

fission

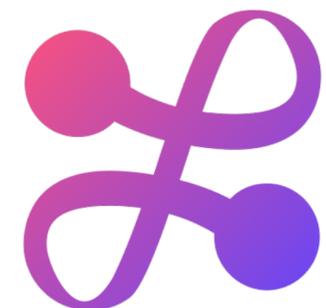
**FISSION: EDGE APP STACK
PLN LAUNCHPAD, FIL AUSTIN**

June 2022



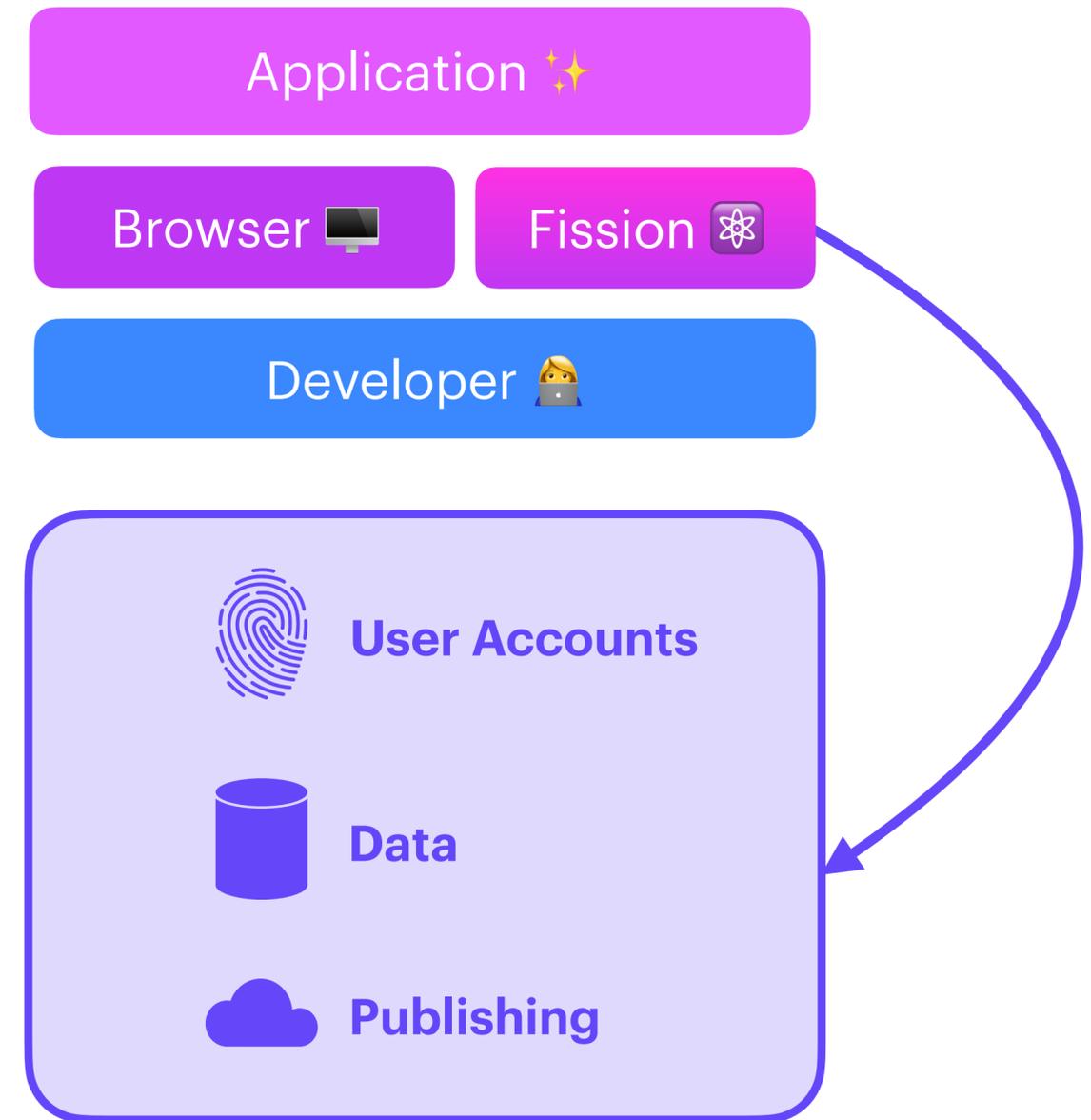
BORIS MANN

- Open Source, Community, Commons
- 15 years ago, worked on building out the Drupal community, built the first commercial company around Drupal, helped form Drupal Association
- Dove deep into the Ethereum community in 2018, helping out with Ethereum Magicians, Core Devs
- Fission is building developer tools & protocols



WHAT IS FISSION?

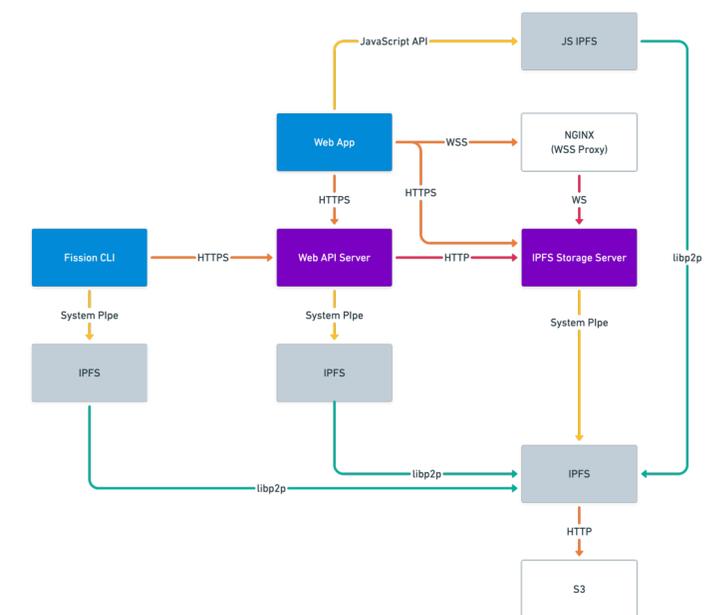
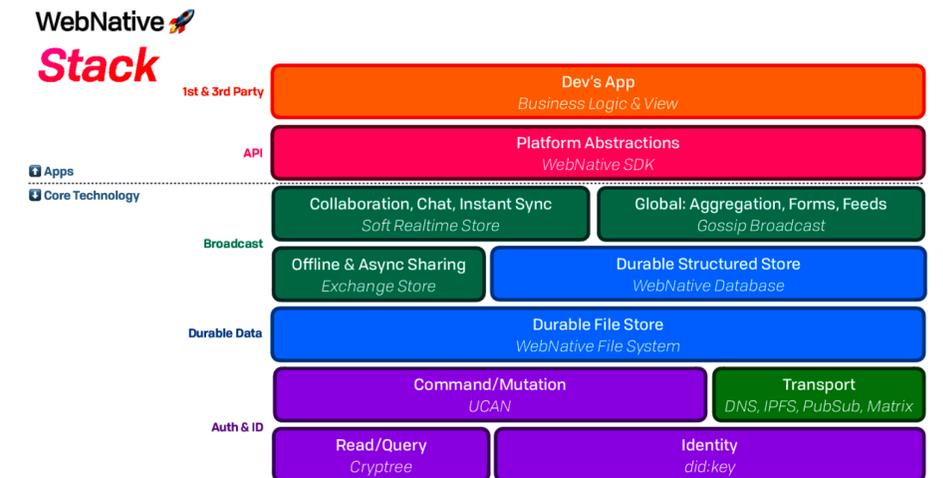
- Fission is building a client side edge stack with identity & auth, user owned data, and a distributed file system on top of IPFS
- Standardize and integrate “hard” things like privacy, security, sync & more
- Individuals and teams can focus on full featured apps that act like desktop or mobile, including offline





HOW DOES FISSION USE IPFS?

- IPFS content addressing is extremely important for us
 - Portable data, not tied to any app or service
- Webnative API helps run IPFS in the browser
 - Data is synced to your browser, and published out natively over IPFS
- Web Native File System (WNFS) built on top as a public + private/encrypted file system
 - Working on WNDB: potential for a global linked database
- IPFS and content addressing is exciting! We want to make it so it's so easy to use, it's *boring*





APP PUBLISHING PLATFORM

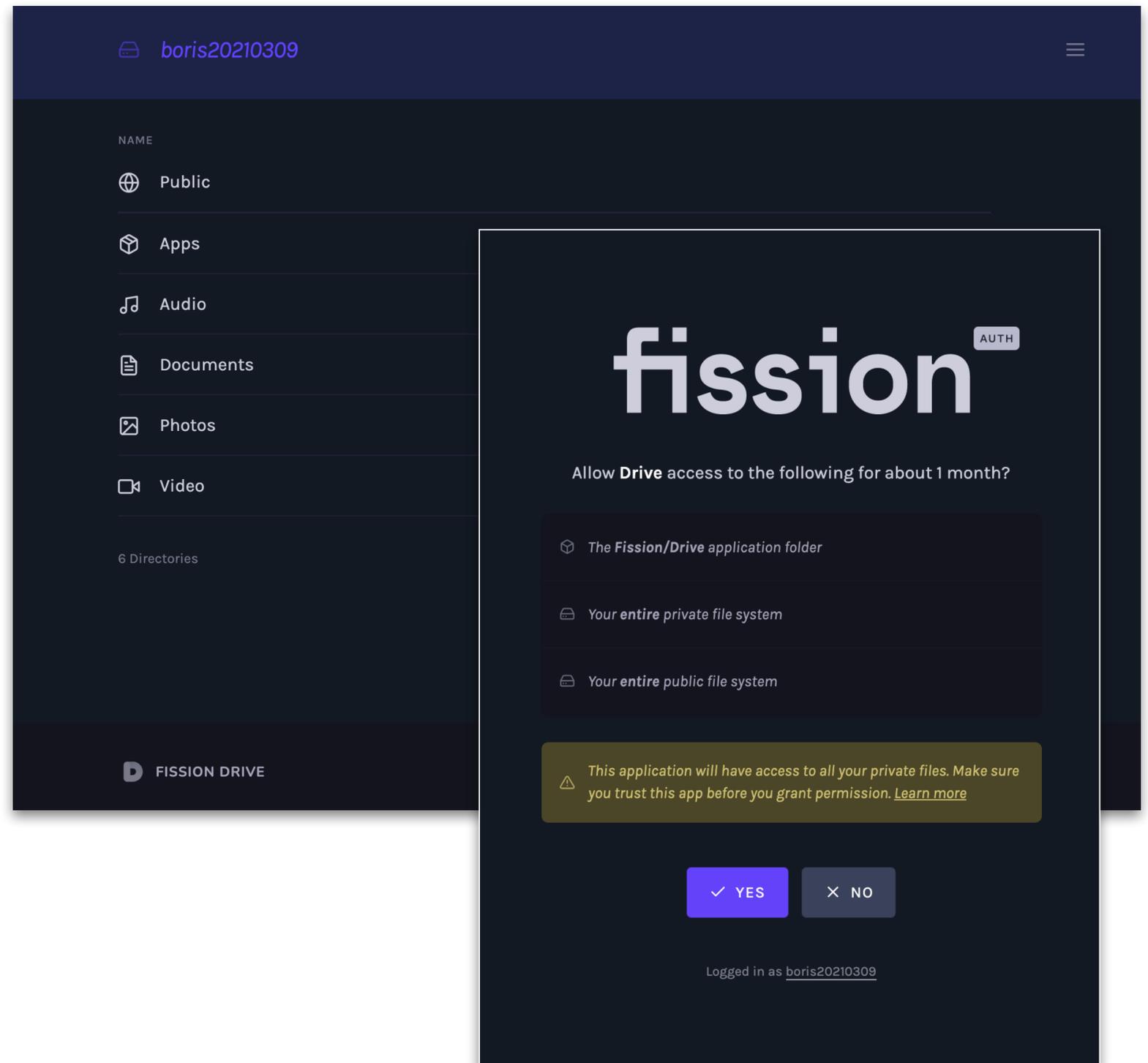
- We've built our App Publishing Platform to showcase how things can be built in an integrated way
 - Sign up on the web, publish directly
 - Use the CLI, build locally, or Github Action to Publish
 - Subdomain, SSL, custom domains
 - Every account has their own personal domain links, eg. boris.files.fission.name
- Details in the guide: <https://guide.fission.codes>
- Run the stack yourself?

WEBNATIVE: EDGE IDENTITY & DATA

- Some of the features included in the Webnative SDK:
 - Accounts: linked to browsers and desktops, based on a private key DID
 - Password-less Login: in any browser, including mobile. Securely link devices.
 - End-to-end Encryption: WNFS is encrypted & obscures file metadata
 - Versioning: WNFS has automatic versioning built in
 - Public file sharing: share links to IPFS CIDs, or use personal domain links
- All this on top of read/write to IPFS natively in the browser

FISSION DRIVE

- Default WNFS file browser
- Users can view App Data
- Encrypted by default, public folder is available unencrypted with direct IPFS links
- Works offline
- <https://drive.fission.codes>





FISSION CLI FOR LOCAL DEV

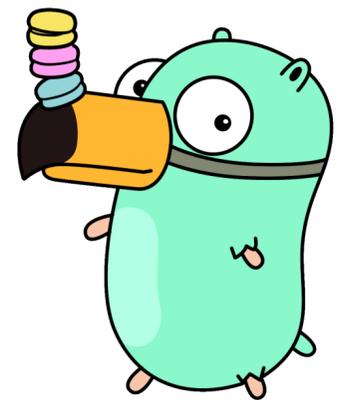
- `fission setup` — CLI downloads and installs IPFS, registers a user account with private keys
- `fission app register` — create a new app with subdomain
- `fission app publish` — publish the app natively, over IPFS
 - Add to IPFS locally, then contact fission server to register new hash, update DNSLink
 - Fission server fetches from local node

TECH BUILDING BLOCKS

- **IPFS:** a global “commons network” that anyone can participate in to share data and apps. Content addressing is awesome!
- **Browser APIs:** WebCrypto, PWAs and other browser features integrated in our SDKs so they are easy for developers to use and integrate into their apps
- **Decentralized Identifiers (DIDs):** portable accounts that can be user owned, plus Verifiable Credentials for data linked to accounts

PROTOCOL DEVELOPMENT

- As well as adopting open standards, we are pioneering three specs of our own:
 - **UCAN:** a decentralized authentication specification built on top of DIDs; edge-first auth, works offline, OCAP. Join at <https://ucan.xyz>
 - **WNFS:** our Web Native File System, public + private/encrypted, versioning, built on top of IPFS
 - **Dialog / WNDB:** adding full planet scale database capabilities to WNFS; the most important, sticky data



UP NEXT: WALLET AUTH

- Blockchain accounts are at least in the 10Ms — the single largest deployment of end user PKI we've ever seen
 - Outsource key management to crypto wallets!
 - Login with any blockchain wallet
 - Get access to Webnative encrypted IPFS file system
 - Working with SIWE / login.xyz to connect UCAN + blockchain logins
- Read: Ryan Betts @depatchedmode, "The Wallet Stack": fission.codes/blog/wallet-stack/

EVOLVING IPFS

- Every human on the planet should be able to store data online, forever, effectively for free
- Aim for the same DX as a commercial platform like Netlify, Vercel — but at the protocol level
- eg: PR to go-IPFS -> add redirect support to the http gateway for SPAs

IPFS / FILECOIN PROJECTS

- WASM + IPFS: aka autocoder - use WASM to interpret IPLD data
- CAR Sync: CAR files over https, webrtc, other transports
- WNFS + Filecoin: add end to end private data
- FVM + EVM: EVM smart contracts + native FVM actors,
- Filecoin Accounts / App Logins
- Commons Funding: fund your dependencies, collaborate across the PLN



Powering next generation *apps on the edge*

Easy publishing
App cloning
Edge personalization

CDN, cached,
nondestructive edits

Going multi-user

Distributed, multi-user, offline-first

**Integrated
Hosting**

Storage

Shared Private Files

**Distributed
Database**

Edge, offline, serverless

Easy to use
Rich apps with minimal code

Heading towards real time

WebAssembly powered

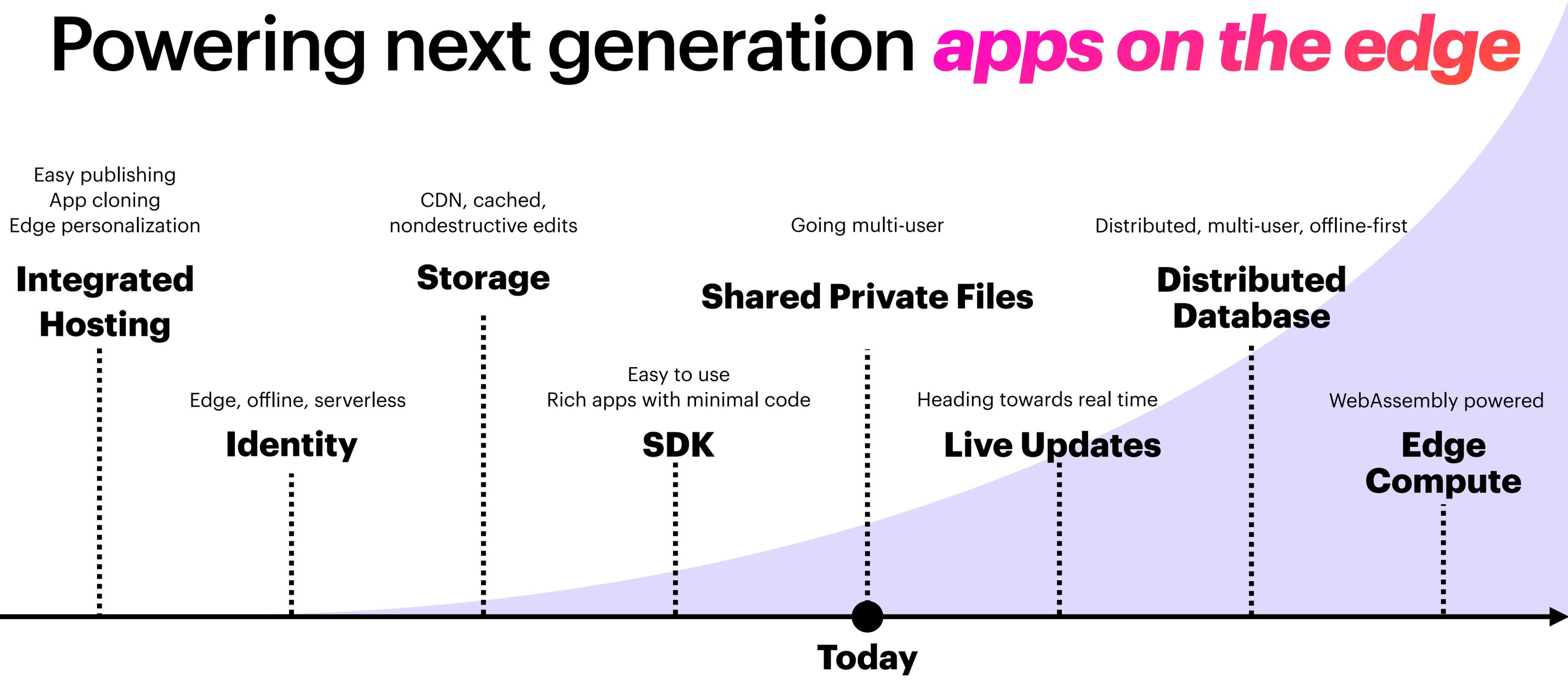
Identity

SDK

Live Updates

**Edge
Compute**

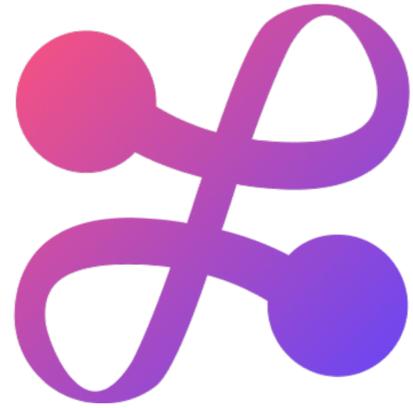
Today





Q & A

- Let's build together!
- Come see us in our Discord chat <https://fission.codes/discord>
- Check out regular events on Luma: <https://lu.ma/fissioncodes>
- Ping me in Filecoin Slack, PLN Discord, IPFS Discord, borismann#5151



fission

THANK YOU!

Github: [fission-suite](https://github.com/fission-suite)

Developer Guide & Docs:
guide.fission.codes

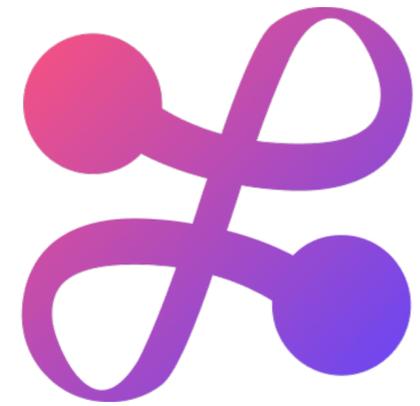
Technical Whitepaper:
whitepaper.fission.codes 🚧 🧑‍🔧 ✍️

Home page: fission.codes

Discourse forum: talk.fission.codes

Discord chat: fission.codes/discord

Twitter: [@fissioncodes](https://twitter.com/fissioncodes)

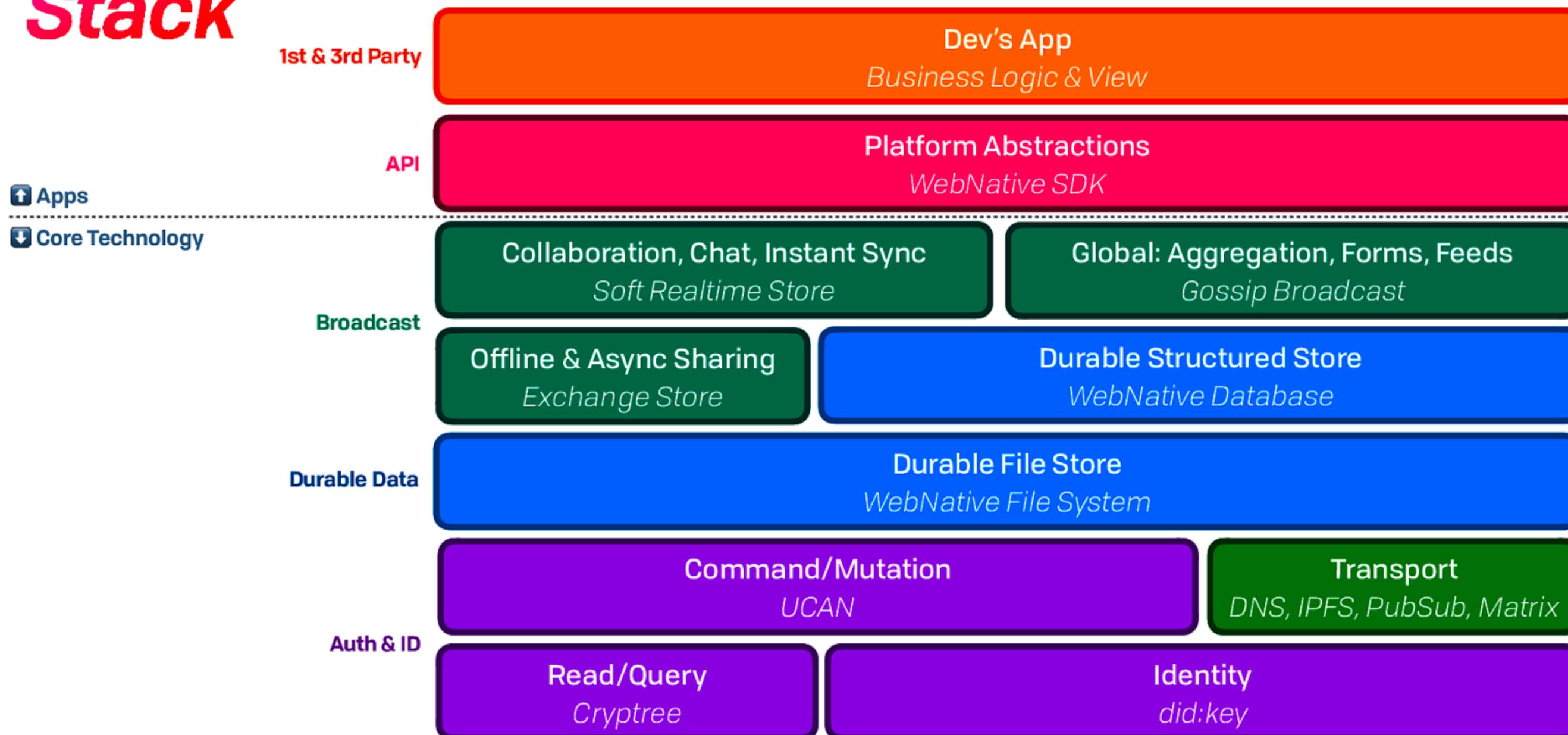


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APPENDIX

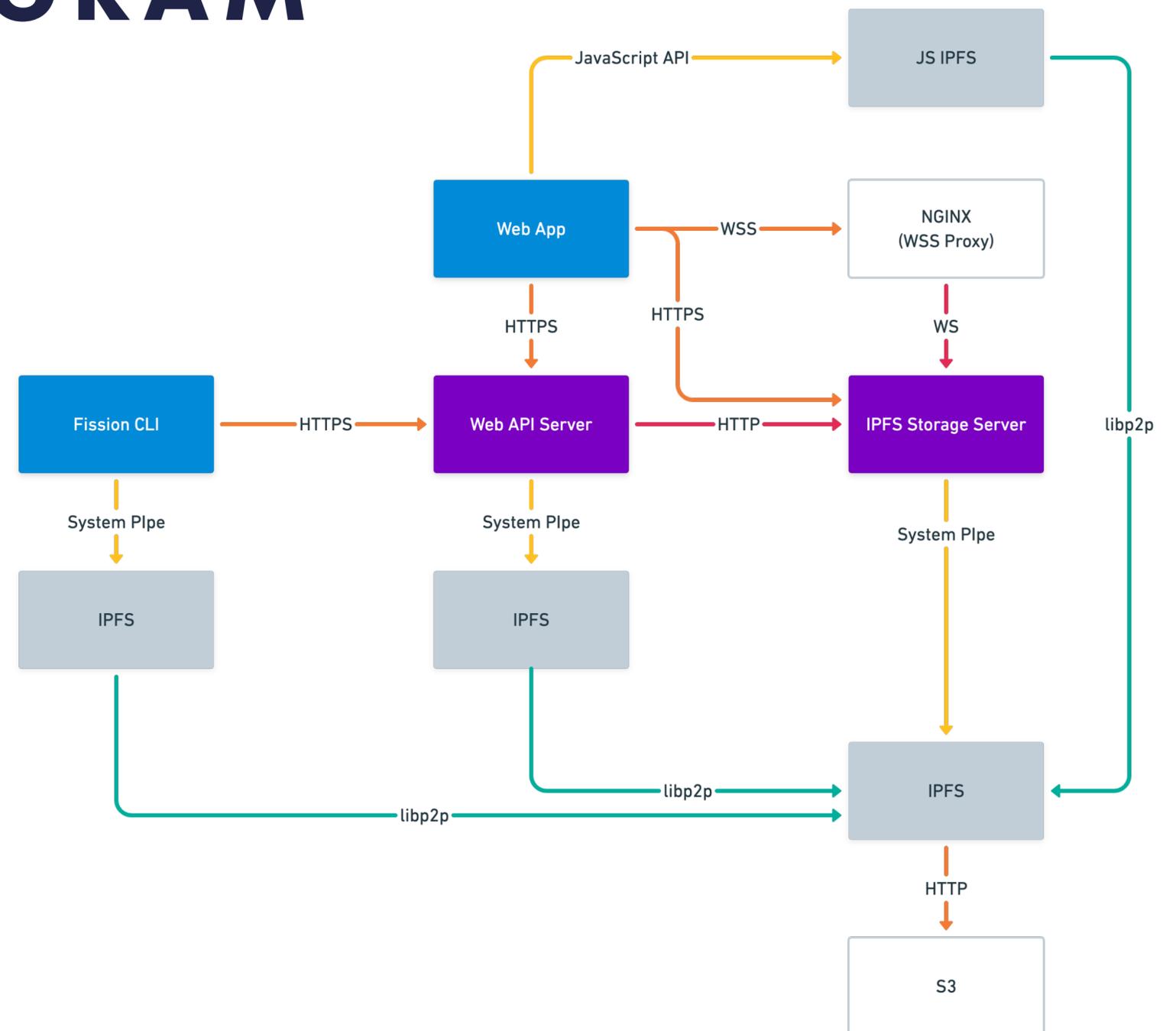


WebNative 
Stack



FISSION SYSTEM DIAGRAM

- Fission Web API (Haskell)
- Auth Lobby Web App (Elm)
- Fission CLI (Haskell)
- Drive Web App (Elm)
- Integrations, eg. Publish action on Github, Heroku Add-On, etc.

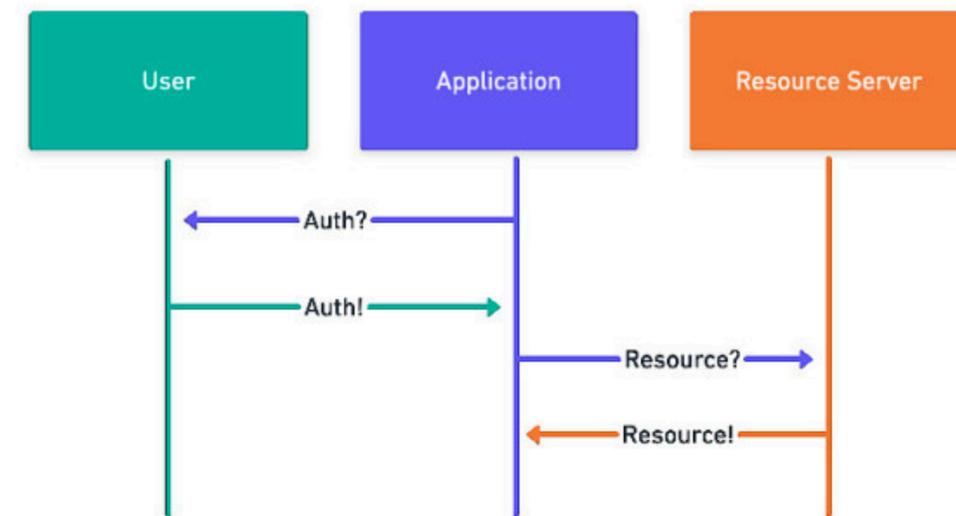
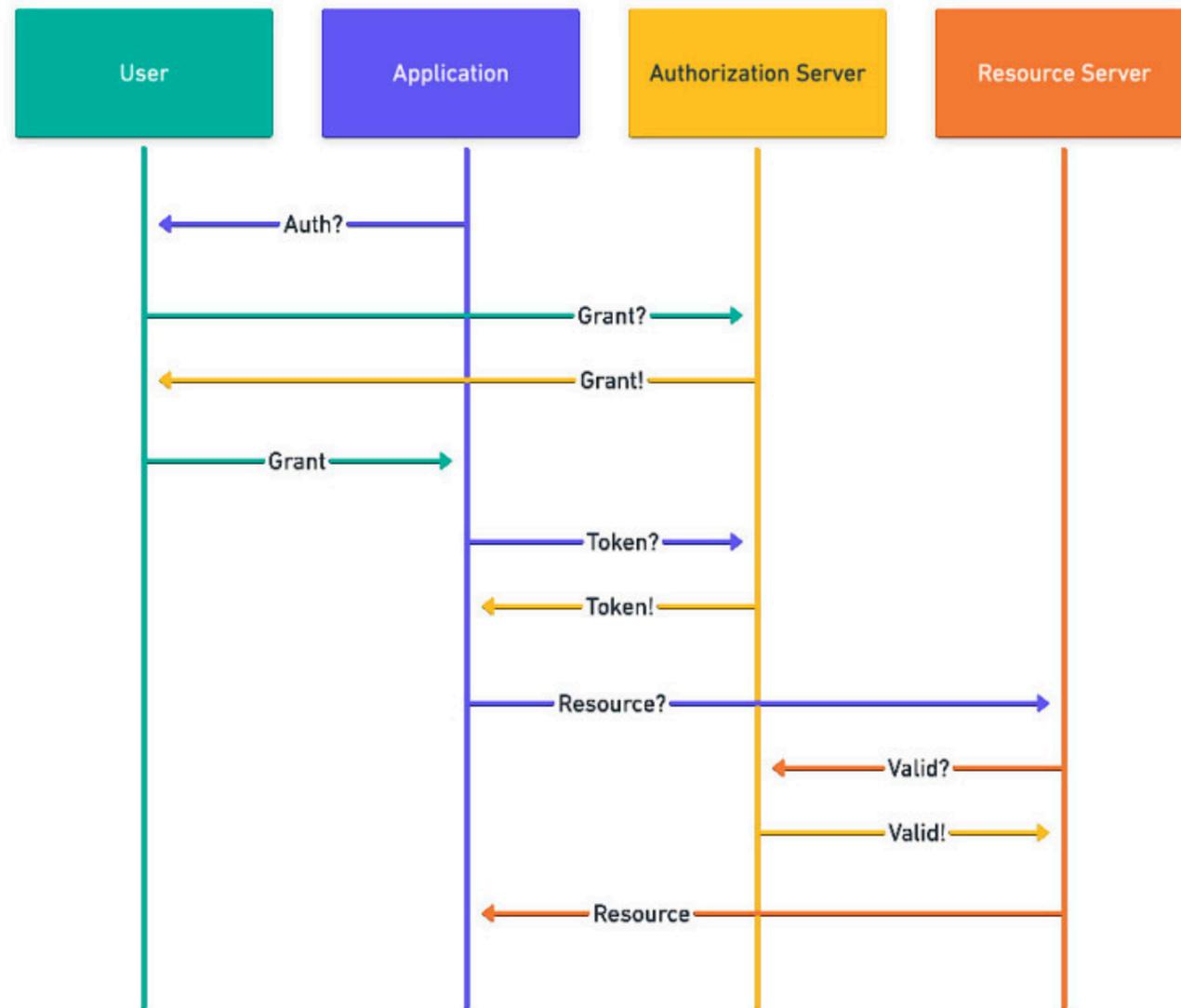




WEBNATIVE: BOOTSTRAPPING FROM BROWSER APIS

- Should work in any browser, including mobile, without plugins
 - WebCrypto API
 - Web Workers
 - Service Workers
 - IndexedDB
 - PWA & Web App Manifest

OAUTH VS UCAN SEQUENCE



(Verifiable & user originated)

