

~~Isomorphic, Universal, Isomorphic~~ JS

<https://github.com/facebook/react/pull/4041>

About Me

- Lead Engineer @ D4H
- Hapi.js team, subtext lead maintainer
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Today

- What is Universal / Isomorphic JS
- Advantages of Isomorphic Apps
- Complications

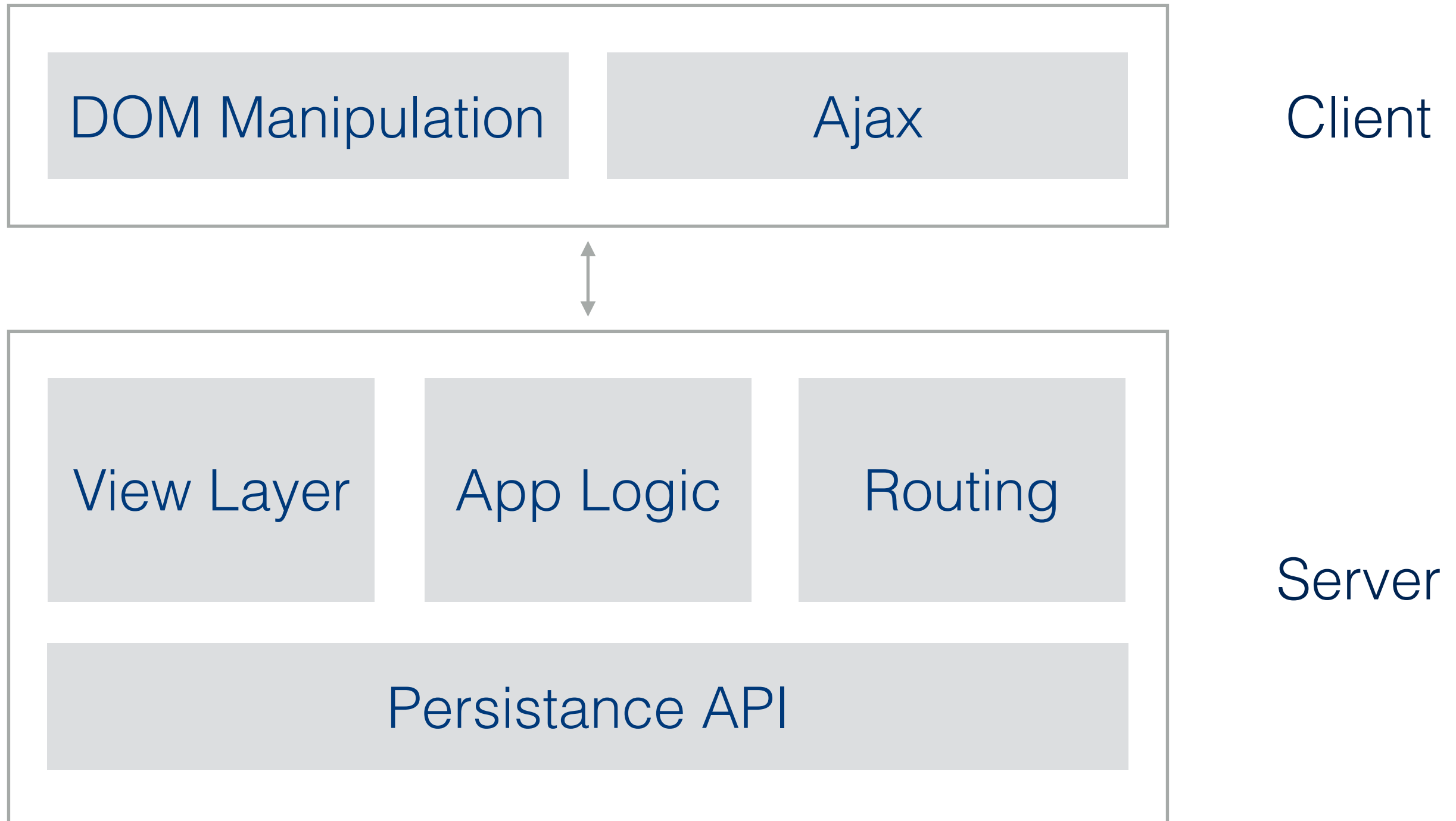
What is Isomorphic /
Universal JS?

IsomorphicJS

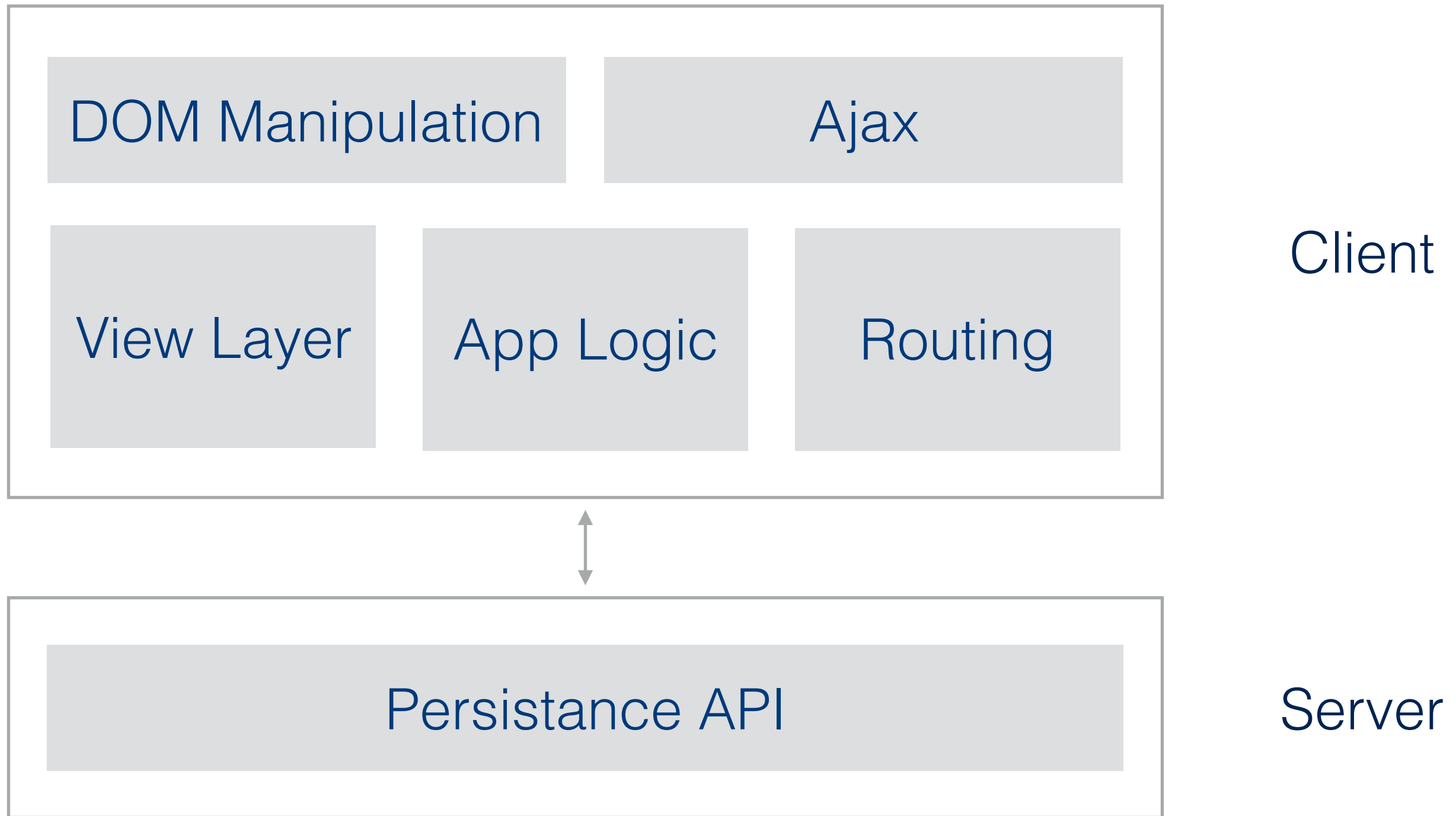
Javascript code that is shared across environments



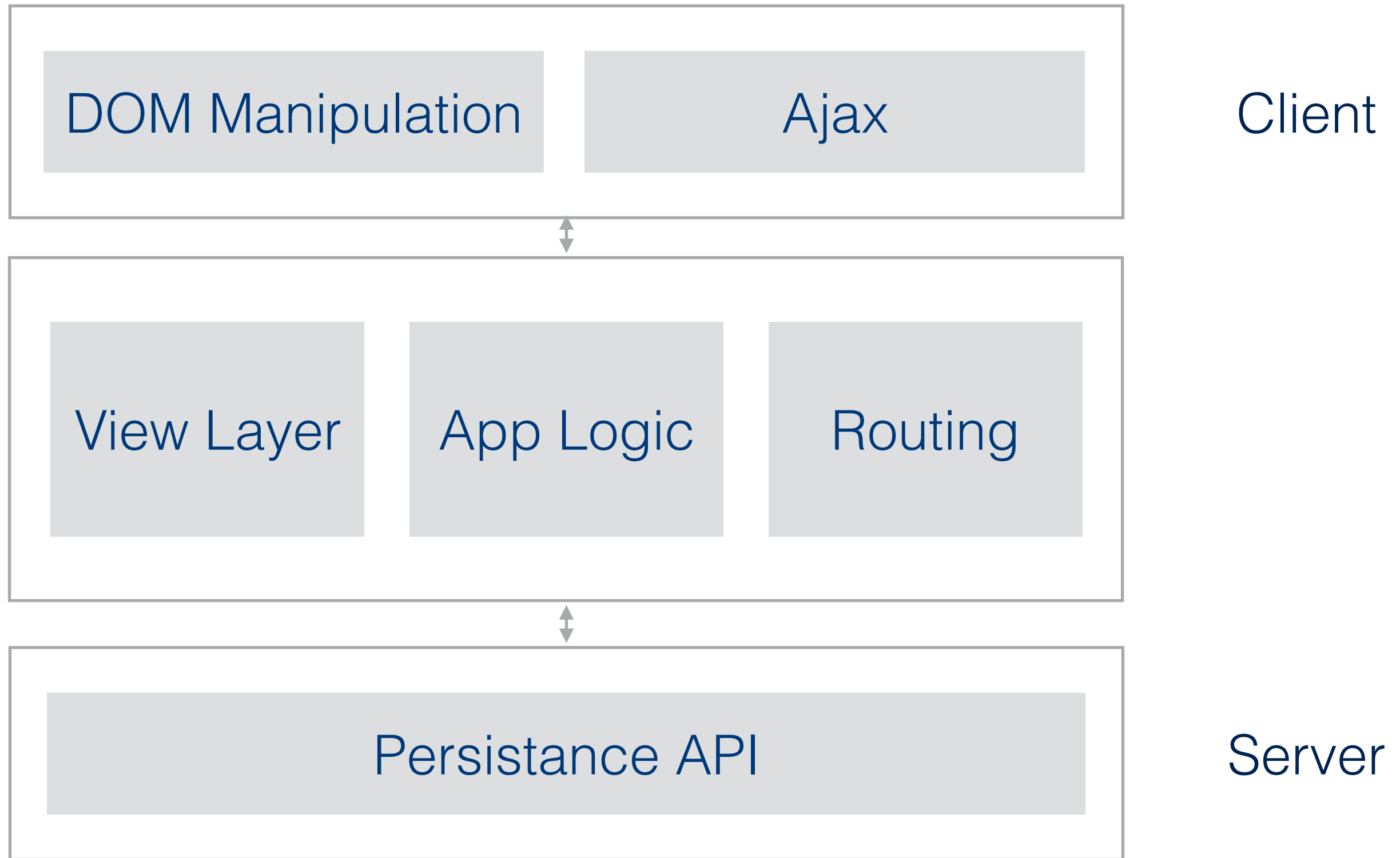
Server Rendered Apps



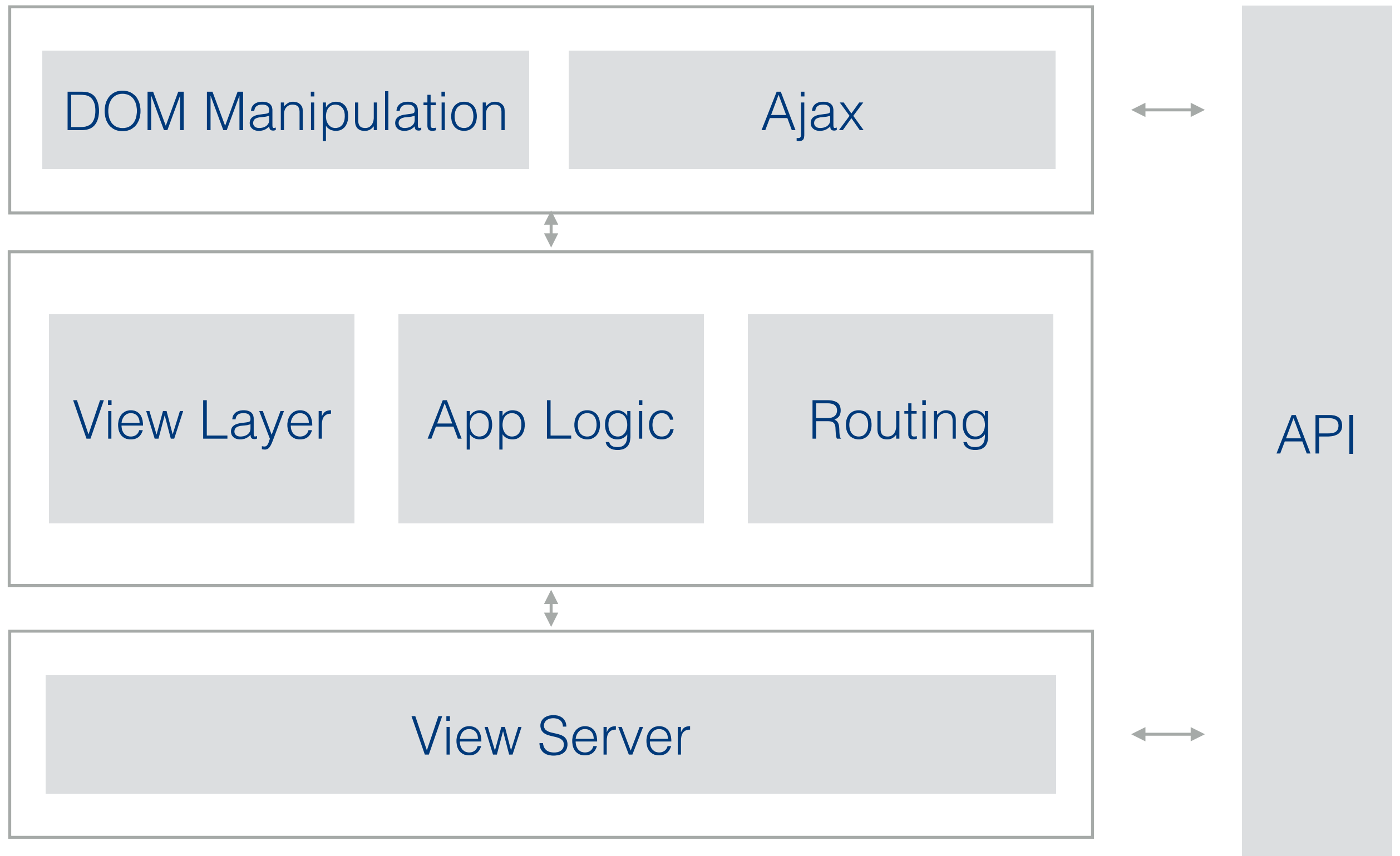
Client Rendered Apps



Isomorphic Apps



Isomorphic Apps



Advantages?

Benefits

- Performance
- Flexibility
- Maintainability

Client Rendered App

HTML Skeleton

- ➔ Download JavaScript
- ➔ Evaluate Javascript
- ➔ Fetch Data
- ➔ Render Data \leftarrow User Sees Content*

Server Rendered App

- ➔ Download Full HTML <— User Sees Content!
- ➔ Download Javascript
- ➔ Evaluate Javascript
- ➔

Use Cases

- SPA App that isn't 'lived in'
- Sharing logic between client & server for novel applications

Complications

The Cost of Flexibility

- Environment agnostic code
- Environment specific code
- Abstractions for Single API

Environment Agnostic Code

- Does not depend on environment, browser or server
- Already Isomorphic / Universal
- Most JS

Environment Specific Code

- Code that relies on browser window or node process

Client	<code>window.location.pathname</code>
Server	<code>request.path</code>

Environment Specific Code

- Code that relies on browser window or node process

Client	<code>window.location.pathname</code>
Server	<code>\$_SERVER['request_uri']; // PHP</code>

Abstractions

- Abstract away environment specific code
- Provide a single API
 - `setCookie`
 - `Superagent`
 - `PouchDB`
 - `joi-browserify (isEmail())`
 - `React.render()`

Abstractions

Cookies

Client	<code>document.cookie = 'myCookie=1;';</code>
Server	<code>res.setHeader('Set-Cookie: myCookie=1;');</code>

using <https://github.com/spikebrehm/set-cookie> becomes...

Client	<code>setCookie('myCookie', '1')</code>
Server	<code>setCookie('myCookie', '1')</code>

Abstractions

- Using: <https://www.npmjs.com/package/browser-resolve>

```
"dependencies": {  
  "cookie": "^0.1.2"  
},  
"browser": {  
  "./lib/setter/index.js": "./lib/setter/client.js"  
},  
"devDependencies": {  
  ....  
}
```

Other Complications

- Not all modules on npm are isomorphic
- Some things just can't be server rendered!
- Most tooling supports express

Universal/Isomorphic Libraries

- Meteor (Meteor)
- Rendr (Airbnb)
- React (Facebook)
- Fluxible (Yahoo)

Trying This Yourself

- learnyoureact nodeschool workshopper: <https://github.com/kohei-takata/learnyoureact>
- hapi solutions to learnyourreact workshopper: <https://github.com/johnbrett/hapi-learnyoureact>
- <https://github.com/spikebrehm/isomorphic-tutorial>
- <https://github.com/yahoo/flux-examples>
- Write modules that run in client & server!!

Thanks!

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