



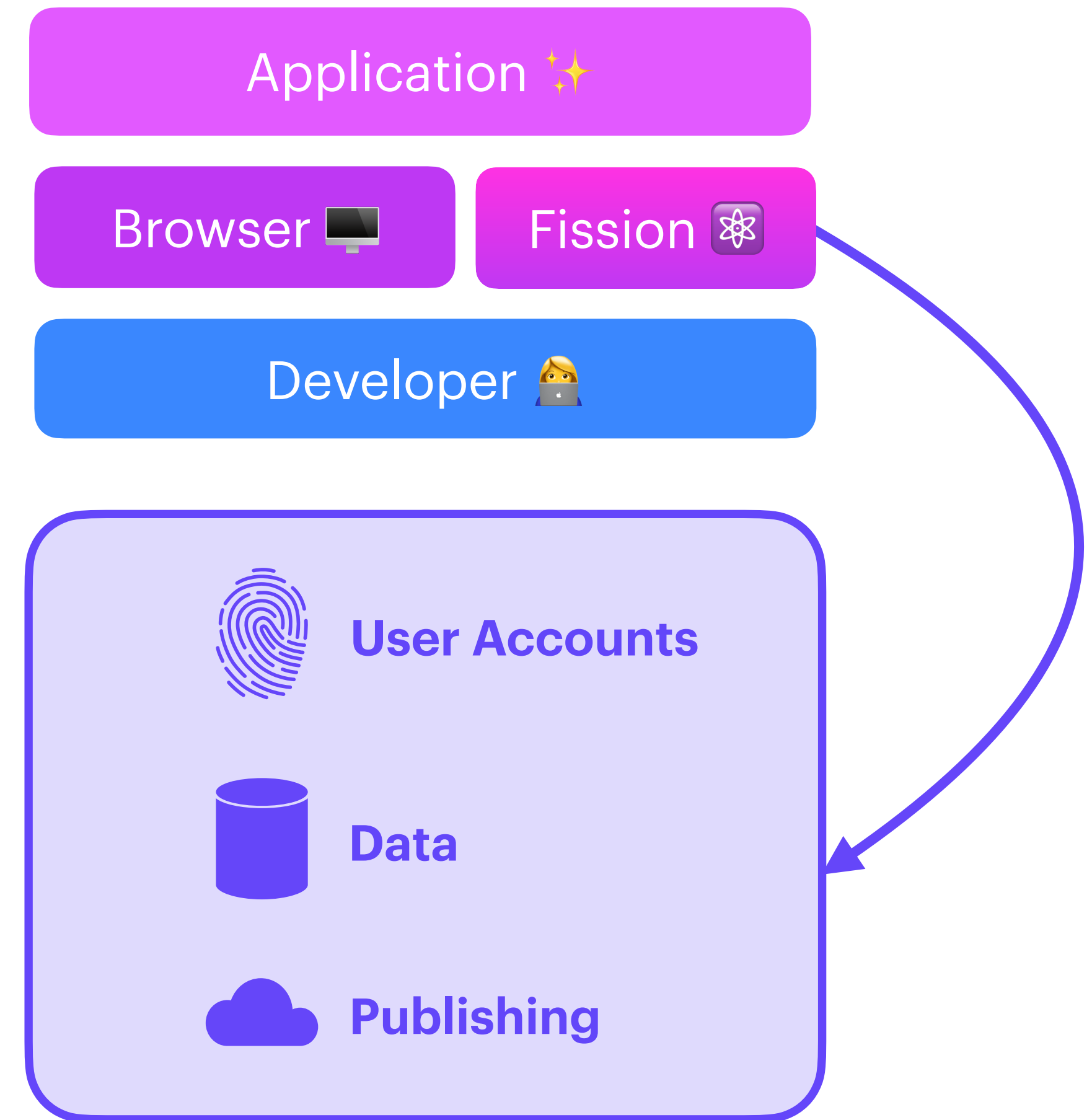
**fission**

**FISSION EDGE COMPUTING STACK  
COMPUTE OVER DATA WG**

July 7, 2022

# 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



# WEBNATIVE: EDGE IDENTITY & DATA

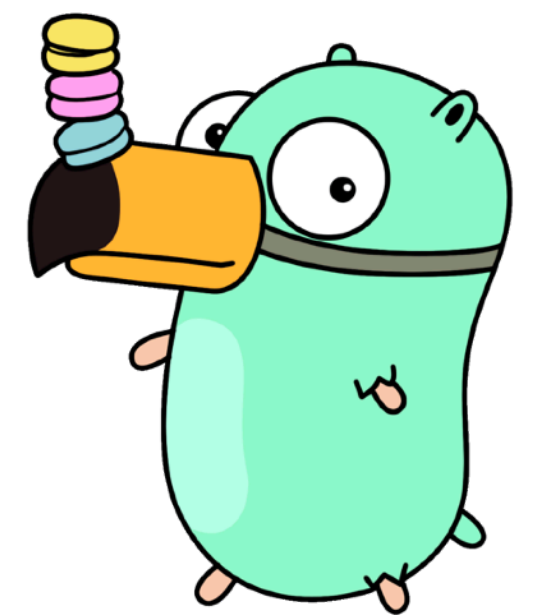
- Some of the features included in the Webnative SDK:
  - Accounts: linked to browsers and desktops, based on a private key DID
  - Password-less Login: in any browser, including mobile. Securely link devices.
  - End-to-end Encryption: WNFS is encrypted & obscures file metadata
  - Versioning: WNFS 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

# 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



# 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
- Identity, Data, and Compute — as a commons network

# WEBASSEMBLY

- We're moving our stack to Rust with WASM as a target
  - more performant, portable from command line, to browser, to server (and native mobile?)
- WASM adoption on the front end
  - More rich apps like Figma
- Have some research planned around content addressed WASM functions
- Want to partner with people who are looking for decentralized auth & private data
  - UCAN can hand capabilities between services that are run p2p
  - Services and functions can read/write private data as both inputs and outputs to WNFS — private data on IPFS

## UPCOMING PROJECTS

- WASM + IPFS: aka autocodec - use WASM to interpret IPLD data
- CAR Pool: 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: use FIL like anything other blockchain login
- WalletAuth: add private data encrypted on IPFS with any blockchain account
- 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

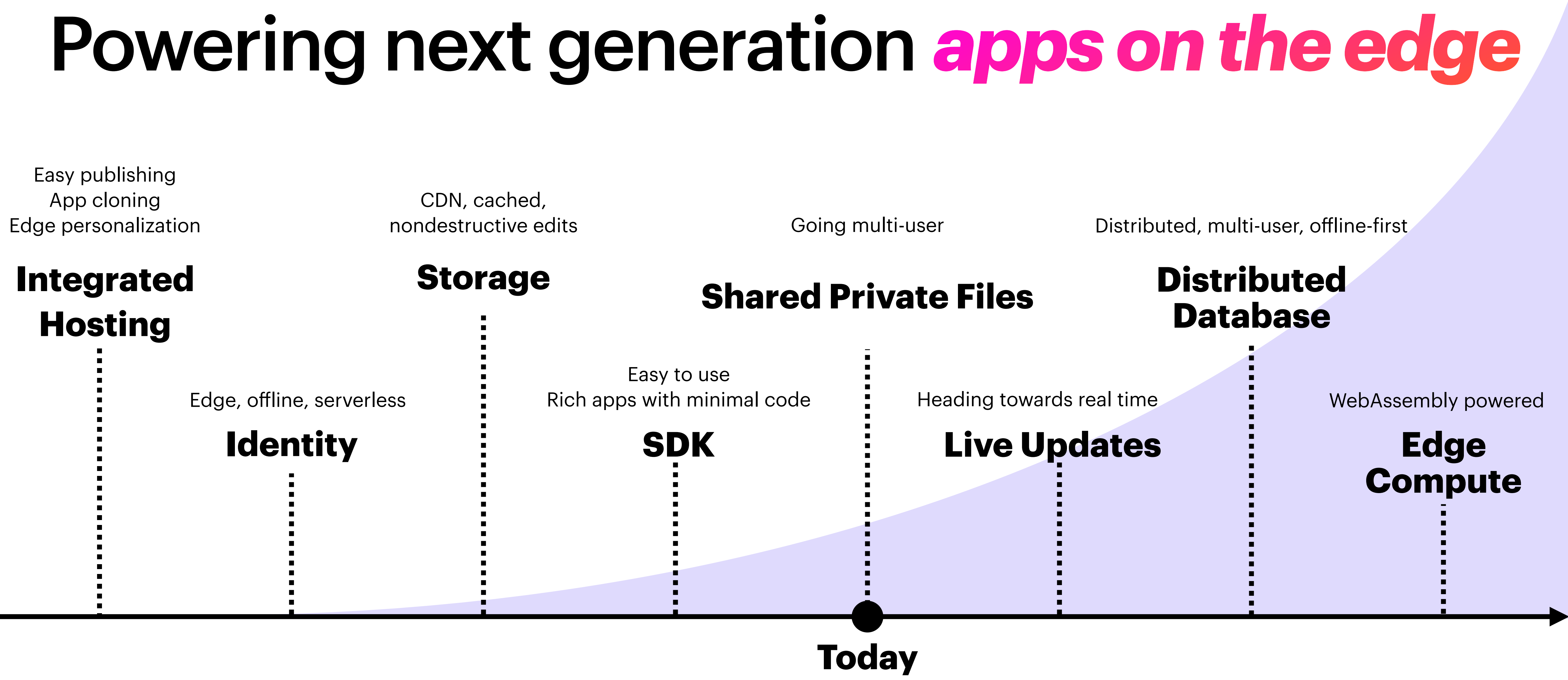
**Identity**

**SDK**

**Live Updates**

**Edge  
Compute**

**Today**



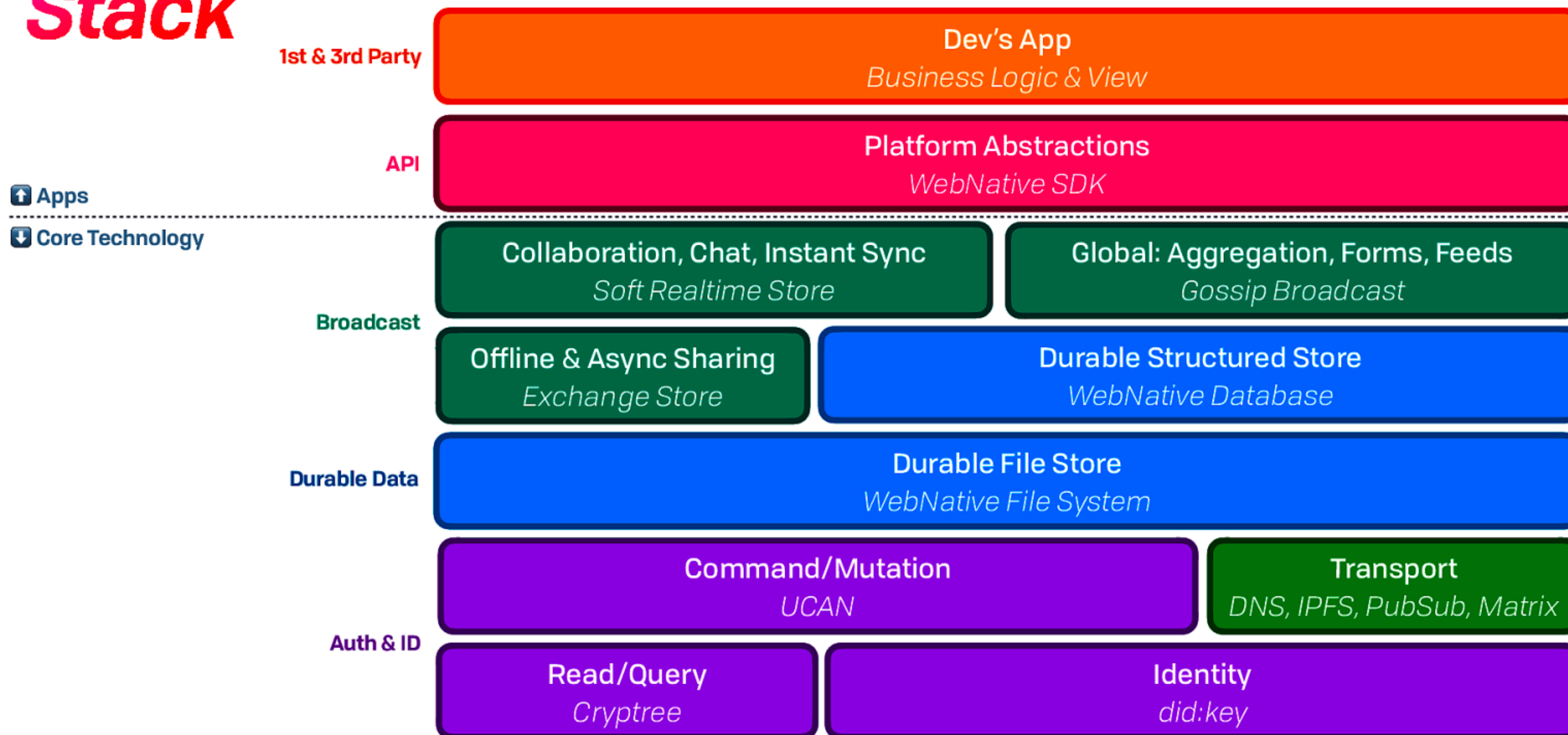


# fission

[HTTPS://FISSION.CODES](https://fission.codes)  
**@FISSIONCODES**



WebNative   
**Stack**



## 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](https://login.xyz) to connect UCAN + blockchain logins
- Read: Ryan Betts @depatchedmode, "The Wallet Stack": [fission.codes/blog/wallet-stack/](https://fission.codes/blog/wallet-stack/)