JAMstack

or: A Brief History of the Internet

by Brandon Willett

Utter Vanity

- → My name is Brandon!
- → Graduated from the University of Rochester (2018)
- → Worked on query execution (Spark) for 2 years
- → Now in site reliability at Datadog
  - → Hooray for uptime
  - → arf

TWO Slides about Himself?
The Nerve of This Guy

- → I am not actually a web developer (shh)
- → I'm interested in all this for other reasons
  - → E.g. resiliency, scalability
  - → We will see more about this in a sec!

<context>

A Simpler Time

- → HTML and CSS hosted on a web server
- → Some *static files* optionally served via CDN
  - → A "Content Delivery Network"
  - → Dozens of locations all over the world
  - → Designed as a fast cache for popular files

Aside: What is "Static"

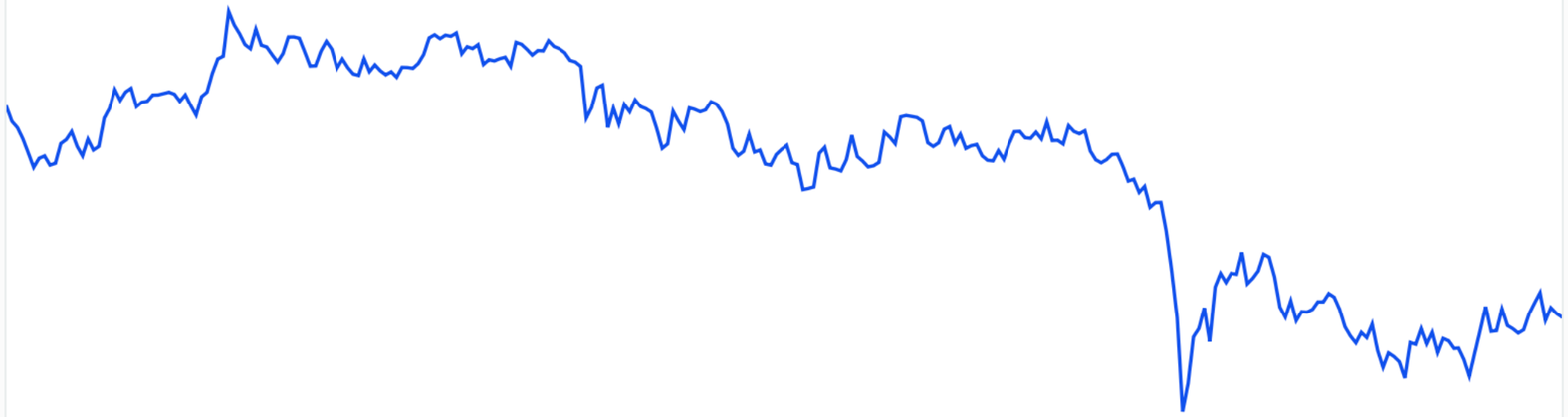
- → All parts of the website that don't change *often* or don't change *from client to client*
  - → Parts that everyone is always seeing
  - → Includes images, CSS, JS...
- → Makes up a surprising amount of most websites

Stellar Lumens price (XLM)

Add to Watchlist

$0.0952 -4.57%

1H 24H 1W 1M 1Y ALL



Market cap	Volume (24 hours)	Circulating supply	All-time high
$1.9B	$240.6M	20.4B XLM	$0.94

Buy

$0 XLM

Buy Stellar Lumens

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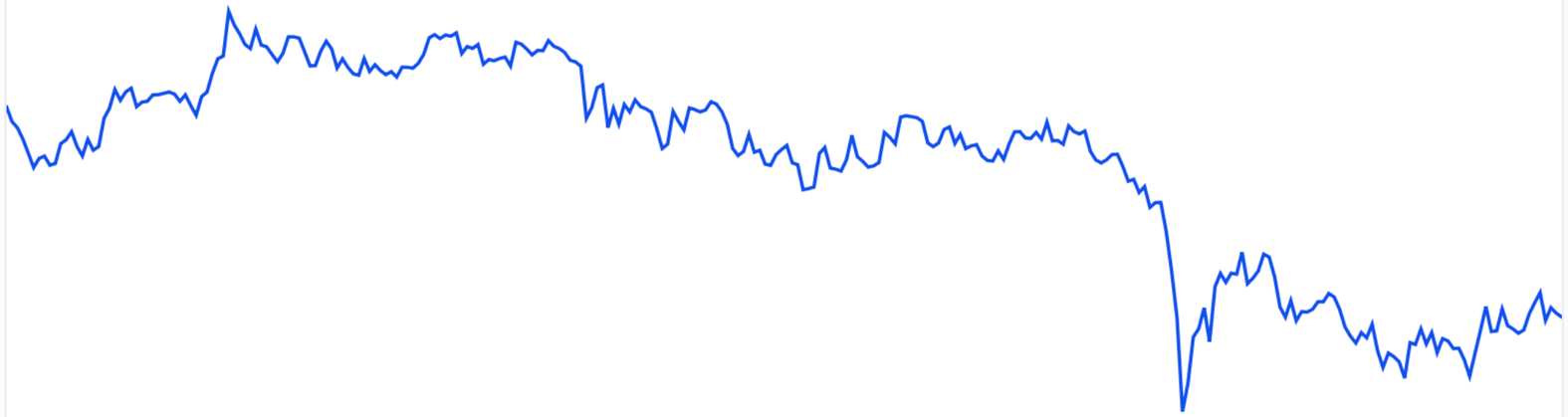

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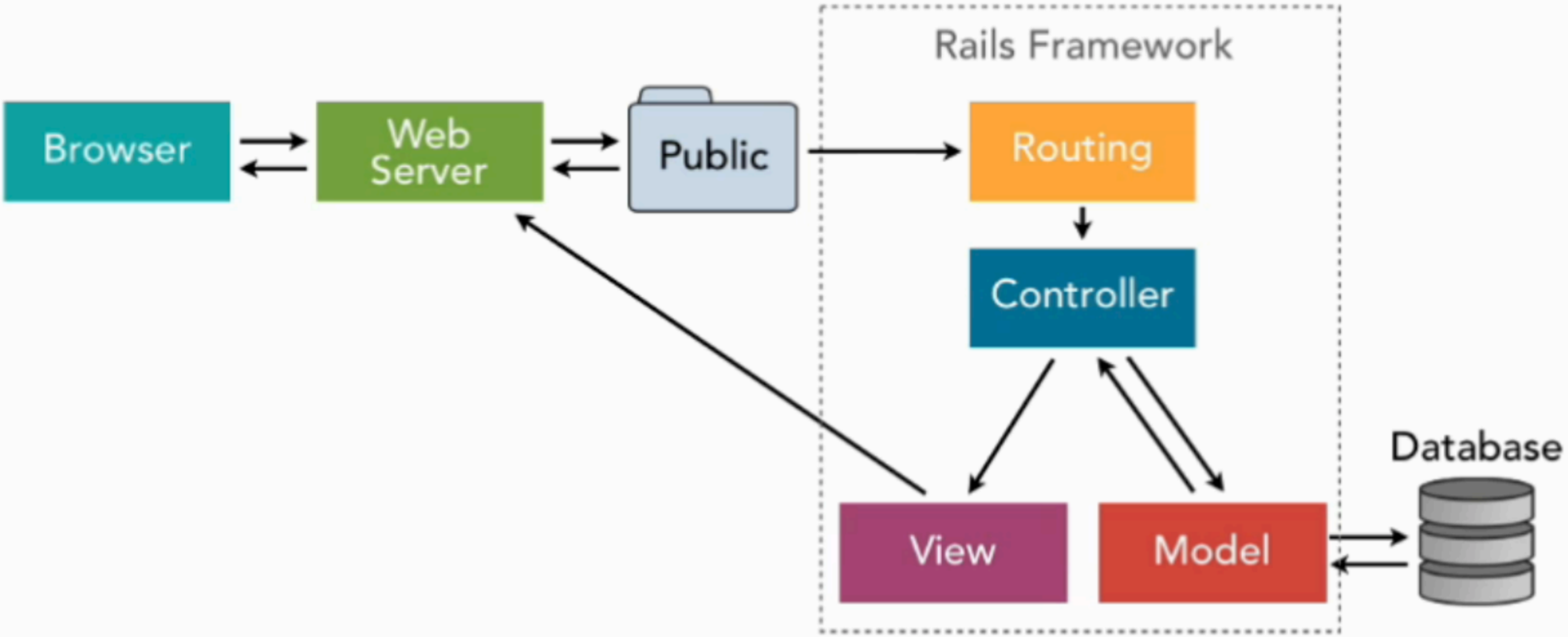
But... dynamic content?

2004: Revolution!

- → Have the web server build the HTML *per request*
- → Architecture typically includes:
  - → A MVC framework (Rails, Django, Flask…)
  - → Hosted on a cloud VM (EC2, Heroku…)
  - → Behind a reverse proxy (nginx) or load balancer

Rails architecture




And everything was lovely for a while*

Potential Issues

- → **Slow** (!)
  - → Need to reach server & render HTML on every request
  - → Responses must wait on the slowest data
- → **Fragile**
  - → Servers go down all the time -> 500 errors
- → **Coupled**
  - → Whole app must be deployed for each tiny UI change
  - → Everyone must be full-stack

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The Times, They Are a-Changin'

- → Frontend frameworks gain massive adoption
  - → Previously, jQuery was king
  - → Now, whole virtual DOM: Angular, React, Vue
- → Javascript itself modernizes (ES6+)
- → People start experimenting...

The Shift: Before

Step	Part of Stack
Request Page	**Frontend**
Request Data	*Backend*
Get Data	*Backend*
Render Page	*Backend*
Show Page	**Frontend**

The Shift: After

Step	Part of Stack
Request Page	**Frontend**
Request Data	**Frontend**
Get Data	*Backend*
Render Page	**Frontend**
Show Page	**Frontend**

In Other Words...

The client is "dumb" and just says
"give me **`cool-app.com/home`**" to the server,

The client is "smart" and so it says
"I know how **`cool-app.com/home`** goes together,
just give me the data" to the server.

Implications

But what does it all *mean*?

→ Radically simplified backend development

→ Radically more extensible backend APIs

→→ No need for a new backend to make an iOS app

→ Radically host the whole frontend on a CDN

→→ Your site now has *stellar* uptime

→ Dead-simple separation of responsibilities


SREs


DevOps

Returning to the Name

JAMstack: Javascript, APIs, and Markup

1. *Javascript* = the language you build web apps in
2. *APIs* = the way those apps do dynamic content
3. *Markup* = the entirely-static backbone of the app

Conclusion

JAMstack is an alternative approach to building modern web applications that aspires to be:

→ faster

→ safer

→ more scalable

→ I'd argue, more fun 😋

Things to Google

- → Frameworks: **`next.js`**, **`gatsby`**, **`uhhh`**
- → Static site hosting: **`netlify`**, **`vercel`**, **`surge.sh`**
  - → All are free because it's so cheap
- → Examples: **`https://jamstack.org/examples/`**
  - → This site is the main hub

THANK YOU

todo

→ joke about "delivering content" to the audience