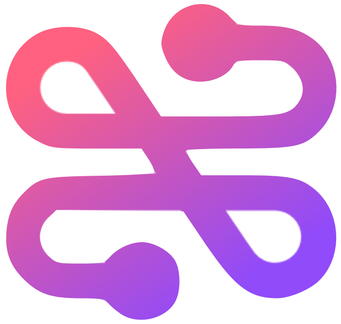

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USE YOUR FRONT-END SKILLS TO BUILD FULL APPS USING ONLY IPFS

May 2021

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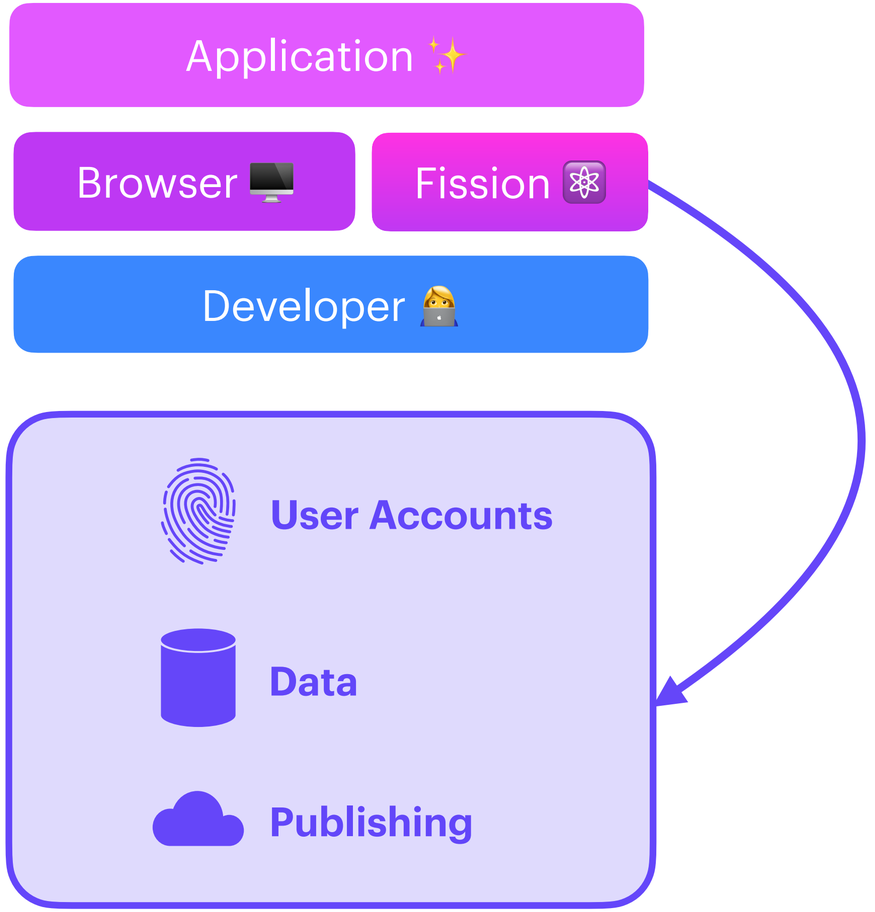
WHAT IS FISSION?

- 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



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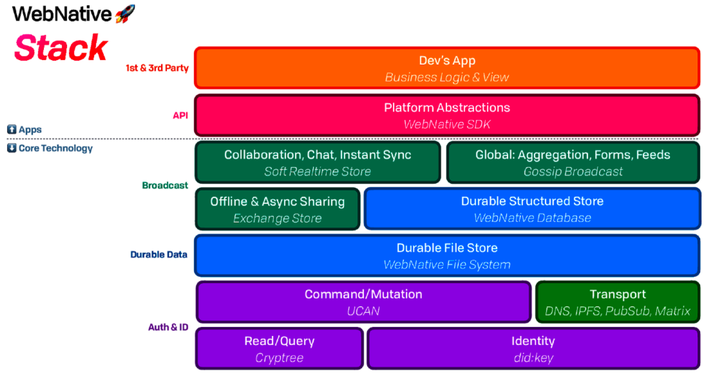
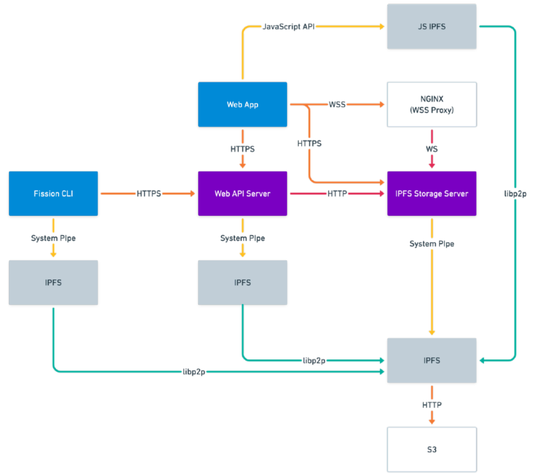
HOW DOES FISSION USE IPFS?

- 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*





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💻 WEBNATIVE SDK

- Decentralized, offline, user-controlled web app development
- Enables password-less, secure authentication
- Provides encrypted-at-rest file storage, powered by IPFS.
- Documentation: https://guide.fission.codes/developers/webnative
- Open Source (@fission-suite/webnative)

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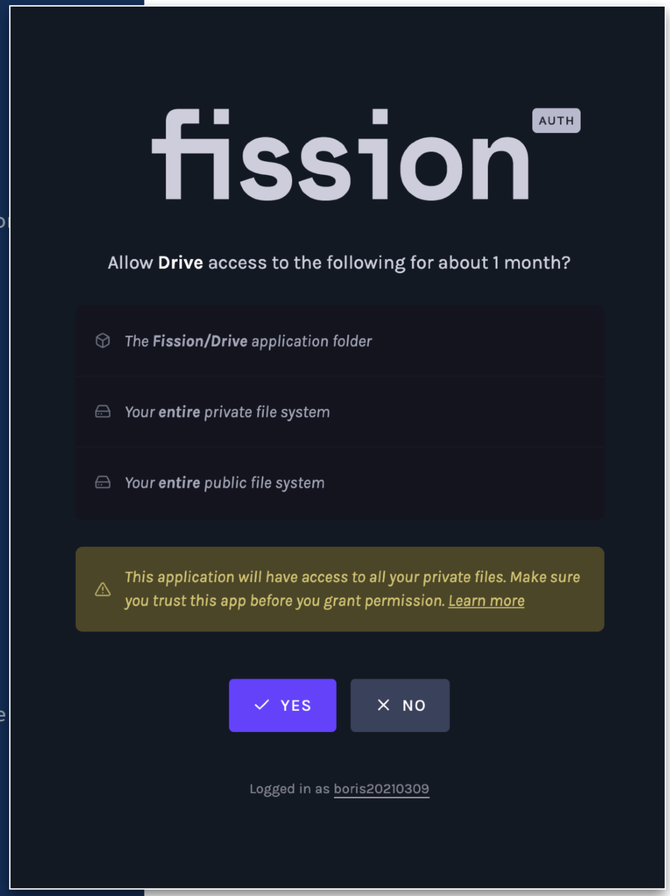
🔑 AUTHENTICATION + AUTHORIZATION

- Passwordless authentication
- Private Keys generated / managed by the WebCrypto API
- Authorization granted via UCAN

```
const state = await wn.initialise({
  permissions: {
    app: {
      name: "Demo",
      creator: "Fission"
    },

    // Ask the user permission for additio
    fs: {
      privatePaths: [ "Music" ],
      publicPaths: [ "Mixtapes" ]
    }
  }
})


switch (state.scenario) {
  case wn.Scenario.AuthCancelled:
    // User was redirected to lobby,
    // but cancelled the authorisation
    break;

  case wn.Scenario.AuthSucceeded:
  case wn.Scenario.Continuation:
    // ☞ We can now interact with our file
    state.fs
    break;

  case wn.Scenario.NotAuthorised:
    wn.redirectToLobby(state.permissions)
    break;

}
```



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🗄 WNFS

- IPFS powered filesystem
  - Public Files: available across the IPFS network
  - Private Files: encrypted-at-rest on IPFS
- Familiar UNIX-style API
- Full version history

```
// After initialising …
const fs = state.fs
const appPath = fs.appPath()

// List the user's private files that belong to this
await fs.ls(appPath)

// Create a sub directory
await fs.mkdir(fs.appPath([ "Sub Directory" ]))
await fs.publish()
```

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🚀APP PUBLISHING PLATFORM

- Static file (JAMStack) publishing
- Free subdomain + SSL for apps & users
- Custom domains
- MicroSaaS: apps can programmatically build new apps
- All being published to IPFS

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CLI

- Full app publishing from any directory
- Bundled go-ipfs (no additional install required)
- Documentation: https://guide.fission.codes/developers/cli
- Open Source (@fission-suite/fission)

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CLI: AUTHENTICATION

- fission setup
  - Downloads and starts local IPFS daemon.
  - Registers an account (generating a private key)
  - Creates DNSLink for user's DID

```
$ fission setup
🌱 Setting up environment
🪶 Downloading managed IPFS for Linux
🎛️  Configuring managed IPFS
generating ED25519 keypair...done
peer identity: 12D3KooWHZ3C1tDmzUhgi3A6LYmgBxvv1E1obtG7S2ZkYM
initializing IPFS node at /home/yourname/.config/fission/ipfs
🔑 Creating keys
🏠 Do you have an existing account? [Y/n] n
Username: YOURNAME
Email: yourname@example.com
✅ Registration successful! Head over to your email to confir
🎛️  Initializing user config file
✅ Done! Welcome to Fission, YOURNAME ✨.
```

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CLI: APP PUBLISHING

- fission app register
  - Set custom build directory
  - Generate subdomain (with SSL)
  - Creates local fission.yaml config file
- fission app publish
  - Add files to IPFS (replicated to Fission servers), update DNSLink

```
$ fission app register
👷 Build directory (./dist):
✅ App initialized as big-narrow-fuchsia-elf.fission.
⏯️  Next run fission app publish or fission app publi
💁 It may take DNS time to propagate this initial set
you can always view your app at
https://ipfs.runfission.com/ipns/big-narrow-fuchsia-e
```

```
$ fission app publish
🚀 Now live on the network
📝 DNS updated! Check out your site at:
🔗 big-narrow-fuchsia-elf.fission.app
```

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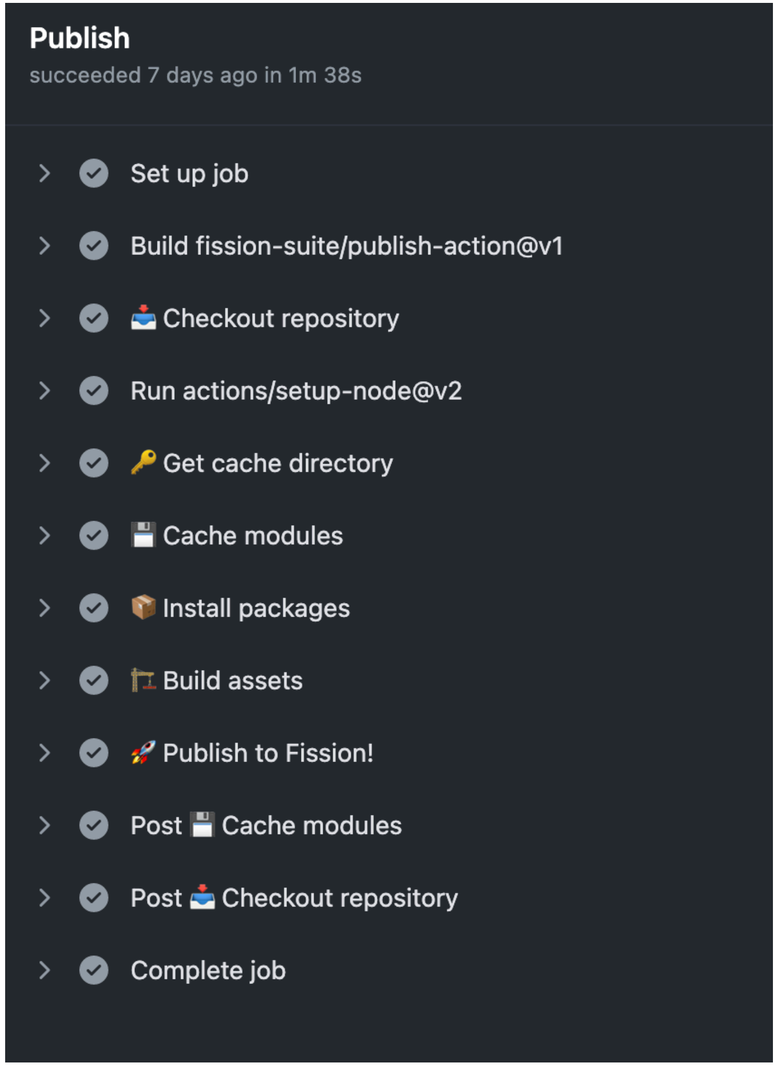
GITHUB ACTION

- Built on top of CLI
- Enables multi-user publishing to a single app
- Trigger deployments (e.g. Headless UI)
- Open Source (@fission-suite/publish-action)



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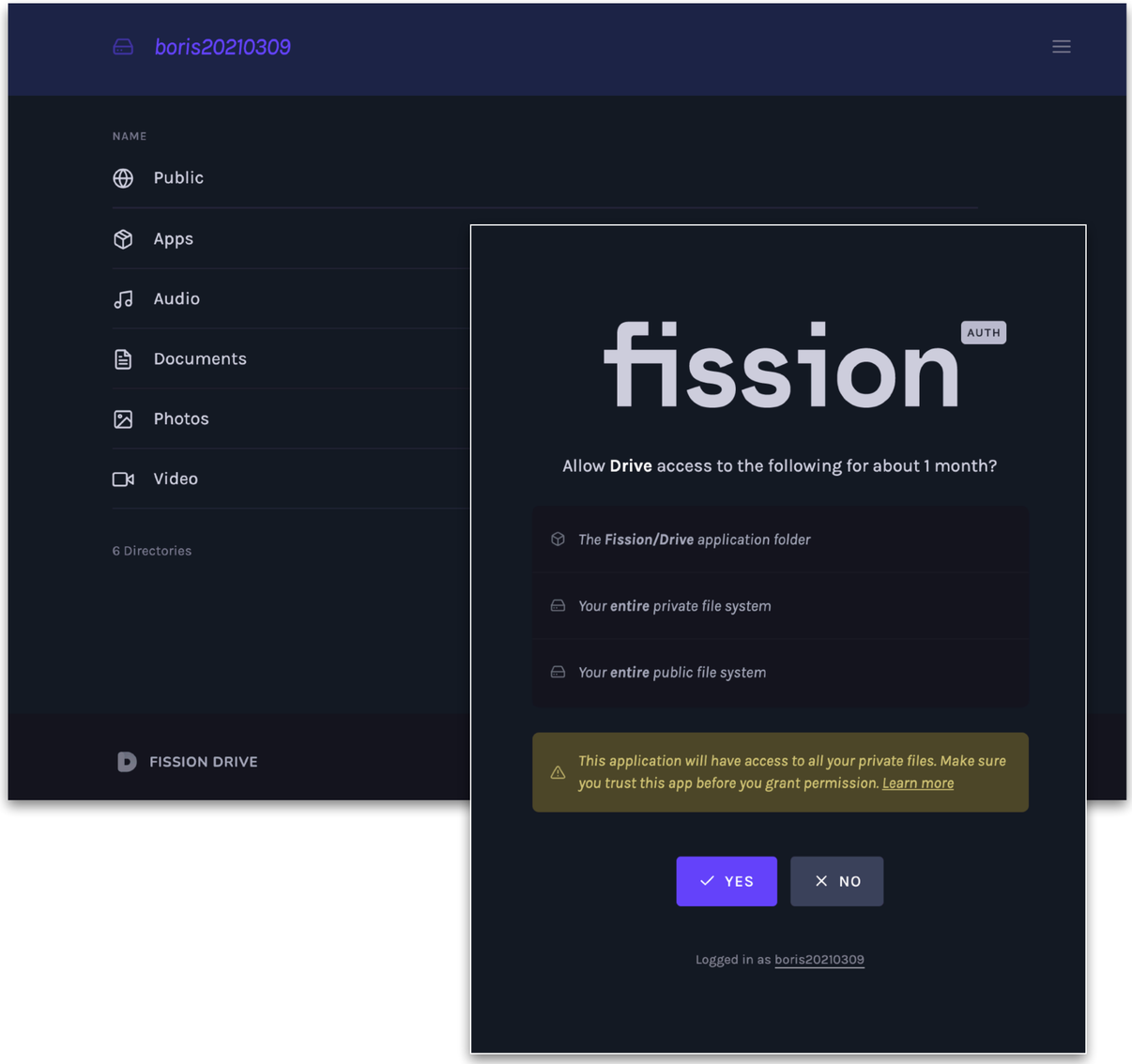
FISSION DRIVE

- 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



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PRIVATE KEYS IN THE BROWSER

- As part of an initial grant from Protocol Labs and Filecoin, we have developed an extension to webnative that allows for secure, non-custodial storage of private keys in browser, without plugins, including on mobile
- It uses BLS for signature aggregation and a co-signer model
- Keys can be generated on the fly in browser for new users, with instant onboarding
- Available now for Filecoin keys, Ethereum keys are next on the roadmap

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BUIDL FULL APPS ON IPFS

- Go to https://guide.fission.codes/developers & install the CLI
- Link your browser & try out Drive https://drive.fission.codes
- `fission app register` and `fission app publish` and your front end framework is live on IPFS (or use the Github Action to auto-publish from your repo)
- Add webnative SDK to let users login, and read/write IPFS, public or encrypted, directly from the browser
- Add in Ethereum accounts to talk to the blockchain, but also store user data, all without running a central server

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CRYPTOPOOPS!

https://thecryptopoops.com/

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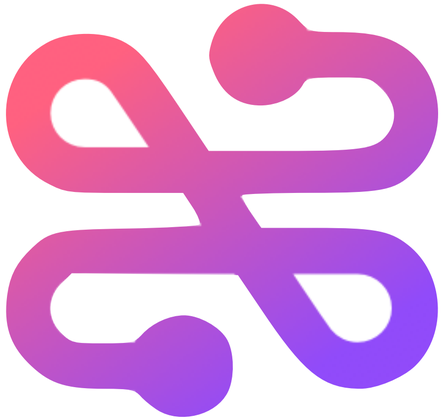
PORTABLE WALLET CONTACTS

- We're building a "Contacts" app and schema
- Add Fission login to an existing dapp, let users import their own wallet addresses and labels / notes / contacts
- Cross-chain! Using the Chain Agnostic Improvement Proposals (CAIP)
- Starting with Ethereum/EVM based chains + Filecoin
- Easily add a PR with your own formats



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THANK YOU!

Github: 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

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MICROSAAS: APPS THAT BUILD APPS

- Any app built on Fission can create new apps on behalf of the user
- Use this to build custom site and app builders of various kinds
- Every app gets a free subdomain `APPNAME.fission.app`, and you can sell custom domains to your users as well
- Build a MicroSaaS business on the Fission publishing platform

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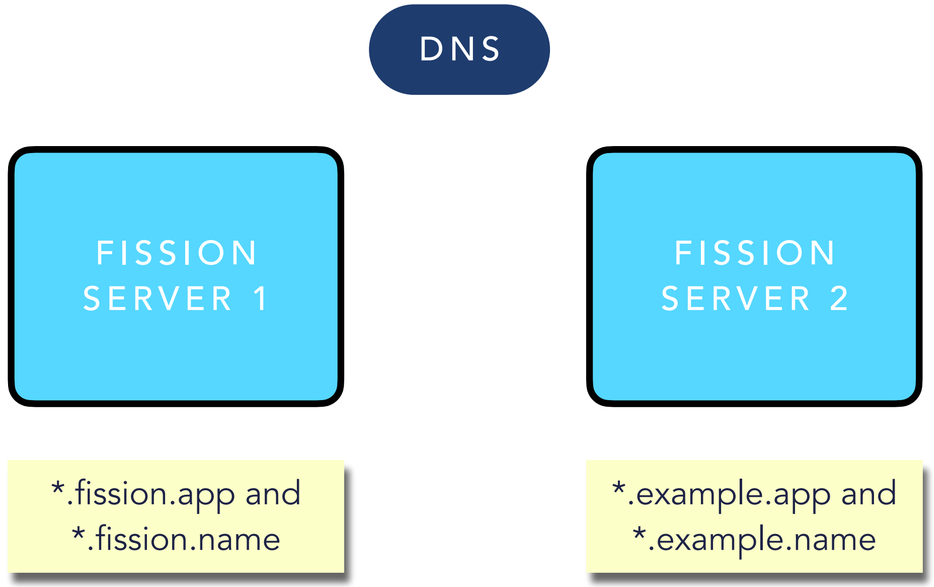
CONSTELLATION: DEV STACK IN A BOX

- Constellation Provider not a Cloud Provider
- We run a Fission instance with *.fission.app and *.fission.name and integrate everything for many smaller developers; focused on mass market front end developers
- Communities or Organizations can run their own Fission Constellation, choose and customize their own domain names and features
- Federate between them — Webfinger
- Fission hosts / white labels, as well as collaborates with larger peers on improving the open source stack



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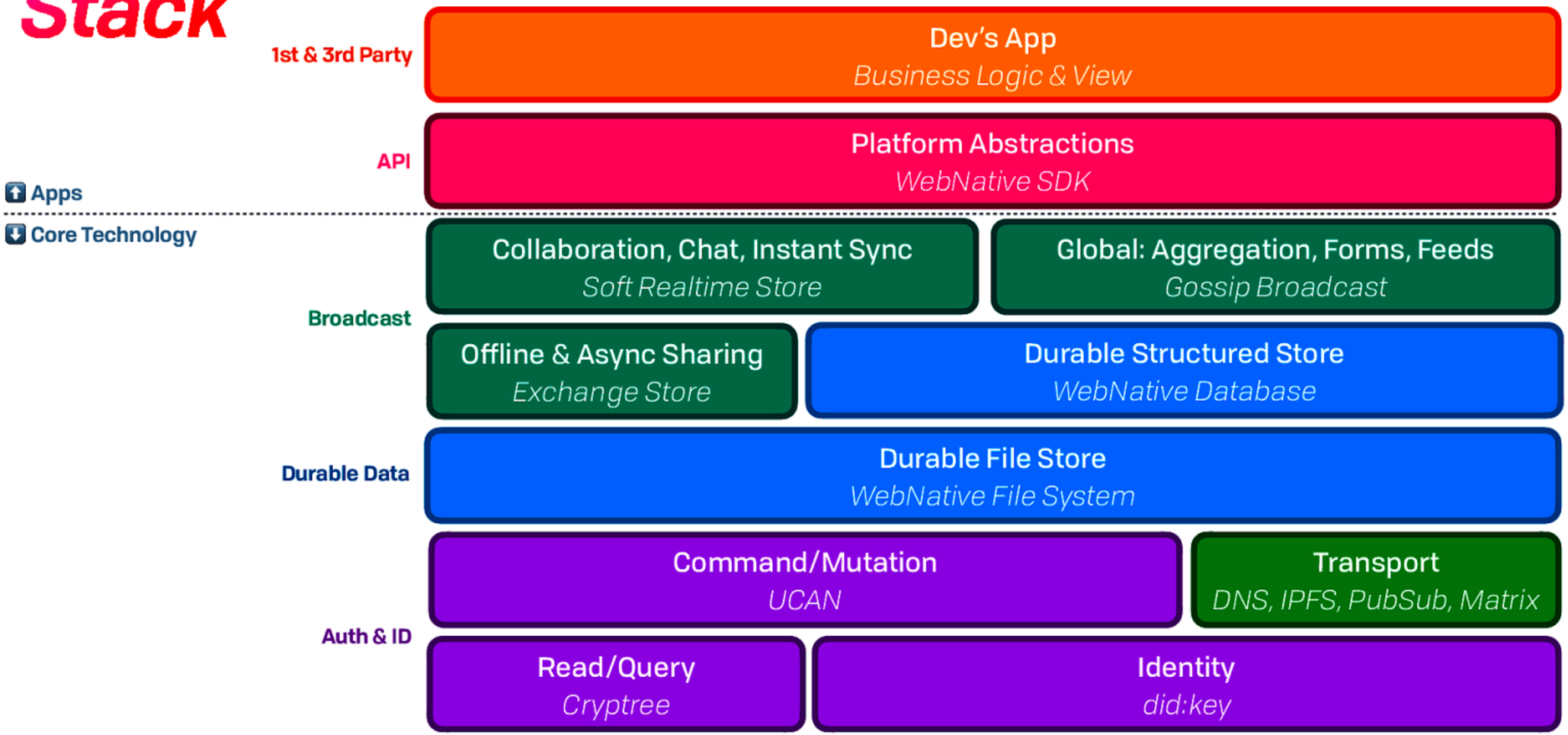
WebNative 🚀 Stack



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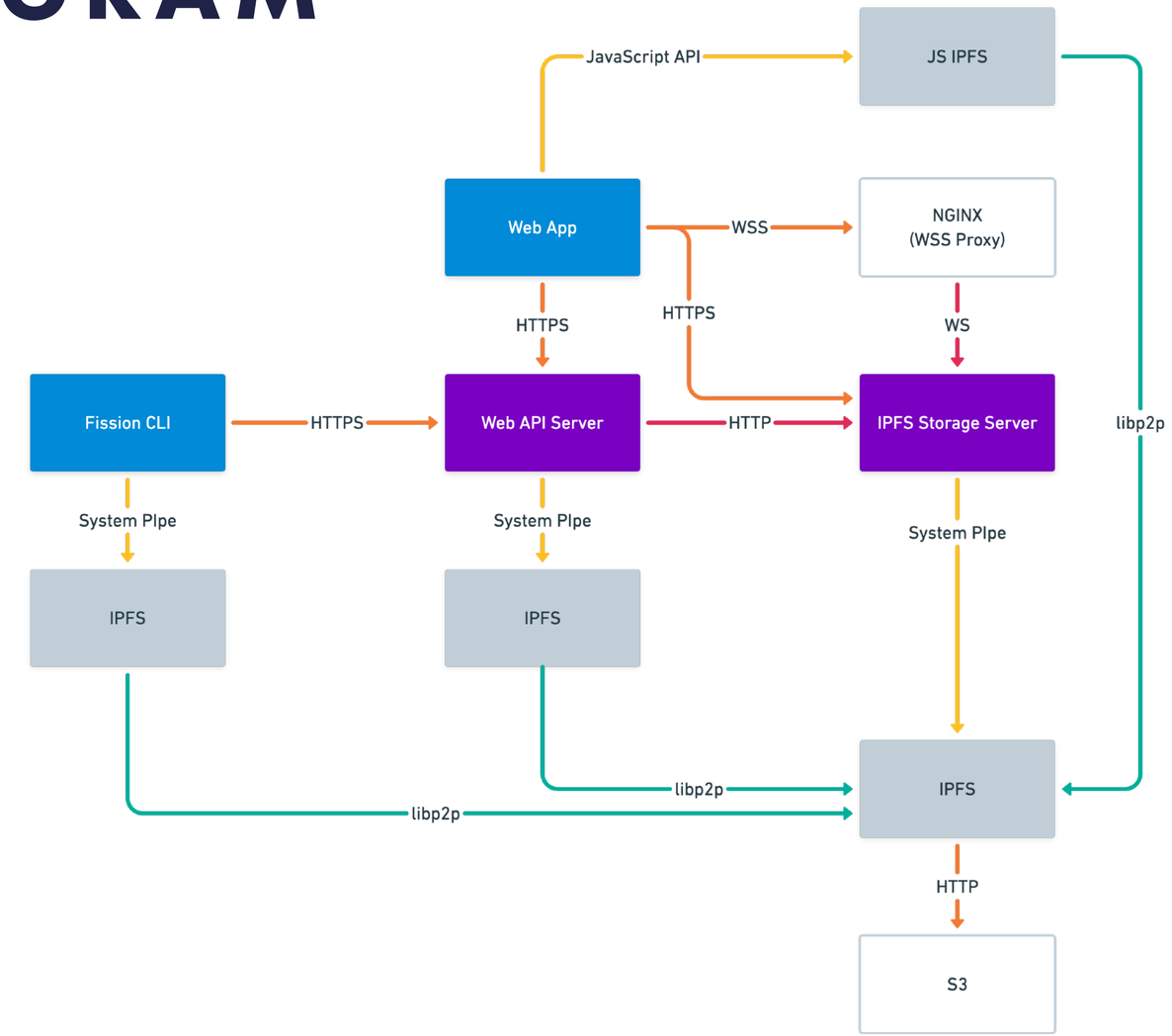
FISSION SYSTEM DIAGRAM

- 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.



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HOW TO WORK WITH FISSION

- **Live today!** Go to https://guide.fission.codes, install the CLI and start building an app, or visit https://drive.fission.codes to create a Fission account and try out Fission Drive
- **Book an engineering briefing for your team:** we want you to succeed building with Fission, our Developer Success team is here to support you in shipping apps
- **Feature acceleration:** see a feature on the roadmap you'd like to have access to sooner? Have a particular integration in mind? Get in touch about scoping a project.
- **Run a Fission Constellation:** talk to us about running our app publishing platform as a turn key developer experience for your protocol or community