
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

SVS210-L

Accelerating innovation with serverless on AWS

Holly Mesrobian
VP, Serverless Compute
AWS

Guillermo Rauch
CEO
Vercel

Sheen Brisals
Senior Engineering Manager
The Lego Group

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless in 2022

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How serverless started



AWS Lambda



Amazon ECS

2014

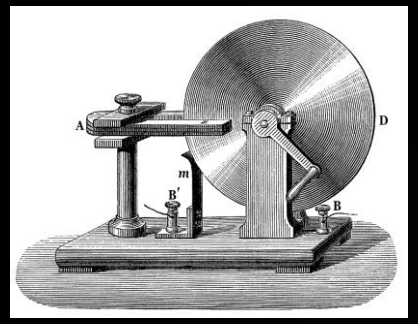


AWS Fargate

2017

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

1800s – Beginnings of electrification



Faraday disk



Burden’s wheel



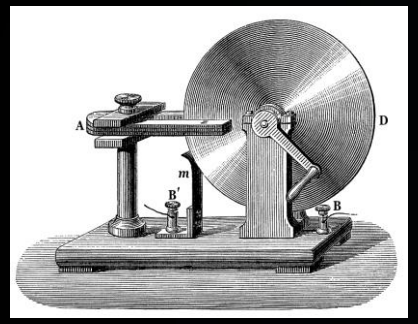
Pearl Street power station



Modern power station

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Acceleration of innovation

















© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Computing evolution

LEVEL OF ABSTRACTION



PHYSICAL MACHINES

Requires “guess” planning

Lives for years on premises

Heavy investments (upfront costs)

Low innovation factor

Deploy in months

FOCUS ON BUSINESS LOGIC

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Computing evolution



VIRTUAL MACHINES

Hardware independence

Faster provisioning speed (minutes/hours)

Trade upfront costs for variable costs

More scale

Elastic resources

Faster speed and agility

Reduced maintenance

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Computing evolution



BASIC CONTAINERIZATION

Platform independence

Consistent runtime environment

Higher resource utilization

Easier and faster deployments

Isolation and sandboxing

Start speed (deploy in seconds)

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Computing evolution



LEVEL OF ABSTRACTION

FOCUS ON BUSINESS LOGIC

SERVERLESS

Continuous scaling

Fault tolerance built-in

Pay for value

Minimal maintenance

Functions and containers

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Serverless accelerates innovation



Scalable



Lower cost



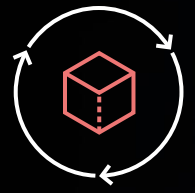
Easier to use



Reliable

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Why customers are choosing AWS Serverless



Agility



Performance



Cost



Security

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Why customers are choosing AWS Serverless

Mathem



Deloitte.

"For day-to-day innovation, we're 5 to 10 times faster."

"Utopus processes 200+ billion signals from wind and solar sources daily, in hours instead of weeks"

"AWS Serverless is 57% cheaper than a server-based solution"

Determining the Total Cost of Ownership: Comparing Serverless and Server-based Technologies – Deloitte Consulting, 2021

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Compute operational models

Least

What you manage

Most

	AWS manages	Customer manages	
AWS Lambda Serverless functions	Data source integrations Physical hardware, software, networking, and facilities Provisioning	Application code	
Amazon ECS on AWS Fargate Serverless containers	Container orchestration, provisioning Cluster scaling Physical hardware, host OS/kernel, networking, and facilities	Application code Data source integrations Security config and updates	Network config Management tasks
Amazon ECS on Amazon EC2 Container-management -as-a-service	Container orchestration control plane Physical hardware software, networking, and facilities	Application code Data source integrations Work clusters	Security config and updates, network config, firewall, management tasks
Amazon EC2	Physical hardware software, networking, and facilities	Application code Data source integrations Scaling Security config and updates Network config	Management tasks Provisioning, managing scaling, and patching of servers

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How are customers adopting a serverless strategy?

Reduce

The amount of DIY



Retire + SaaS

Migrate

To AWS



Lift and shift

Modernize

On AWS



Replatform + Refactor

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modernize applications

Replatform



Amazon ECS



AWS Fargate

Refactor

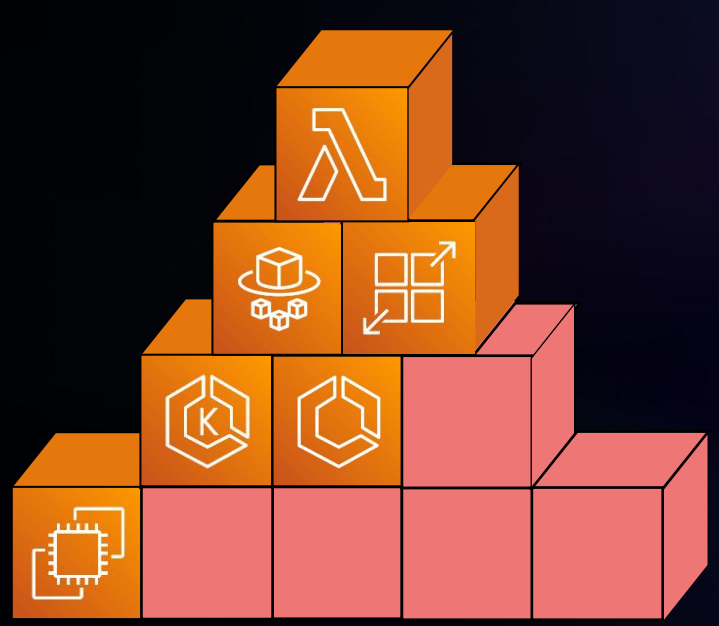


AWS Lambda

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Build new applications

Managed



Manual

— Start serverless-first —

Can you run this 100%

Serverlessly?

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The LEGO Group

Sheen Brisals
Senior Engineering Manager

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.


LEGO

Our Mission

To inspire and develop the builders of tomorrow.



Marketing Channels Technology (MCT)



LEGO.com



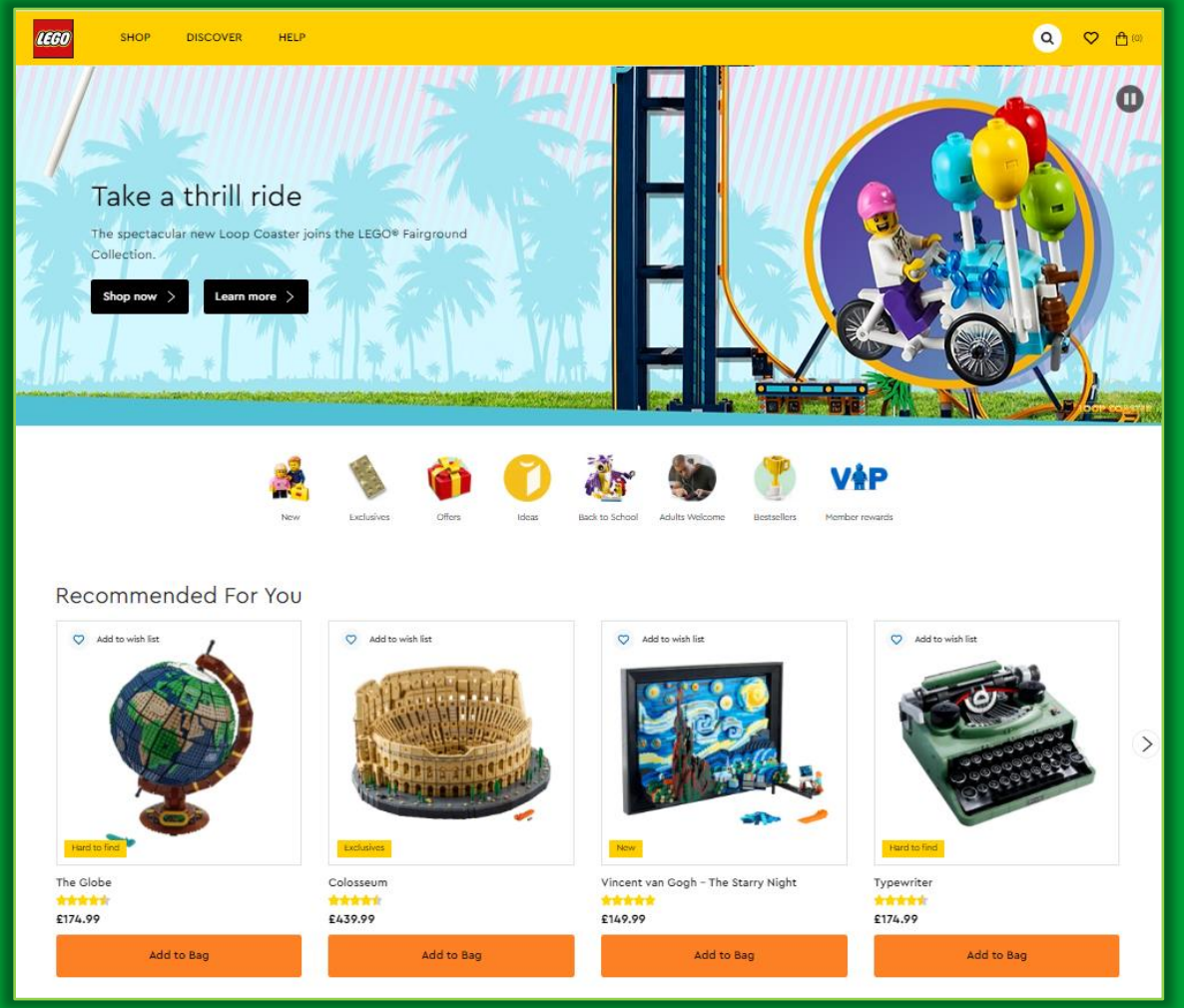
Retail Store Operations



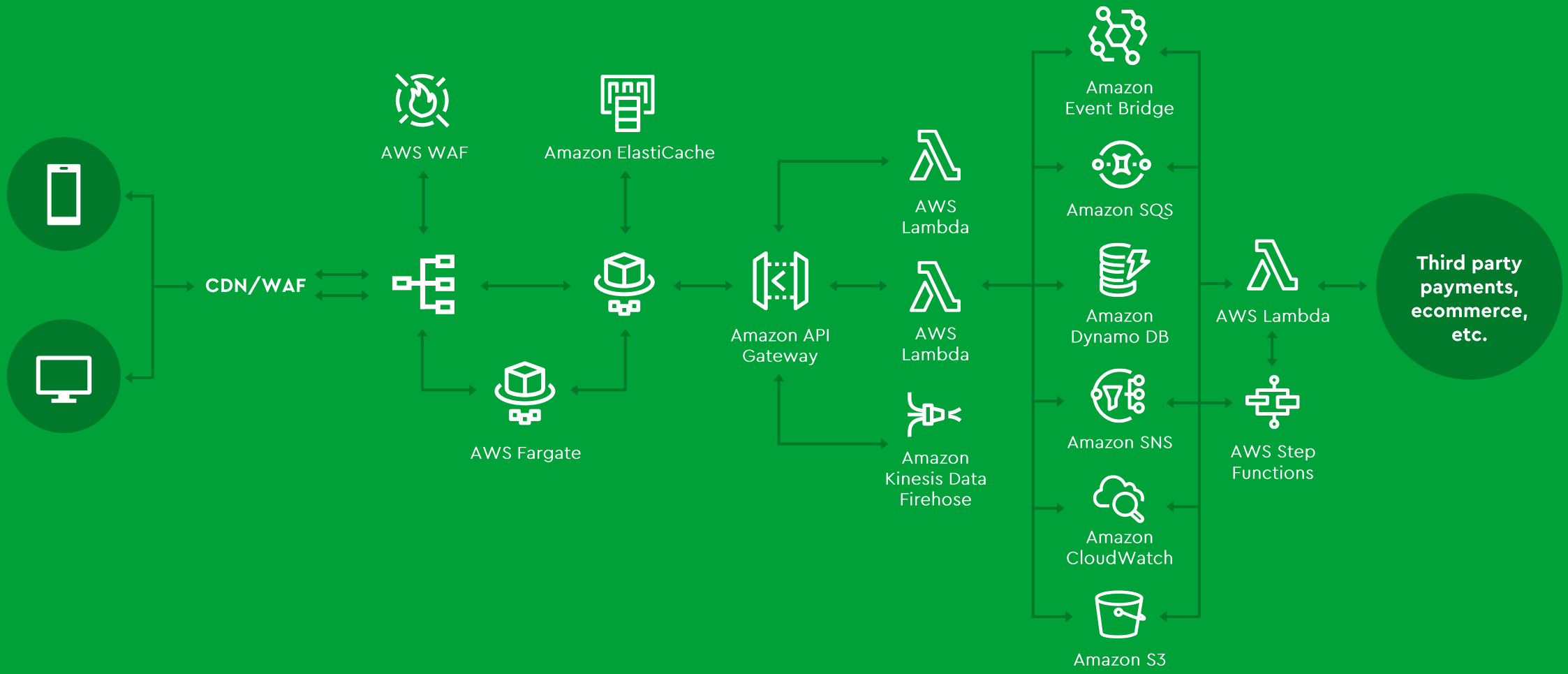
Customer Support Centre

Serverless Journey of LEGO.com

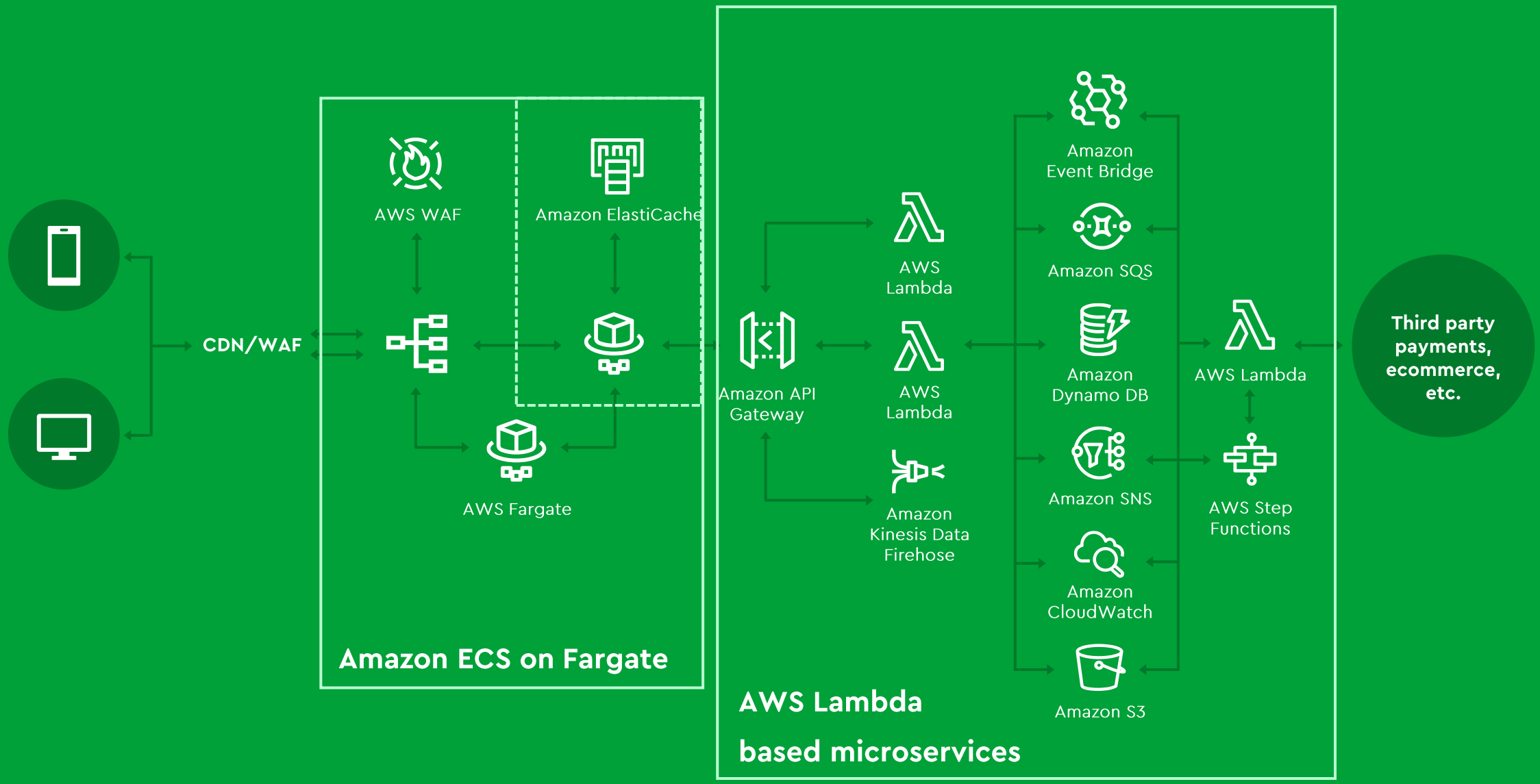
Switched to serverless on 10, July 2019



Architecture

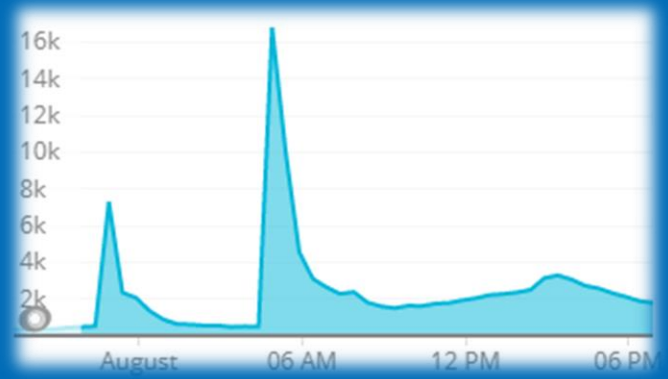


Architecture



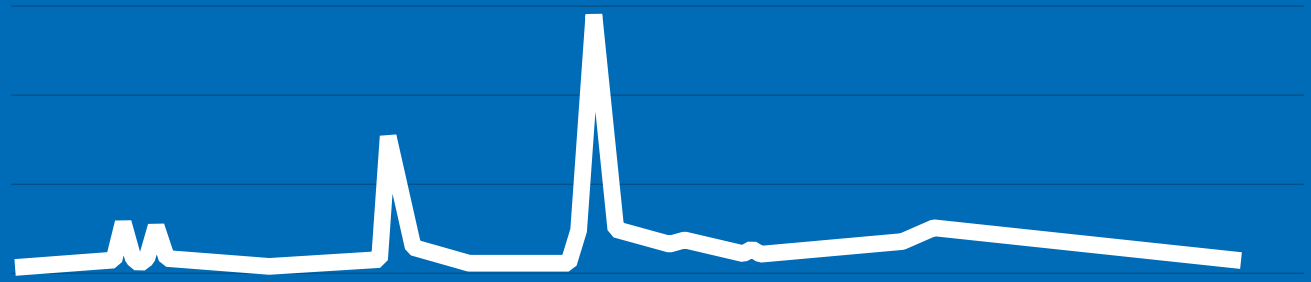
The Spikes



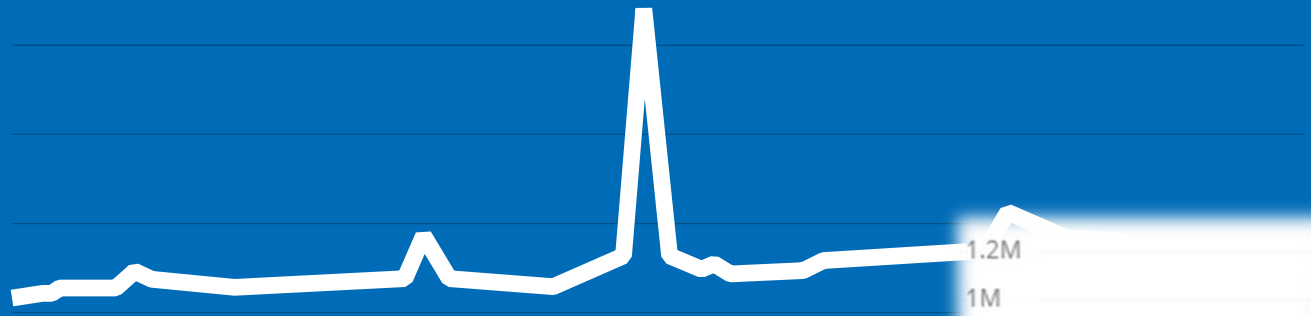


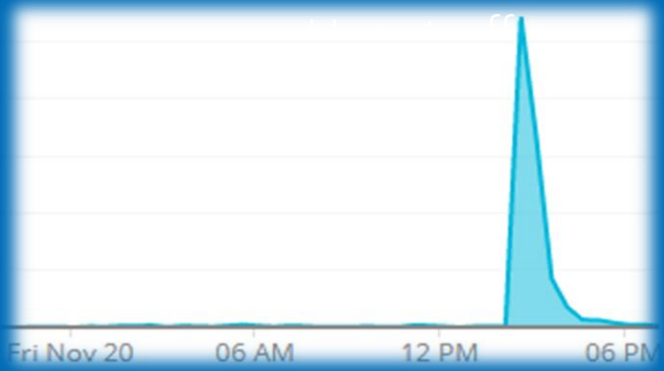
200x

Transactions processed



9.5x







The Motivations



Capabilities of the cloud



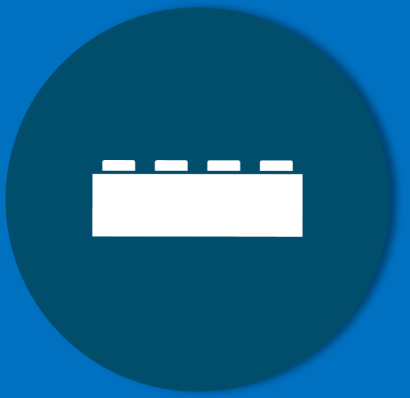
Scale as per demand



Business innovation



Better observability



Composable architecture

Journey Milestones

November 2017



Legacy Platform Failure

Key components failed to scale

Spring 2018



Serverless experimentation

Started with simple services

July 2019



Shop.LEGO.com goes serverless

20 microservices
2 teams
20 engineers

Fall 2020



Payment Service rollout

New products squads

Summer 2021



Peak traffic during new product launches

Team expansion

Summer 2022



Over 25 product squads

Several microservices
Multiple accounts

Serverless Payments Platform

Payment Providers

Unified Payments API



BrickBank

LEGO Business Units

LEGO.com | B2B | Shipping | Education | LEGO Support

Autonomous Product Squad

- Separate AWS Cloud account
- Independent GitHub repository
- Builds and operates BrickBank
- API-first
- Event-driven Architecture



20+ microservices



80+ Lambda functions



100+ GB in DynamoDB



10+ Step Functions



40+ EventBridge rules



1 Amazon SES account

Typical per Minute Traffic



1,000+
orders



200,000
API requests

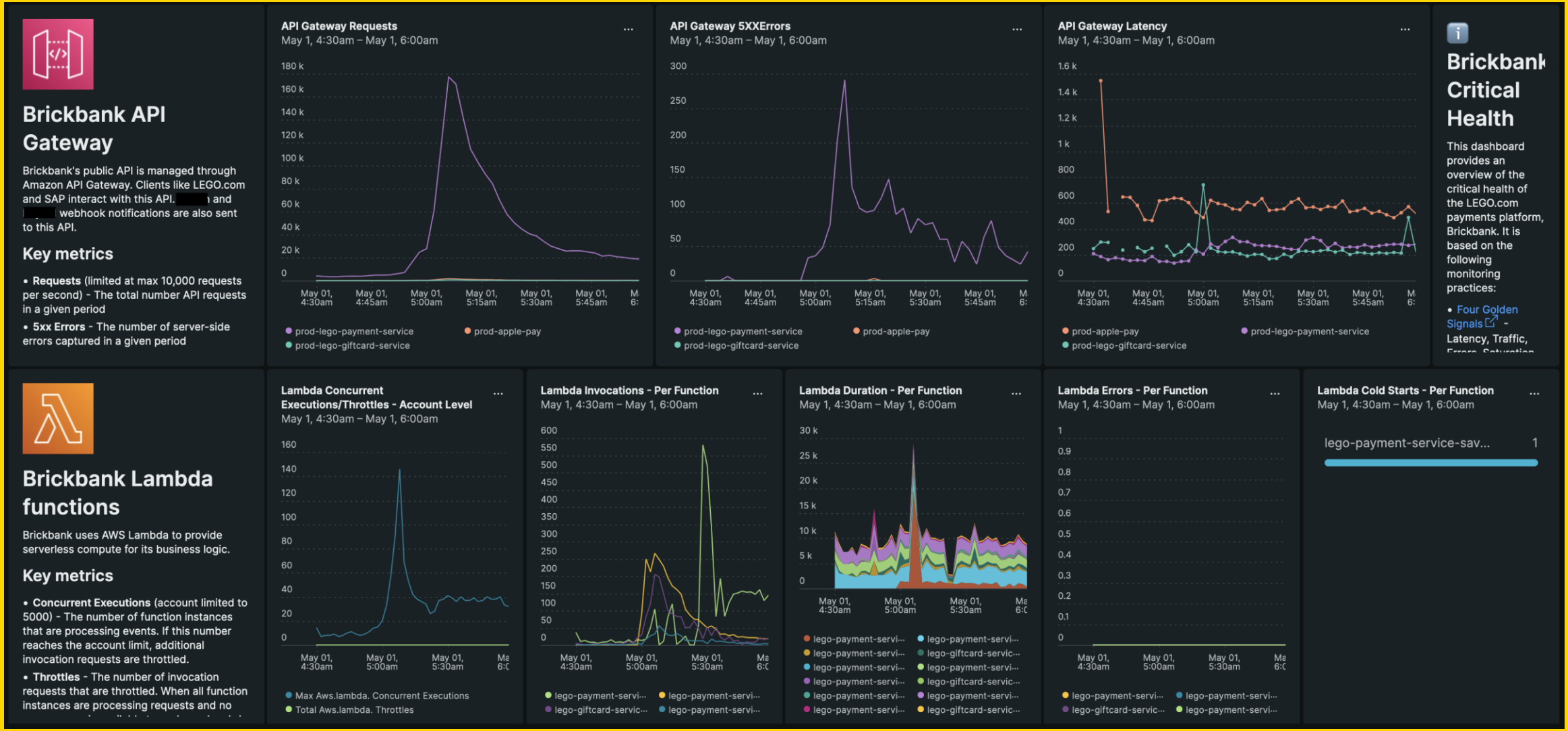


20,000
notifications



150 concurrent
Lambda invocations

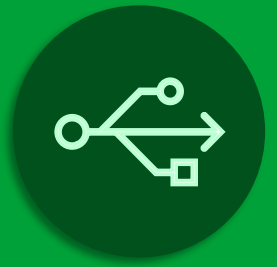
Operational Visibility



Key Learnings



Start simple, evaluate, and evolve



Incremental and iterative development



Importance of automation



Autonomous and product-focused teams



Building AWS Well-Architected serverless standards



Engineering culture: You build it, you run it

Our Motto

ONLY THE BEST IS GOOD ENOUGH




LEGO

Continuous innovation across the stack

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless pillars of innovation

TO HELP CUSTOMERS BECOME MORE PRODUCTIVE WE FOCUS ON . . .



Performance



Security



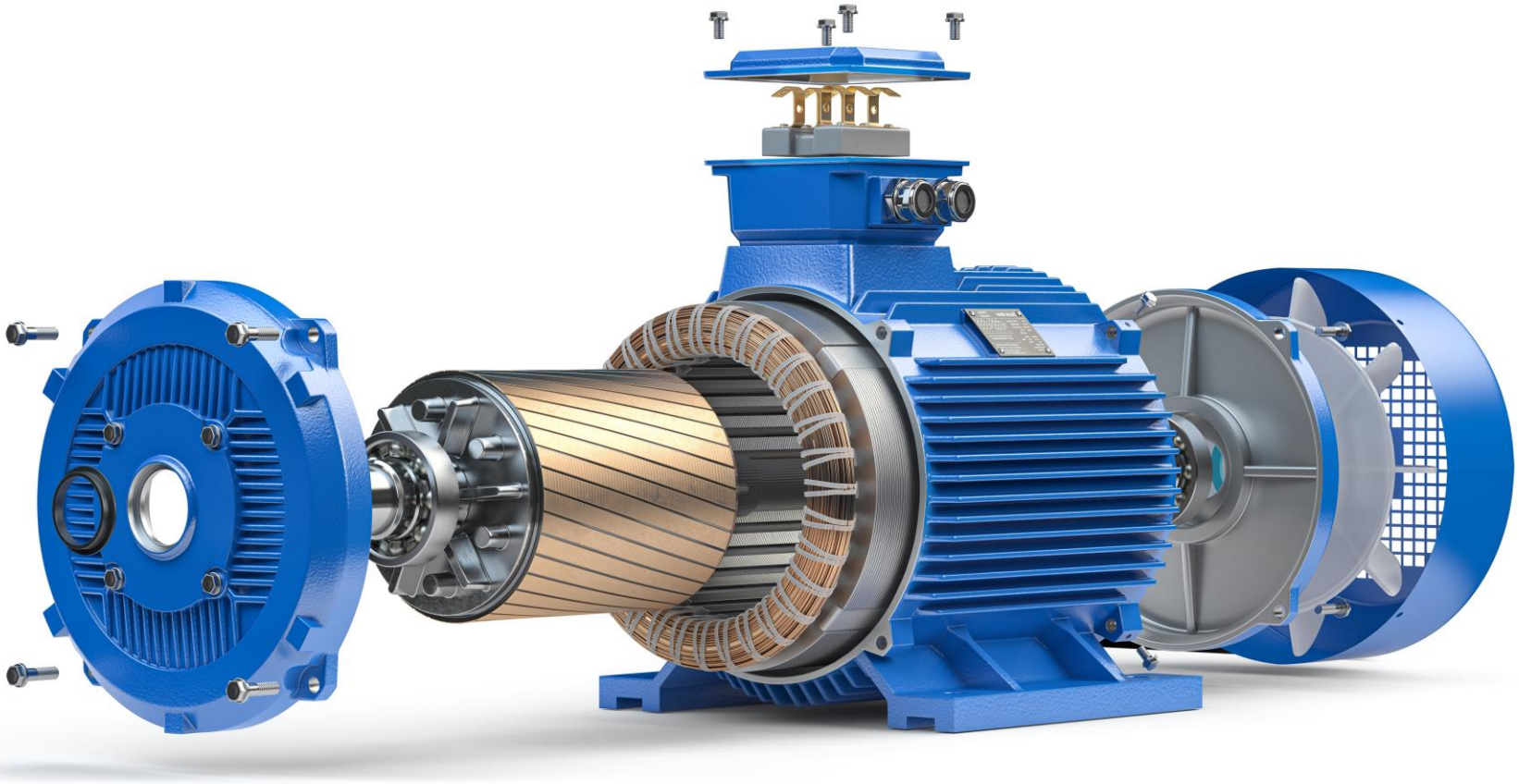
Architectural patterns



Workload support

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Performance



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lambda SnapStart

NEW!



SnapStart for Java delivers **up to 10x faster** function startup performance

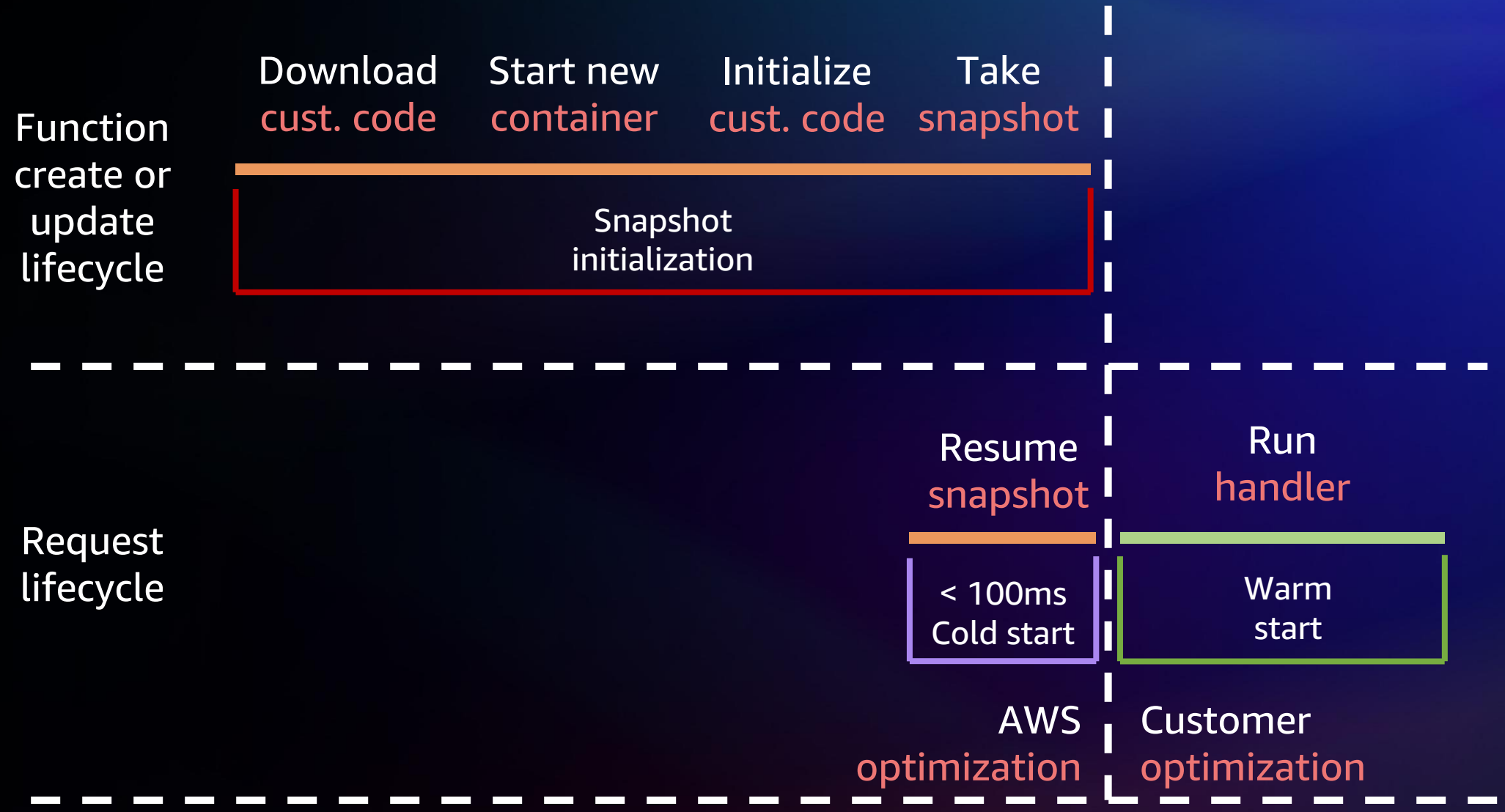
Typically no changes to your code

No additional cost

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lambda SnapStart – How it works



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Lambda SnapStart deep dive

Session ID	Title	Speaker(s)	Schedule
SVS404-R1	A closer look at AWS Lambda	Chris Greenwood, Julian Wood	Tue, 11/29, 5:45pm, MGM Grand 121
SVS404-R	A closer look at AWS Lambda	Chris Greenwood, Julian Wood	Wed, 11/30, 10:00am, Mandalay Bay South Pacific F
SVS320	AWS Lambda SnapStart: fast cold starts for your Java functions	Mark Sailes	Tue, 11/29, 5:00pm, Mandalay Bay South Pacific F

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

"SnapStart has improved the cold start performance for some of our key services by 95% percent. Over 50% of our AWS Lambda functions in production use the Java runtime, serving as many 6.5m invocations a day."

Ivonne Roberts

Software Architect, Bill.com

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

"Snapstart requires little to no code changes and delivers significant cold start improvements in numerous Lambda use cases. Applying the power of serverless technology broadly allows us to focus more on customer value and less on infrastructure management."

Marty Andolino

Capital One Retail Bank Technology, VP of Engineering/Divisional Chief Architect

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Fargate tasks



Larger task sizes

Up to 16 vCPUs (4x)

Up to 120 GiB of memory



Faster scaling

Up to 500 tasks in under a minute per service, 16x faster

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

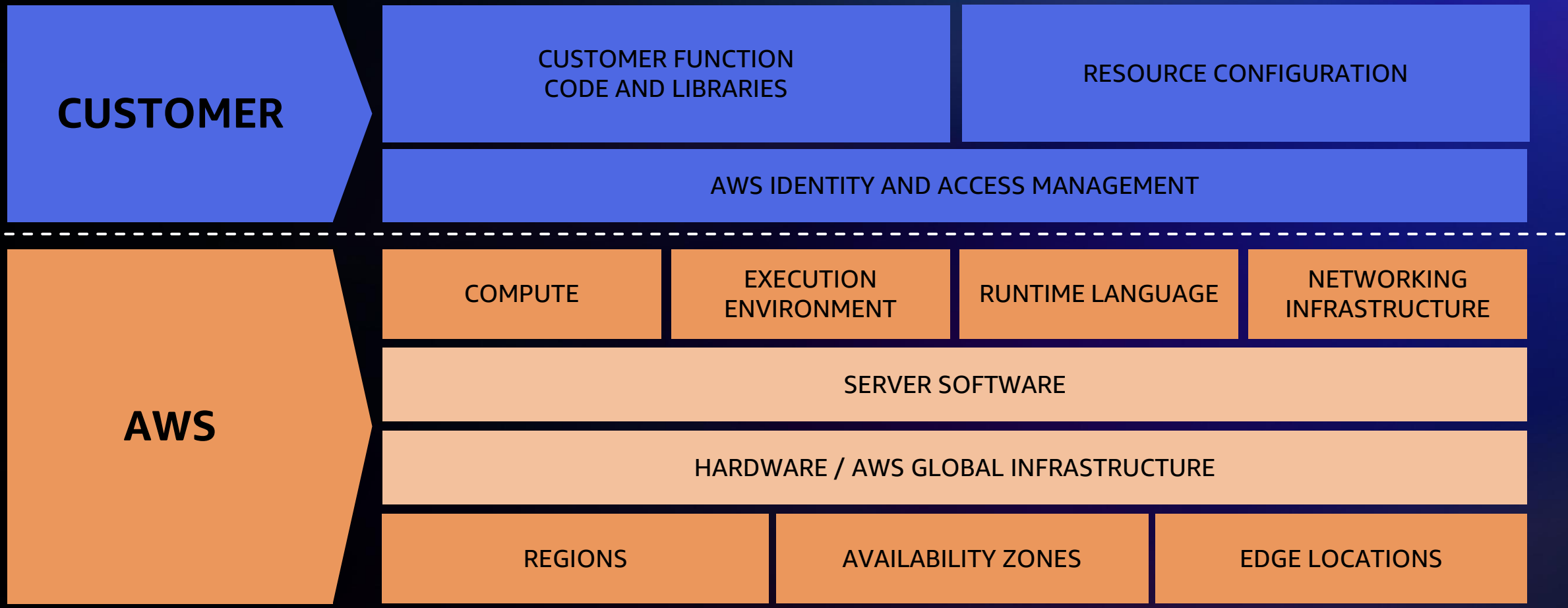
"AWS Fargate larger instance sizes have been a critical unlock in migrating Smartsheet's most resource intensive workloads to serverless cloud infrastructure."

Ray Cole

Distinguished Engineer, Smartsheet

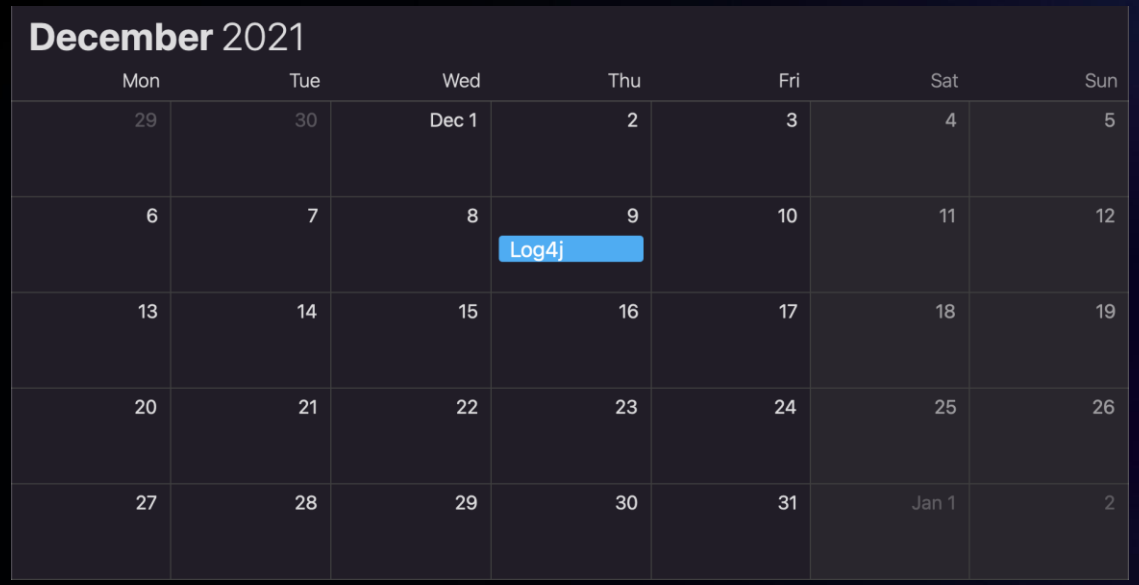
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Security



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Log4j (CVE-2021-44228)



On December 9, 2021, a severe remote code vulnerability in Apache's Log4j was announced to the world

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Log4j (CVE-2021-44228)

(ISC)² PULSE SURVEY – Feb 2022

27% - organizations were less secure during remediation

23% - fell behind on their 2022 security priorities

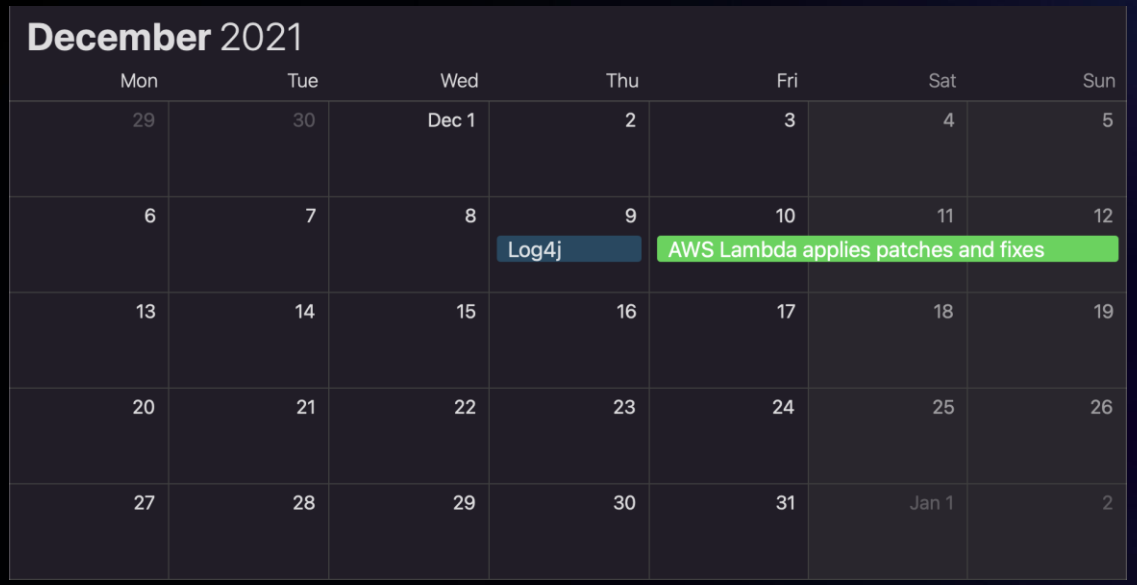
52% - team spent weeks or more than a month remediating Log4j

48% - teams gave up holiday time and weekends to assist with remediation

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Lambda response to Log4j (CVE-2021-44228)

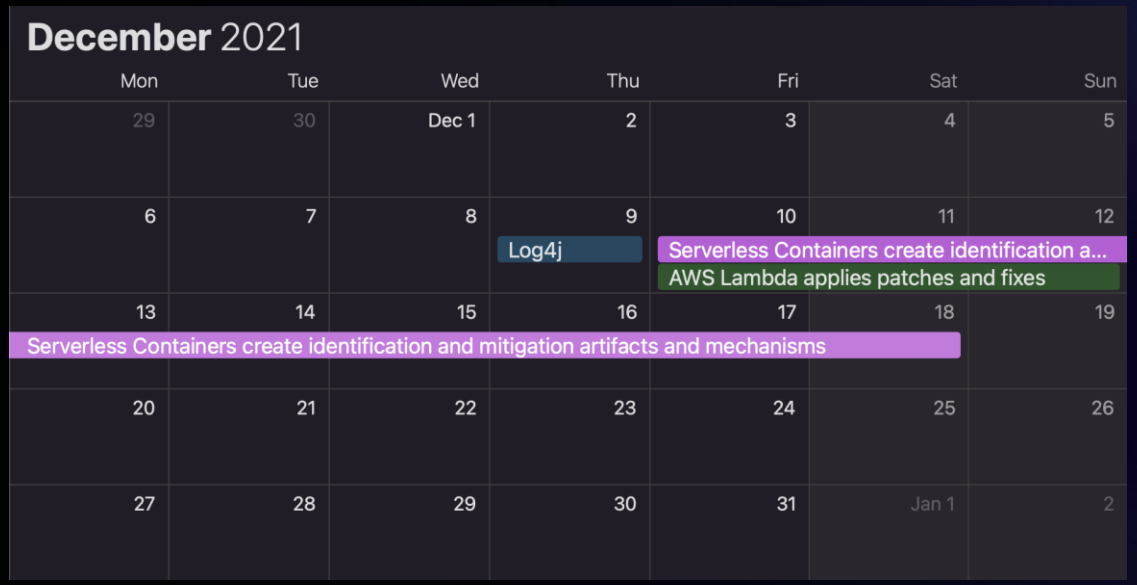


By December 12, Lambda had automatically:

- Applied a patch to all functions using the Java managed runtime
- Applied a fix to the Java base container images
- Created new log that notified customers that the mitigation had been applied

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ECS/AWS Fargate response to Log4j



By December 18, Serverless Containers had:

- Updates to ECR Enhanced Scanning and Amazon Inspector to identify issue
- Amazon ECS/AWS Fargate customers could request to opt in to having the log4j Java hot patch applied to their accounts

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Inspector for Lambda functions

NEW!



Assess running Lambda functions for software issues

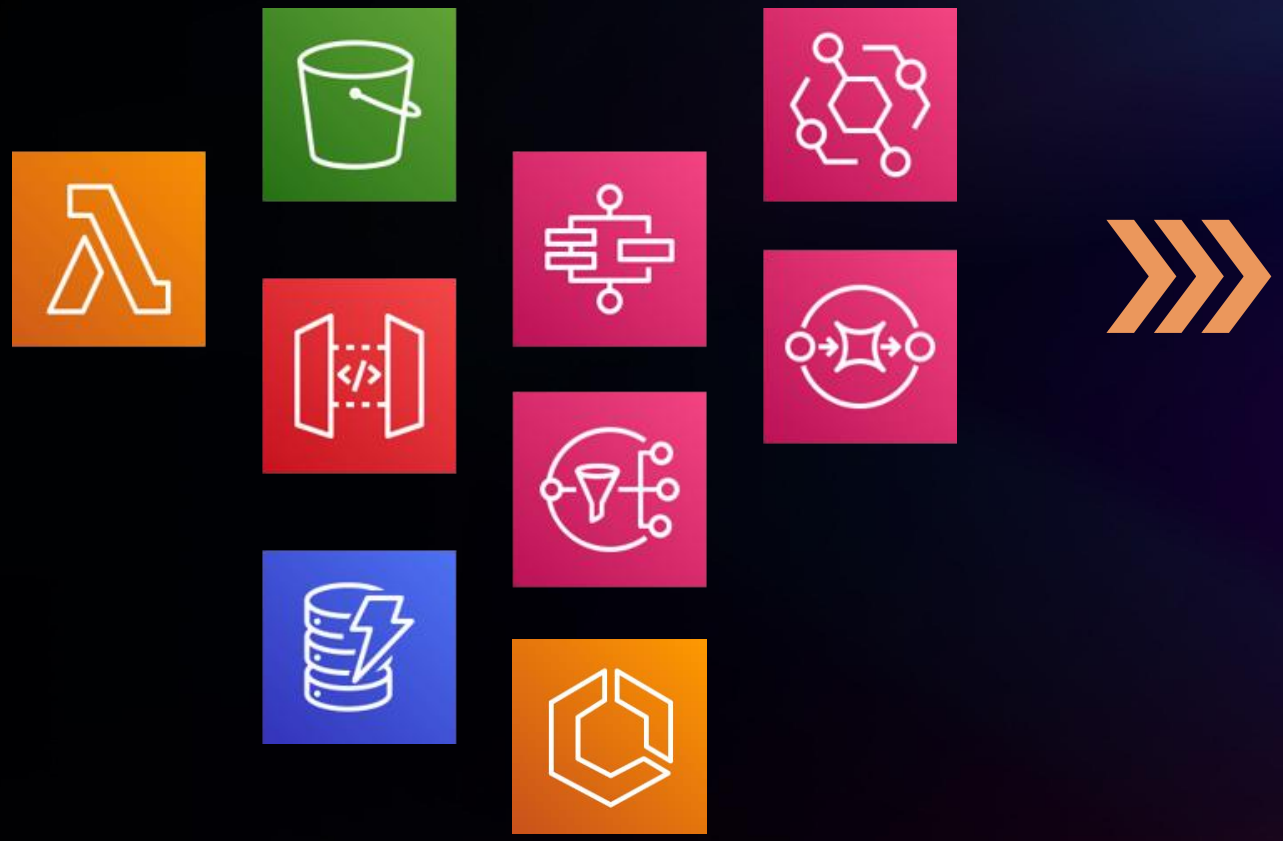
Automatically **map vulnerabilities** detected in function code dependencies

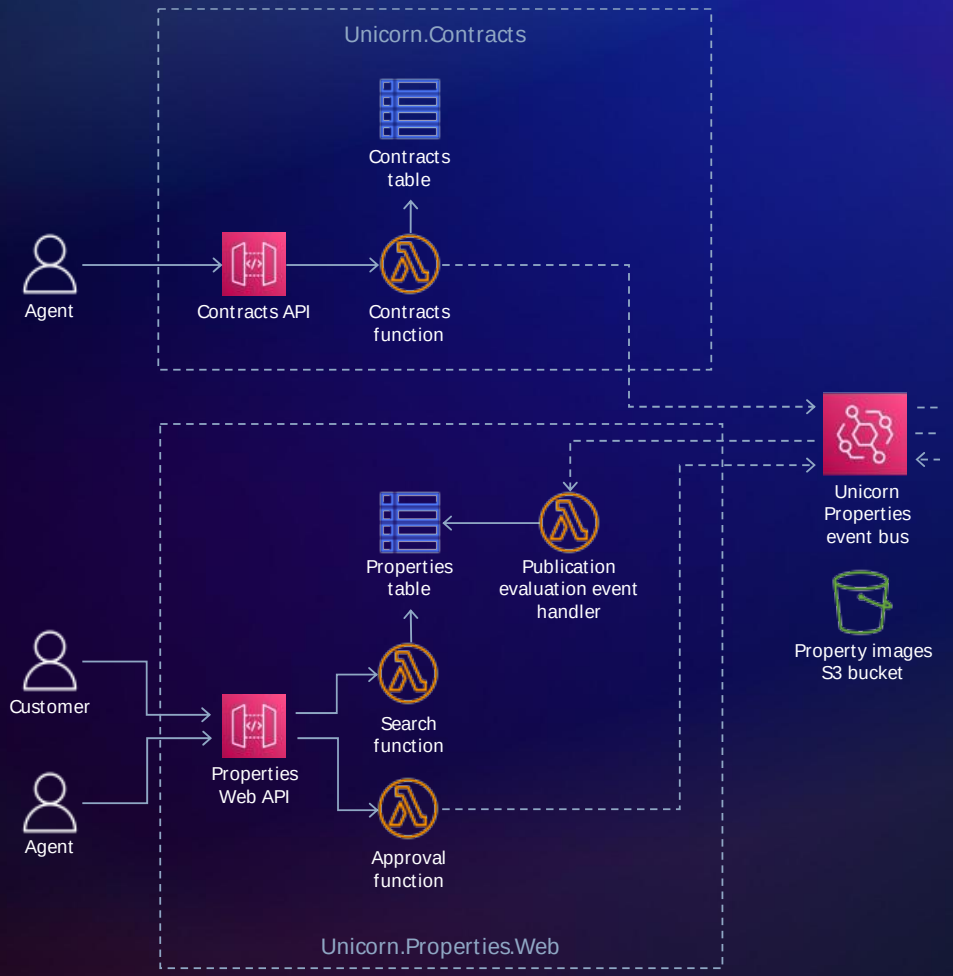
Consolidate your vulnerability management solutions for Amazon EC2, Lambda functions, and Amazon ECR container images

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Architectural patterns: small pieces, loosely joined





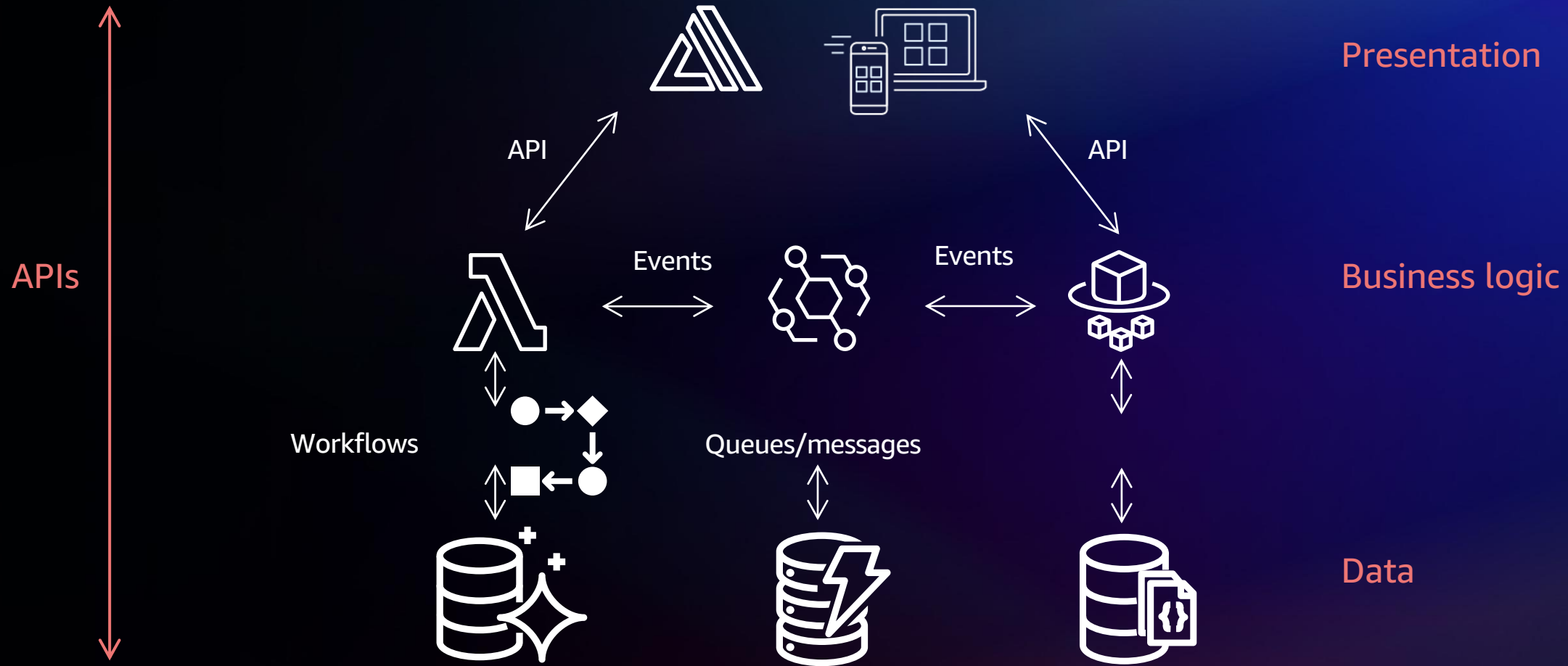
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Architectural patterns: small pieces, loosely joined



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A modern three-tier application architecture



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon ECS Service Connect



Focus on the application code and not on your networking infrastructure

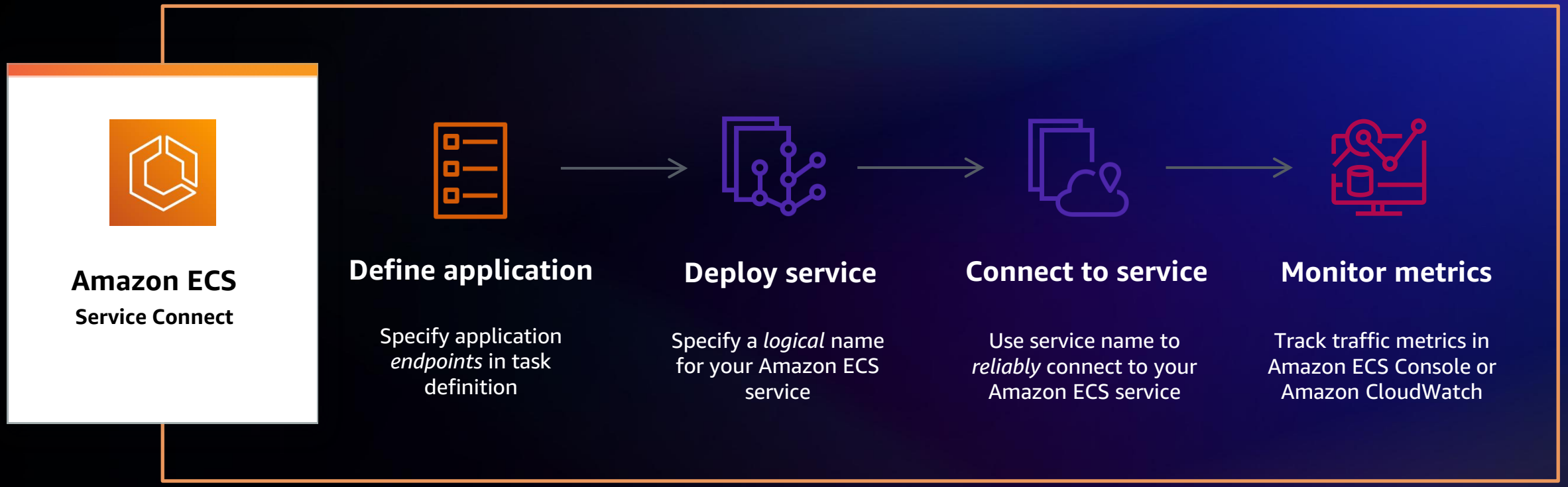
Build resilient applications with health checks and automatic retries on errors

Monitor and operate your applications with rich metrics in the Amazon ECS Console

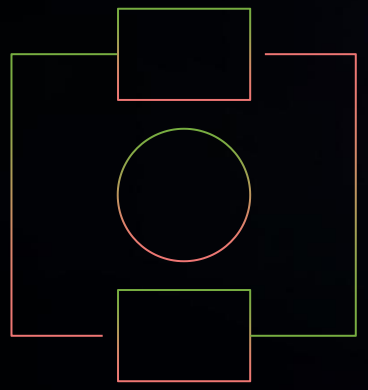
aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon ECS Service Connect – How it works



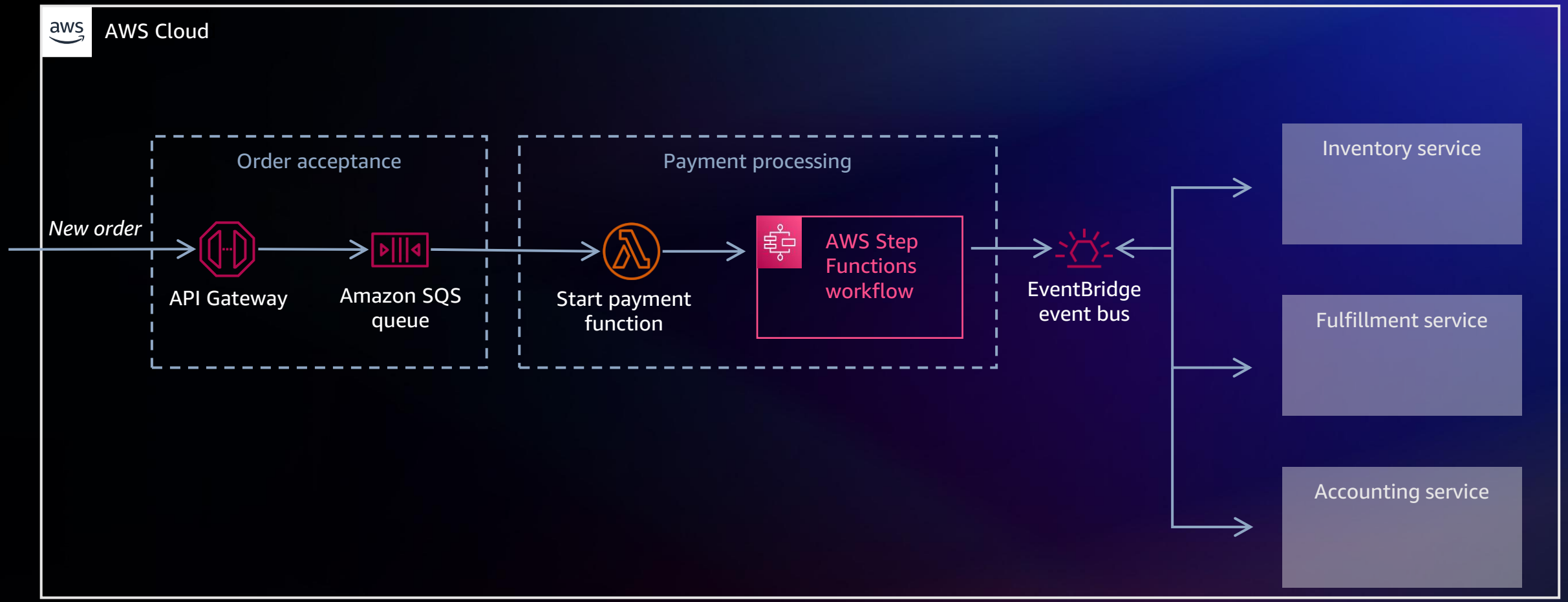
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Asynchronous designs are the natural way to build evolving, reactive applications

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

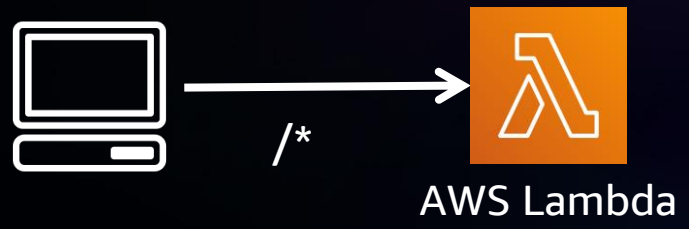
Events increase flexibility and extensibility



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Workload support

AWS Lambda function URL



Part of the AWS Lambda service

A separate resource in AWS CloudFormation

Generates a unique URL to invoke an AWS Lambda function

Can point to $LATEST or a user–defined alias

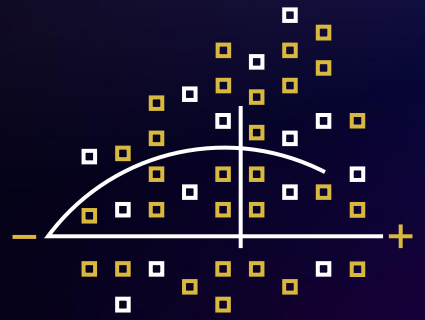
https://<url-id>.lambda-url.<region>.on.aws/

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What are customers building?



Event and API-driven applications



Data processing



Machine learning

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Vercel

Guillermo Rauch
CEO

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.


Vercel


Vercel
NEXT.JS

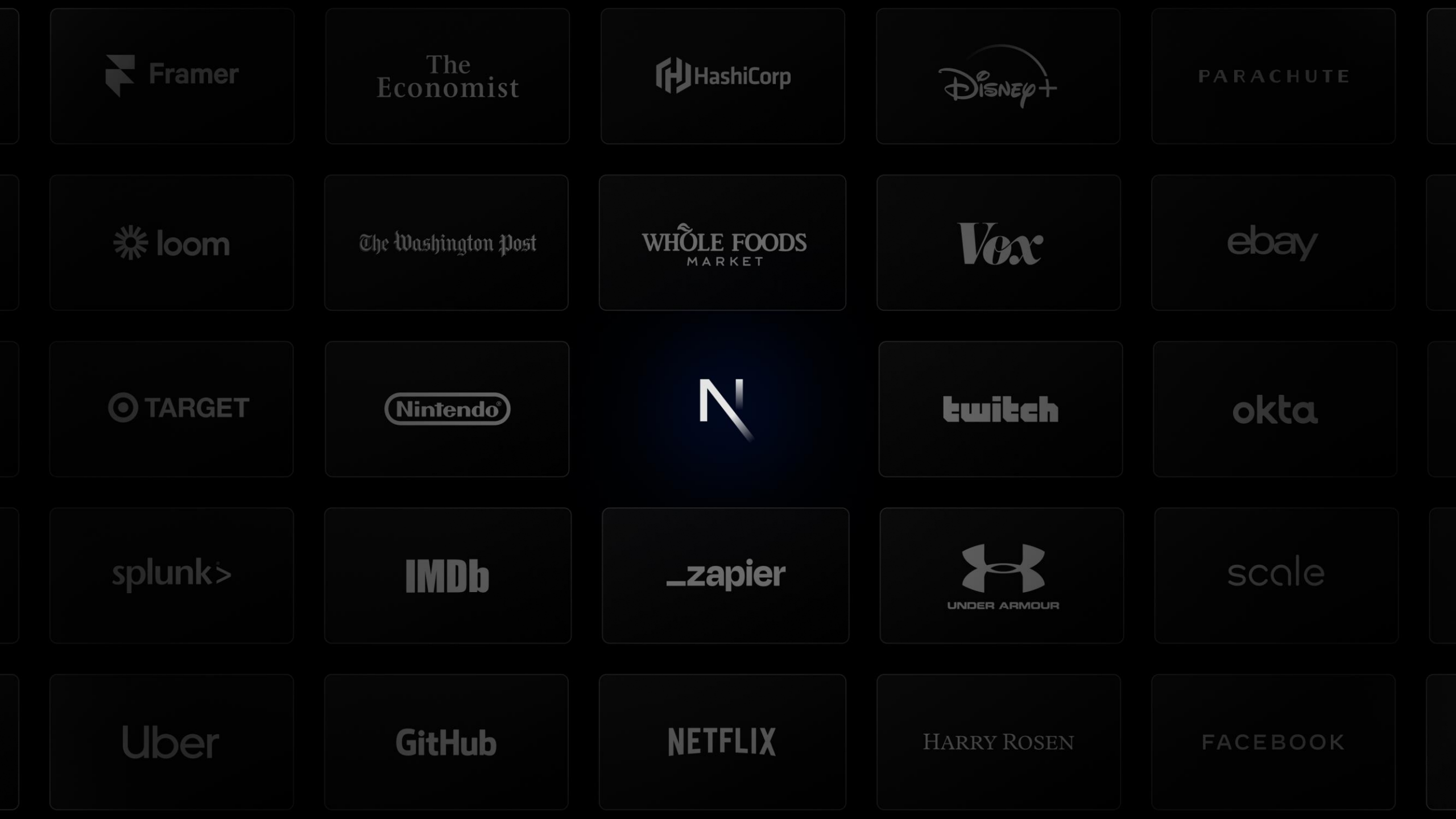

Vercel
NEXT.JS
React

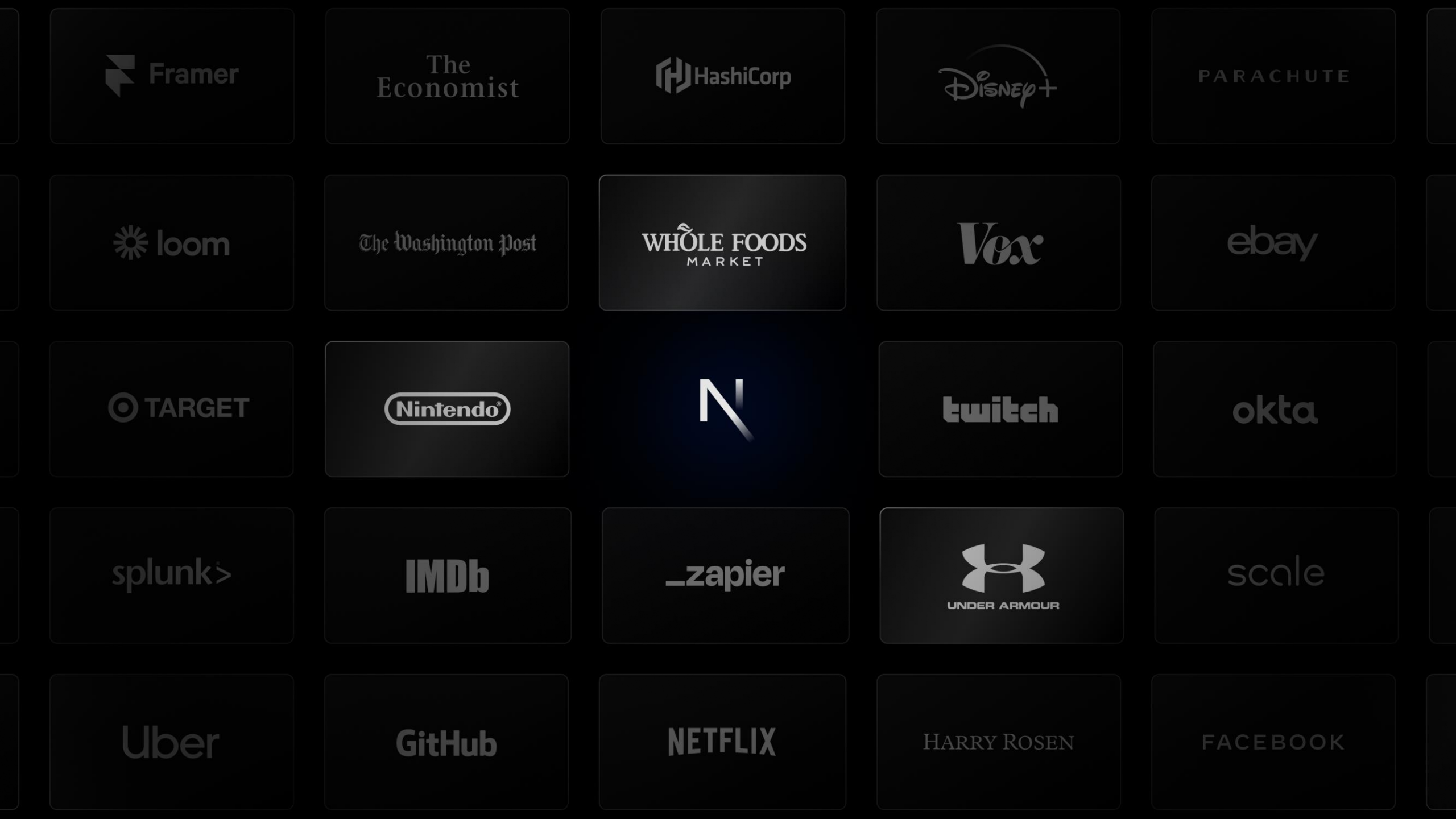

Vercel
NEXT.JS
SVELTE
React

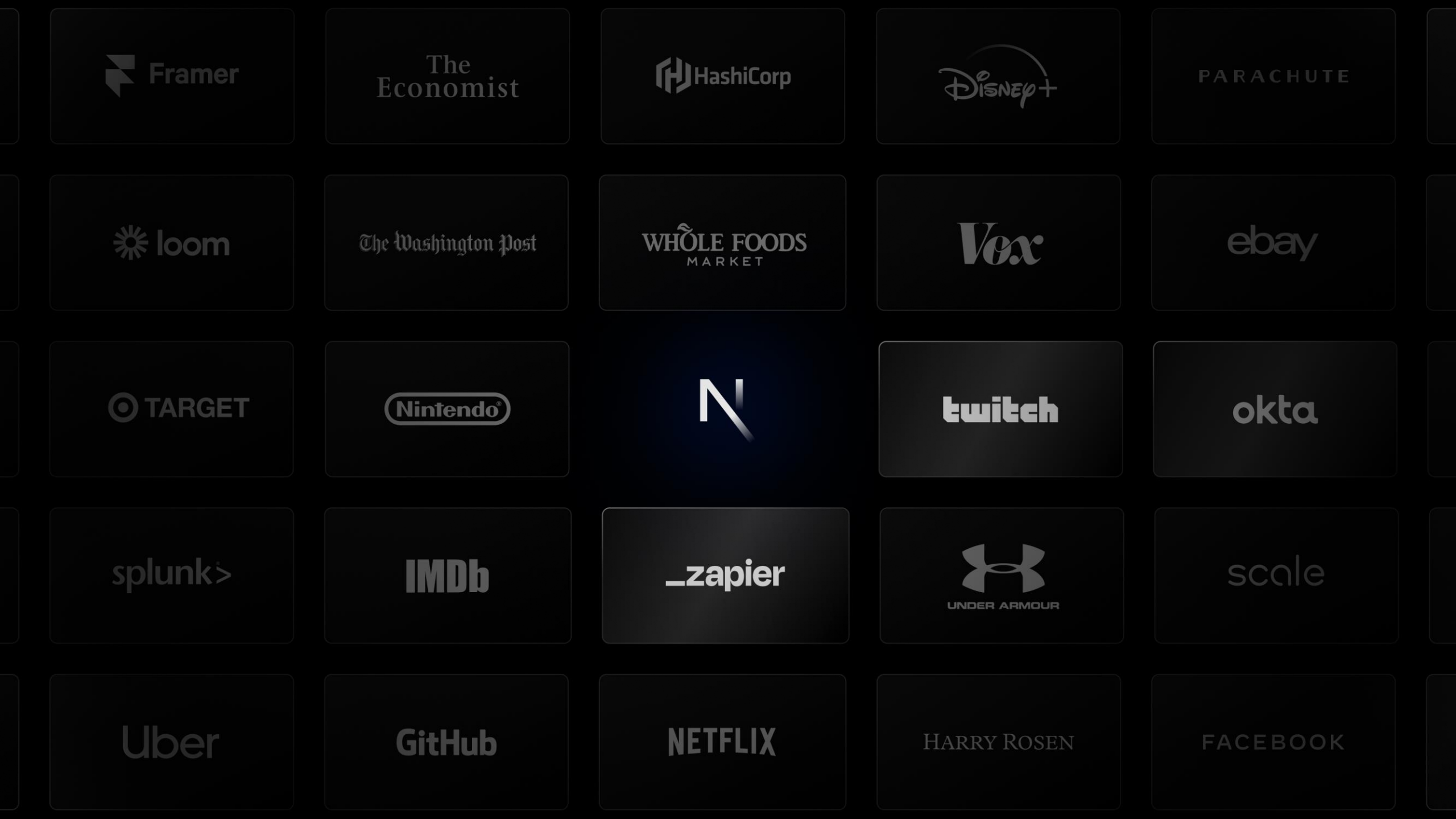

webpack
Vercel
NEXT.JS
SVELTE
React

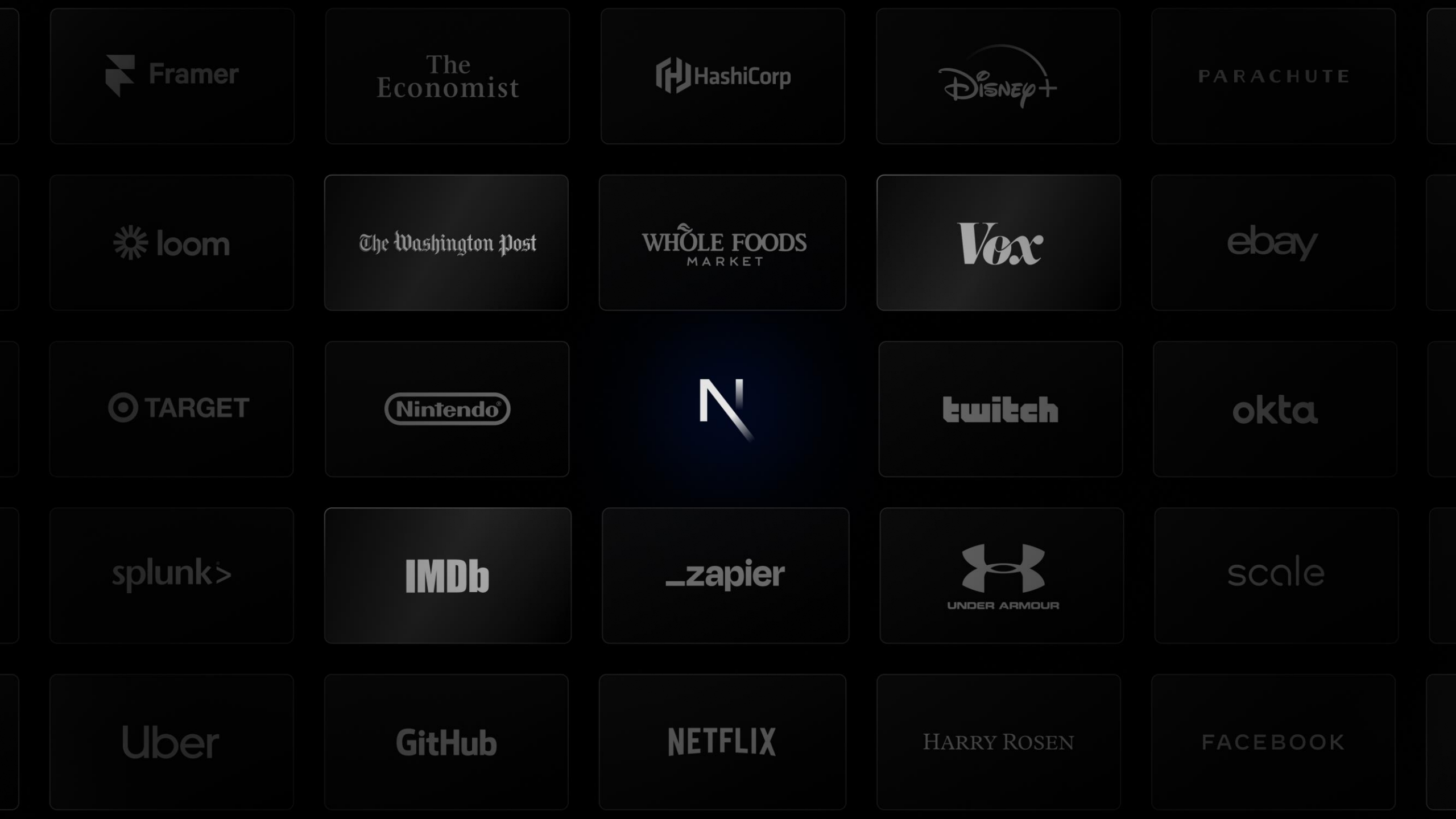

TURBO
webpack
Vercel
NEXT.JS
SVELTE
React


TURBO
webpack
Vercel
NEXT.JS
SVELTE
React


Framer
The Economist
HashiCorp
Disney+
PARACHUTE
loom
The Washington Post
WHOLE FOODS MARKET
Vox
ebay
TARGET
Nintendo
twitch
okta
splunk>
IMDb
_zapier
UNDER ARMOUR
scale
Uber
GitHub
NETFLIX
HARRY ROSEN
FACEBOOK

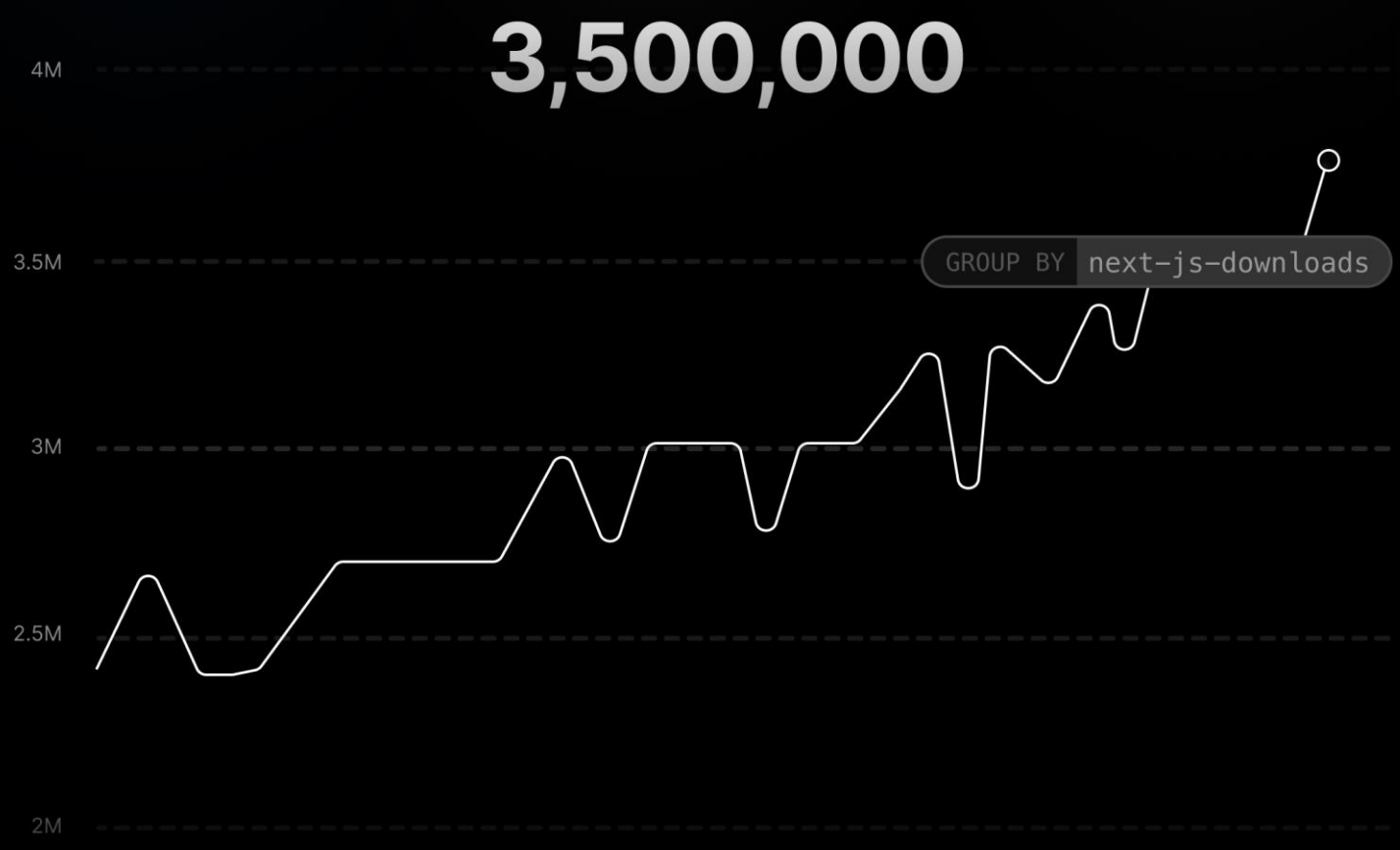

Framer
The Economist
HashiCorp
Disney+
PARACHUTE
loom
The Washington Post
WHOLE FOODS MARKET
Vox
ebay
TARGET
Nintendo
twitch
okta
splunk>
IMDb
_zapier
UNDER ARMOUR
scale
Uber
GitHub
NETFLIX
HARRY ROSEN
FACEBOOK


Framer
The Economist
HashiCorp
Disney+
PARACHUTE
loom
The Washington Post
WHOLE FOODS MARKET
Vox
ebay
TARGET
Nintendo
twitch
okta
splunk>
IMDb
_zapier
UNDER ARMOUR
scale
Uber
GitHub
NETFLIX
HARRY ROSEN
FACEBOOK


Framer
The Economist
HashiCorp
Disney+
PARACHUTE
loom
The Washington Post
WHOLE FOODS MARKET
Vox
ebay
TARGET
Nintendo
twitch
okta
splunk>
IMDb
_zapier
UNDER ARMOUR
scale
Uber
GitHub
NETFLIX
HARRY ROSEN
FACEBOOK

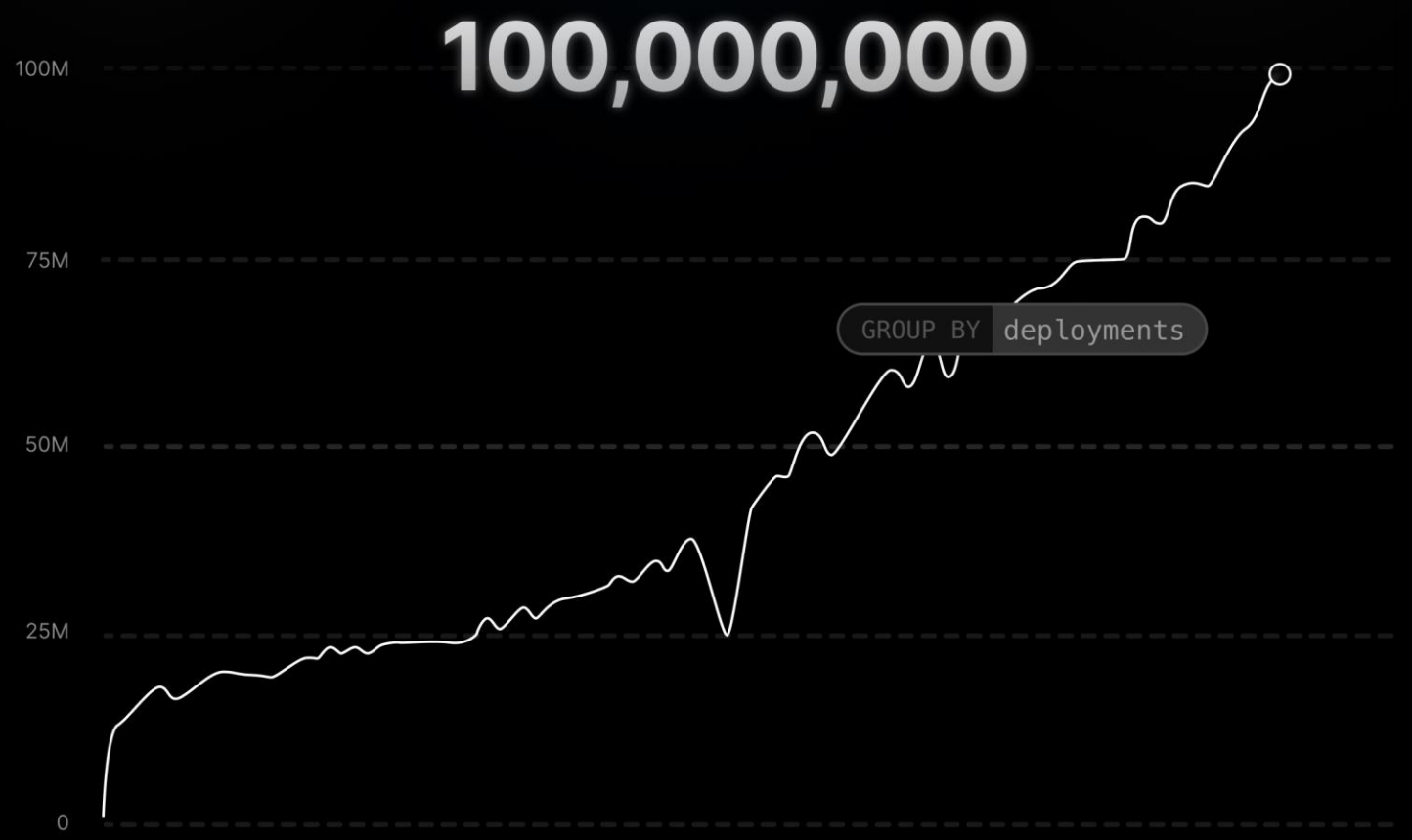
Vercel

Downloads | Deployments | Requests



Vercel

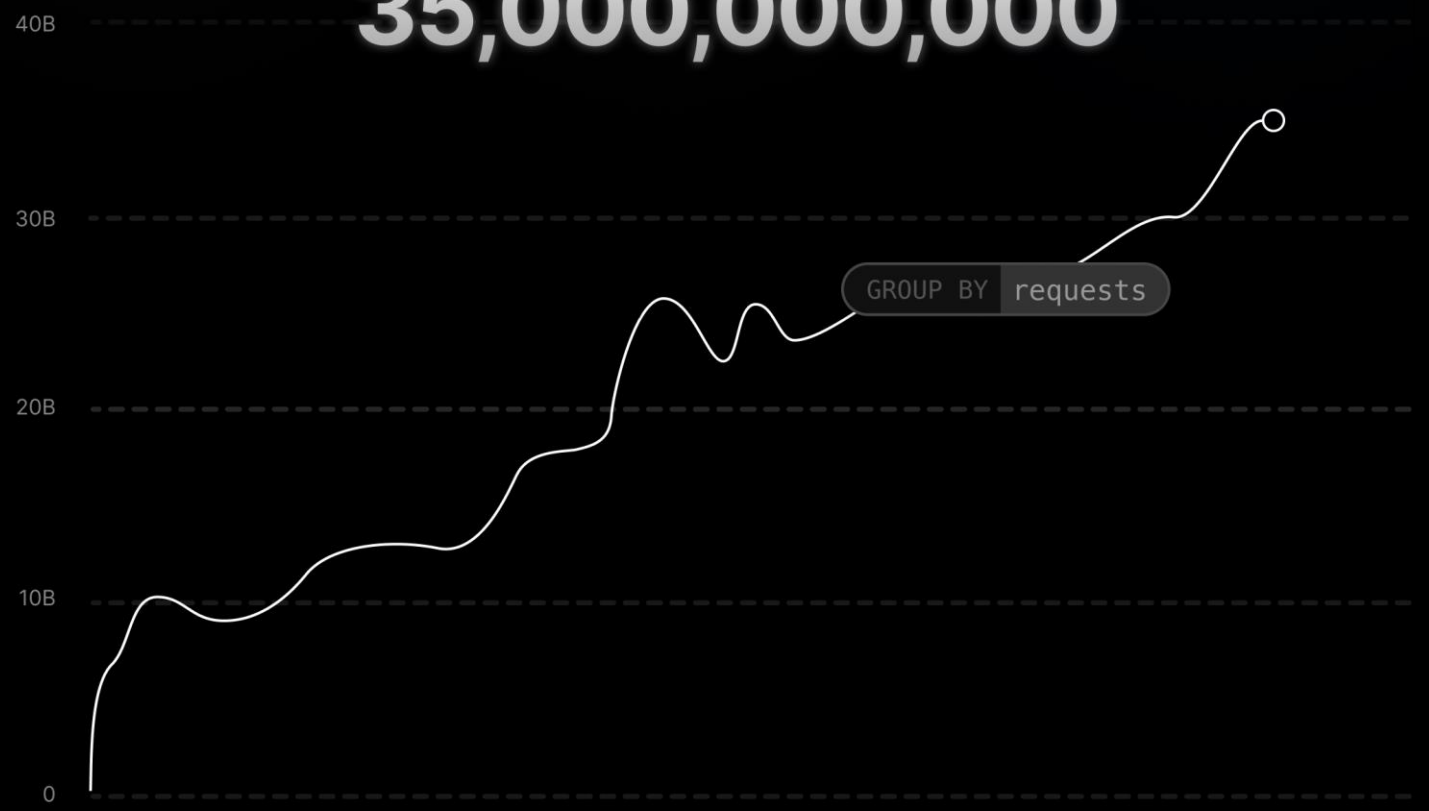
Downloads | **Deployments** | Requests



Vercel

Downloads | Deployments | Requests

35,000,000,000



Vercel



Vercel



Vercel

DX

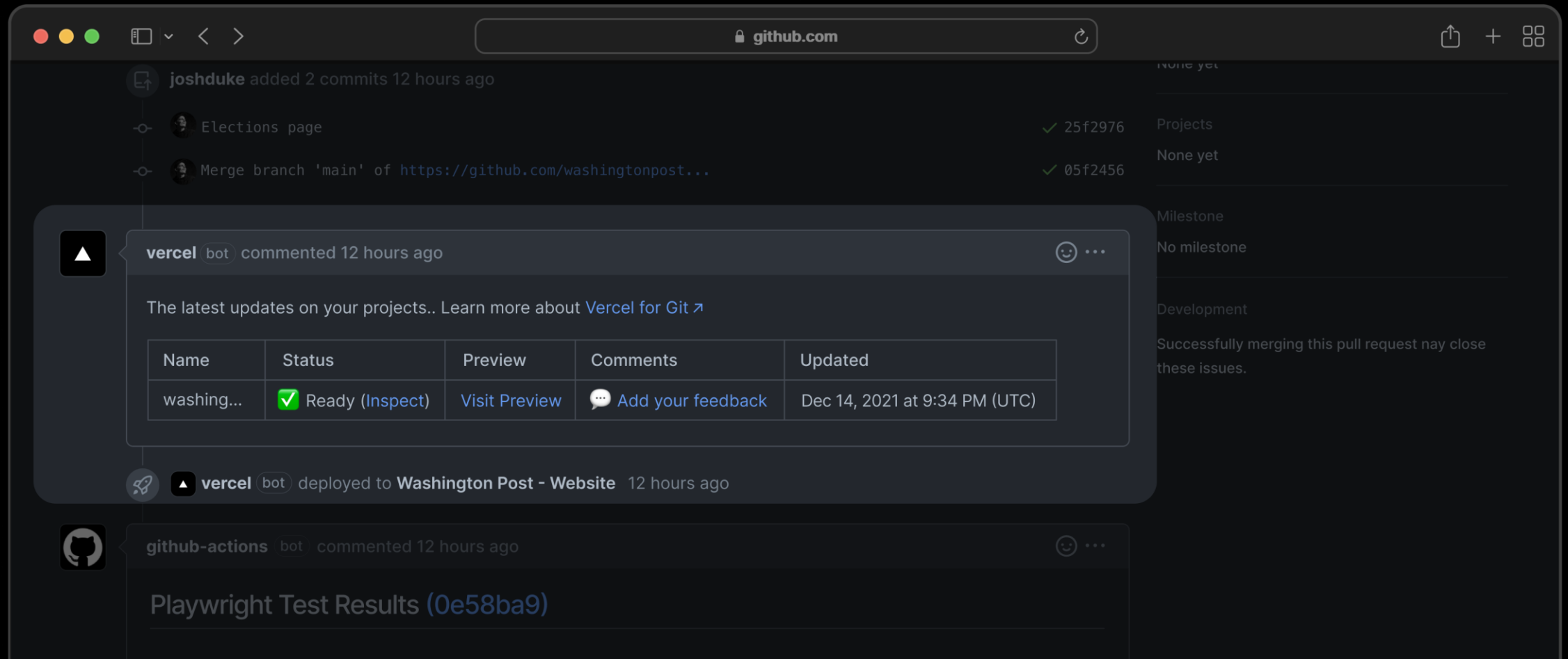
UX



Vercel

DX

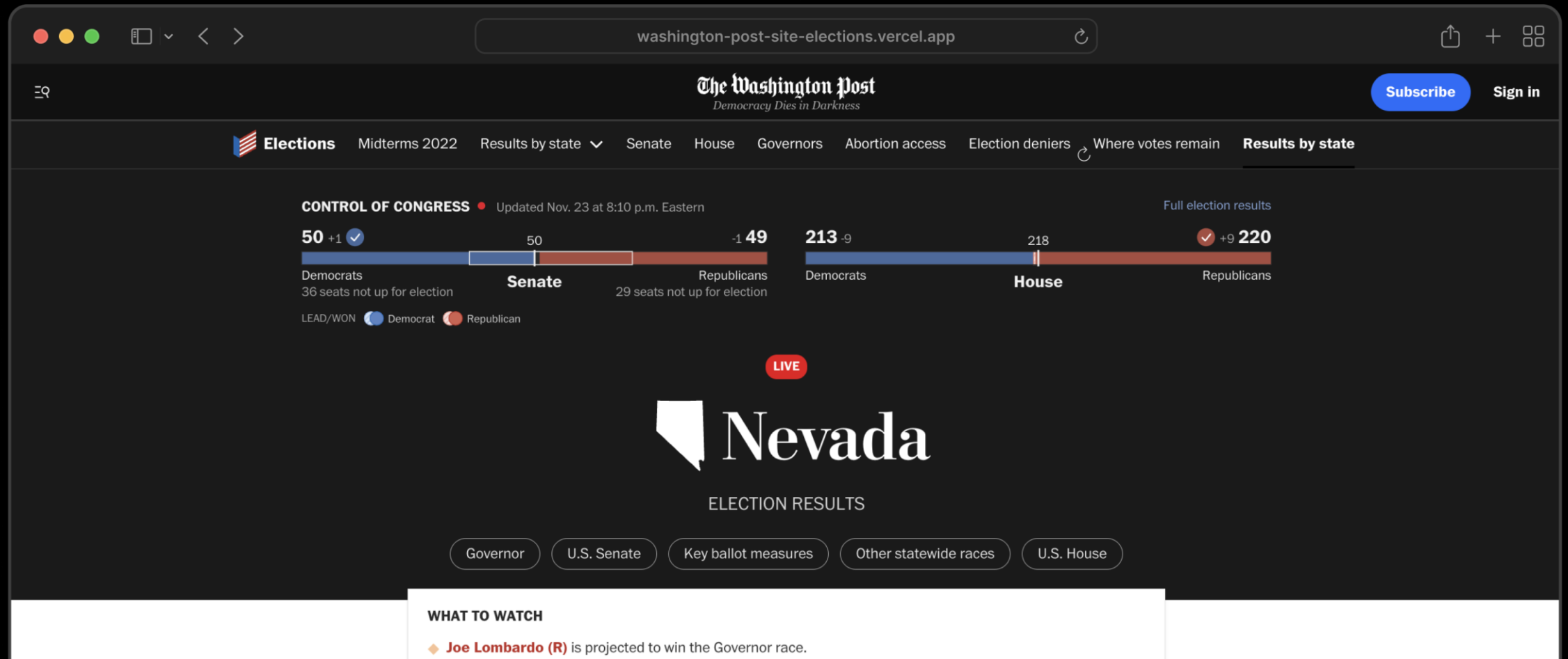
UX


github.com
joshduke added 2 commits 12 hours ago
Elections page
25f2976
Merge branch 'main' of https://github.com/washingtonpost...
05f2456
Projects
None yet
Milestone
No milestone
Development
Successfully merging this pull request nay close these issues.
vercel bot commented 12 hours ago
The latest updates on your projects.. Learn more about Vercel for Git ↗
Name
Status
Preview
Comments
Updated
washing...
Ready (Inspect)
Visit Preview
Add your feedback
Dec 14, 2021 at 9:34 PM (UTC)
vercel bot deployed to Washington Post - Website 12 hours ago
github-actions bot commented 12 hours ago
Playwright Test Results (0e58ba9)

Vercel

DX

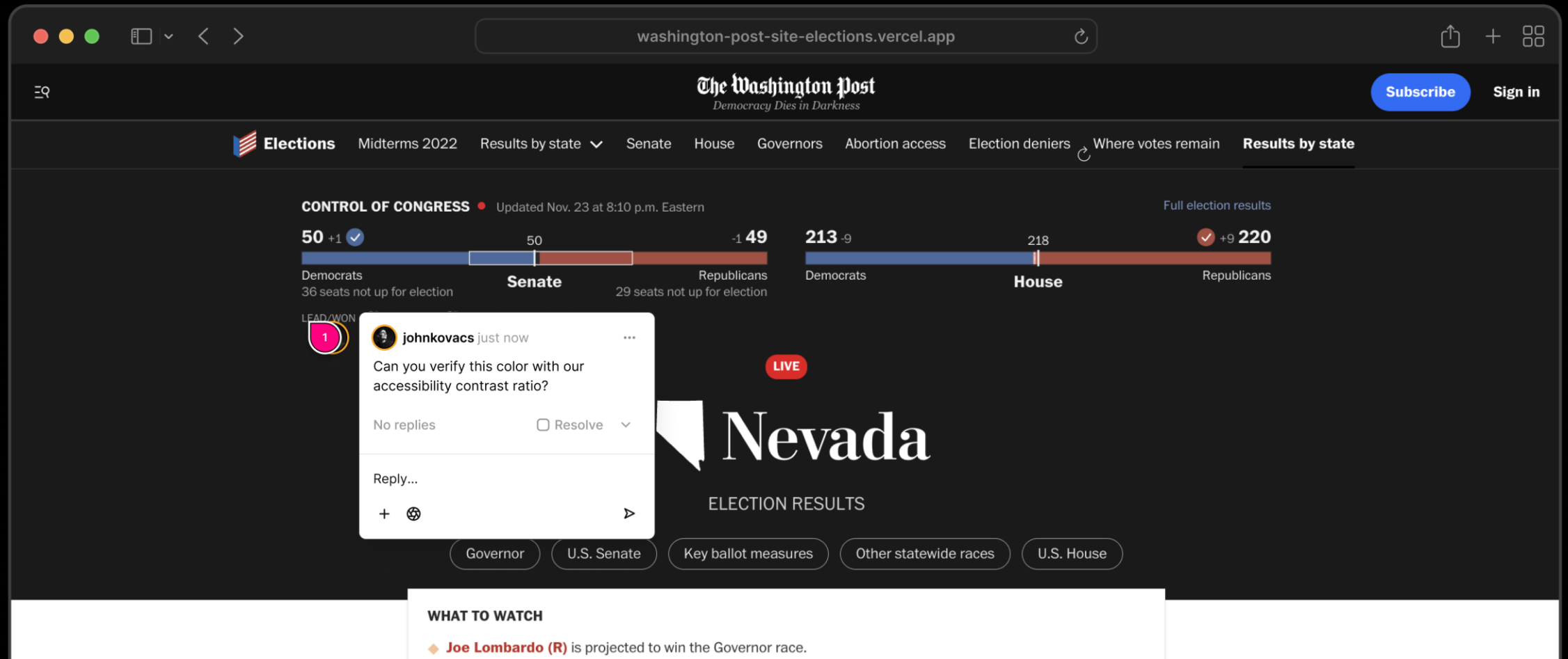
UX


washington-post-site-elections.vercel.app
The Washington Post
Democracy Dies in Darkness
Subscribe
Sign in
Elections
Midterms 2022
Results by state
Senate
House
Governors
Abortion access
Election deniers
Where votes remain
Results by state
CONTROL OF CONGRESS
Updated Nov. 23 at 8:10 p.m. Eastern
Full election results
50 +1
50
-1 49
Democrats
36 seats not up for election
Senate
Republicans
29 seats not up for election
213 -9
218
+9 220
Democrats
House
Republicans
LEAD/WON
Democrat
Republican
LIVE
Nevada
ELECTION RESULTS
Governor
U.S. Senate
Key ballot measures
Other statewide races
U.S. House
WHAT TO WATCH
Joe Lombardo (R) is projected to win the Governor race.

Vercel

DX

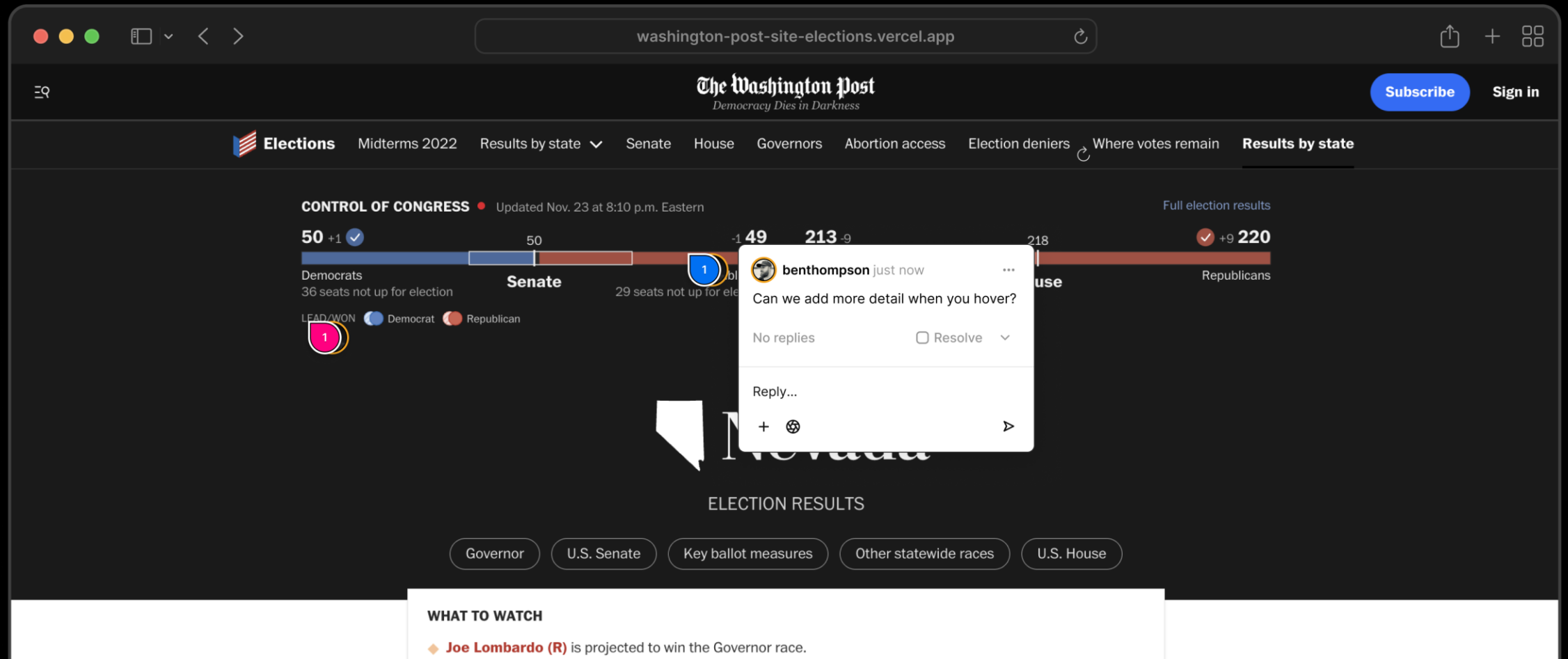
UX


washington-post-site-elections.vercel.app
The Washington Post
Democracy Dies in Darkness
Subscribe
Sign in
Elections
Midterms 2022
Results by state
Senate
House
Governors
Abortion access
Election deniers
Where votes remain
Results by state
CONTROL OF CONGRESS
Updated Nov. 23 at 8:10 p.m. Eastern
Full election results
50 +1
50
-1 49
Democrats
36 seats not up for election
Senate
Republicans
29 seats not up for election
213 -9
218
+9 220
Democrats
House
Republicans
LEAD/WON
1
johnkovacs just now
Can you verify this color with our accessibility contrast ratio?
No replies
Resolve
Reply...
LIVE
Nevada
ELECTION RESULTS
Governor
U.S. Senate
Key ballot measures
Other statewide races
U.S. House
WHAT TO WATCH
Joe Lombardo (R) is projected to win the Governor race.

Vercel

DX

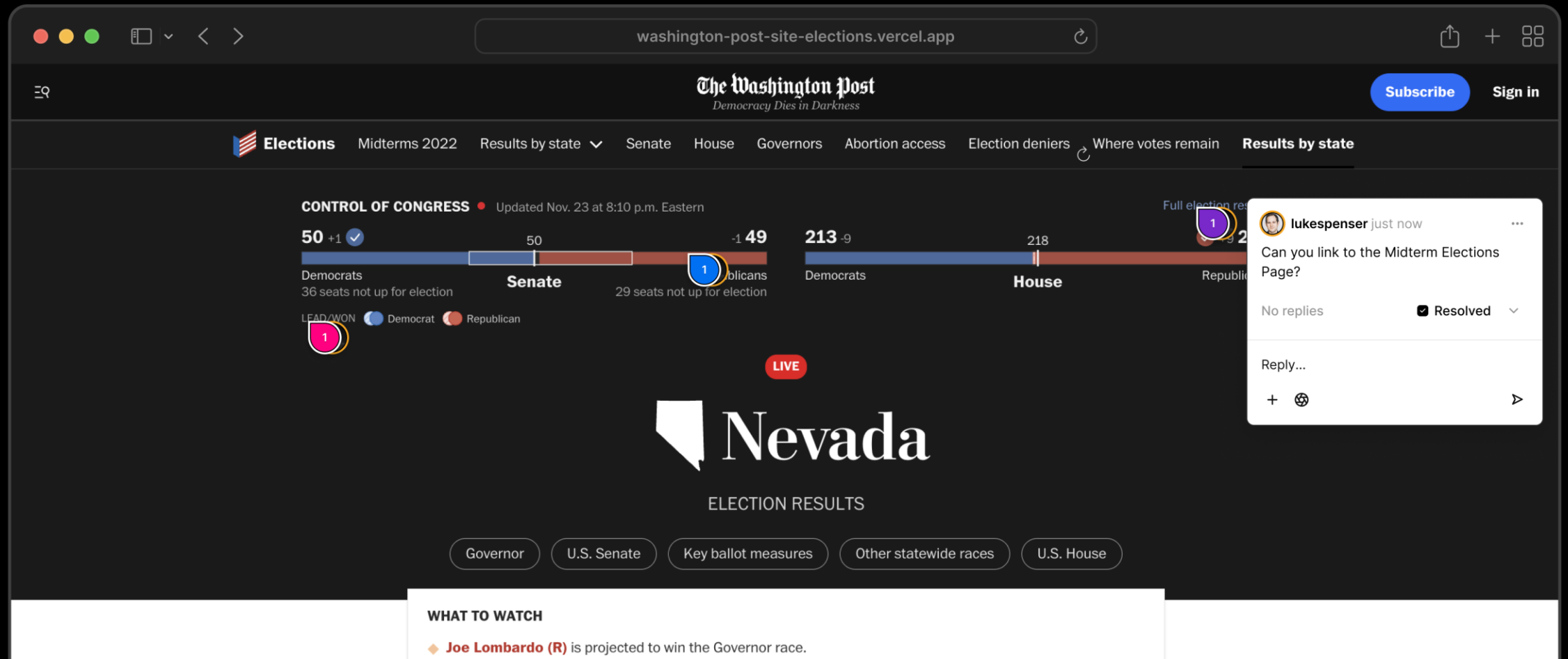
UX


washington-post-site-elections.vercel.app
The Washington Post
Democracy Dies in Darkness
Subscribe
Sign in
Elections
Midterms 2022
Results by state
Senate
House
Governors
Abortion access
Election deniers
Where votes remain
Results by state
CONTROL OF CONGRESS
Updated Nov. 23 at 8:10 p.m. Eastern
Full election results
50 +1
50
49
213 -9
218
+9 220
Democrats
36 seats not up for election
Senate
29 seats not up for
Republicans
LEAD/WON
Democrat
Republican
benthompson just now
Can we add more detail when you hover?
No replies
Resolve
Reply...
ELECTION RESULTS
Governor
U.S. Senate
Key ballot measures
Other statewide races
U.S. House
WHAT TO WATCH
Joe Lombardo (R) is projected to win the Governor race.

Vercel

DX

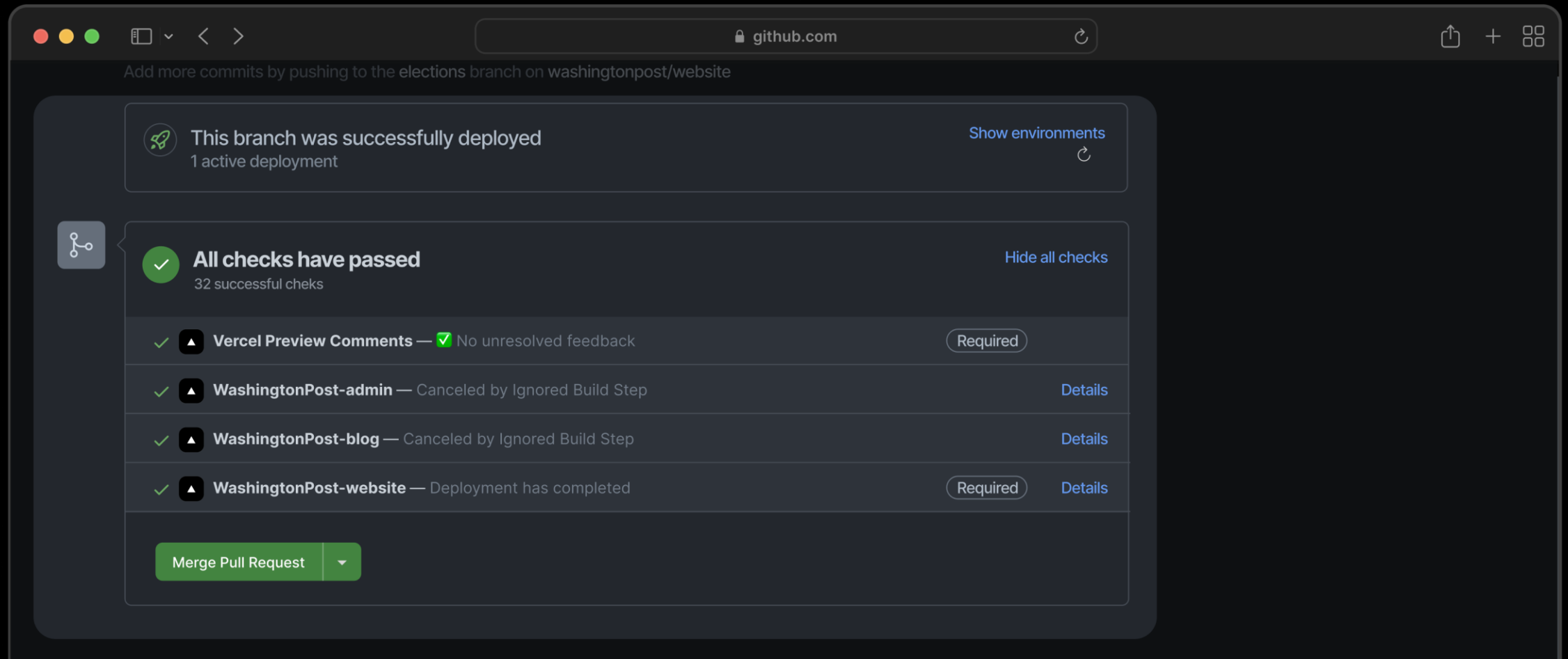
UX


washington-post-site-elections.vercel.app
The Washington Post
Democracy Dies in Darkness
Subscribe
Sign in
Elections
Midterms 2022
Results by state
Senate
House
Governors
Abortion access
Election deniers
Where votes remain
Results by state
CONTROL OF CONGRESS
Updated Nov. 23 at 8:10 p.m. Eastern
50 +1
50
-1 49
Democrats
36 seats not up for election
Senate
29 seats not up for election
213 -9
218
Democrats
House
LEAD/WON
Democrat
Republican
LIVE
Nevada
ELECTION RESULTS
Governor
U.S. Senate
Key ballot measures
Other statewide races
U.S. House
WHAT TO WATCH
Joe Lombardo (R) is projected to win the Governor race.
lukespenser just now
Can you link to the Midterm Elections Page?
No replies
Resolved
Reply...

Vercel

DX

UX


github.com
Add more commits by pushing to the elections branch on washingtonpost/website
This branch was successfully deployed
1 active deployment
Show environments
All checks have passed
32 successful cheks
Hide all checks
Vercel Preview Comments — ✅ No unresolved feedback
Required
WashingtonPost-admin — Canceled by Ignored Build Step
Details
WashingtonPost-blog — Canceled by Ignored Build Step
Details
WashingtonPost-website — Deployment has completed
Required
Details
Merge Pull Request

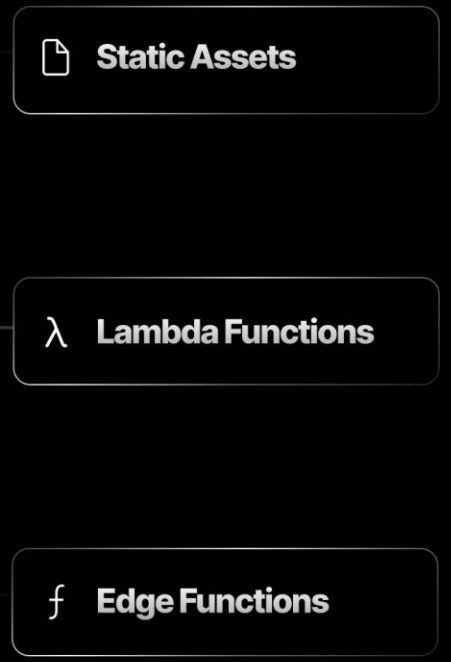
Vercel

DX

UX


zsh ~
▲ ~ wapo-elections/ git push
Svelte
Next.js
Nuxt.js
Vue.js




Static Assets
Lambda Functions
Edge Functions

Vercel

DX

UX



5 billion+ per week

Vercel

DX UX

"We need to match the speed of The Post's formidable newsroom. Vercel gives us lightning-fast turnaround on developing new features."

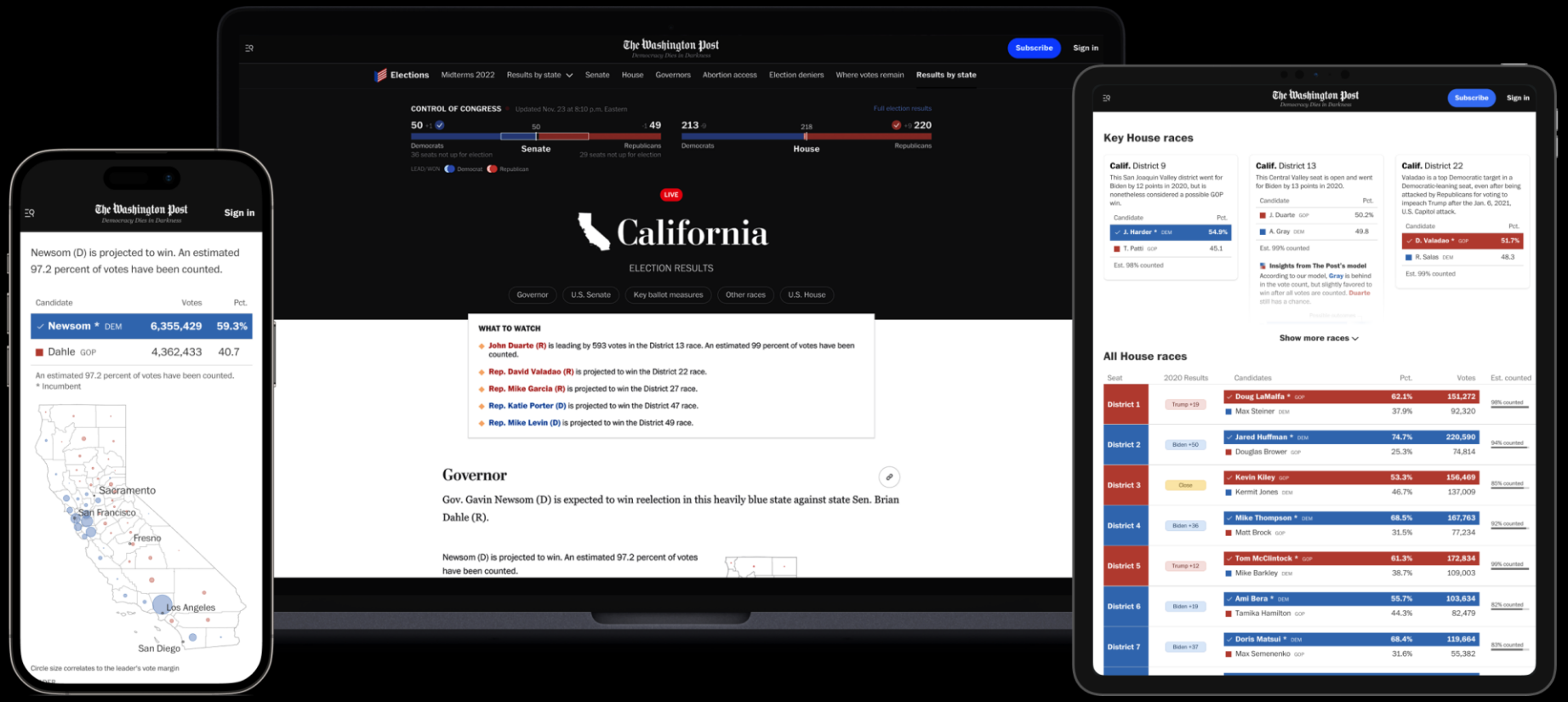
The Washington Post

Jeremy Bowers
Director of Engineering

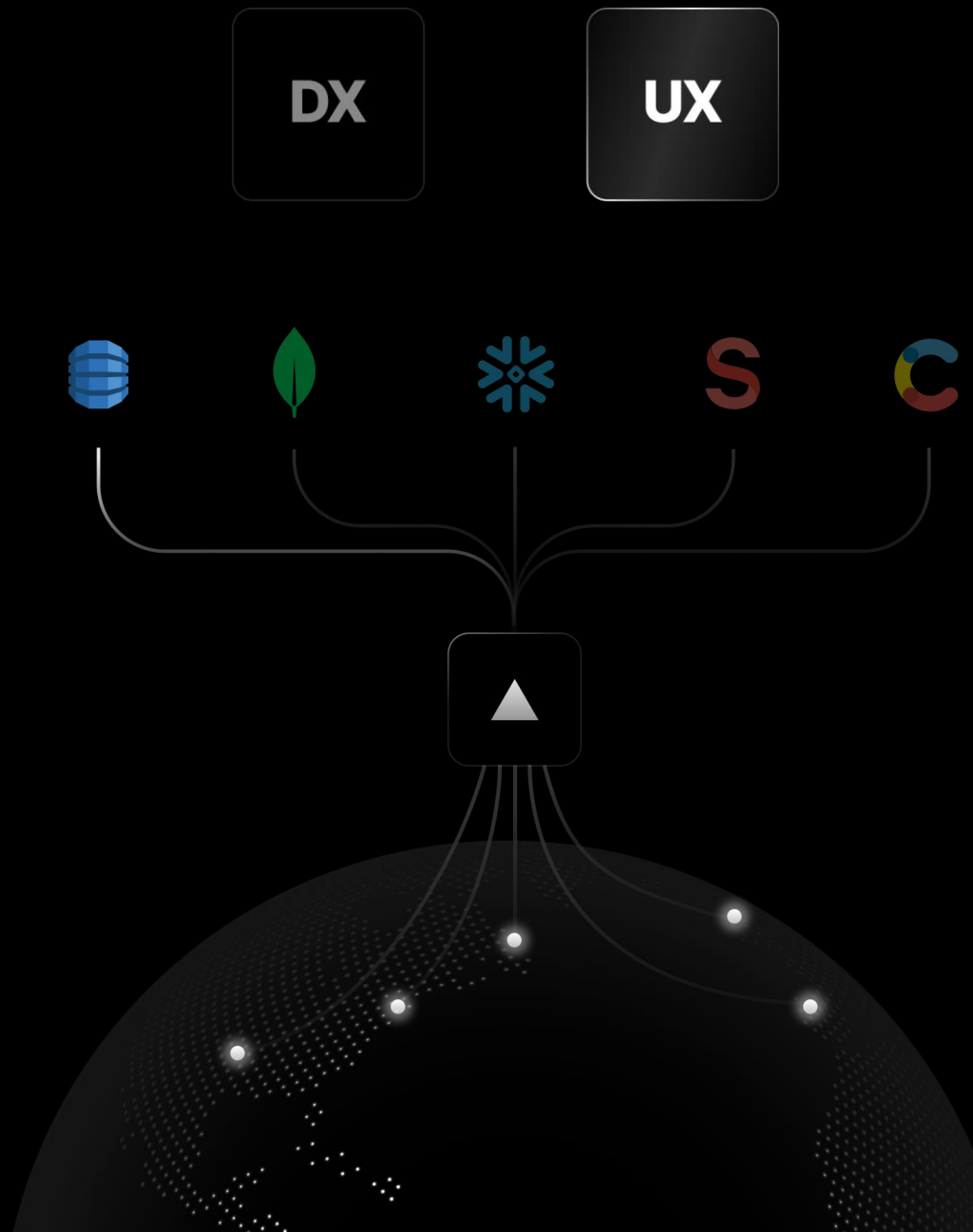
Vercel

DX

UX


The Washington Post
Democracy Dies in Darkness
Subscribe
Sign in
Elections
Midterms 2022
Results by state
Senate
House
Governors
Abortion access
Election deniers
Where votes remain
Results by state
CONTROL OF CONGRESS
Updated Nov. 23 at 8:10 p.m. Eastern
Full election results
50
49
Democrats
Republicans
Senate
213
220
218
House
LIVE
California
ELECTION RESULTS
Governor
U.S. Senate
Key ballot measures
Other races
U.S. House
WHAT TO WATCH
John Duarte (R) is leading by 593 votes in the District 13 race. An estimated 99 percent of votes have been counted.
Rep. David Valadao (R) is projected to win the District 22 race.
Rep. Mike Garcia (R) is projected to win the District 27 race.
Rep. Katie Porter (D) is projected to win the District 47 race.
Rep. Mike Levin (D) is projected to win the District 49 race.
Governor
Gov. Gavin Newsom (D) is expected to win reelection in this heavily blue state against state Sen. Brian Dahle (R).
Newsom (D) is projected to win. An estimated 97.2 percent of votes have been counted.
Newsom (D) is projected to win. An estimated 97.2 percent of votes have been counted.
Candidate
Votes
Pct.
Newsom * DEM
6,355,429
59.3%
Dahle GOP
4,362,433
40.7
An estimated 97.2 percent of votes have been counted.
* Incumbent
Sacramento
San Francisco
Fresno
Los Angeles
San Diego
Circle size correlates to the leader's vote margin
Key House races
Calif. District 9
This San Joaquin Valley district went for Biden by 12 points in 2020, but is nonetheless considered a possible GOP win.
J. Harder * DEM 54.9%
T. Patti GOP 45.1
Est. 98% counted
Calif. District 13
This Central Valley seat is open and went for Biden by 13 points in 2020.
J. Duarte GOP 50.2%
A. Gray DEM 49.8
Est. 99% counted
Insights from The Post's model
According to our model, Gray is behind in the vote count, but slightly favored to win after all votes are counted. Duarte still has a chance.
Calif. District 22
Valadao is a top Democratic target in a Democratic-leaning seat, even after being attacked by Republicans for voting to impeach Trump after the Jan. 6, 2021, U.S. Capitol attack.
D. Valadao * GOP 51.7%
R. Salas DEM 48.3
Est. 99% counted
Show more races
All House races
Seat
2020 Results
Candidates
Pct.
Votes
Est. counted
District 1
Trump +19
Doug LaMalfa * GOP 62.1% 151,272
Max Steiner DEM 37.9% 92,320
98% counted
District 2
Biden +50
Jared Huffman * DEM 74.7% 220,590
Douglas Brower GOP 25.3% 74,814
94% counted
District 3
Close
Kevin Kiley GOP 53.3% 156,469
Kermit Jones DEM 46.7% 137,009
85% counted
District 4
Biden +36
Mike Thompson * DEM 68.5% 167,763
Matt Brock GOP 31.5% 77,234
92% counted
District 5
Trump +12
Tom McClintock * GOP 61.3% 172,834
Mike Barkley DEM 38.7% 109,003
99% counted
District 6
Biden +19
Ami Bera * DEM 55.7% 103,634
Tamika Hamilton GOP 44.3% 82,479
82% counted
District 7
Biden +37
Doris Matsui * DEM 68.4% 119,664
Max Semenenko GOP 31.6% 55,382
83% counted

Vercel



Vercel

DX

UX



Vercel

DX

UX





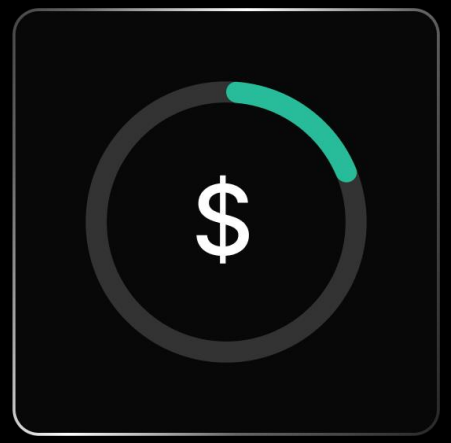
Vercel

DX

UX







Vercel

DX

UX

“On Vercel, it was the smoothest election night anyone could remember.”

The Washington Post

Jeremy Bowers
Director of Engineering


Vercel

aws

NETFLIX — 21 days. Every day.





DESENIO — **34% more conversions**





HARRY ROSEN — 3x holiday sales





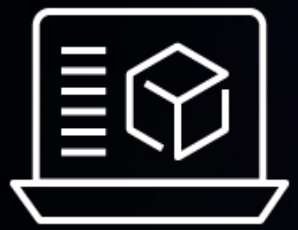

Vox
GitHub
ebay
Harry Rosen
splunk>
PATREON
NETFLIX
DESENIO
okta
Vercel
aws
twilio
eventbrite
Tripadvisor
loom
Uber
Adobe
HermanMiller
UNDER ARMOUR
_zapier

Vercel

vercel.com

Continue your AWS Serverless learning

Learn at your own pace



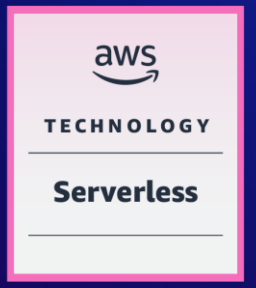
Expand your serverless skills with our Learning Plan on **AWS Skill Builder**

Increase your knowledge



Use our **Ramp-Up Guides** to build your serverless knowledge

Earn AWS Serverless badge

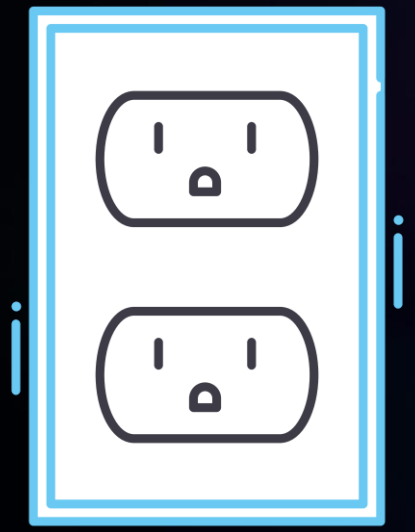


Demonstrate your knowledge by achieving **digital badges**

https://s12d.com/serverless-learning

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Powerful compute made simple



Reliable

Easier to use

Secure

Affordable

Ubiquitous

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless is everywhere

Today, **over a million** active customers use Lambda each month

AWS Lambda processes **over 10 trillion** requests every month

Over 2.25 billion Amazon ECS tasks are launched each week

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!



Please complete the session survey in the **mobile app**

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.