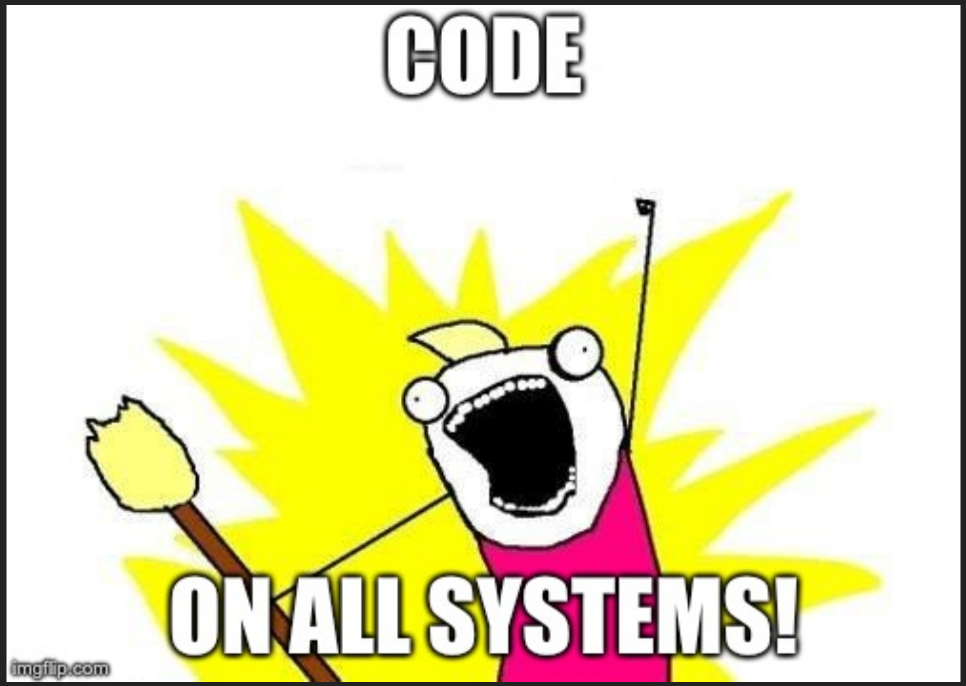
EMPOWERING REACT TO BUILD CROSS-SYSTEM APPS

ONE CODEBASE TO RULE THEM ALL

GOAL - HAVING ONE CODEBASE FOR ALL THE APPS

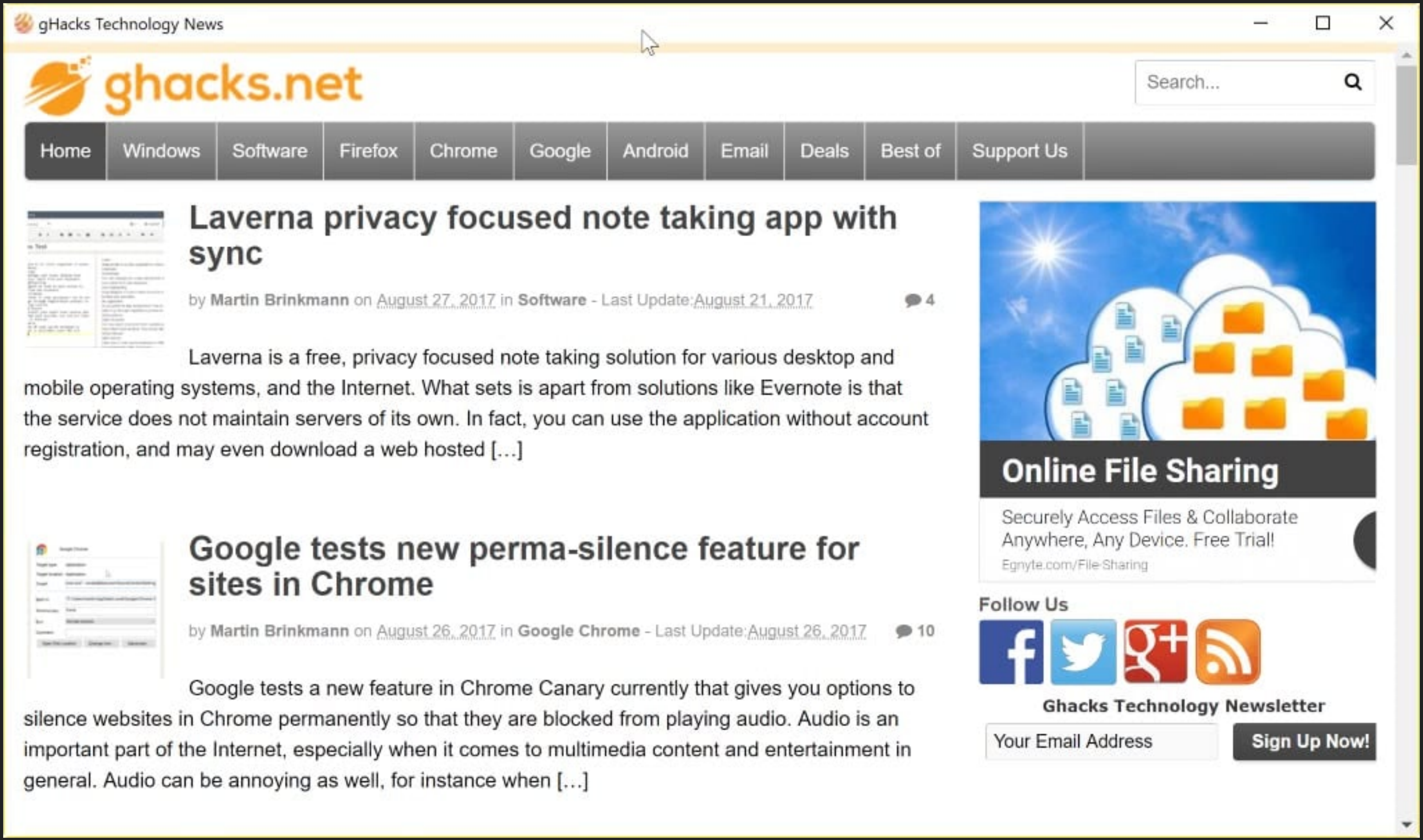
- Use one codebase for Web and native desktop apps
- Use (at least part of) the same codebase for mobile
- Consistent styles, CSS
- As for the language - we can also use JS in the back end (NodeJS)



DESKTOP CODEBASE

- The simplest way - Chrome borderless - App/Kiosk mode
  - Desktop “feel”, not a real desktop app
  - May suffice for simple applications
- Electron / Node Webkit
  - Essentially - full browser on top of V8 / NodeJS
  - Ability to call system functions and work as a fully featured app
  - Menus, system APIs, system look and feel
- In the future - PWA
  - Uses native browser APIs
  - Will take over other solutions (in time)

APP/KIOSK MODE



Laverna privacy focused note taking app with sync

by Martin Brinkmann on August 27, 2017 in Software - Last Update:August 21, 2017 4

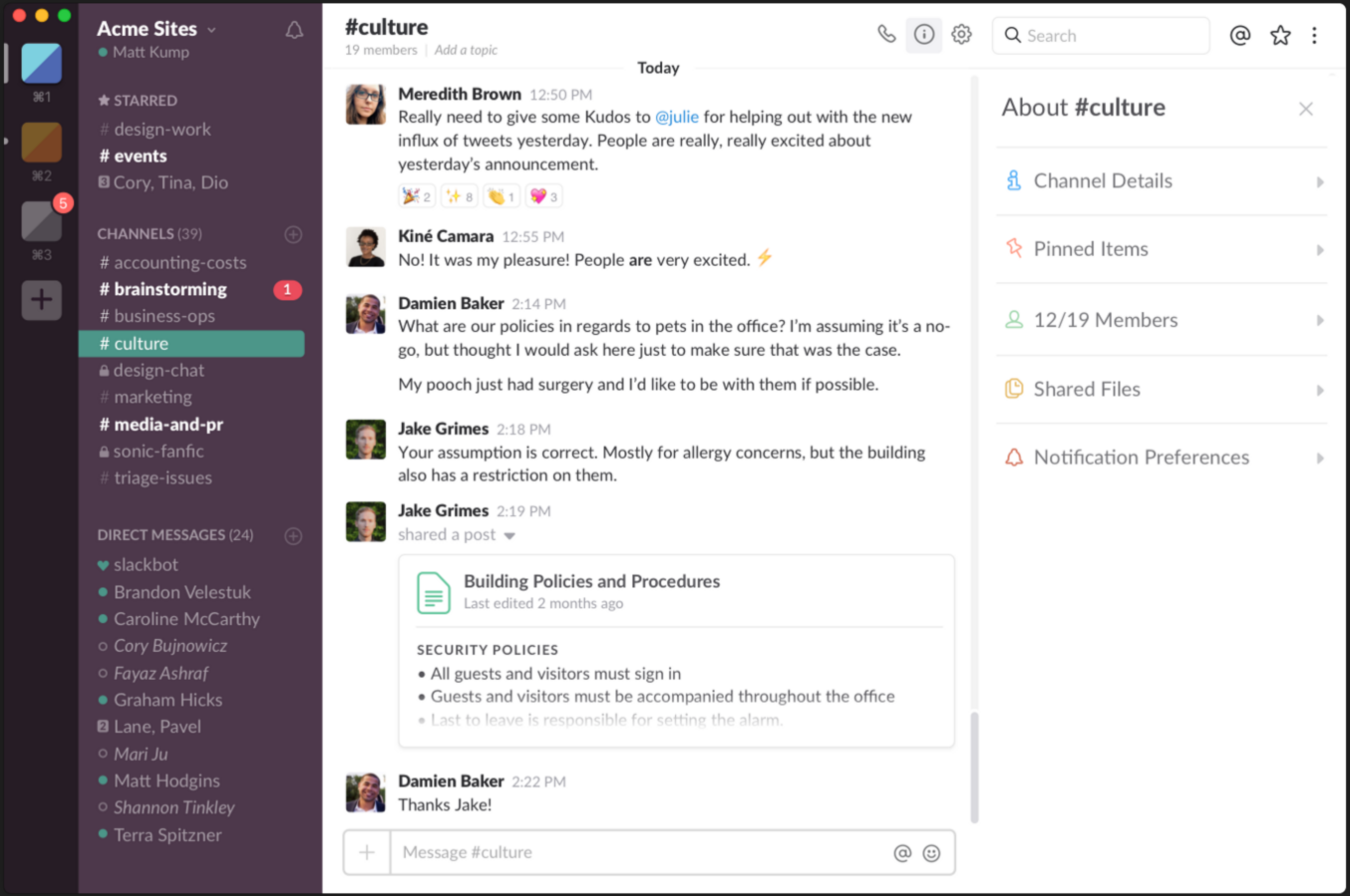
Laverna is a free, privacy focused note taking solution for various desktop and mobile operating systems, and the Internet. What sets is apart from solutions like Evernote is that the service does not maintain servers of its own. In fact, you can use the application without account registration, and may even download a web hosted […]

Google tests new perma-silence feature for sites in Chrome

by Martin Brinkmann on August 26, 2017 in Google Chrome - Last Update:August 26, 2017 10

Google tests a new feature in Chrome Canary currently that gives you options to silence websites in Chrome permanently so that they are blocked from playing audio. Audio is an important part of the Internet, especially when it comes to multimedia content and entertainment in general. Audio can be annoying as well, for instance when […]

ELECTRON



Today

Meredith Brown 12:50 PM
Really need to give some Kudos to @julie for helping out with the new influx of tweets yesterday. People are really, really excited about yesterday's announcement.
🎉 2 ✨ 8 👏 1 💖 3

Kiné Camara 12:55 PM
No! It was my pleasure! People **are** very excited. ⚡

Damien Baker 2:14 PM
What are our policies in regards to pets in the office? I'm assuming it's a no-go, but thought I would ask here just to make sure that was the case.

My pooch just had surgery and I'd like to be with them if possible.

Jake Grimes 2:18 PM
Your assumption is correct. Mostly for allergy concerns, but the building also has a restriction on them.

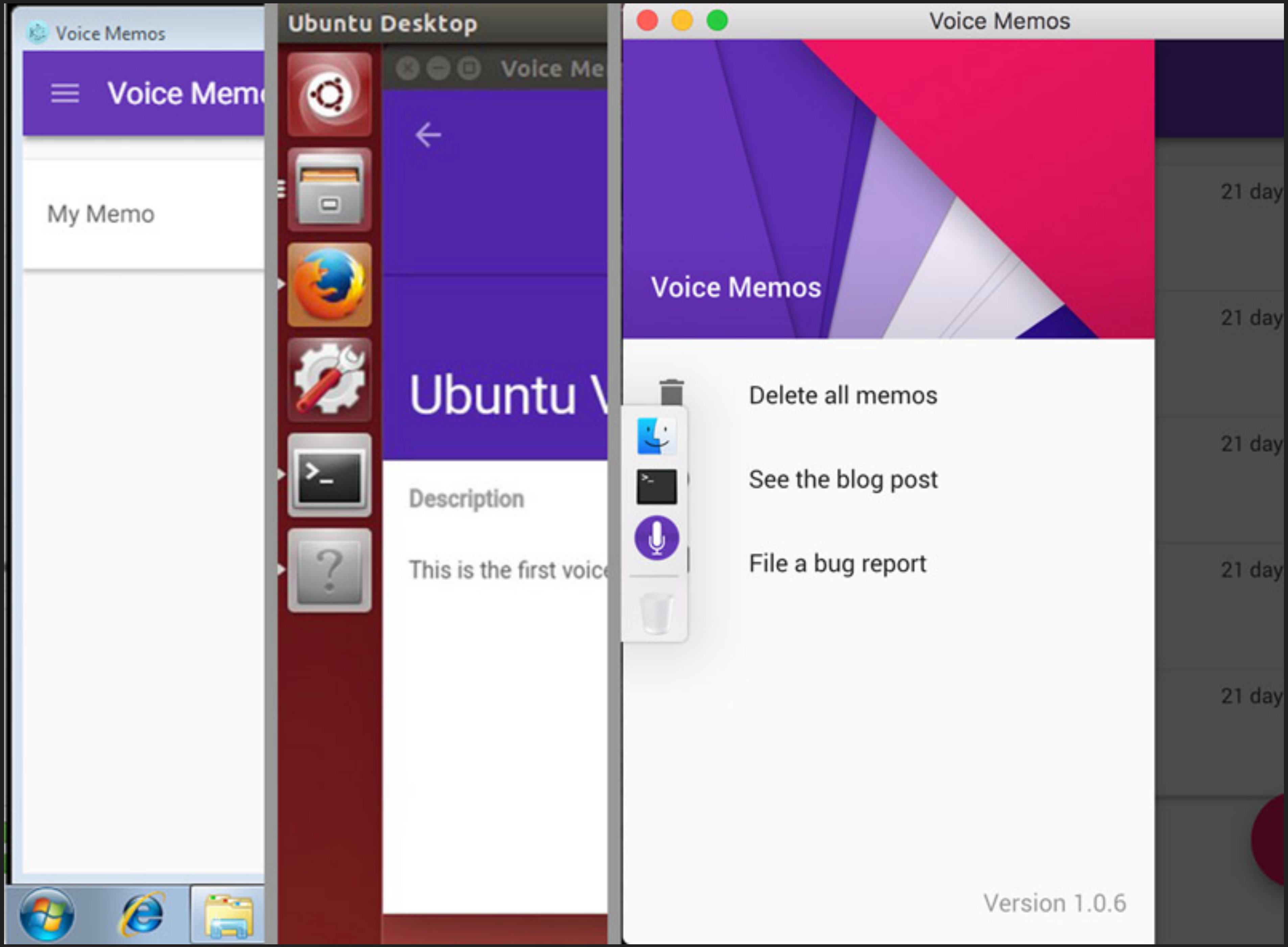
Jake Grimes 2:19 PM
shared a post

Building Policies and Procedures
Last edited 2 months ago

SECURITY POLICIES
- All guests and visitors must sign in
- Guests and visitors must be accompanied throughout the office
- Last to leave is responsible for setting the alarm.

Damien Baker 2:22 PM
Thanks Jake!

PWA'S


Voice Memos
Voice Mem
My Memo
Ubuntu Desktop
Voice Me
Ubuntu V
Description
This is the first voic
Voice Memos
Voice Memos
Delete all memos
See the blog post
File a bug report
21 day
21 day
21 day
21 day
21 day
Version 1.0.6

MOBILE CODEBASE

- Many to choose from!
- Ionic / Cordova
  - The easiest to start with
  - Native look and feel on all the platforms
  - Heavy underneath, can be slow (WebView)
- React Native
  - Native look and feel
  - Well optimised
  - Uses most of standard React well-defined practices
- NativeScript
  - Not tied to any particular technology
  - Angular, Vue.js, native JS (no React…)
- PWAs again

REACT VS ANGULAR – WHY CHOOSE ONE OVER ANOTHER?

- Not an Angular or React evangelist
- Two different tools for (a bit) similar purposes
- React
    - Easy prototyping
    - Easy to pick up
    - Scalability is the key
    - No defined set of good practices
- Angular
    - Good for big teams
    - Hard to pick up
    - Scalability is easy as pie (providing that dev follows good practices)
    - Whole framework is built on top of some practices

REACT - A SHORT INTRODUCTION

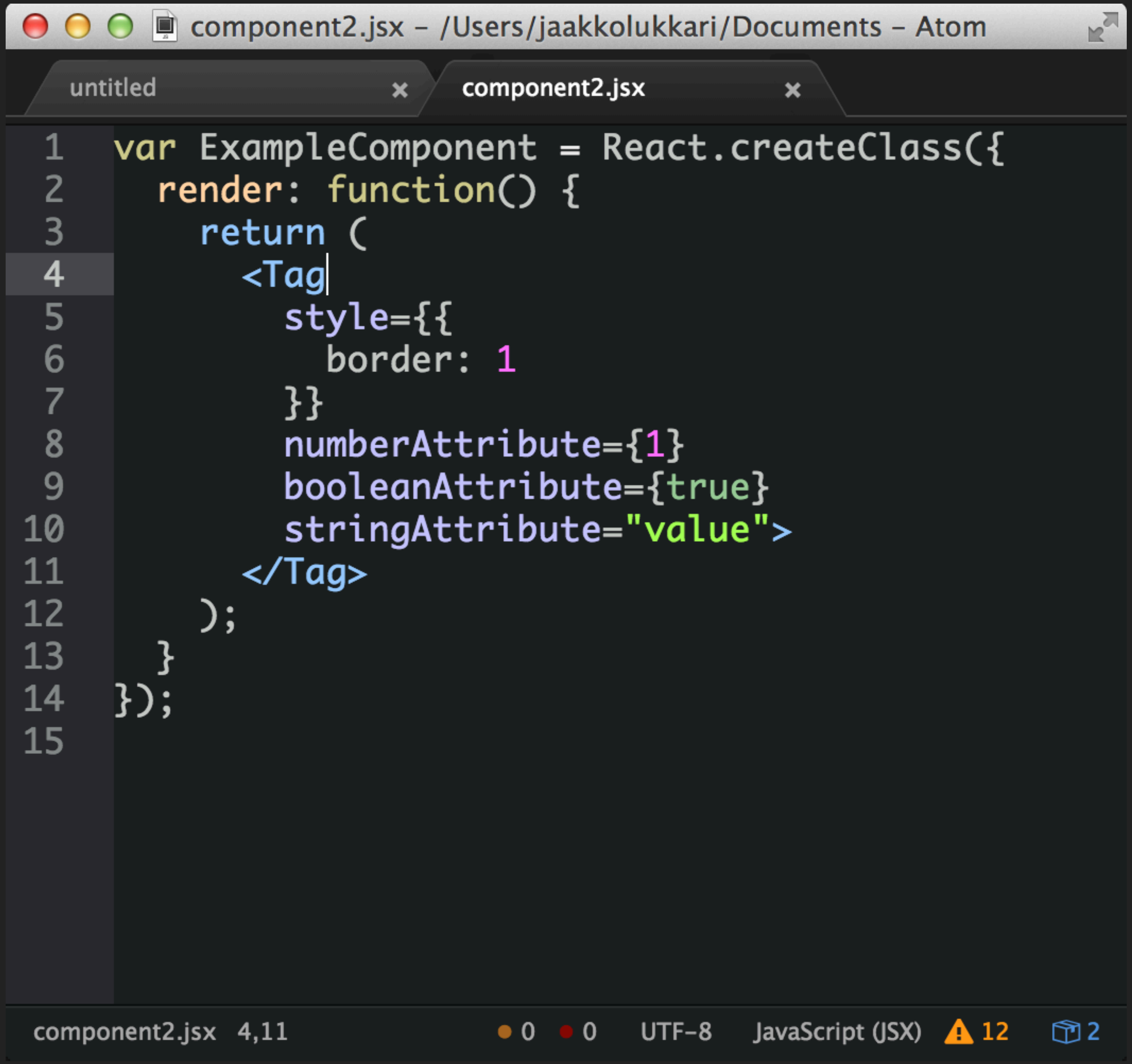
- Library, not a framework!
    - Does not include helpers, another libraries
    - Relies mostly on native browser capabilities
- Main purpose - rendering views
- Created in 2013 as an internal project
- The most popular “starting kit” in 2018
- Big players: AirBnB, Netflix, Walmart (and Facebook, of course!)

WHY REACT?

- Easy to start with
- Good practices for JS - uses newest standard features
- Easy syntax, easy to pick up for beginners
- Seamless integration with bundlers (Webpack)
- Makes componentisation easier
- Scaling (with a few remarks) is easy and seamless
- Can run on serverless (static hosting) with ease

REACT – CORE PRINCIPLES

- Virtual DOM
- JSX
- One-way data binding



```
var ExampleComponent = React.createClass({
  render: function() {
    return (
      <Tag
        style={{
          border: 1
        }}
        numberAttribute={1}
        booleanAttribute={true}
        stringAttribute="value">
      </Tag>
    );
  }
});

```

ELECTRON - BRINGING DESKTOP EXPERIENCE TO WEB OR WEB EXPERIENCE TO DESKTOP?

- Developer for Atom originally (Atom Shell)
- First release - 2013
- NodeJS + Chromium (WebView… Again)
- Highly opinionated, broadly used to bring web to desktop
- Slack, Skype, WhatsApp, Atom, Keybase, VSCode (and many more)

ELECTRON – CORE PRINCIPLES

LET'S GET STARTED!

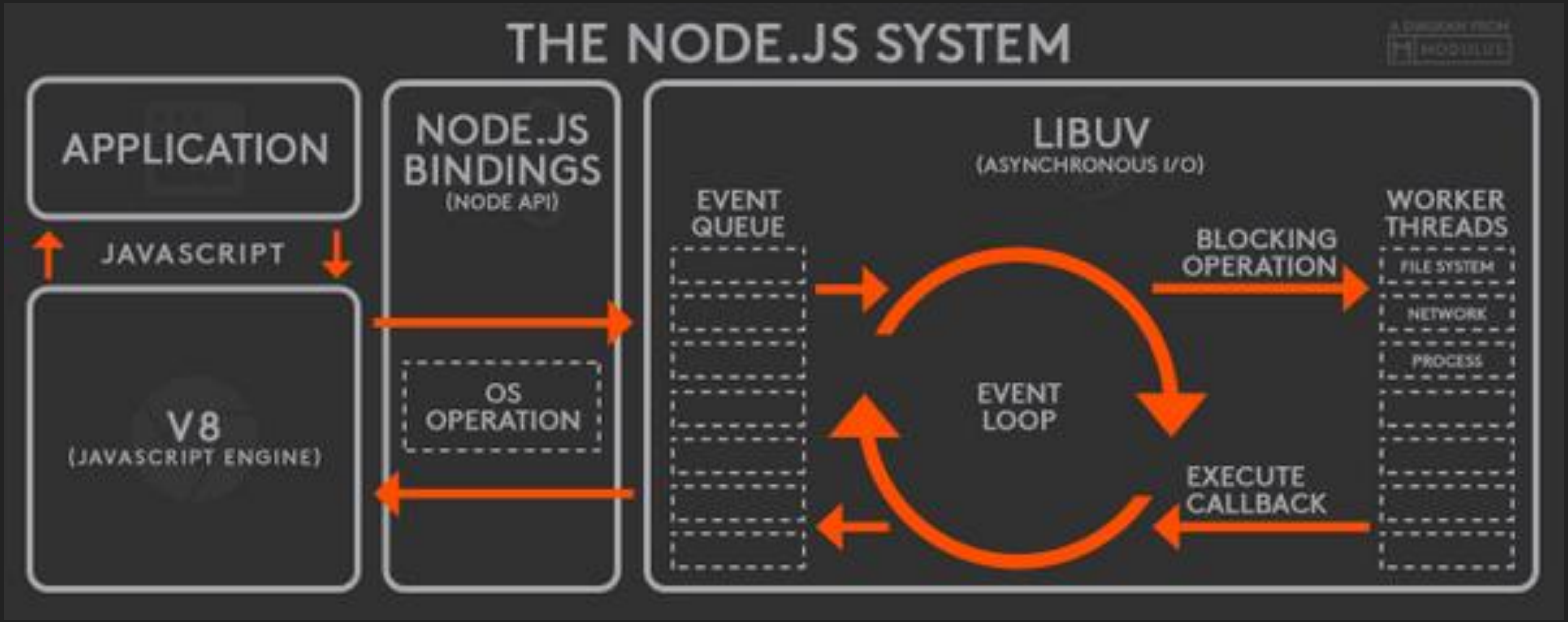
TOOLSET FOR TODAY

1. Necessary:
    - NodeJS + Yarn
    - React + Jest
    - Material UI
    - Typescript
2. Based on available time:
    - Electron
    - Electron-builder
    - Webpack (React - eject)

NODE + NPM

NODE – 2 SYSTEM FAMILIES, 2 WAYS

- Native installer
- Two versions maintained - current (stable) and LTS
- Provides a lot of native libraries (https://nodejs.org/api/index.html)
  - HTTP, HTTP/2, File, Process, Events, Net, OS, Buffer and many more…
- Async in nature, single-threaded in nature
- We’ll be using current
- Best way to get - via installer
  - Better way - get NVM, N or NVM-Windows (Windows 😢)


THE NODE.JS SYSTEM
A DIAGRAM FROM
MODULUS
APPLICATION
JAVASCRIPT
V8
(JAVASCRIPT ENGINE)
NODE.JS
BINDINGS
(NODE API)
OS
OPERATION
LIBUV
(ASYNCHRONOUS I/O)
EVENT
QUEUE
EVENT
LOOP
BLOCKING
OPERATION
EXECUTE
CALLBACK
WORKER
THREADS
FILE SYSTEM
NETWORK
PROCESS

YARN

YARN - (STILL) BETTER ALTERNATIVE TO NPM

- NPM - default package manager on Node
  - Bug - ridden mess (originally)
  - Still a bit slower than Yarn
- Yarn - an ultimate remedy
  - Faster, better caching
  - Flat structure (originally, now on par with NPM)
  - Still - better version locking / version management
  - A few downsides (upgrading, stability, too aggressive caching)

WE’RE SET!

GOAL FOR TODAY

- Build a simple image gallery
- Use Material UI for styling
- Allow for uploading new files from the system
    - Image title and description in modal
- Electron:
    - Capture screen
    - Save chosen image to clipboard (impossible with browsers!)
    - Download the image to any location
    - Add shortcuts for navigation, closing the app and showing upload modal

CREATE (REACT) APP

CREATE NEW APP - AS SIMPLE AS IT GETS!

- Prebaked set of dependencies and tools
- Eject as the way of breaking out of this set
  - Eject breaks the update cycle
  - In most use cases - we don’t need to eject at all!

-
  ```
  yarn create react-app gdg-workshop
  ```
- Let’s check the structure!
- React Dev tools - an useful item

TIME TO SWITCH TO TYPESCRIPT…

-
  ```
  yarn add –dev typescript @types/node @types/react @types/react-dom @types/jest
  ```
- Rename all the JS files to .ts or .tsx
- Restart web server
- (small) adjustments all around
- Shouldn’t take more than 5-10 minutes, thanks to new Create React App version!

A BIT ON GOOD STYLE PRACTICES…

- A few key components:
  - Stylelint
    - Recommended configuration
  - TSLint
    - Best one - tslint-react from Palantir
    - Alternative - tslint-config-airbnb
  - Two new files: .stylelintrc.json and tslint.json

MATERIAL UI

MATERIAL UI

- Prerequisites:
  - Package itself
  - Icon font
  - Roboto font
- Allows for consistent usage of Material Design across the app
- Adds helpers, components, grid system and many more
- Looks and feels like native Material

A FEW ADDITIONAL DEPENDENCIES…

ADDITIONAL DEPENDENCIES

- Localforage
  - Shield for local storage methods
  - Allows for simple persistence
- React-router
  - Local navigation
  - Navigating between layouts, tabs
  - Required before building full fledged app
  - HashRouter - the simplest way of including React Router in the app

ELECTRON

ELECTRON - STARTER

- Two parts of the app - “Front End” (Renderer process, BrowserWindow, based on Chromium) and “Back End” (main, NodeJS)
- Parts can talk to each other via IPC
- Set up is easy, advanced configuration may get hard (as with Webpack)
- Allows for building installers for virtually any platform (either Squirrel or NSIS)
- Has a lot of system-specific APIs (touchbar, windows taskbar etc)

ELECTRON AND REACT

- Routing - HashRouter
- To eject or not to eject?
- Separate runners for Dev and Production mode
- (some) boilerplate needed to glue them together
- Distributing as easy as it gets!

THAT'S ALL, FOLKS!

Where to find me:

- www.linkedin.com/in/bartosz-polanczyk
- https://stackoverflow.com/users/3193494/szybkisasza
- https://github.com/SzybkiSasza
- https://twitter.com/SzybkiSasza (sometimes)