



React London

React + ASP.NET Core = 👍

James Singleton

unop.uk

[@ShutdownScanner](https://twitter.com/ShutdownScanner)



@redbadgerteam

@reactlondon_

#Reactlondon



RED BADGER

What is ASP.NET Core?

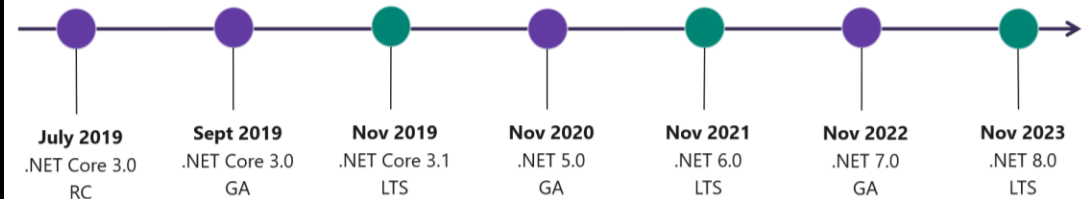
- Web framework from Microsoft
 - Runs on top of .NET
 - Core / Framework / future 5.0
- Cross-platform
 - Windows
 - macOS
 - Linux
 - Terminal friendly
 - Command Line Interface (CLI) tooling
 - Your favourite text editor or Integrated Development Environment (IDE)
- Open source
- Multiple languages
 - C# / VB / F# ...
- Compiled yet portable
 - Static type checking
 - High performance
 - Intel and ARM
 - Just-In-Time (JIT) compilation
 - Ahead-Of-Time (AOT) compilation also available for extra performance
 - Optional self-contained packaging

Yes, the naming / branding is very confusing

.NET – A unified platform



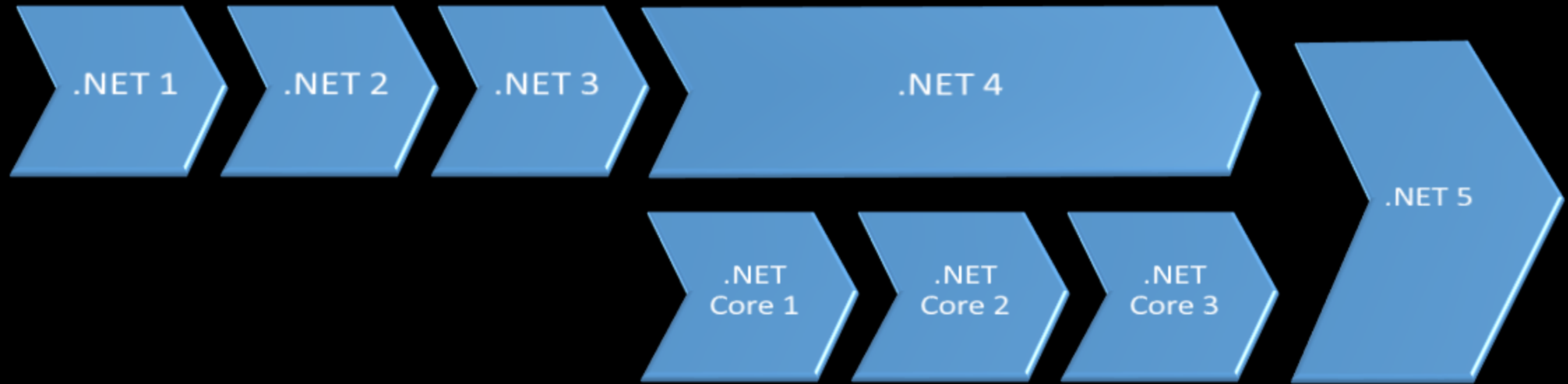
.NET Schedule



- .NET Core 3.0 release in September
- .NET Core 3.1 = Long Term Support (LTS)
- .NET 5.0 release in November 2020
- Major releases every year, LTS for even numbered releases
- Predictable schedule, minor releases if needed

devblogs.microsoft.com/dotnet/introducing-net-5

Future





A problem has been detected...



No Win situation

London Underground

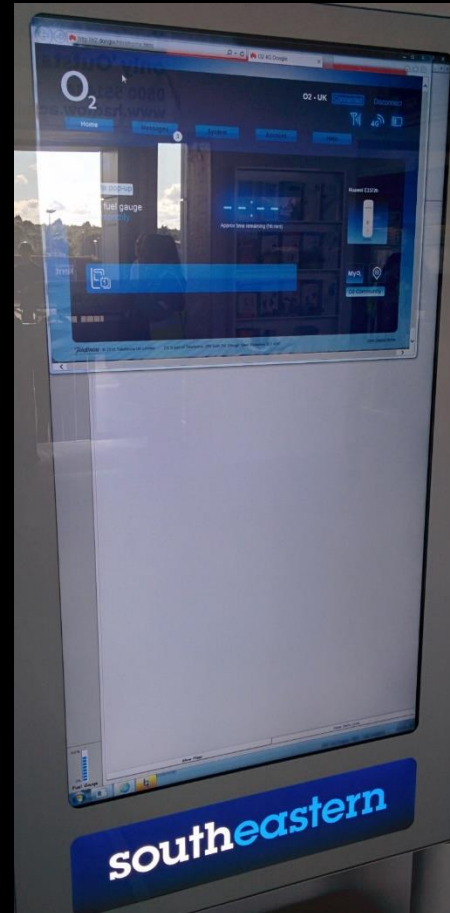
Service Update Thursday 19th October 2017

District	Good Service
Bakerloo	Good Service
Central	Good Service
Circle	Good Service
Hammersmith & City	Good Service
Jubilee	Good Service
Metropolitan	Good Service
Northern	Good Service
Piccadilly	Good Service
Victoria	Good Service
Waterloo & City	Good Service
London Overground	Minor Delays
TfL Rail	Good Service
DLR	Good Service

Other Information

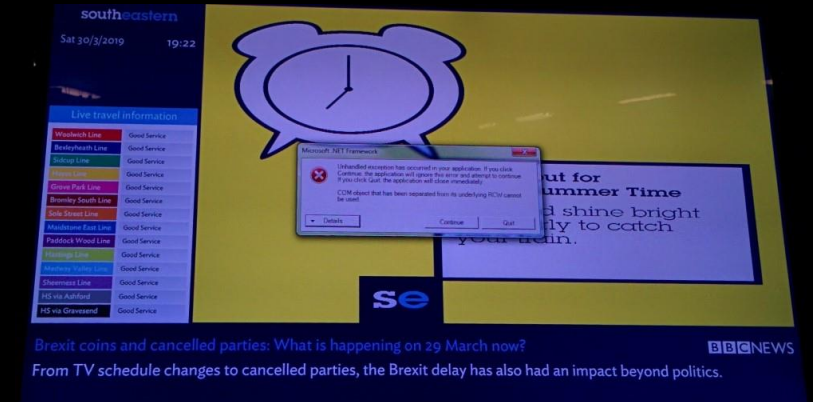
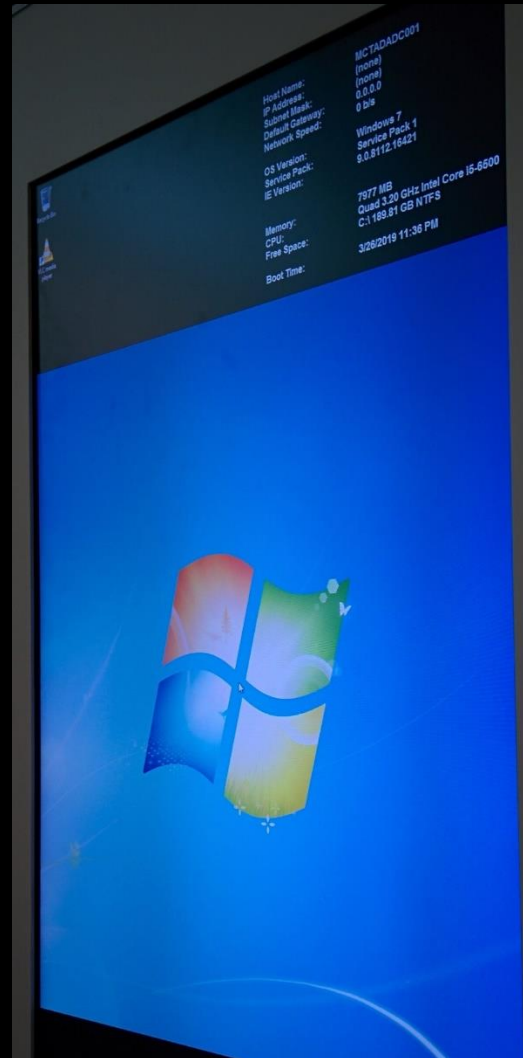
southeastern

UNDERGROUND



[@ShitSignage](#)

FÅILÖRD

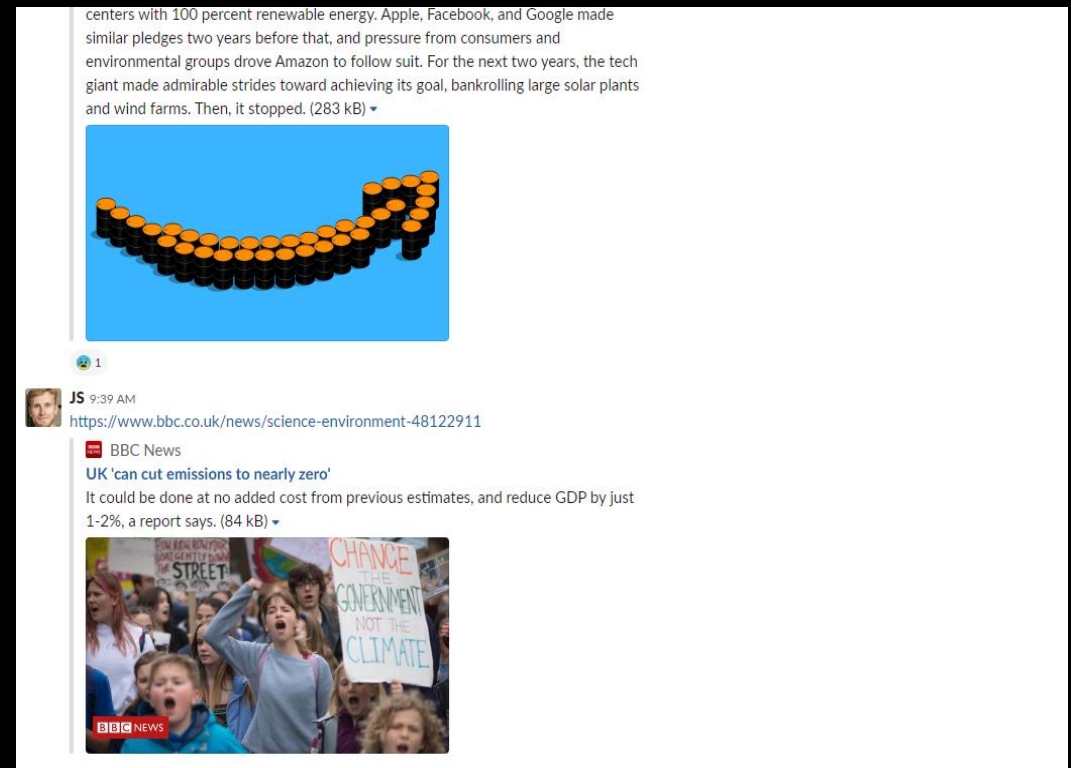
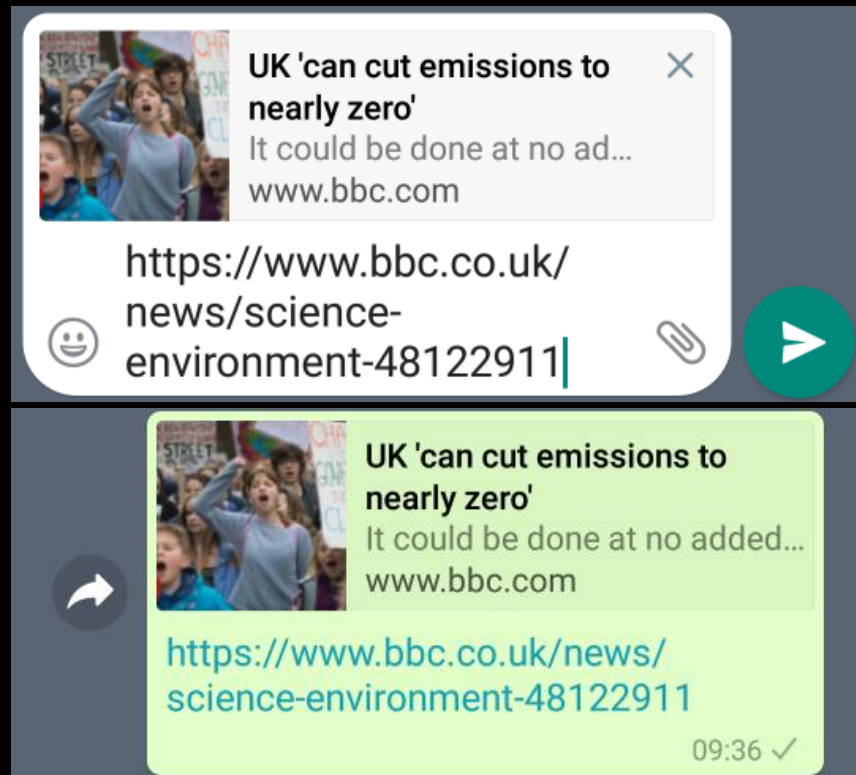


@ShitSignage

Why server-side?

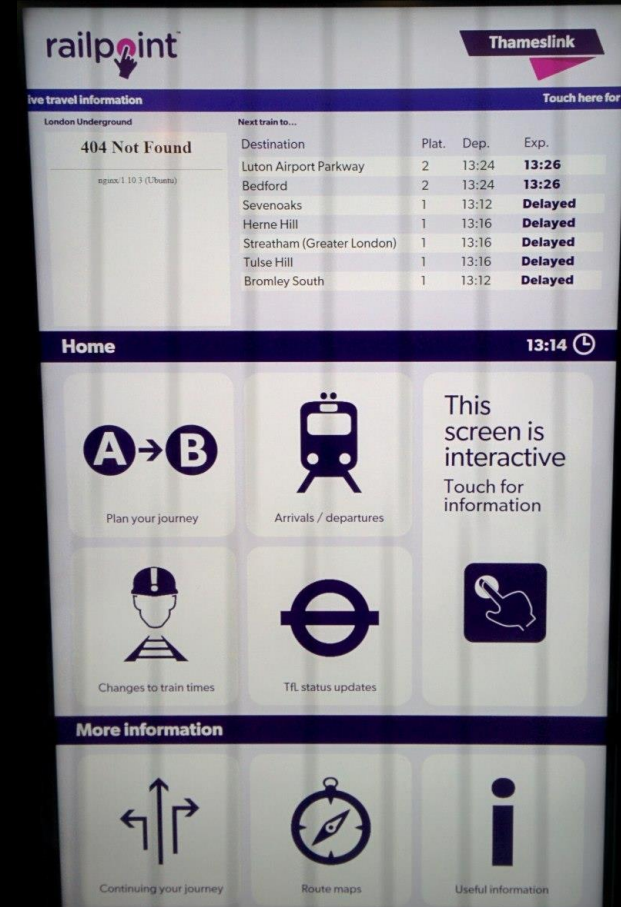
- API backend
 - Data storage
 - Authentication
 - Background tasks
 - Offload heavy lifting
- Dynamic Server-Side Rendering (SSR)
- Proxy API calls
 - More work
 - Need to run a backend
 - Single point of failure
 - Offline Progressive Web App (PWA)
 - Client-side fall-back
 - Paywalls
 - Geo issues
- Good reasons to proxy API calls
 - No CORS for browser API requests
 - Trim down payload to reduce latency
 - Serialization format change
 - XML → JSON
 - SOAP ☹️
 - Static IP authentication restrictions
 - Token / credential protection
 - Better integration testing
 - Rate limits and caching (HTTPS)
 - API keys
 - Public IP (Intranet)
 - Greater control over APIs
 - ~~Spying on users~~

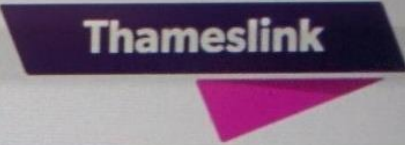

To proxy or not to proxy



Slack preserves original link: <https://www.bbc.co.uk/news/science-environment-48122911>

Spot the difference





uch here for live travel information

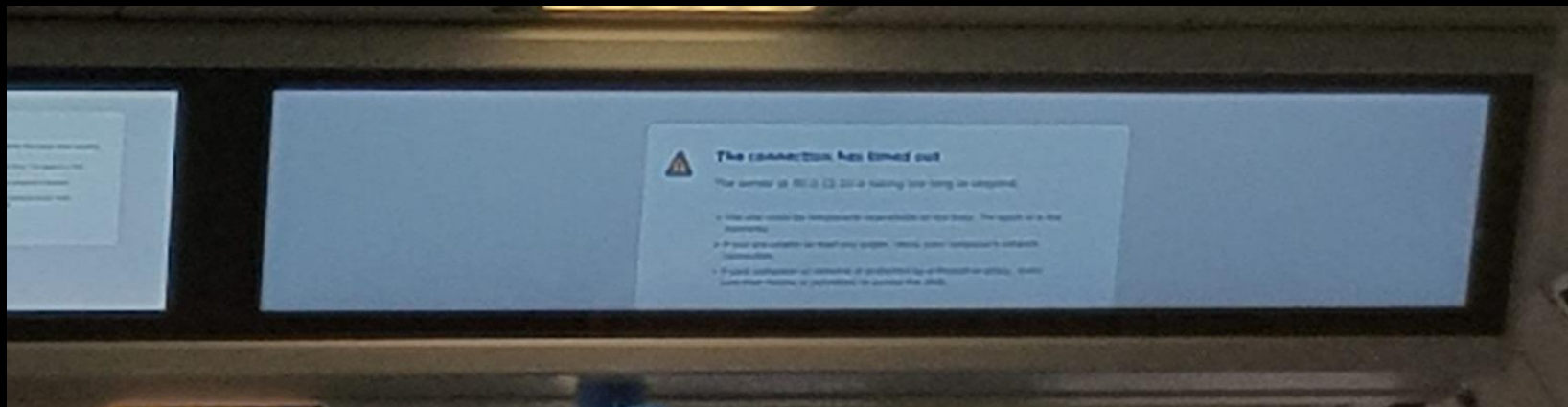
London Underground

404 **Not Found**

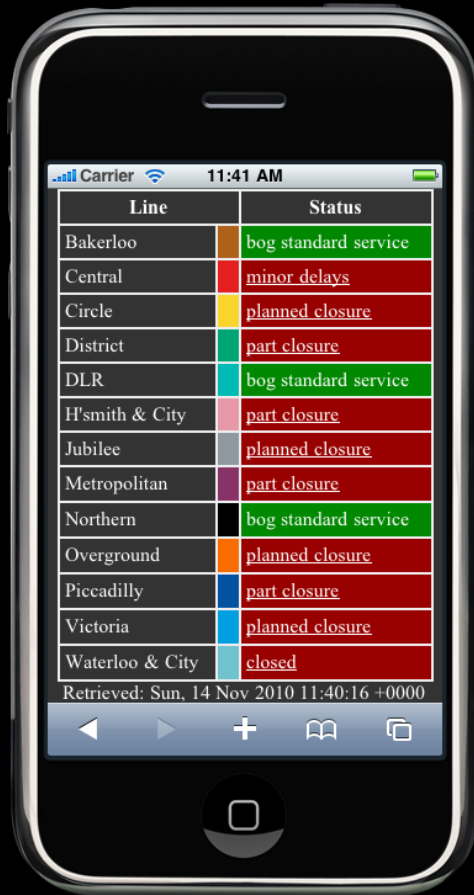
nginx/1.10.3 (Ubuntu)

Next train to...

Destination	Plat.	Dep.	Exp.
Luton Airport Parkway	2	13:24	13:26
Bedford	2	13:24	13:26
Sevenoaks	1	13:12	Delayed



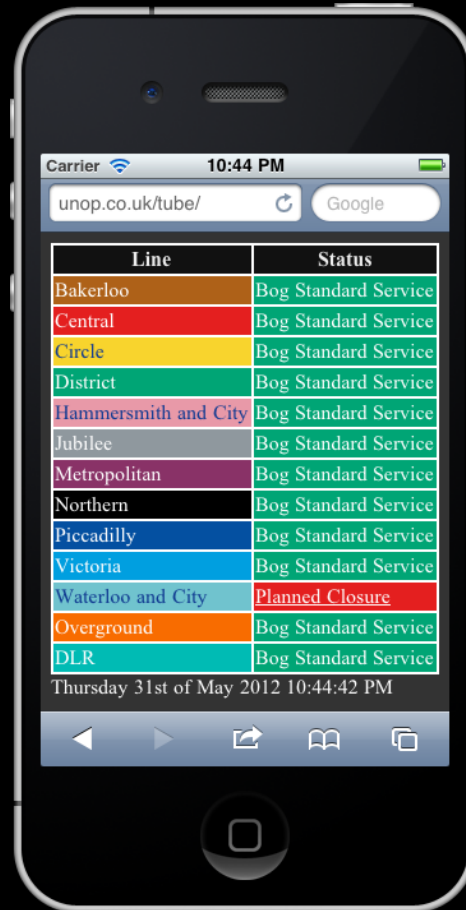
Hello ~~World~~ London – route to reactube.com



Carrier 11:41 AM

Line	Status
Bakerloo	bog standard service
Central	minor delays
Circle	planned closure
District	part closure
DLR	bog standard service
H'smith & City	part closure
Jubilee	planned closure
Metropolitan	part closure
Northern	bog standard service
Overground	planned closure
Piccadilly	part closure
Victoria	planned closure
Waterloo & City	closed

Retrieved: Sun, 14 Nov 2010 11:40:16 +0000

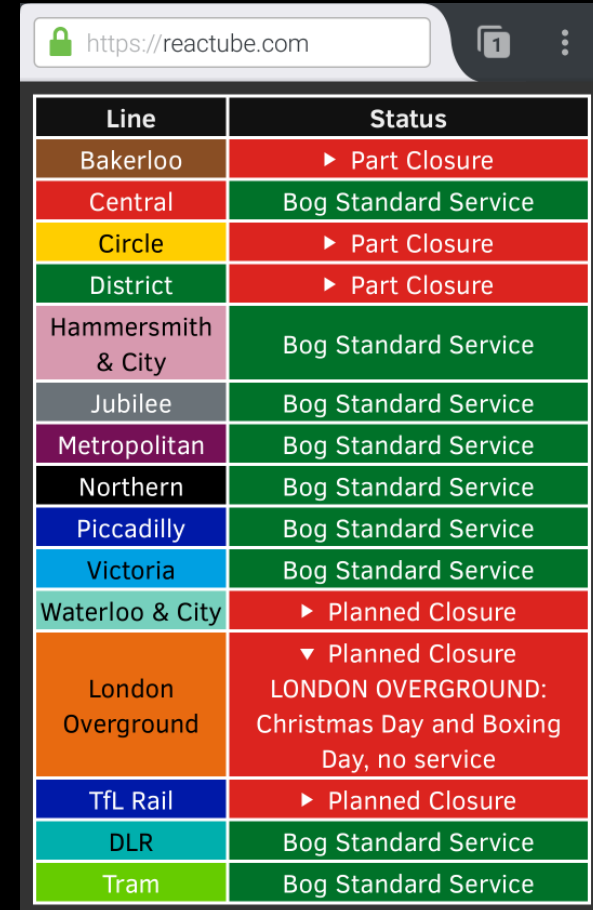


Carrier 10:44 PM

unop.co.uk/tube/ Google

Line	Status
Bakerloo	Bog Standard Service
Central	Bog Standard Service
Circle	Bog Standard Service
District	Bog Standard Service
Hammersmith and City	Bog Standard Service
Jubilee	Bog Standard Service
Metropolitan	Bog Standard Service
Northern	Bog Standard Service
Piccadilly	Bog Standard Service
Victoria	Bog Standard Service
Waterloo and City	Planned Closure
Overground	Bog Standard Service
DLR	Bog Standard Service

Thursday 31st of May 2012 10:44:42 PM



https://reactube.com

Line	Status
Bakerloo	► Part Closure
Central	Bog Standard Service
Circle	► Part Closure
District	► Part Closure
Hammersmith & City	Bog Standard Service
Jubilee	Bog Standard Service
Metropolitan	Bog Standard Service
Northern	Bog Standard Service
Piccadilly	Bog Standard Service
Victoria	Bog Standard Service
Waterloo & City	► Planned Closure
London Overground	▼ Planned Closure LONDON OVERGROUND: Christmas Day and Boxing Day, no service
TfL Rail	► Planned Closure
DLR	Bog Standard Service
Tram	Bog Standard Service

Huxley – Live Departure Board JSON proxy

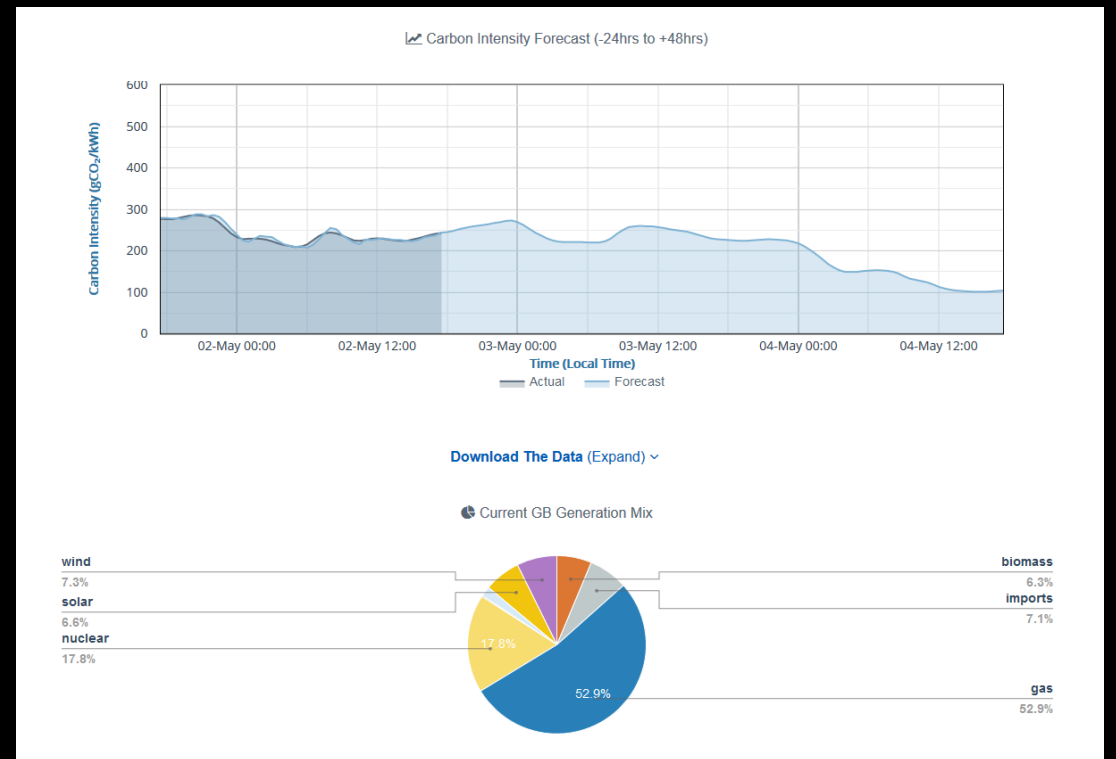
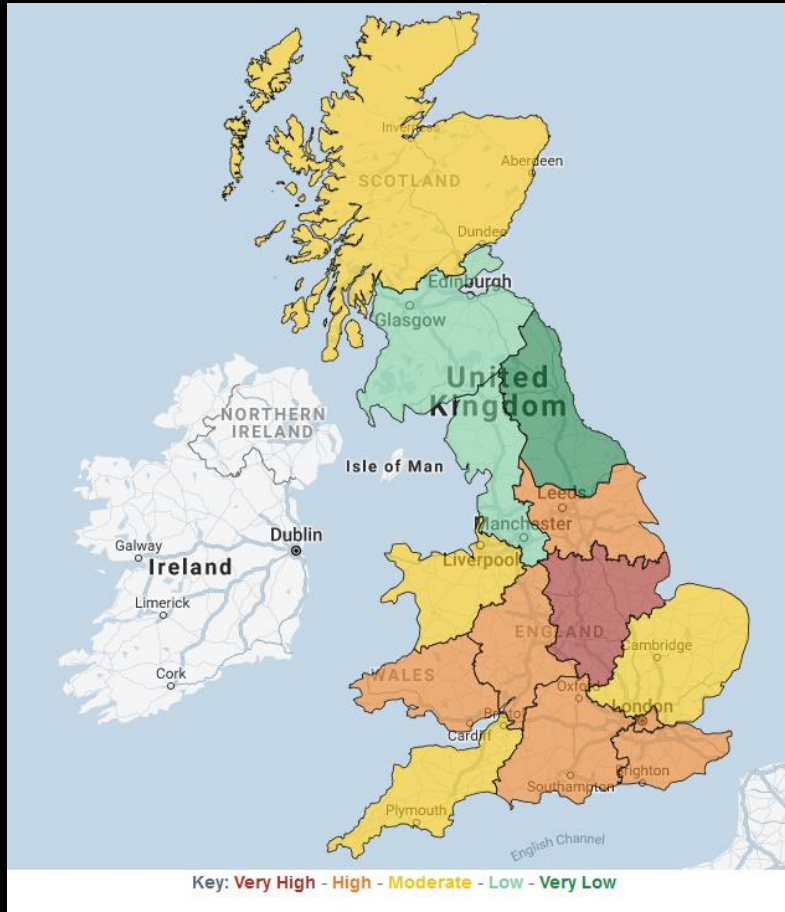
Huxley

Open source JSON proxy for the National Rail Live Departure Board SOAP API

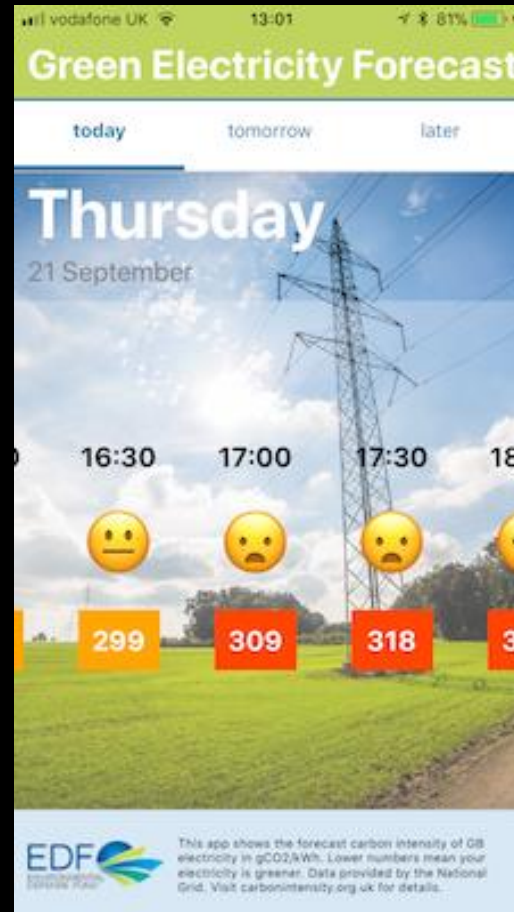


<https://huxley.unop.uk>

CarbonIntensity.org.uk API

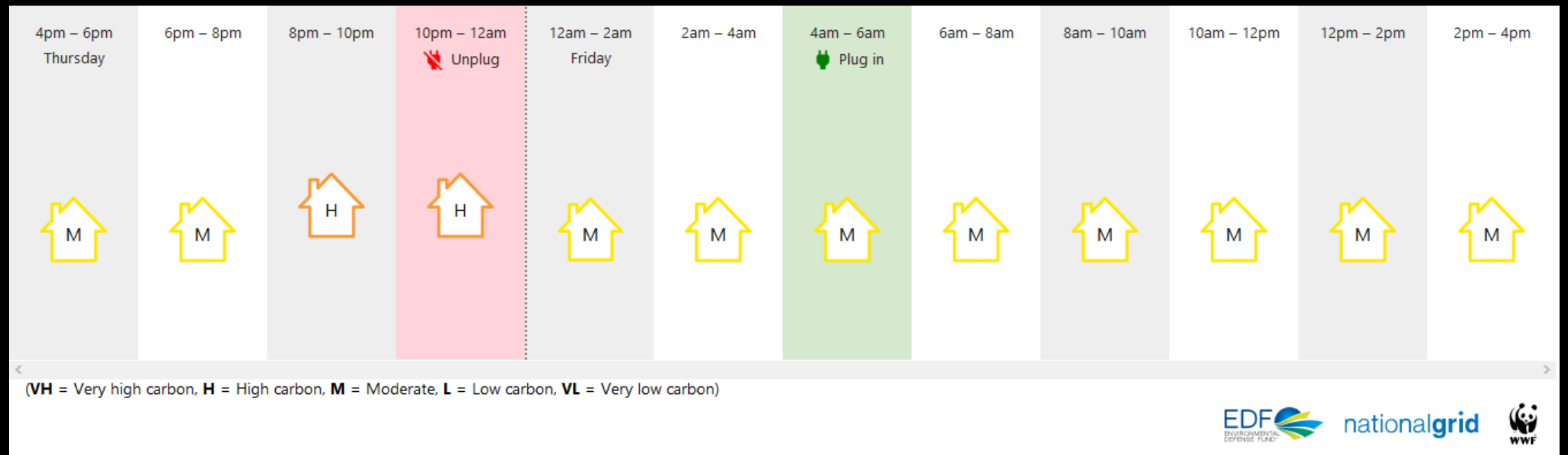


GridForecast React Native App



github.com/carbon-intensity/GridForecast

carbon-gizmo.wwf.org.uk



github.com/carbon-intensity/carbon-forecast-gizmo

React + ASP.NET Core

In practice

dotnet new

Options:

- h, --help Displays help for this command.
- l, --list Lists templates containing the specified name. If no name is specified, lists all templates.
- n, --name The name for the output being created. If no name is specified, the name of the current directory is used.
- o, --output Location to place the generated output.
- i, --install Installs a source or a template pack.
- u, --uninstall Uninstalls a source or a template pack.
- nuget-source Specifies a NuGet source to use during install.
- type Filters templates based on available types. Predefined values are "project", "item" or "other".
- dry-run Displays a summary of what would happen if the given command line were run if it would result in a template creation.
- force Forces content to be generated even if it would change existing files.
- lang, --language Filters templates based on language and specifies the language of the template to create.

Templates	Short Name	Language	Tags
Console Application	console	[C#], F#, VB	Common/Console
Class Library	classlib	[C#], F#, VB	Common/Library
WPF Application	wpf	[C#]	Common/WPF
Windows Forms (WinForms) Application	winforms	[C#], VB	Common/winForms
Worker Service	worker	[C#]	Common/Worker/Web
Unit Test Project	mstest	[C#], F#, VB	Test/MSTest
NUnit 3 Test Project	nunit	[C#], F#, VB	Test/NUnit
NUnit 3 Test Item	nunit-test	[C#], F#, VB	Test/NUnit
xUnit Test Project	xunit	[C#], F#, VB	Test/xUnit
Razor Component	razorcomponent	[C#]	Web/ASP.NET
Razor Page	page	[C#]	Web/ASP.NET
MVC ViewImports	viewimports	[C#]	Web/ASP.NET
MVC ViewStart	viewstart	[C#]	Web/ASP.NET
Blazor (server-side)	blazorserver	[C#]	Web/Blazor
ASP.NET Core Empty	web	[C#], F#	Web/Empty
ASP.NET Core Web App (Model-View-Controller)	mvc	[C#], F#	Web/MVC
ASP.NET Core Web App	webapp	[C#]	Web/MVC/Razor Pages
ASP.NET Core with Angular	angular	[C#]	Web/MVC/SPA
ASP.NET Core with React.js	react	[C#]	Web/MVC/SPA
ASP.NET Core with React.js and Redux	reactredux	[C#]	Web/MVC/SPA
Razor Class Library	razorclasslib	[C#]	Web/Razor/Library/Razor Class Library
ASP.NET Core Web API	webapi	[C#], F#	Web/WebAPI
ASP.NET Core gRPC Service	grpc	[C#]	Web/gRPC
global.json file	globaljson		Config
NuGet Config	nugetconfig		Config
Dotnet local tool manifest file	tool-manifest		Config
Web Config	webconfig		Config
Solution File	sln		Solution

Examples:

- dotnet new mvc --auth Individual
- dotnet new reactredux
- dotnet new --help

- Create React App templates

- ASP.NET Core 2.1+
- React = JavaScript
- React + Redux = TypeScript
- Server-Side Rendering

- Still supported
- Pre-render data
- Server-side routing
- No longer in templates

- docs.microsoft.com/aspnet/core/client-side/spa-services

dotnet run

```
James@zb MINGW64 /c/code/cat/react-dotnet
$ dotnet new reactredux
The template "ASP.NET Core with React.js and Redux" was created successfully.
```

```
Processing post-creation actions...
Running 'dotnet restore' on C:\code\cat\react-dotnet\react-dotnet.csproj...
  Restore completed in 319.51 ms for C:\code\cat\react-dotnet\react-dotnet.csproj.
```

```
Restore succeeded.
```

```
James@zb MINGW64 /c/code/cat/react-dotnet
$ dotnet run
info: Microsoft.AspNetCore.DataProtection.KeyManagement.XmlKeyManager[0]
      User profile is available. Using 'C:\Users\James\AppData\Local\ASP.NET\DataProtection-Keys' as key repository and Windows DPAPI to encrypt keys at rest.
info: Microsoft.AspNetCore.SpaServices[0]
      Starting create-react-app server on port 13637...
Hosting environment: Development
Content root path: C:\code\cat\react-dotnet
Now listening on: https://localhost:5001
Now listening on: http://localhost:5000
Application started. Press Ctrl+C to shut down.
info: Microsoft.AspNetCore.SpaServices[0]
      > react_dotnet@0.1.0 start C:\code\cat\react-dotnet\ClientApp
> react-scripts start
```

```
Starting the development server...
```

```
info: Microsoft.AspNetCore.SpaServices[0]
```

```
Compiled successfully!
```

```
info: Microsoft.AspNetCore.SpaServices[0]
      You can now view react_dotnet in the browser.
```

```
Local:           http://localhost:13637/
On Your Network: http://192.168.0.3:13637/
```

react_dotnet

[Home](#) [Counter](#) [Fetch data](#)

Hello, world!

Welcome to your new single-page application, built with:

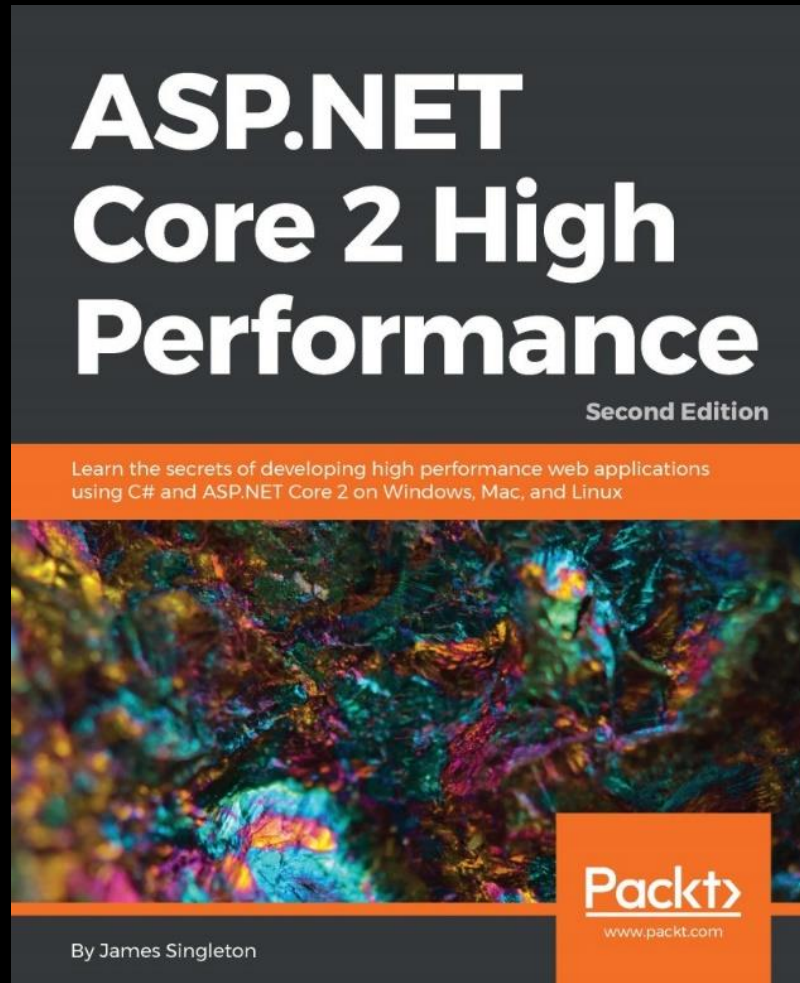
- [ASP.NET Core](#) and [C#](#) for cross-platform server-side code
- [React](#) and [Redux](#) for client-side code
- [Bootstrap](#) for layout and styling

To help you get started, we've also set up:

- **Client-side navigation.** For example, click *Counter* then *Back* to return here.
- **Development server integration.** In development mode, the development server from [create-react-app](#) runs in the background automatically, so your client-side resources are dynamically built on demand and the page refreshes when you modify any file.
- **Efficient production builds.** In production mode, development-time features are disabled, and your [dotnet publish](#) configuration produces minified, efficiently bundled JavaScript files.

The `ClientApp` subdirectory is a standard React application based on the [create-react-app](#) template. If you open a command prompt in that directory, you can run `npm` commands such as `npm test` or `npm install`.

Book

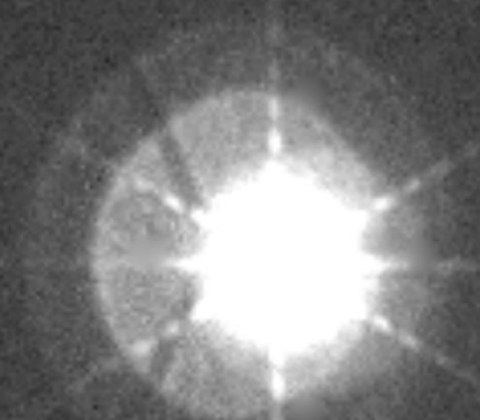


- ASP.NET Core 2 High Performance
- What's new in .NET Core 2 and C#
- Getting started (all the platforms)
- Universal tips for fast apps
 - Data structures
 - Parallelisation
 - Image formats
 - Compression
 - Architecture
 - Networking
 - Cloud hosting
 - Service workers
- unop.uk/book

One more thing...

Anyone recognise this?





Pale Blue Dot





ReACT now



ClimateAction.tech



Technology professionals using our skills, tools, and influence to amplify the Climate Movement.


TechImpactMakers.com

IMPACT MAKERS

A community of tech people who want to have a positive impact by helping prevent earth's climate breaking down.

Join the Community

ClimateChoice.co


CLIMATE
CHOICE

ContributeDonateView your choices

We must cut global emissions in half by 2030 or face *mass extinction*

Learn how you can help

[Need convincing? Watch this](#)




Your choices today can help prevent climate breakdown

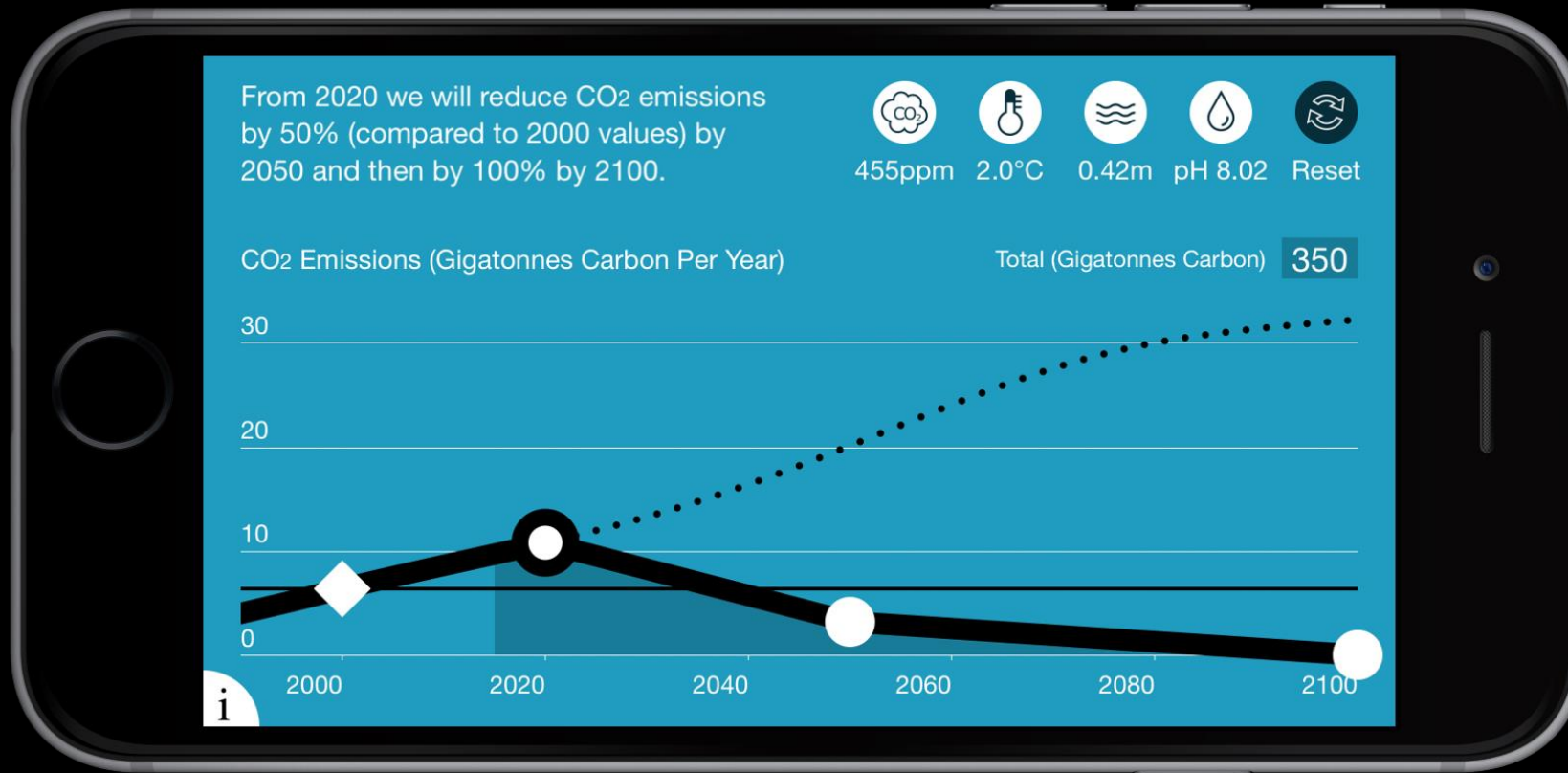
It's not too late to curb the effects of global warming before they spiral out of control, causing irreversible devastation across our planet. But **we need to act now**. We've created straight-forward guides on the choices you can make today, to take action and help prevent earth's climate breaking down:

FEATURED ON
Product Hunt
60

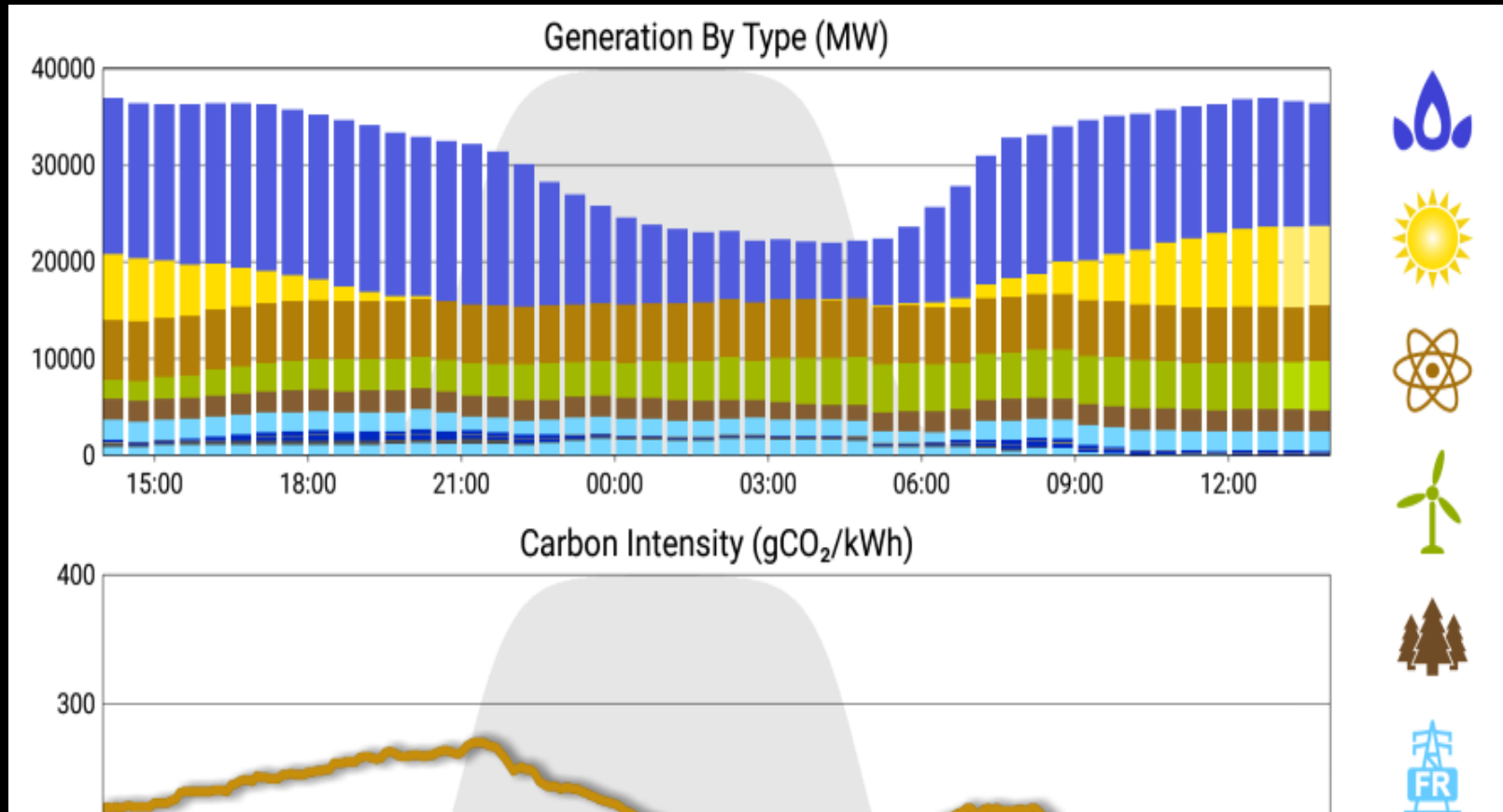
Share this page
Share



CO2Modeller.info



GridCarbon.uk



Sustainable Servers



- Sign the petition
 - change.org/p/sustainable-servers-by-2024
- Whitepaper
 - bit.ly/2024wp
- Choose your hosts / regions carefully

Cloud	Rating	Sustainable Servers?
Google	B+	100% with offsets
Azure	B	100% with offsets and energy certificates
AWS	C	100% with offsets in 5 regions, elsewhere unknown with estimates in <30-40% range
Oracle	C-	100% with offsets in a few regions <30% overall
IBM	C-	~50% overall

Ecosia.org



Search the web to plant trees...



56,955,660

Trees planted by Ecosia users



Thanks

&

be excellent to each other

James Singleton

unop.uk

[@ShutdownScanner](https://twitter.com/ShutdownScanner)

eepurl.com/gcKIUr