#### **Review of React-Services**

- Most common issue was a desire to share state
  - Between server and client
  - But you shouldn't
- Common to feel confused about repetitiveness

# An exception: Isometric/Universal Javascript

When a server and client share JS code

- Known as "isometric" or "universal" JS
- NOT state itself
  - MAYBE code about manipulating state
  - MOSTLY validation and "generic" code
- VERY RARE for many reasons
  - Tricky to get code running in both places
    - And update at same time
  - Shared needs not common enough

## Why not share state between Front/Back?

- States are similar, not identical
  - Serving different needs
  - We are running simple projects
    - Fewer differences
- Most projects aren't both sides
  - Front/Back run different places
  - Usually developed different teams
  - Often Many:1/1:Many/Many:Many
- Even when full-stack
  - Shared state = coupling
    - Changes are harder, larger

#### **Ends serve different needs**

- Server: Totality of state for one or more purposes
- Client: State for a particular user for a purpose
  - Including incomplete changes
  - Including UI state (open/closed, etc)
- "Purpose" above likely not the same

#### Server and Client state WILL have different models

- Similar, but not identical
- Harder to see on simple applications

## **Not Single Purpose**

- Most Services will have multiple clients
- Most Clients will have multiple services
  - And even multiple servers of services!
- Usually developed by different teams
  - May be at different workplaces! (SaaS)

#### Sharing state becomes

- Effectively impossible
- Somewhat meaningless

## Full-Stack on a Single Purpose Web App?

- 1 Server, 1 Client, 1 Dev/Dev Team
- Confident this won't change
  - Why such confidence?

State still couples the code bases

- Code still runs on different platforms
- Changes become painful
  - Programmers need to expect change

# Harder to see difference on simple apps

Let's consider some realistic apps

#### **Github**

Here are the docs for part of GitHub REST API:

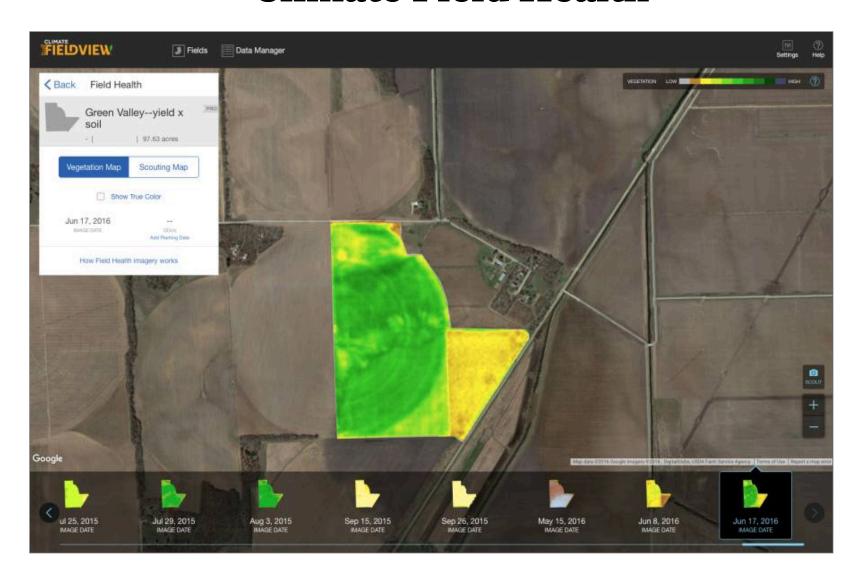
https://docs.github.com/en/rest/repos/repos

Each endpoint returns...a lot

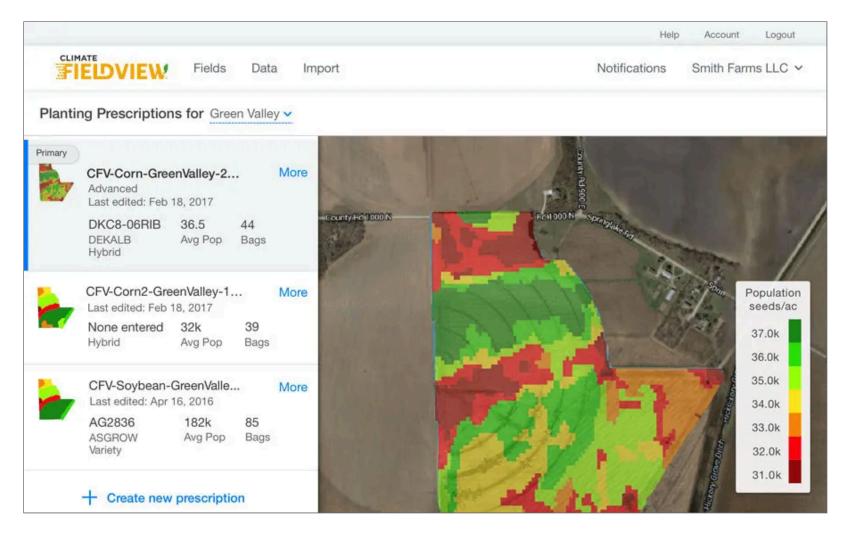
- Endpoints are CLEANED versions of state!
  - Remember our list of names from user object

This is just the Repositories section!

#### **Climate Field Health**



# **Climate Planting Prescriptions**



## **Climate Web App Details**

- Different web apps
  - Many shared services, some different
- Notice the different headers?
  - Expect change!
- Some services
  - Image service
  - Satellite Data services
  - User service
  - Farm service
  - Field service
  - Seed Data service

## Okta is a SaaS company

- Has a handful of web apps
  - Most clients are customers
- A lot of server state is describing client
  - They already know those details
  - They don't care about that
- When Okta web apps update...
  - Old web apps work for a while
  - How share state when changing models?

# **Summary - Client/Server are separate**

- Technical Reasons
- Practical Reasons
- Change and Maintenance Reasons

#### When you write both

• Imagine you are two separate people