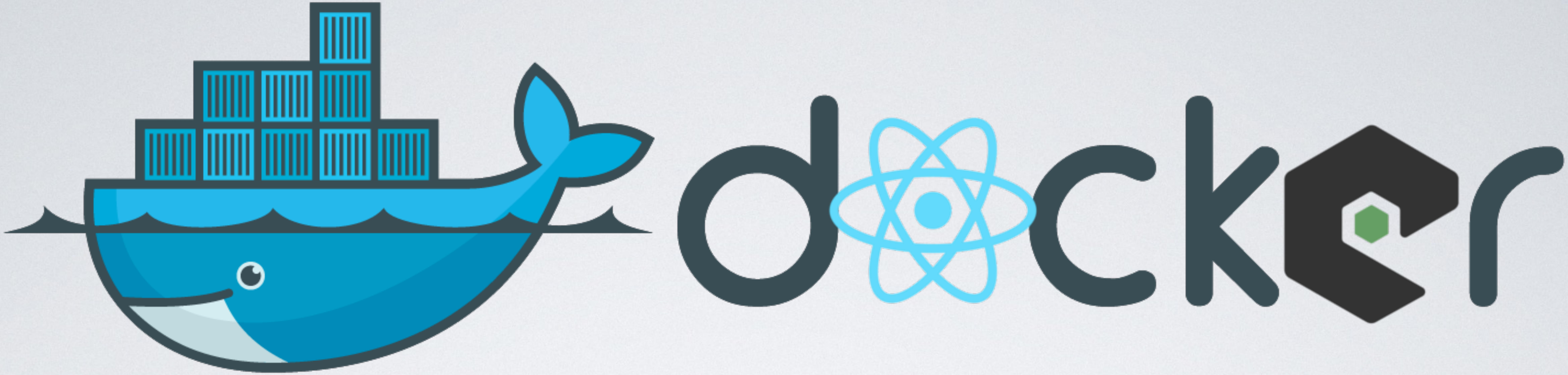


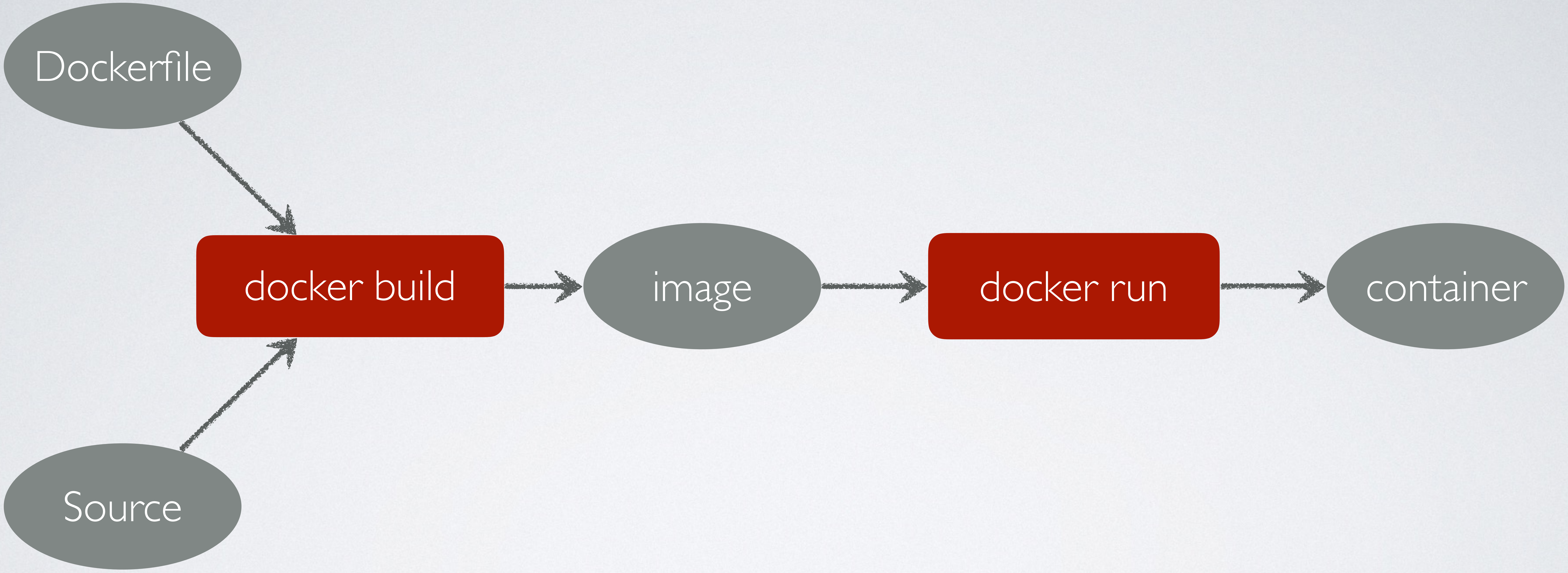
DOCKERIZED REACT AND NODE.JS

Josh Gordon, Visionist
ReactMD Meetup

WHY DOCKER?

- Single command deployments
- Dependency Management (node-gyp)
- Build once, deploy anywhere
- Easier to deploy than tarballs

GETING A CONTAINER



Dockerfile

Source

docker build

image

docker run

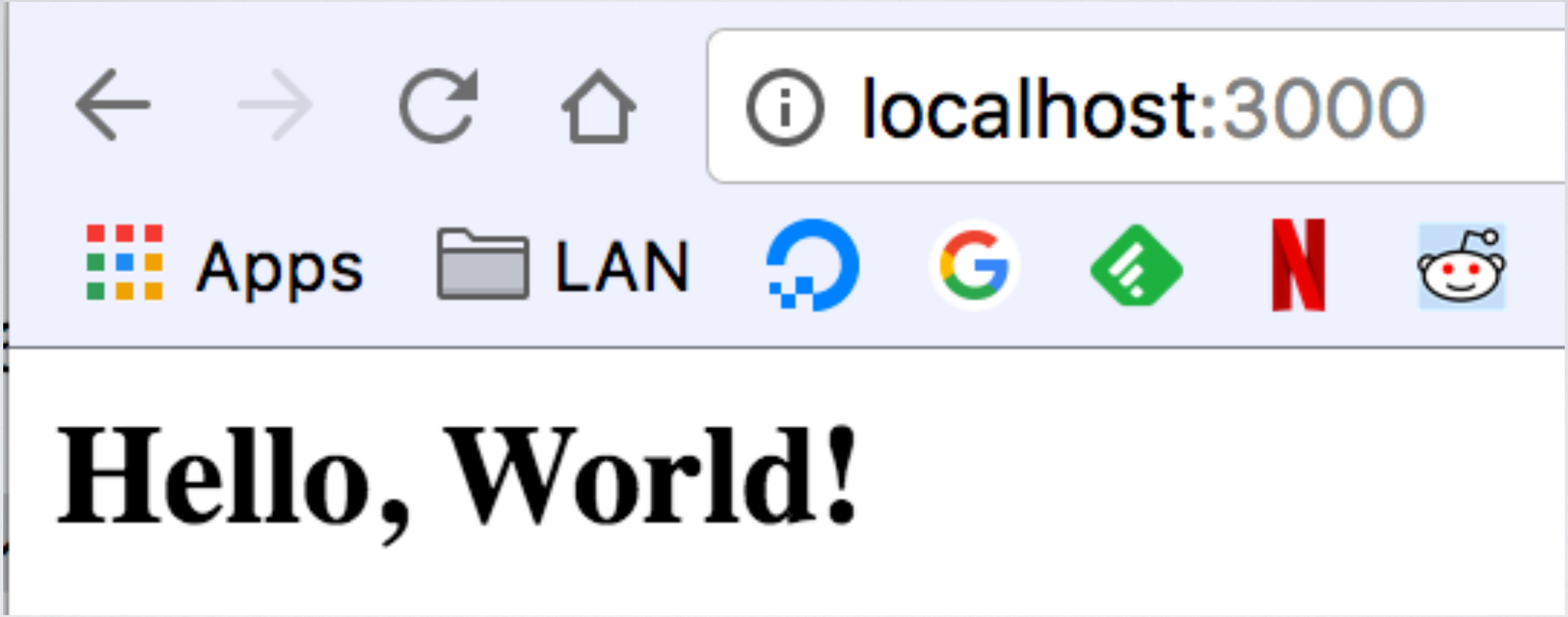
container

BASIC DOCKERFILE

```
FROM mhart/alpine-node:latest
WORKDIR /usr/src/app
ADD . /usr/src/app
EXPOSE 3000
CMD ["npm", "start"]
```

```
"scripts": {
 "start": "npm run build && node bin/express.js",
 "build": "webpack ..."
 ...
}
```

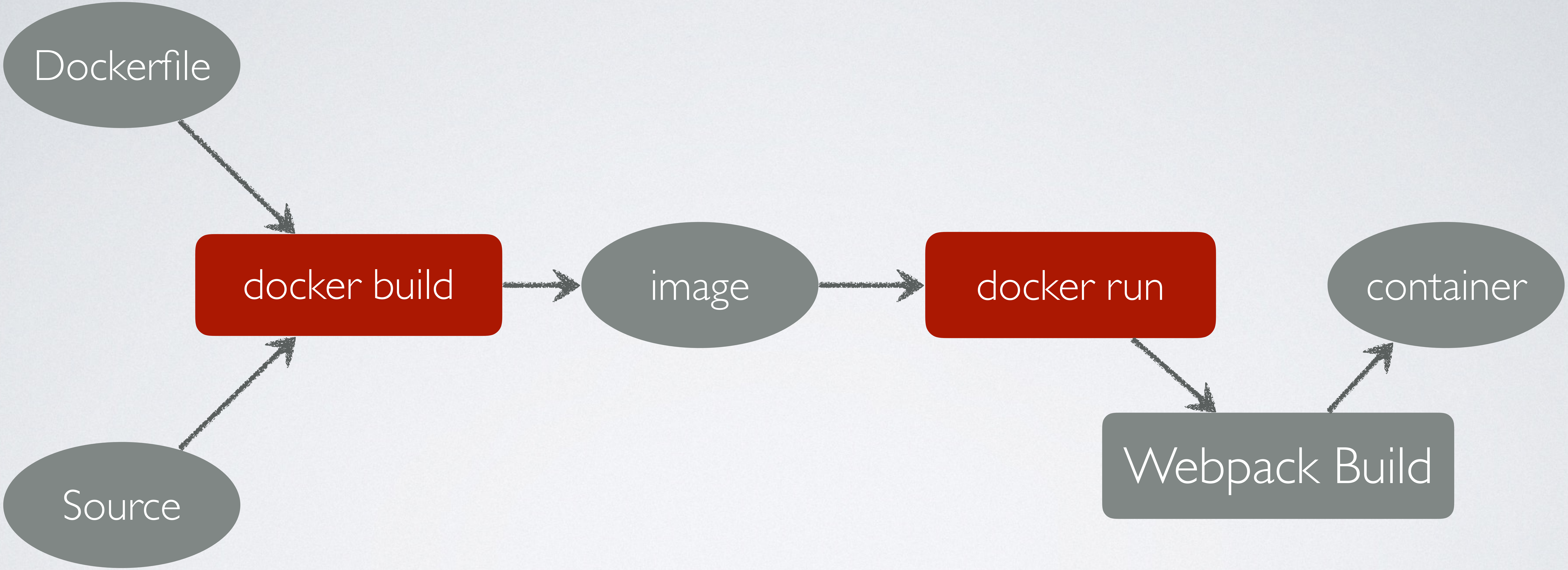
```
$ docker build -t app .
$ docker run --rm -it -p 3000:3000  app
$ docker build -t app .
$ docker run --rm -it -p 3000:3000  app
> react-hello-world@1.0.0 start /usr/src/app
> npm run build && node node_modules/gulp/bin/gulp.js express

> react-hello-world@1.0.0 build /usr/src/app
> node ./node_modules/.bin/webpack --progress --colors

 65% 545/587 build modules[BABEL] Note: The code generator has deoptimised the styling of "/usr/src/
app/node_modules/immutable/dist/immutable.js" as it exceeds the max of "100KB".
Hash: 0d0ff32772189424a0db
Version: webpack 1.13.3
Time: 13062ms
                                                   Asset      Size  Chunks             Chunk Names
                                              index.html 200 bytes          [emitted]
fontawesome-webfont-912ec66d7572ff821749319396470bde.svg    444 kB          [emitted]
                                               bundle.js   2.51 MB       0  [emitted]  main
   [0] multi main 52 bytes {0} [built]
    + 758 hidden modules
[02:05:32] Failed to load external module babel-register
[02:05:32] Requiring external module babel-core/register
[02:05:35] Using gulpfile /usr/src/app/gulpfile.babel.js
[02:05:35] Starting 'express'...
[02:05:35] Finished 'express' after 12 ms
Express is listening on port 3000
```



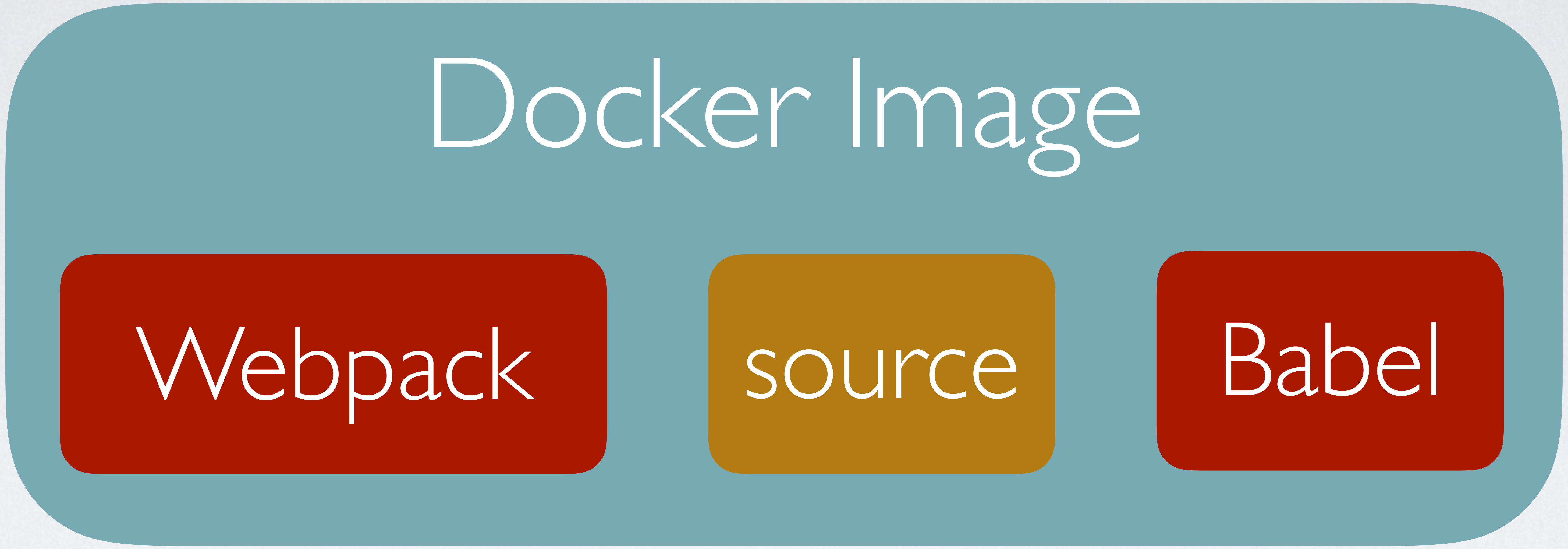
localhost:3000

Hello, World!

WHAT'S WRONG


Dockerfile
Source
docker build
image
docker run
Webpack Build
container

WHAT’S WRONG



Docker Image

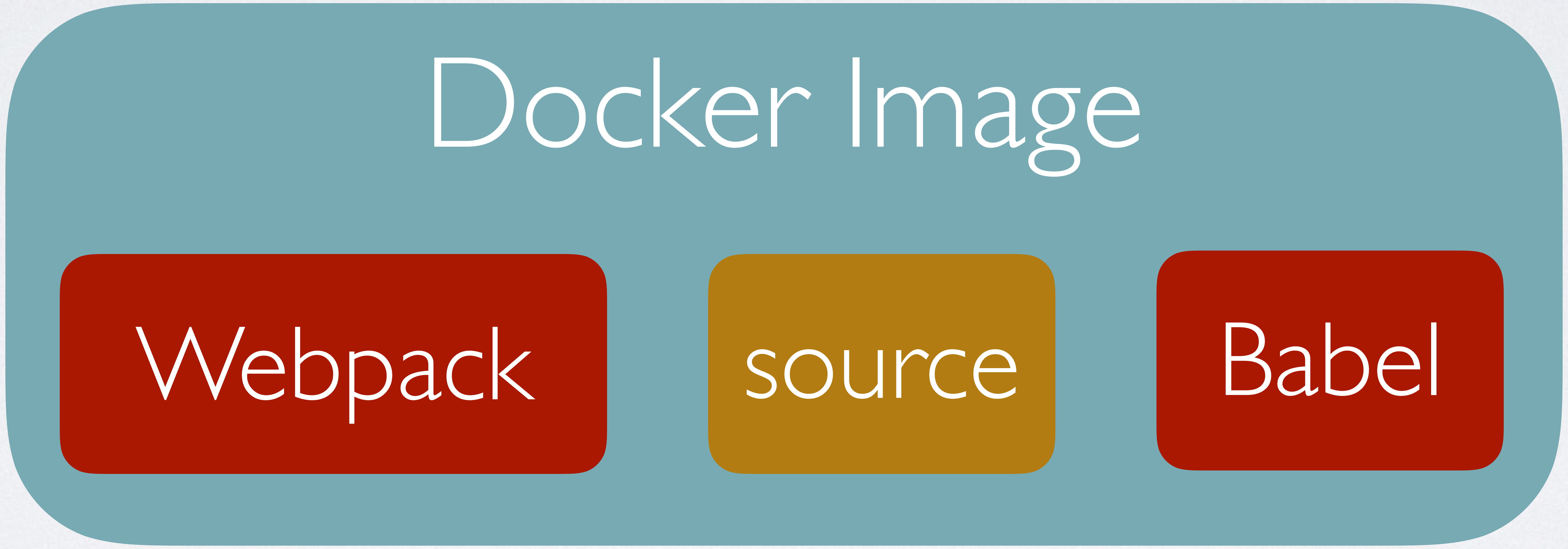
Webpack

source

Babel

WHAT'S WRONG

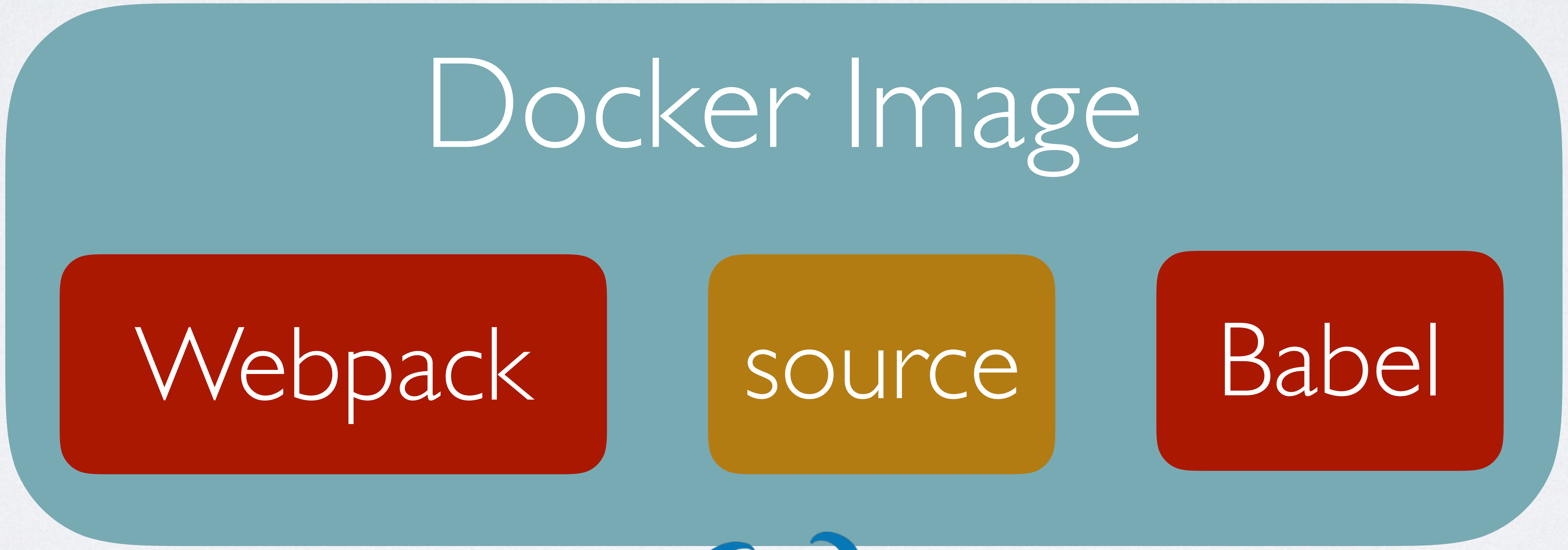
```
$ docker images
REPOSITORY            TAG                 IMAGE ID             CREATED             SIZE
app                   latest              f0248058dde3         23 minutes ago      255.2 MB
```



WHAT'S WRONG

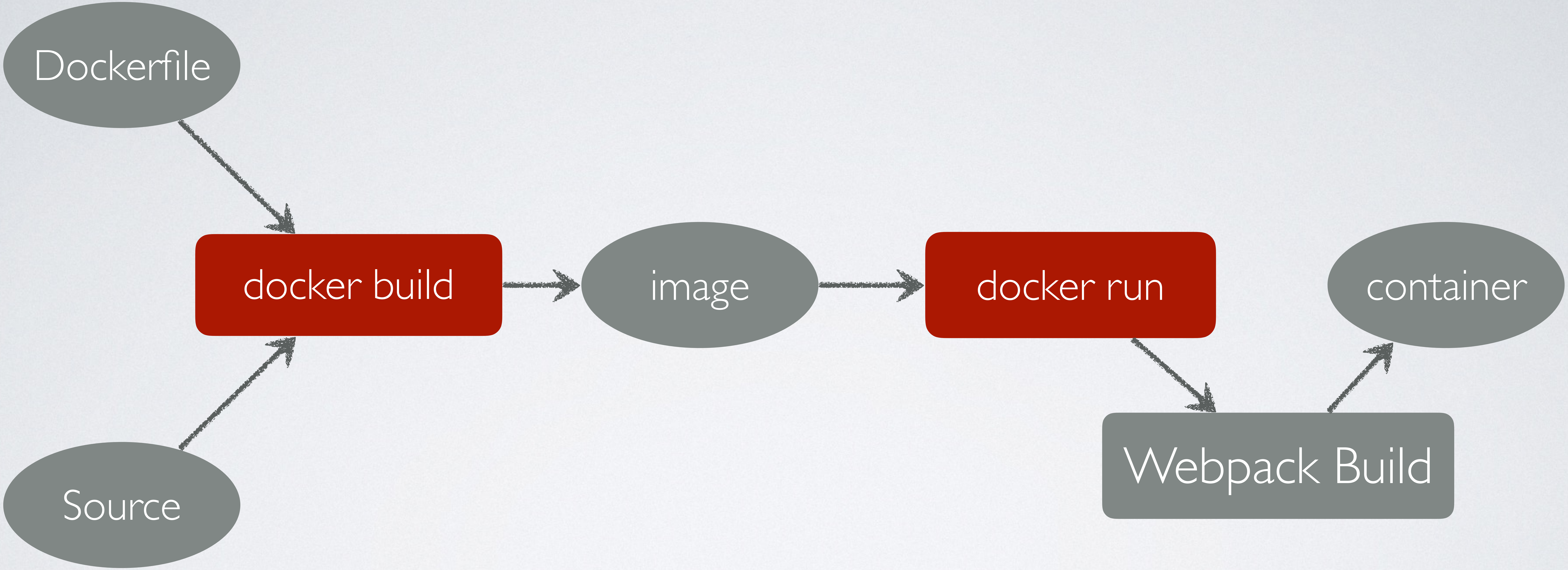
```
$ docker images
REPOSITORY              TAG                     IMAGE ID            CREATED               SIZE
app                     latest                  f0248058dde3        23 minutes ago
```

255.2 MB



255.2 MB

HOW DO WE FIX THIS?



HOW DO WE FIX THIS?

Dockerfile
Source
docker build
Webpack Build
NPM Prune
image
docker run
container

HOW DO WE FIX THIS?

```
FROM mhart/alpine-node:latest
WORKDIR /usr/src/app
ADD . /usr/src/app
RUN npm install && npm run build && npm prune --production

EXPOSE 3000
CMD ["npm", "start"]
```

```
"scripts": {
 "start": "node bin/express.js",
 "build": "webpack ..."
 ...
}
```

```
$ docker build -t app .
$ docker run --rm -it -p 3000:3000  app
$ docker build -t app .
$ docker run --rm -it -p 3000:3000  app

> react-hello-world@1.0.0 start /usr/src/app
> node bin/express.js

module.js:471
    throw err;
    ^

Error: Cannot find module 'babel-core/register'
    at Function.Module._resolveFilename (module.js:469:15)
    at Function.Module._load (module.js:417:25)
    at Module.require (module.js:497:17)
    at require (internal/module.js:20:19)
    at Object.<anonymous> (/usr/src/app/bin/express.js:1:63)
    at Module._compile (module.js:570:32)
    at Object.Module._extensions..js (module.js:579:10)
    at Module.load (module.js:487:32)
    at tryModuleLoad (module.js:446:12)
    at Function.Module._load (module.js:438:3)

npm ERR! Linux 4.4.20-moby
npm ERR! argv "/usr/bin/node" "/usr/bin/npm" "start"
npm ERR! node v6.9.1
npm ERR! npm  v3.10.8
npm ERR! code ELIFECYCLE
npm ERR! react-hello-world@1.0.0 start: `node bin/express.js`
npm ERR! Exit status 1
...
```

```
$ docker build -t app .
$ docker run --rm -it -p 3000:3000  app

> react-hello-world@1.0.0 start /usr/src/app
> node bin/express.js

module.js:471
    throw err;
    ^

Error: Cannot find module 'babel-core/register'
    at Function.Module._resolveFilename (module.js:469:15)
    at Function.Module._load (module.js:417:25)
    at Module.require (module.js:497:17)
    at require (internal/module.js:20:19)
    at Object.<anonymous> (/usr/src/app/bin/express.js:1:63)
    at Module._compile (module.js:570:32)
    at Object.Module._extensions..js (module.js:579:10)
    at Module.load (module.js:487:32)
    at tryModuleLoad (module.js:446:12)
    at Function.Module._load (module.js:438:3)

npm ERR! Linux 4.4.20-moby
npm ERR! argv "/usr/bin/node" "/usr/bin/npm" "start"
npm ERR! node v6.9.1
npm ERR! npm  v3.10.8
npm ERR! code ELIFECYCLE
npm ERR! react-hello-world@1.0.0 start: `node bin/express.js`
npm ERR! Exit status 1
...
```

```
$ cat bin/express.js
require ('babel-core/register');
require ('../server/express');
```

A WORD ABOUT TRANSPILATION

ES6 => ES3

A WORD ABOUT TRANSPILATION

Babel Register - realtime transpilation.

```
require ('babel-core/register');
require ('../server/express');
```

A WORD ABOUT TRANSPILATION

Babel ahead-of-time transpilation

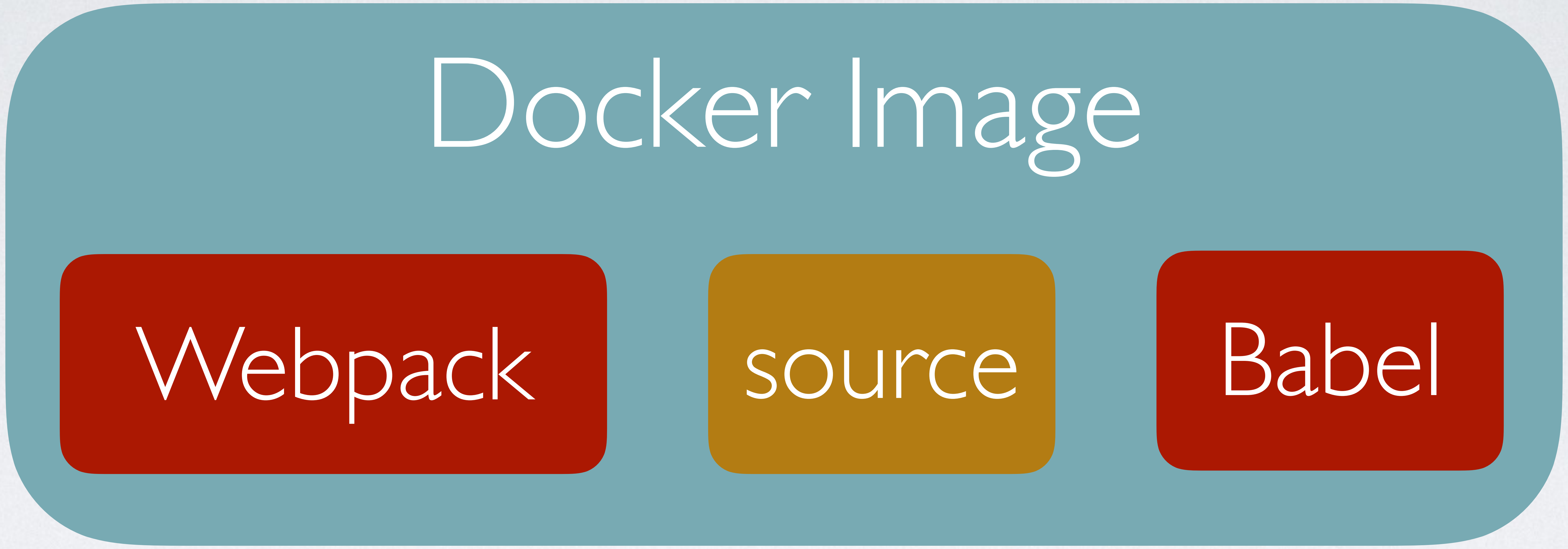
```
$ npm install –save-dev babel-cli
$ ./node_modules/.bin/babel server/ -d build/ --copy-files
server/express.js -> build/express.js
server/webpack.js -> build/webpack.js
```

HOW DO WE FIX THIS?

```
FROM mhart/alpine-node:latest
WORKDIR /usr/src/app
ADD . /usr/src/app
RUN npm install && npm run build && npm prune --production

EXPOSE 3000
CMD ["npm", "start"]
```

```
"scripts": {
 "start": "node build/express.js”,
 "build": "npm run build-server && npm run build-client",
 "build-client": "webpack --progress --colors",
 "build-server": "babel server/ -d build/ --copy-files",
 ...
}
```

IS THAT BETTER?


Docker Image

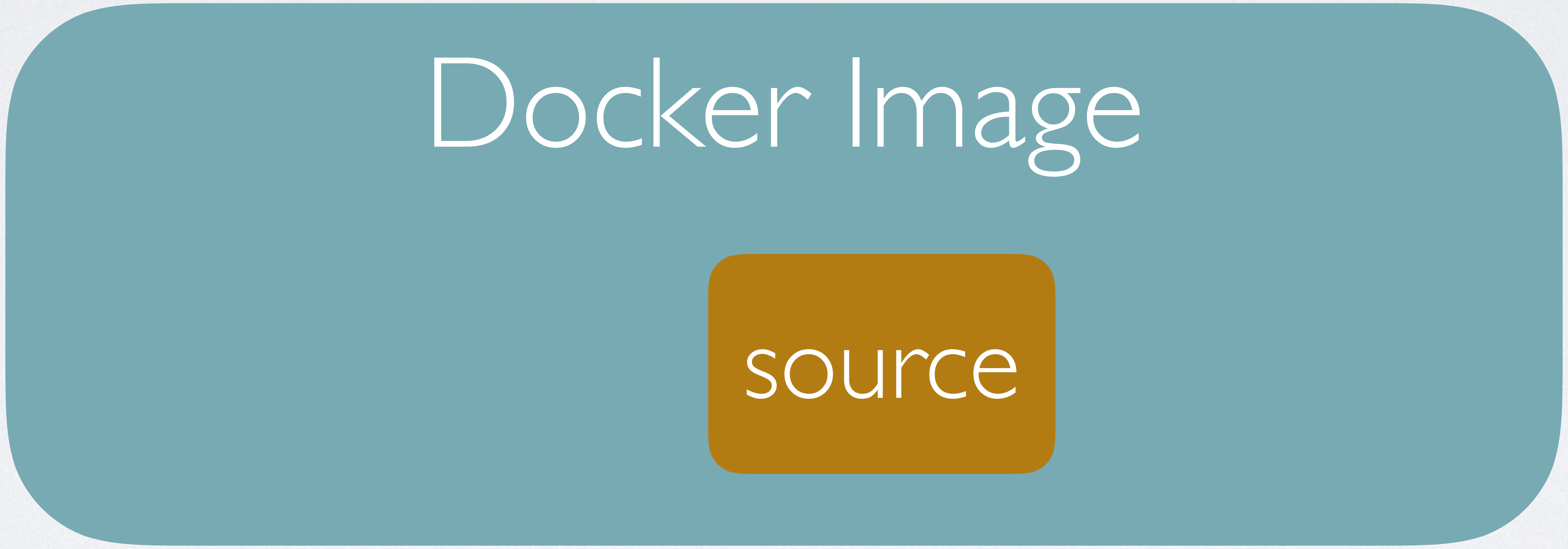
Webpack

source

Babel

WHAT'S WRONG

```
$ docker images
REPOSITORY           TAG                 IMAGE ID            CREATED             SIZE
app                  latest              df16d064b6d8        19 seconds ago      94.43 MB
```

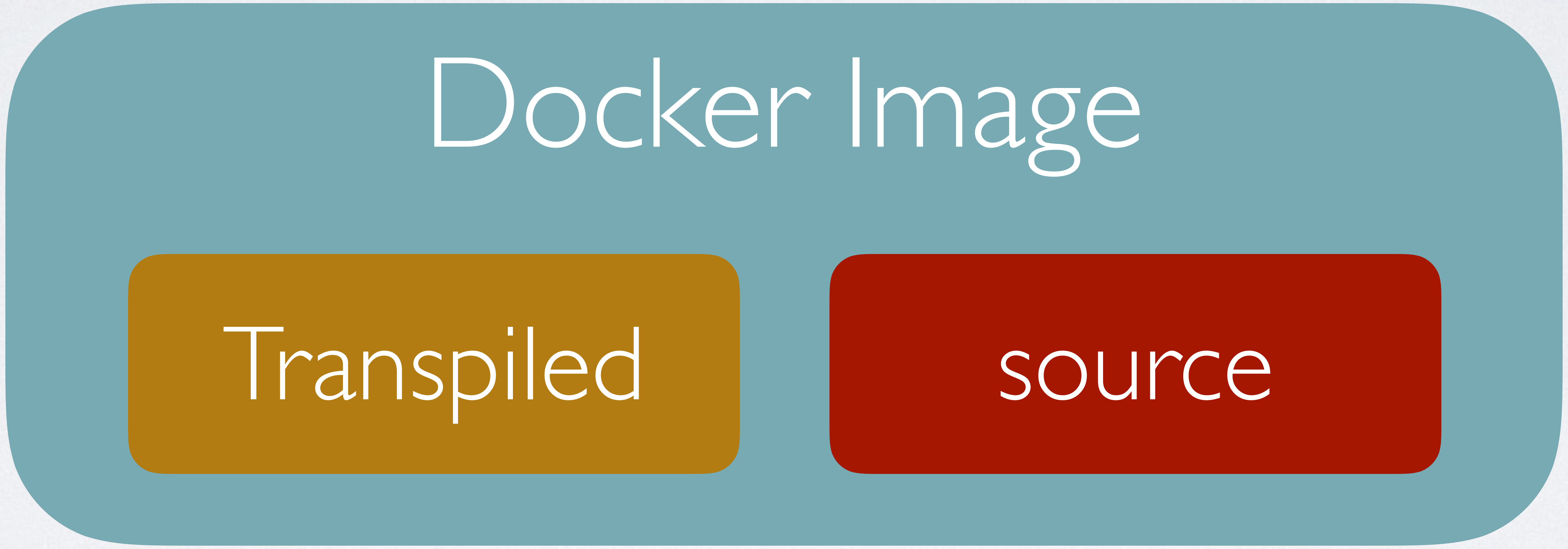


Docker Image

source

WHAT’S WRONG

```
$ docker images
REPOSITORY            TAG                 IMAGE ID            CREATED             SIZE
app                   latest              df16d064b6d8        19 seconds ago      94.43 MB
```



Docker Image

Transpiled

source

HOW DO WE FIX THIS?

Dockerfile
Source (ES6)
docker build
Transpile
NPM Prune
image
docker run
container

HOW DO WE FIX THIS?

Dockerfile
Source (ES6)
docker build
image
Transpile
Transpiled Source
docker run
NPM Prune
container

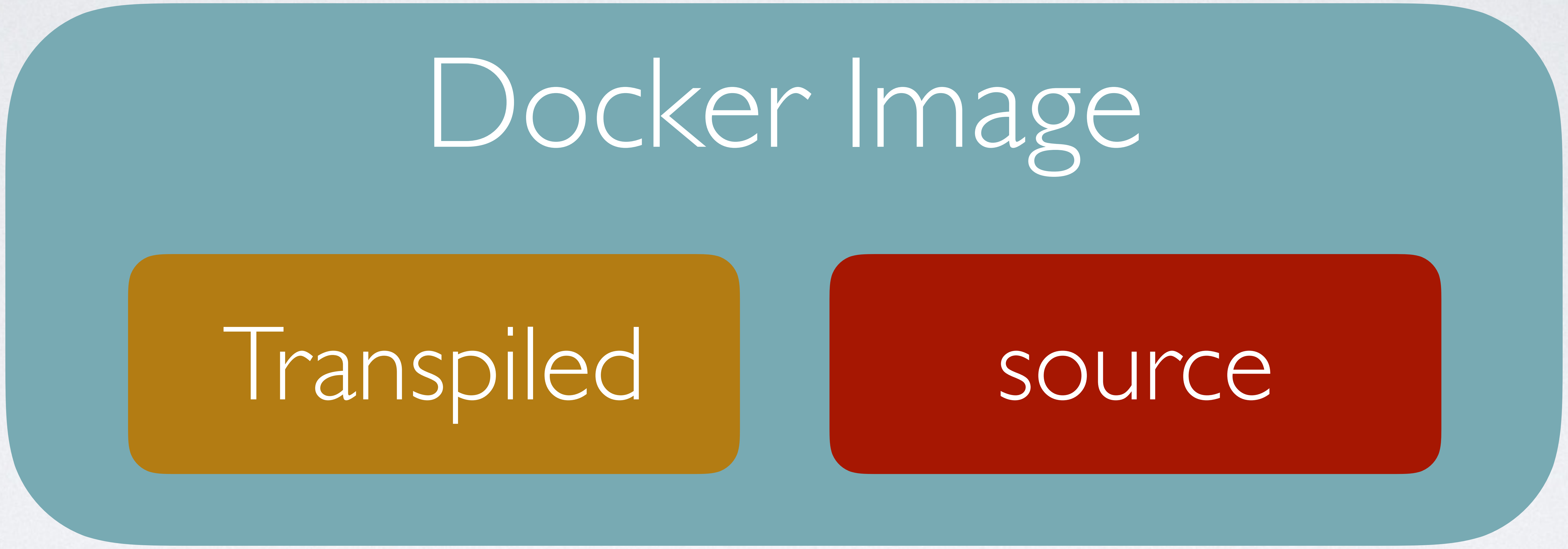
HOW DO WE FIX THIS?

```
FROM mhart/alpine-node:latest
WORKDIR /usr/src/app
ADD . /usr/src/app
EXPOSE 3000
CMD ["npm", "start"]
```

```
"scripts": {
 "start": "node dist/express.js”,
 "build": "npm run build-server && npm run build-client",
 "build-client": "webpack --progress --colors",
 "build-server": "babel server/ -d dist/ --copy-files",
 "build-docker": "docker run --rm -v $(pwd):/usr/src/app -w /usr/src/app mhart/alpine-node:latest
 npm run prep-docker && docker build -t app .",
 "prep-docker": "npm install && npm run build && npm prune --production",

 ...
}
```

```
~~$ docker build -t app .~~
$ npm run build-docker
$ docker run --rm -it -p 3000:3000  app
$ npm run build-docker
$ docker run --rm -it -p 3000:3000  app
$ docker run -ti --rm -p 3000:3000 app

> react-hello-world@1.0.0 start /usr/src/app
> node build/express.js

Express is listening on port 3000
```

THAT'S BETTER

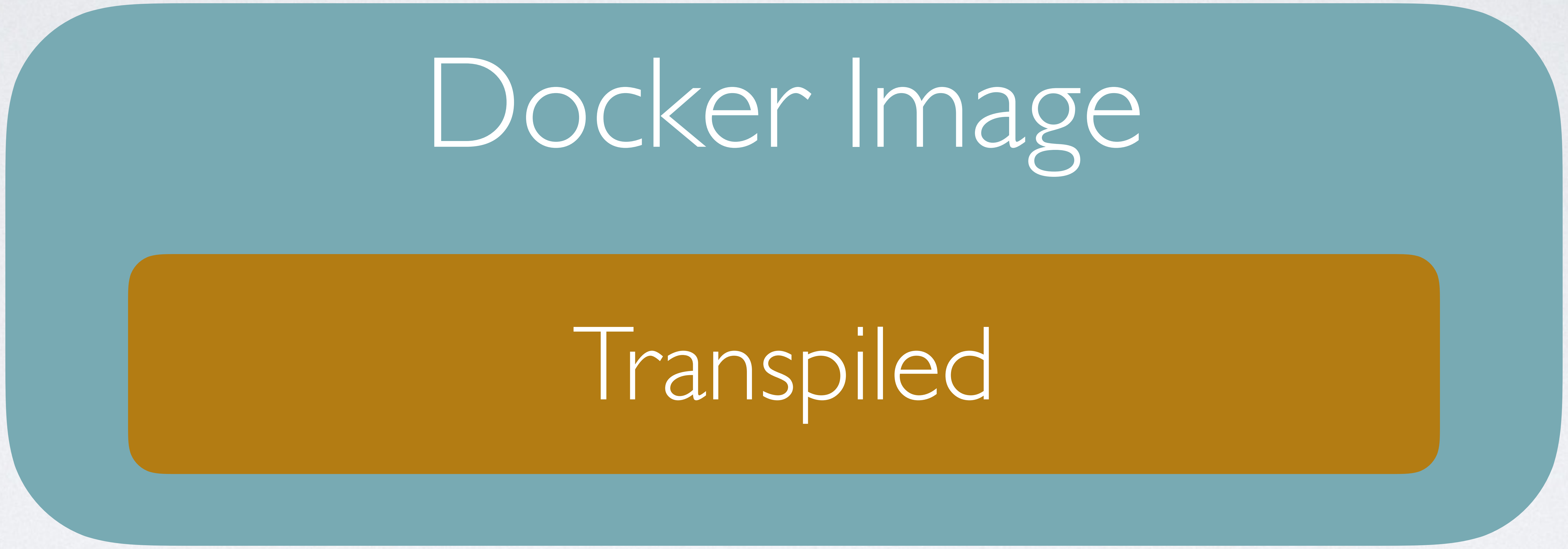


Docker Image

Transpiled

source

THAT'S BETTER

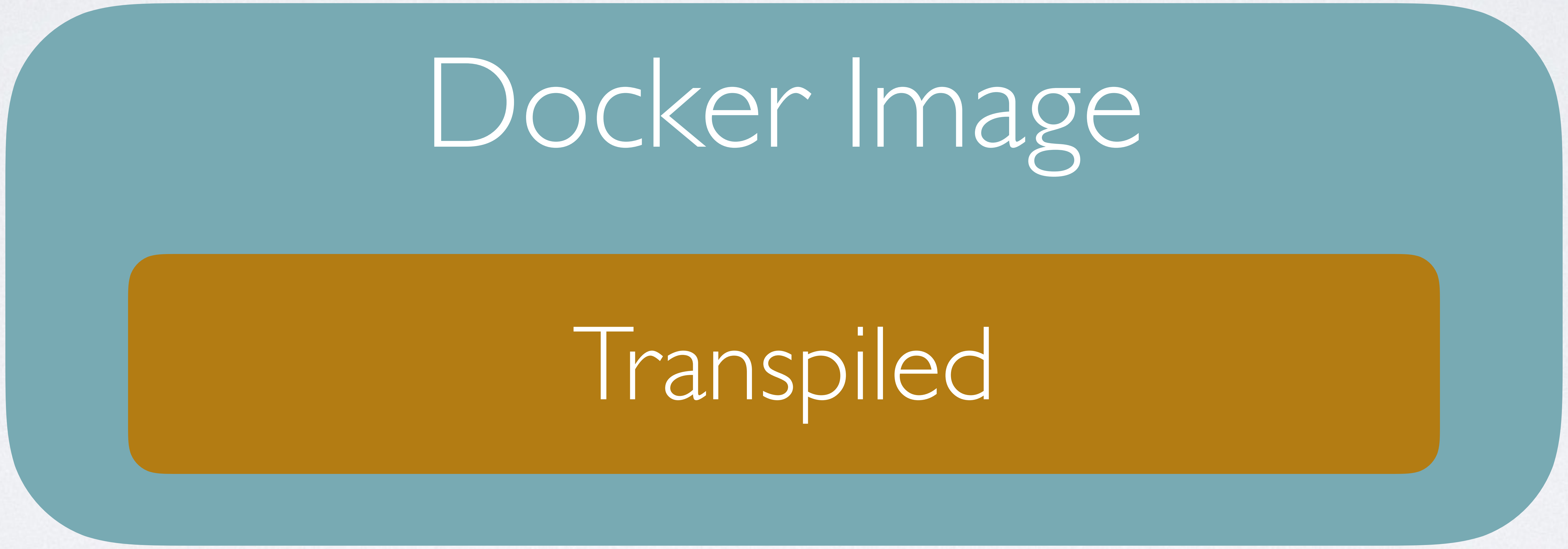


Docker Image

Transpiled

THAT'S BETTER

```
$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
app                 latest              f0296ee719eb        34 minutes ago      59.07 MB
```



Docker Image

Transpiled

59.07 MB 👍

QUESTIONS?

https://github.com/joshgordon/react-app-boilerplate
josh.gordon@visionistinc.com