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Far Edge Apps

- Identity, data, and compute

- All the components needed to enable front end devs to build apps

  - Include security & privacy — passwordless logins, end-to-end encryption

  - No account lock-in — DIDs as the basis for account identifiers

  - Make user data portable — use IPFS for content addressing

  - Enable computation without the hyper clouds

Protocol Engineering an edge app stack

- UCAN: decentralized auth based on DIDs

- WNFS: e2ee file system on top of IPFS with capabilities, versioning, etc.

- 🆕 CAR Pool: fast synchronization of large IPLD graphs

- 🔜 Dialog: planet scale far edge database

- 👷‍♀️ IPVM: Wasm serverless functions (and also autocodec and wasm-ipfs)

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Research -> Spec -> Implementation -> Product

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Ecosystem Obsessed

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Research graduates to Ecosystem Working Groups

- Running code and rough consensus

  - ...and an iterative, community driven spec process that is IPR cleared

  - Work on shared libraries together

  - Interop across platforms

- UCAN - Web3Storage, Noosphere

- WNFS - n0, Capyloon, Webrecorder, IPFS, Filecoin

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Webnative: SDK for edge apps on IPFS

- Design goals:

  - Empower a front end dev to make entire apps without having to become full stack & without devops

  - Works in browser, including mobile

  - No browser extensions

  - Local first

Webnative

A true local-first, edge computing stack

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Webnative App Template

- Webnative App Template https://webnative-template.fission.app

- DIDs based on WebCrypto API, desktop and mobile with no browser extension

- Public & private files

- Device linking

Webnative

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Interop

- Blockchains talk about this a lot, for small amounts of completely public data

- We need decentralized edge apps to extend the utility & usability

- Many interoperable accounts and portable data -> a bigger web3 universe

- UX challenges: what do you present to the user to show that they can re-use a login? That they can bring their own data?

Future Directions
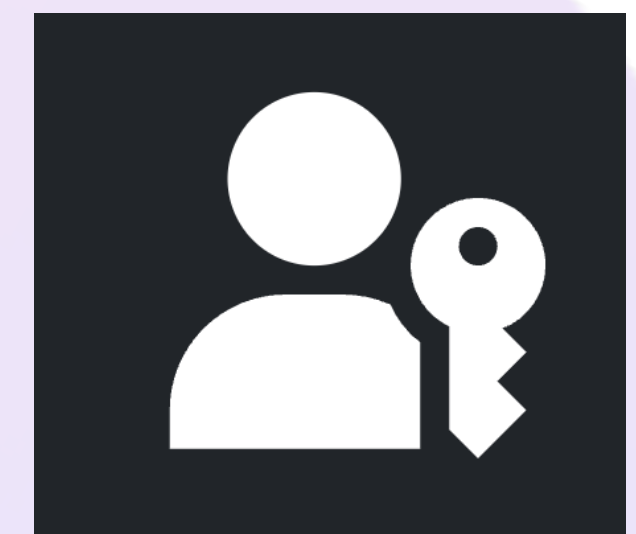
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WalletAuth

- Instead of managing keys with Webnative, use any* blockchain account

- Add WNFS encrypted files controlled by an address == "Web3 iCloud"

- Better UX & privacy, without centralization!

- 50M existing accounts
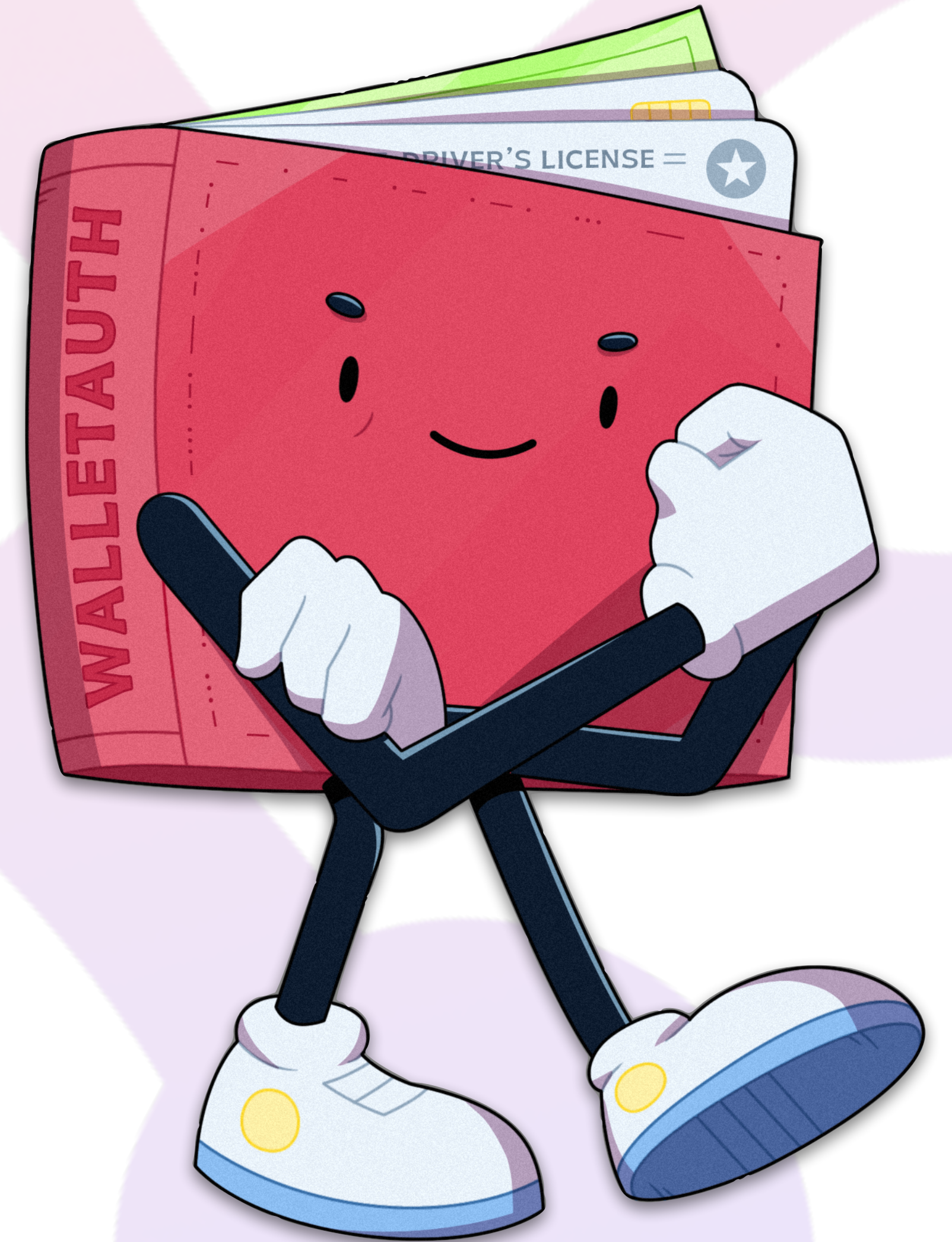
*supporting Ethereum / EVM chains on MetaMask, FIL next

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Passkeys

- "The primary use-case for passkeys is replacing the password as the first/primary factor for account authentication."

- New WebAuthN security key method

- Will be implemented in Apple iOS & MacOS, Google Android & Chrome, Microsoft, Amazon

- Great UX for passwordless logins, protected by OS-level security (biometrics etc)

- 500M accounts in 6 months

UCAN Build On Web3Storage & Fission

- Persist uploads to Web3Storage

- Login with W3S accounts / Webnative

- Link & update DNS pointing to CIDs

- Get a wholesale account represented by a UCAN, and delegate to your customers

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UCAN as InterPlanetary IAM

- The hyper clouds build ever more services within their walled gardens, all tied to a centralized account & billing system

- Between clouds, you have to pre-provision secrets; with UCAN, you use your existing DIDs and get new capabilities assigned and delegate

- Services on the open web being remixed and combined

"In the next 10-20 years, I believe we will see a massive disruption in the Developer-Led Landscape driven by the emergence of Autonomous Software Development."

— The Developer-Led Landscape, Tyler Jewell, Sep 2020

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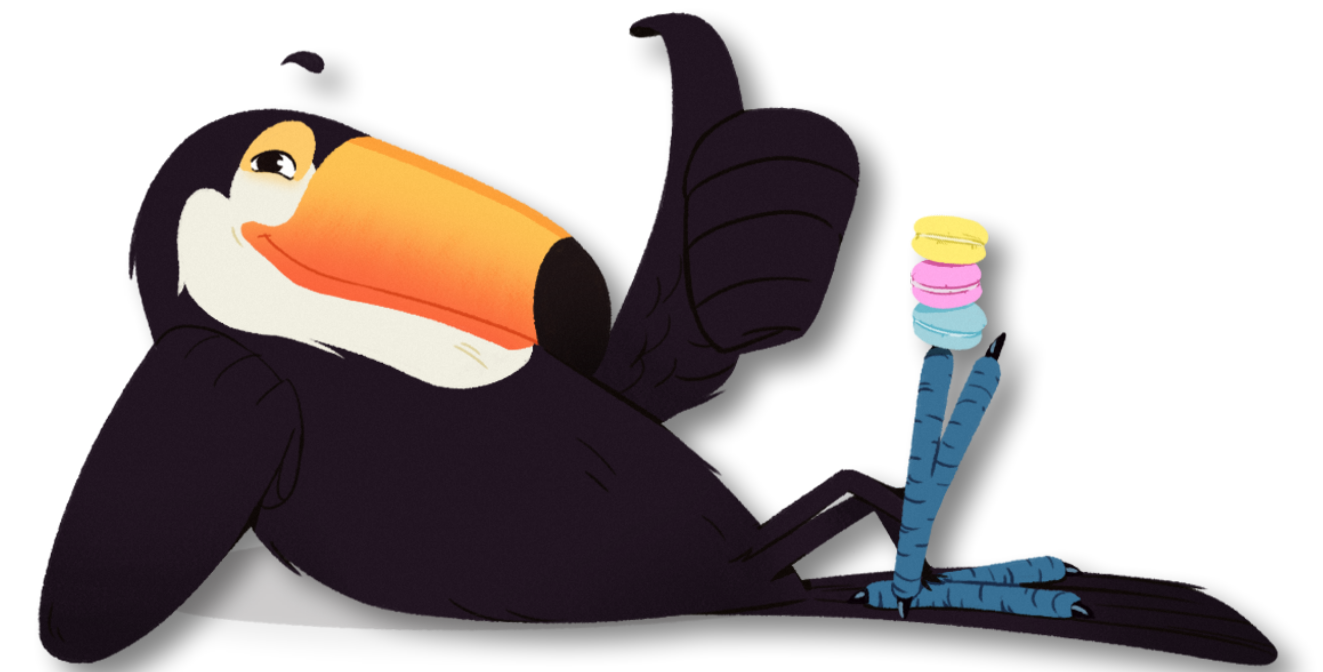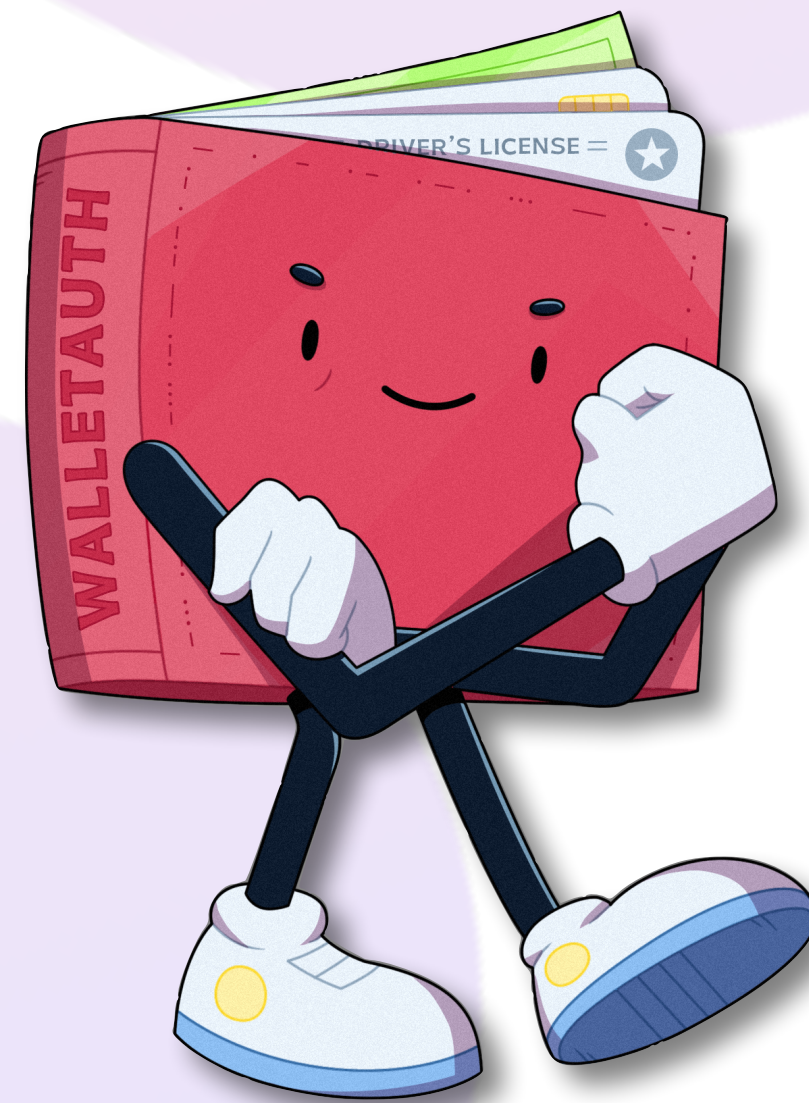
Business Models for DWeb Apps

- Code is free, people are priceless

- Donations: good vibes... but also you get to help rank upcoming features

- Subscriptions: monthly payment

- Revenue share: users upgrade to more storage, developers get paid

- Staking: no loss lotteries like PoolTogether, stake your savings with proceeds to apps

Rewrite it in Rust

- rs-ucan implemented by Noosphere team, now we'll adopt it & help maintain (plus n0, others)

- rs-wnfs is in progress

- Up next: CAR Pool, Dialog far edge database, IPVM Wasm edge functions

- https://fission.codes/rewrite-in-rust/