

TAGGART BOWEN-GADDY

ORGANIZING YOUR WEB3 DAPP WITH MODERN REACT

thesis*

KEEP



THE THING THAT I OFTEN ASK STARTUPS ON TOP OF ETHEREUM IS, 'CAN YOU PLEASE TELL ME WHY USING THE ETHEREUM BLOCKCHAIN IS BETTER THAN USING EXCEL?' AND IF THEY CAN COME UP WITH A GOOD ANSWER, THAT'S WHEN YOU KNOW YOU'VE GOT SOMETHING REALLY INTERESTING.

Vitalik Buterin

REVIEW OF TERMS

- ▶ Blockchain: An immutable list of "blocks"
- ▶ Ethereum: An implementation of a blockchain network that supports Smart Contracts
- ▶ Smart Contracts: The "business logic" that determines what gets added to the Blockchain
- ▶ Ether: The currency used by the Ethereum Network
- ▶ Decentralized App: An application that takes advantage of the above architecture instead of a centralized server + DB

**HOW DOES A
DAPP GET BUILT?**

HOW DOES A DAPP GET BUILT?

- ▶ HTML / CSS / JS in an ethereum-enabled browser
 - ▶ MetaMask, A Chrome Plugin
 - ▶ Mist, Official
 - ▶ Toshi, Mobile by Coinbase
 - ▶ Cipher, Mobile
 - ▶ Trust, Mobile

HOW DOES A DAPP GET BUILT?

- ▶ One or more Smart Contracts deployed to Ethereum
 - ▶ Today we're using the official Ropsten TestNet

INTERACT WITH THE BLOCKCHAIN!

- ▶ Web3.js
 - ▶ Abstraction built by Ethereum team
 - ▶ Does everything you need
- ▶ Ethereum Explorer
 - ▶ etherscan.io
 - ▶ etherchain.org
 - ▶ ethplorer.io

METAMASK

METAMASK

- ▶ RPC-enabled to talk to Ethereum Nodes on the network
- ▶ Connect to full network, a TestNet, or local blockchain
- ▶ Acts as a Wallet
- ▶ Injects a web3 (v0.2) object onto window
- ▶ metamask.io

WEB3

WEB3

- ▶ Today we're using Web3.js, but supports other languages
- ▶ Almost everything is Async
- ▶ In addition to web3.eth:
 - ▶ web3.shh: Whisper Protocol for secure messaging
 - ▶ web3.bzz: Swarm Protocol for distributed file storage

WAIT, I STILL HAVEN'T EVEN LEARNED ES6 YET

WEB3 0.2 OR 1.0? ...OR ETHJS?

- ▶ V0.x
 - ▶ Uses BigNumber.JS for big numbers
- ▶ V1 is still in beta
 - ▶ Support Callbacks AND "PromiVents"
 - ▶ Promise chain + EventEmitter chain
 - ▶ Use Async / Await
 - ▶ Subscribe to Blockchain changes
- ▶ EthJS is not a web3 wrapper
 - ▶ Preferred by MetaMask in the future
 - ▶ Smaller minified/gzipped

**LETS GET
STARTED**

LETS GET
BETTER

CONTEXT

BUT CONTEXT IS ONLY FOR LIBRARY DEVELOPERS!

CONTEXT IN REACT 16

- ▶ Pass data through an entire subtree
- ▶ Now in 16:
 - ▶ Explicitly create a "Provider" that wraps that subtree and passes values
 - ▶ Explicitly create a "Consumer" that wraps the render node that will use one of those values
- ▶ Useful for passing down data + functionality

**HIGHER ORDER
COMPONENT**

HIGHER ORDER COMPONENTS

- ▶ Useful to access your context as a prop
- ▶ Create a function that wraps your component and injects useful information as a prop (like something from a Context Consumer)

**I CAN'T BELIEVE NO ONE
HAS DONE THIS BEFORE!**

THEY HAVE.

OTHER OPTIONS

- ▶ react-web3
 - ▶ General use-case web3 Provider for React
 - ▶ <https://github.com/coopermaruyama/react-web3>
- ▶ Drizzle
 - ▶ Full Redux framework
 - ▶ Modular Base framework, React connector, React Component Lib
 - ▶ Part of Truffle, a suite of tools for Ethereum dApp development
 - ▶ <https://truffleframework.com/blog/drizzle-reactive-ethereum-data-for-front-ends>