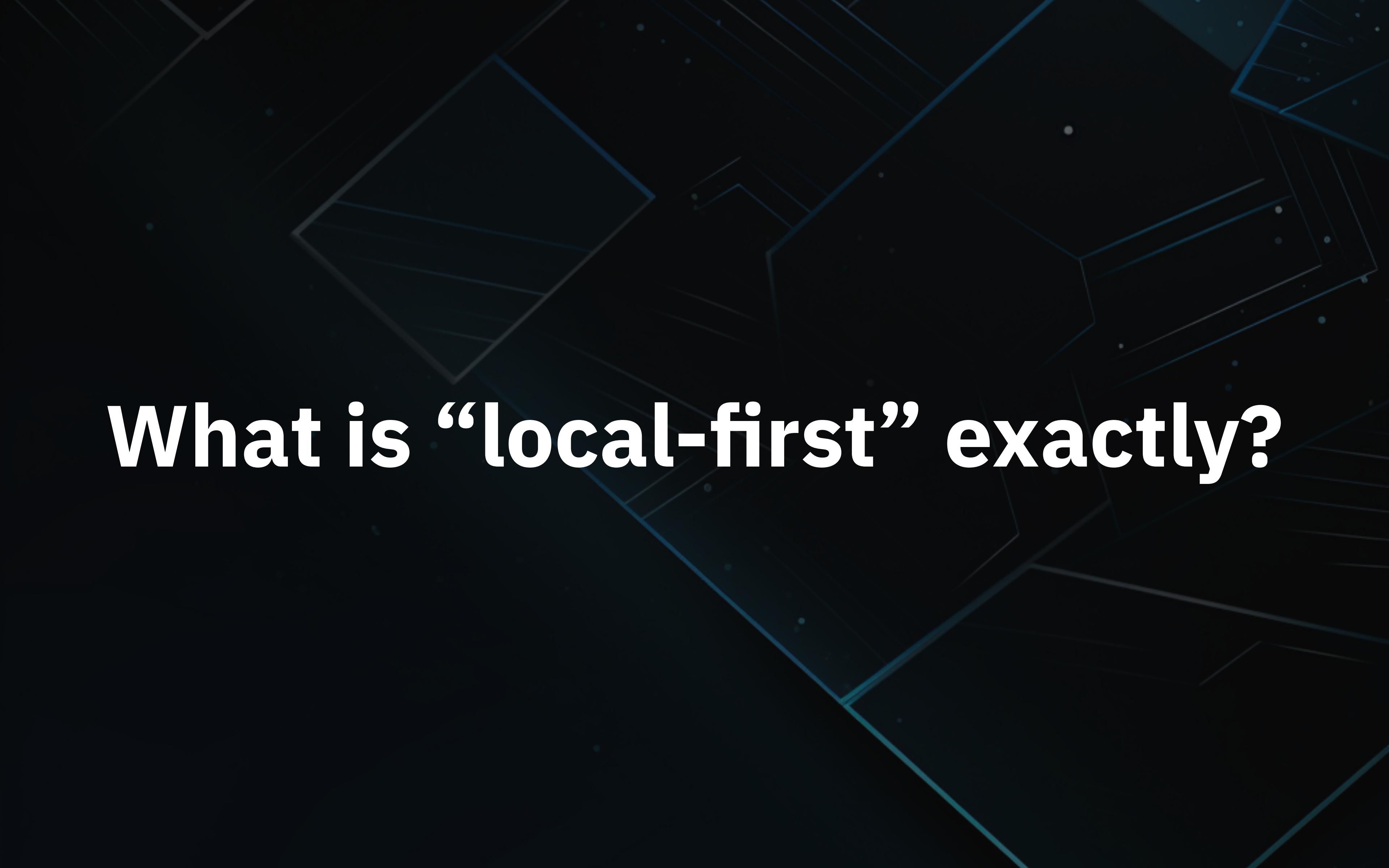
NO CONTROL



BITTERNESS AT THE CLOUD

LOCAL-FIRST





A dark blue background featuring a complex network of thin, light blue lines forming various geometric shapes, including hexagons and triangles, creating a sense of depth and structure.

What is “local-first” exactly?

“Local-first [software] include the ability to work offline and collaborate across multiple devices, while also improving the security, privacy, long-term preservation, and user control of data.”

— Ink & Switch

“Local-first [software] include the ability to work offline ***and*** collaborate across multiple devices, while also improving the security, privacy, long-term preservation, and user control of data.”

— Ink & Switch

“What’s old becomes new again.”



Why local-first?

Internet is optional.

EA - Offline

Couldn't connect to servers

The game license has expired

Launch your game online to renew the license.

Error code: EC:204

Ins

M

OK

D

EA - Offline

<p>Lr Ps</p> <p>Photography (20GB)</p> <p>US\$9.99/mo</p> <p>Lightroom, Lightroom Classic, Photoshop on desktop and iPad, and 20GB of cloud storage (1TB available).</p> <p>Compare photography plans</p> <p>See plan & pricing details</p> <p><input type="checkbox"/> Add Adobe Stock. Get a 30-day free trial.*</p> <p> Secure transaction Buy now</p>	<p>Creative Cloud All Apps</p> <p>US\$54.99/mo</p> <p>Best value</p> <p>Get 20+ Creative Cloud apps including Photoshop, Illustrator, Adobe Express, Premiere Pro, and Acrobat Pro.</p> <p>See plan & pricing details</p> <p><input type="checkbox"/> Add Adobe Stock. Get a 30-day free trial.*</p> <p> Secure transaction Buy now</p>	<p>Acrobat Pro</p> <p>US\$14.99/mo</p> <p>The complete PDF solution for working anywhere (includes desktop, web, and mobile access).</p> <p>See plan & pricing details</p> <p><input type="checkbox"/> Add Adobe Stock. Get a 30-day free trial.*</p> <p> Secure transaction Buy now</p>	<p>Ps</p> <p>Photoshop</p> <p>US\$20.99/mo</p> <p>Create beautiful graphics, photos, and art on desktop and iPad. Comes with Adobe Fresco for drawing and painting.</p> <p>See plan & pricing details</p> <p><input type="checkbox"/> Add Adobe Stock. Get a 30-day free trial.*</p> <p> Secure transaction Buy now</p>
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Why local-first?

Internet is optional.

Apps work “forever.”

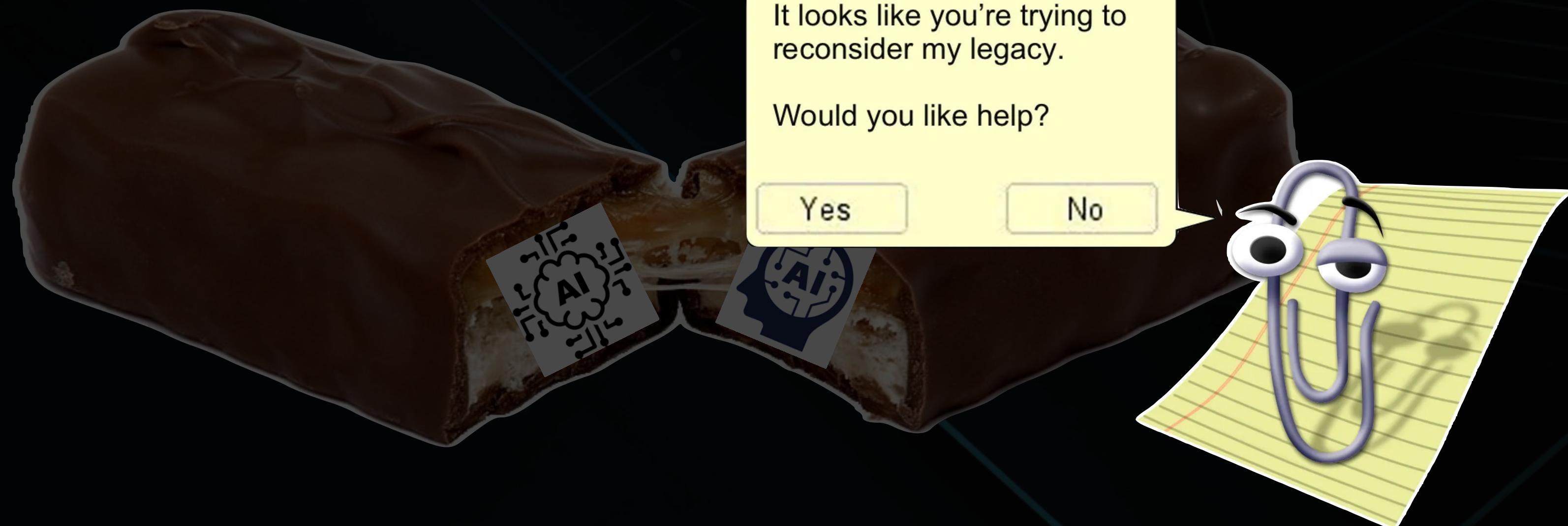
**Parents *PLEASE* check your
kids' Halloween candy.**

There've been reports of random AI features
that no one ever asked for.



Parents **PLEASE** check your kids' Halloween candy.

There've been reports of random AI features
that no one ever asked for.



Why local-first?

- Internet is optional.
- Apps work “forever.”
- Security and privacy by default.
- User retains ultimate control.

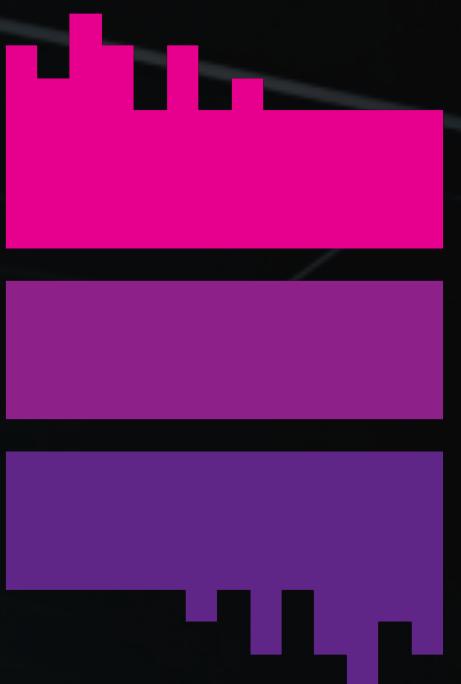


Obsidian



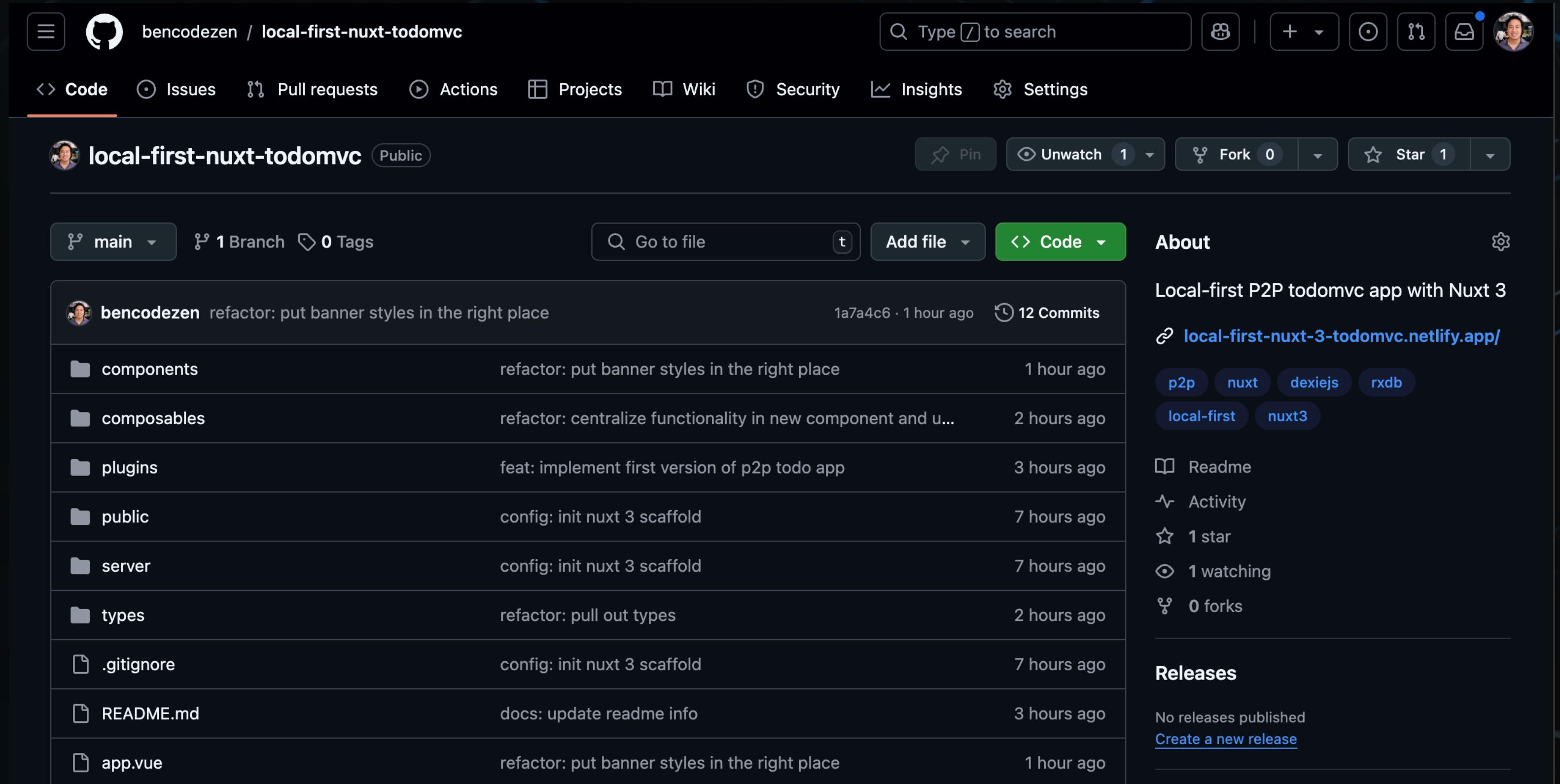
Linear

How do I build local-first?







A screenshot of a GitHub repository page for "bencodezen / local-first-nuxt-todomvc". The repository is public and has 1 branch and 0 tags. The code tab is selected. A list of commits is shown, all made by "bencodezen" and pushed 1 hour ago. The commits are: "refactor: put banner styles in the right place", "refactor: put banner styles in the right place", "refactor: centralize functionality in new component and u...", "feat: implement first version of p2p todo app", "config: init nuxt 3 scaffold", "config: init nuxt 3 scaffold", "refactor: pull out types", "config: init nuxt 3 scaffold", "docs: update readme info", and "refactor: put banner styles in the right place".
The repository has 12 commits in total. The repository URL is [local-first-nuxt-todomvc](https://github.com/bencodezen/local-first-nuxt-todomvc).
Tags:
[p2p](#) [nuxt](#) [dexiejs](#) [rxdb](#)
[local-first](#) [nuxt3](#)

bencodezen/local-first-nuxt-todomvc

A close-up photograph of Dwight Schrute, a character from the television show "The Office". He is wearing his signature round-rimmed glasses and has a serious, focused expression. His dark hair is slightly messy, and he is wearing a light-colored button-down shirt. The background is blurred, showing what appears to be an office environment.

LET'S LOOK AT SOME CODE



Nuxt



Dexie.js

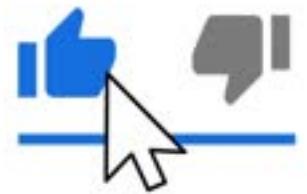


RxDB



WebRTC

Closing thoughts



SUBSCRIBE



“Imagine a future
without local-first
software...”



SUBSCRIBE





Local-first gives users ***ownership of their data and tools*** once again.

Local-first software

You own your data, in spite of the cloud

Cloud apps like Google Docs and Trello are popular because they enable real-time collaboration with colleagues, and they make it easy for us to access our work from all of our devices. However, by centralizing data storage on servers, cloud apps also take away ownership and agency from users. If a service shuts down, the software stops functioning, and data created with that software is lost.

In this article we propose “local-first software”: a set of principles for software that enables both collaboration *and* ownership for users. Local-first ideals include the ability to work offline and collaborate across multiple devices, while also improving the security, privacy, long-term preservation, and user control of data.

We survey existing approaches to data storage and sharing, ranging from email attachments to web apps to Firebase-backed mobile apps, and we examine the trade-offs of each. We look at Conflict-free Replicated Data Types (CRDTs): data structures that are multi-user from the ground up while also being fundamentally local and private. CRDTs have the potential to be a foundational technology for realizing local-first software.

We share some of our findings from developing local-first software prototypes at [Ink & Switch](#) over the course of several years. These experiments test the viability of CRDTs in practice, and explore the user interface challenges for this new data model. Lastly, we suggest some next steps for moving towards local-first software: for researchers, for app developers, and a startup opportunity for entrepreneurs.

Ink & Switch

[Martin Kleppmann](#)

[Adam Wiggins](#)

[Peter van Hardenberg](#)

[Mark McGranaghan](#)

April 2019

“Local-first software”

By Ink & Switch



“The past, present, and future of local-first”

By Martin Kleppmann

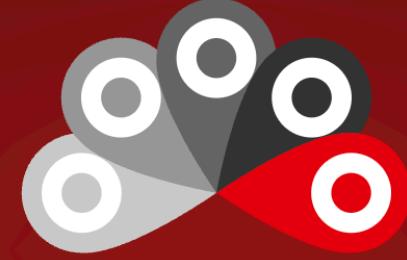


HOME-COOKED SOFTWARE AND BAREFOOT PROGRAMMERS

Maggie Appleton
Elicit

“Home-cooked software and barefoot programmers”

By Maggie Appleton



Local-first Software

So, you want to build an app that has its data co-located with its UI? That works offline? That synchronizes between clients? And that lets its users own their data?

Welcome to the world of local-first web development.

Join our  **Discord** community and attend the [next event](#)

<https://localfirstweb.dev/>



Electron



Tauri

YOU HAVE THE

POWER!



Thanks everyone!

 @bencodezen

 bencodezen.io

 www.bencodezen.io

