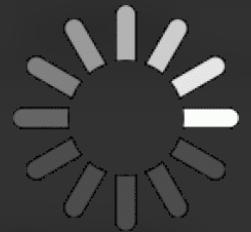


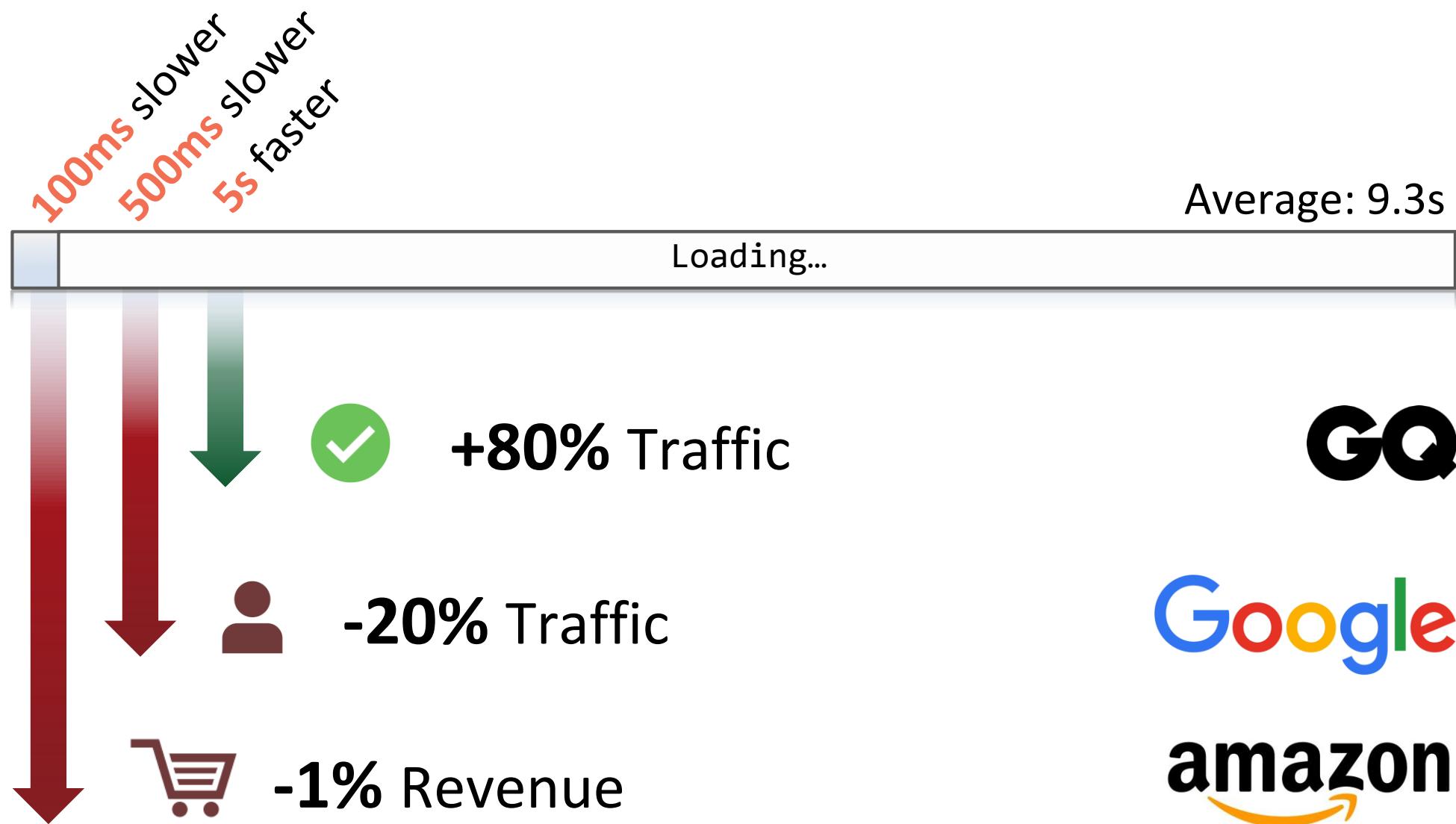


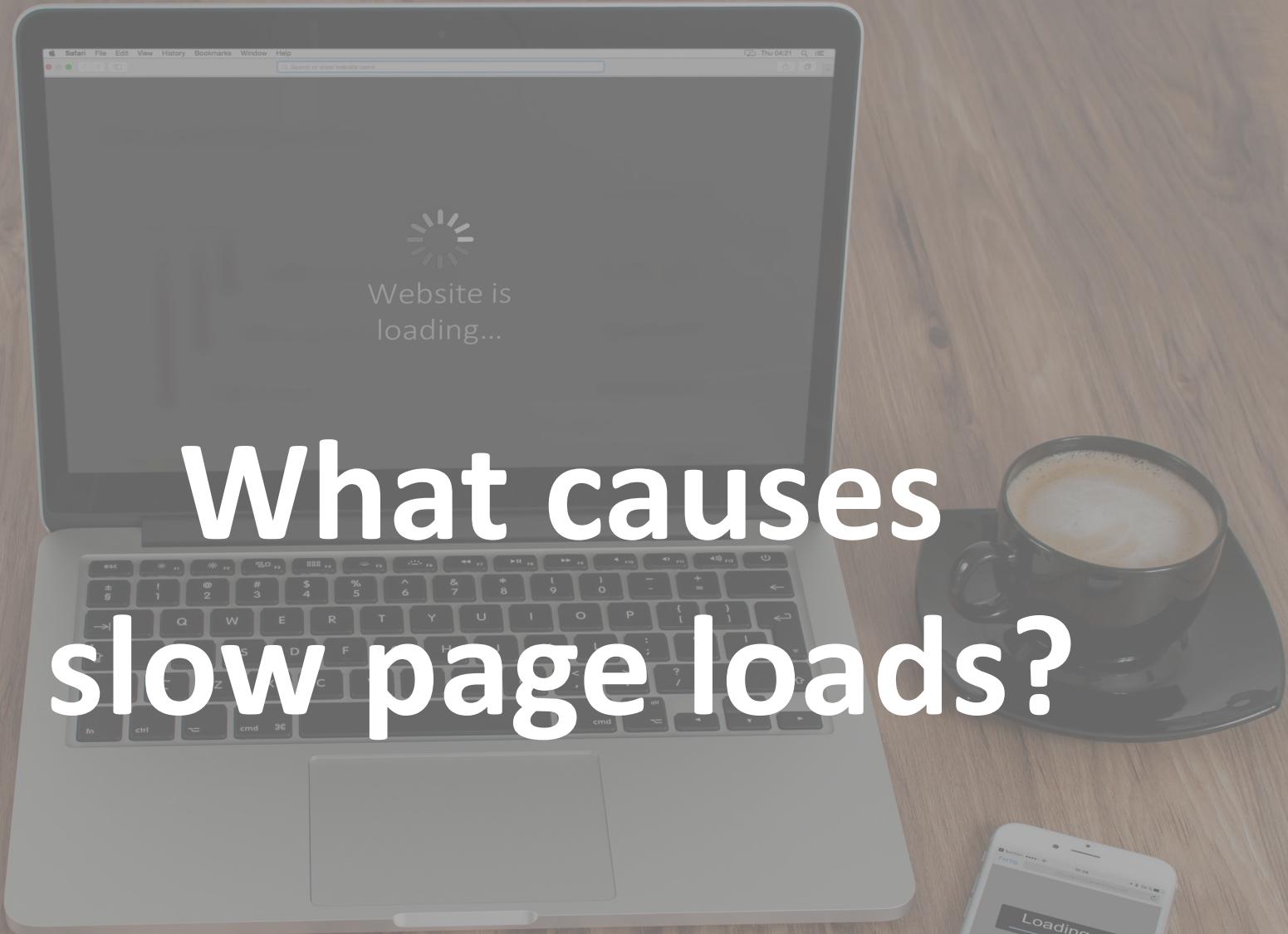
Make the web faster.



Presentation
is loading

Page Load Time = Money

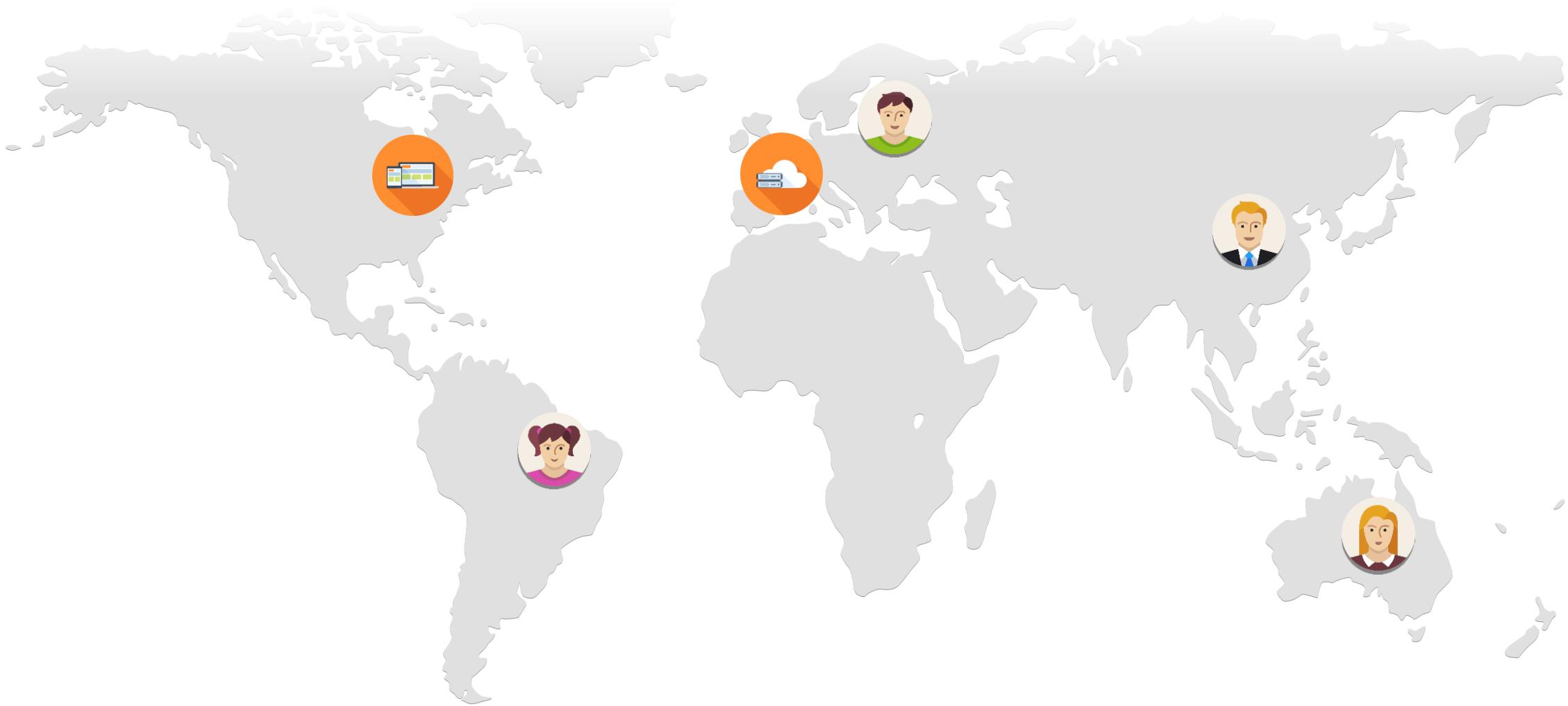




What causes slow page loads?

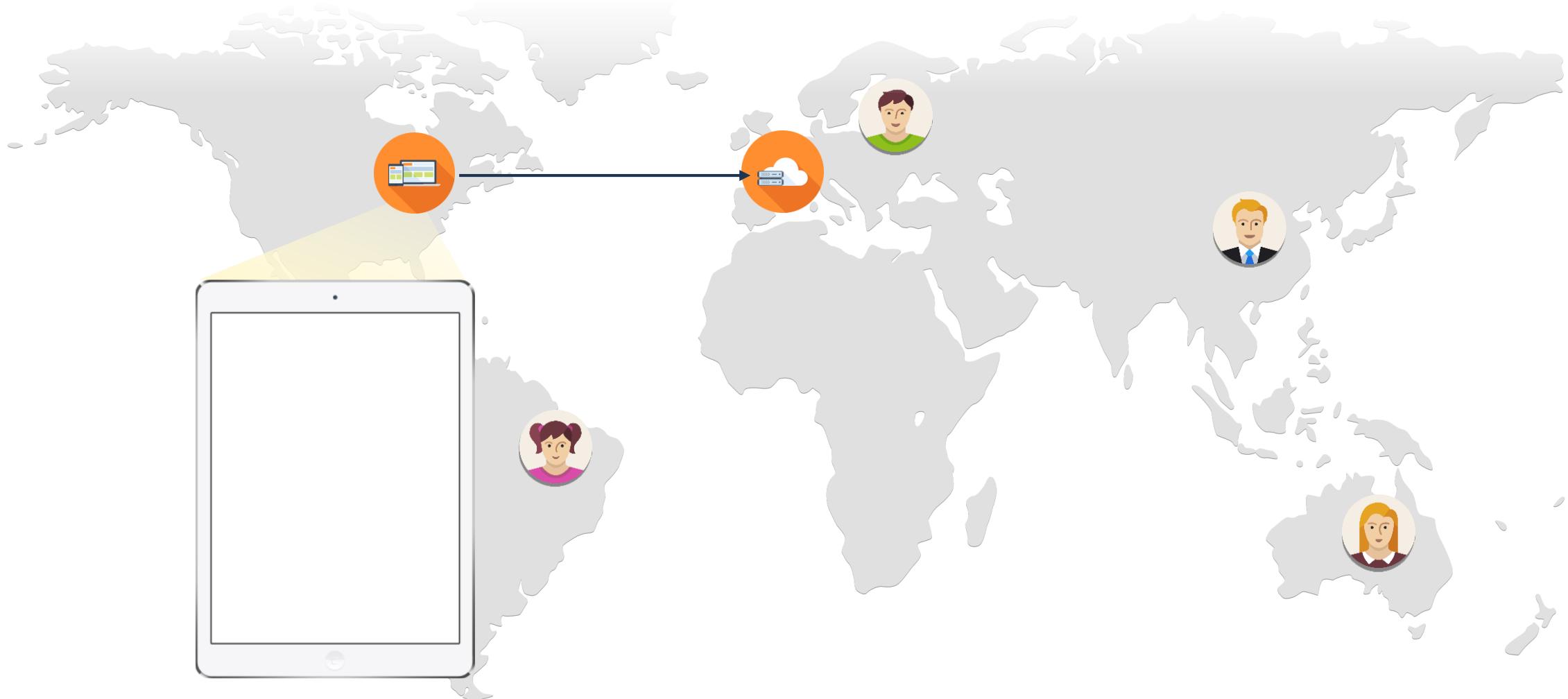
There are 2 performance problems.

This is what makes websites **slow**.



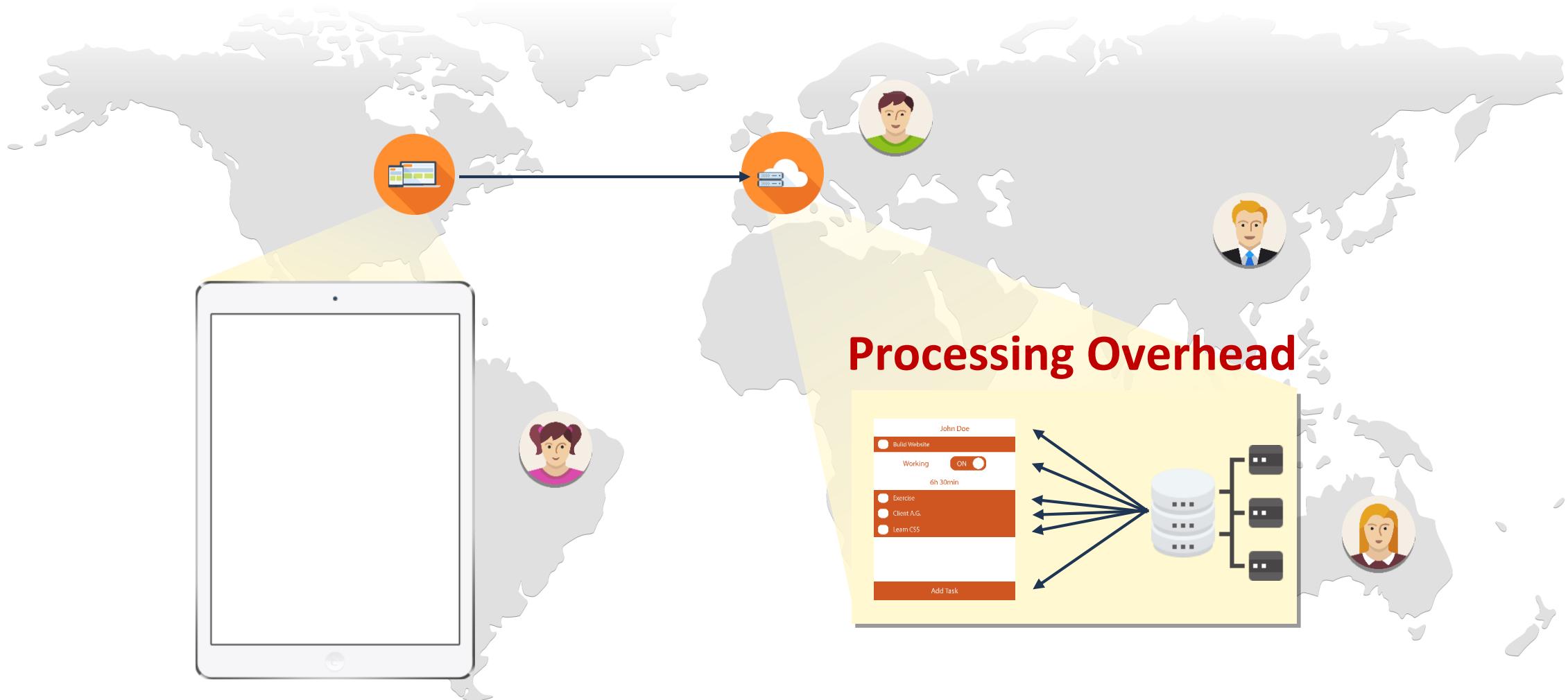
There are 2 performance problems.

When a user visits a website, the **backend** is requested.



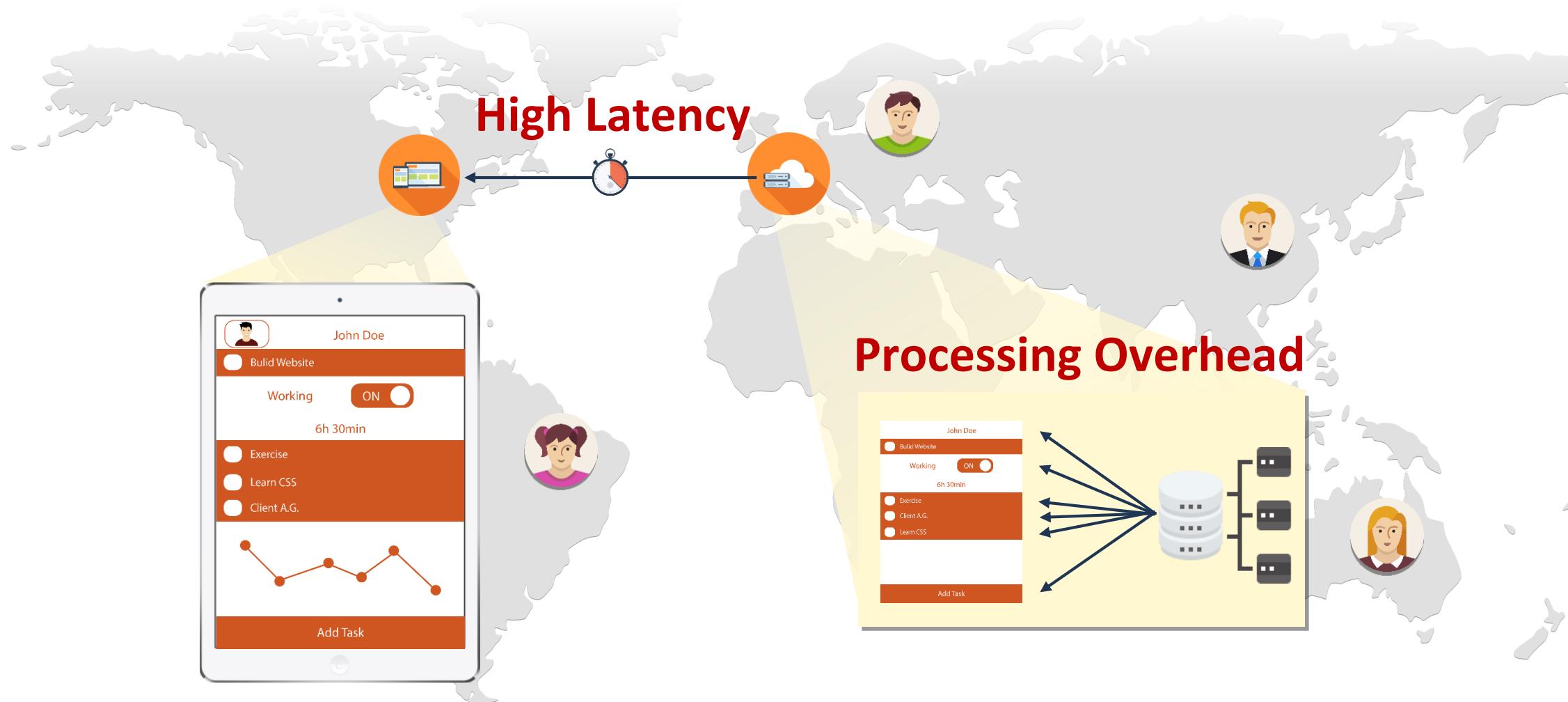
First bottleneck: the backend.

The backend renders the site, causing **processing** overhead.



Second bottleneck: the network.

>100 resources are sent to the user, causing **network delay**.



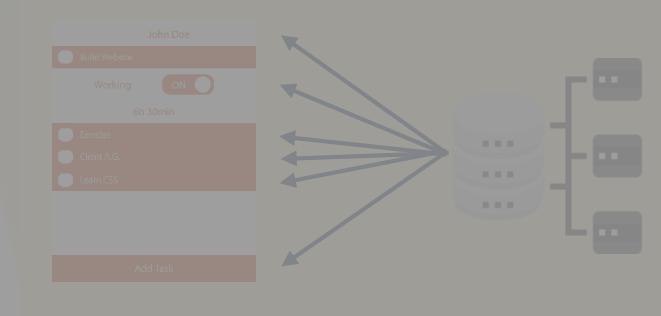
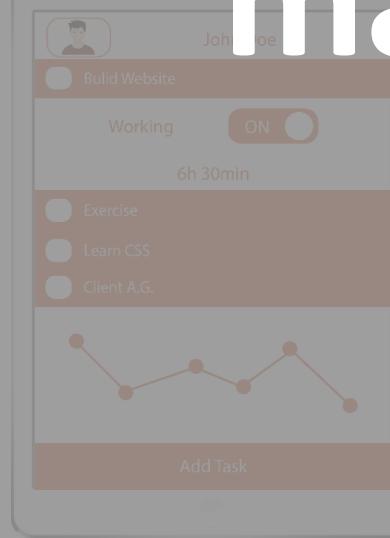
There are 2 performance problems.

>100 resources are sent to the user, causing **network delay**.

High Latency
How can we

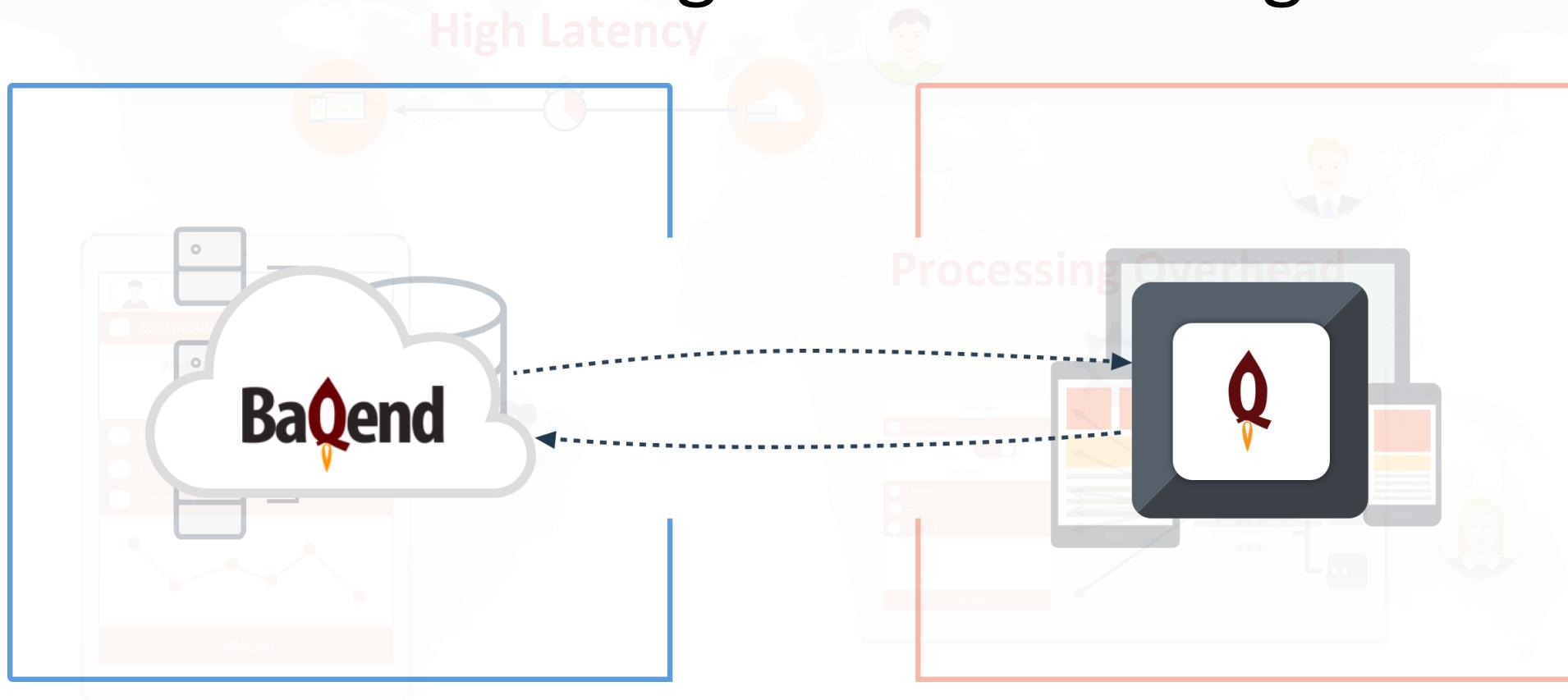
make this FASTER?

Processing Overhead



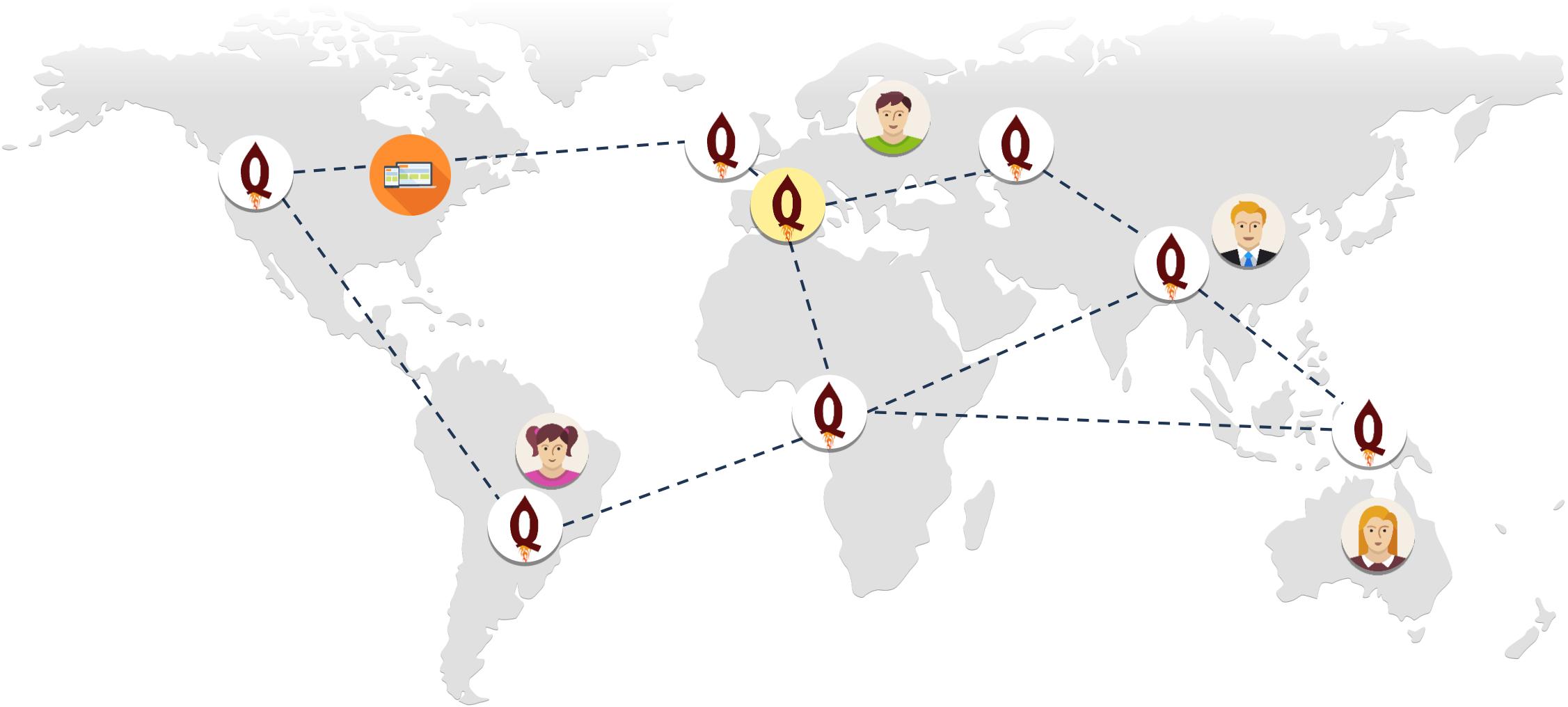
Speed Kit

Making **Existing Websites** Load Fast through Better Caching.



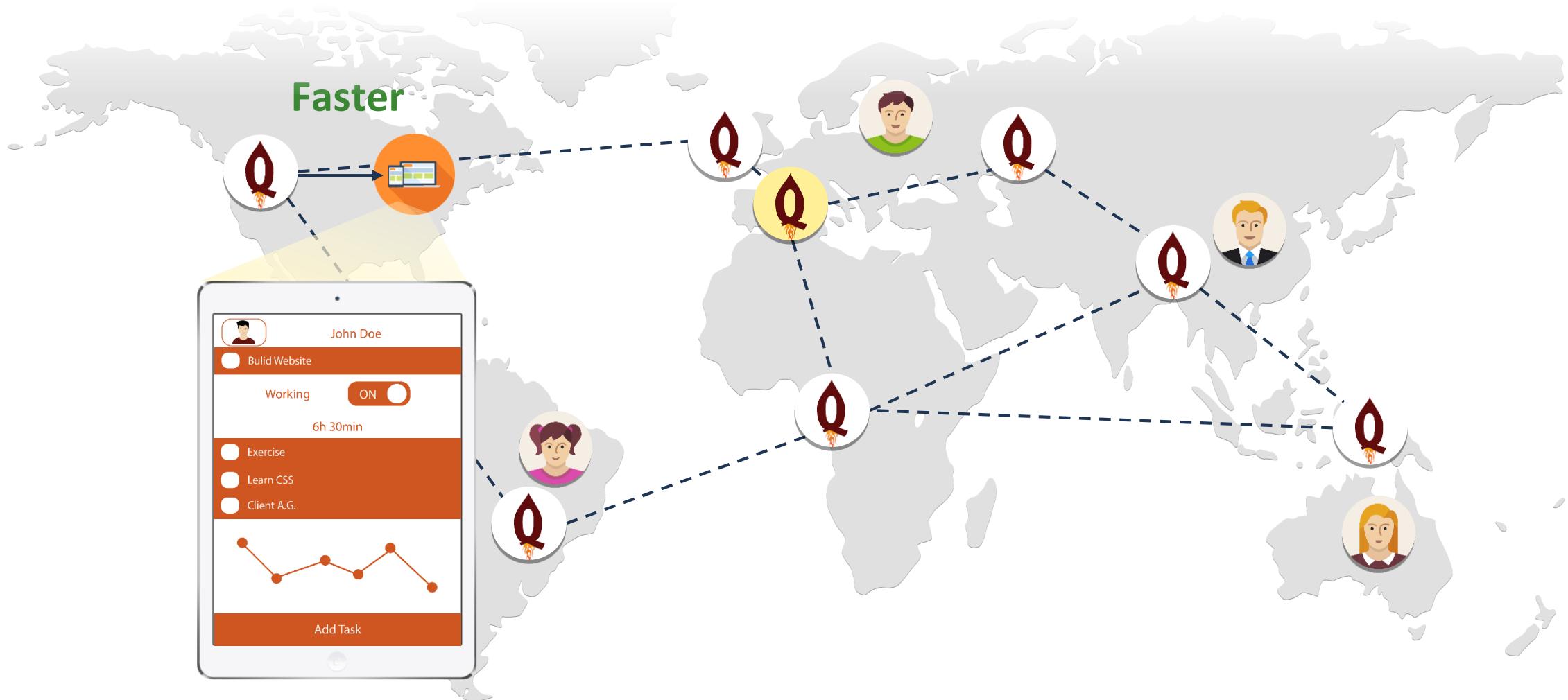
This is what Speed Kit does.

Baqend brings data **closer to users**.



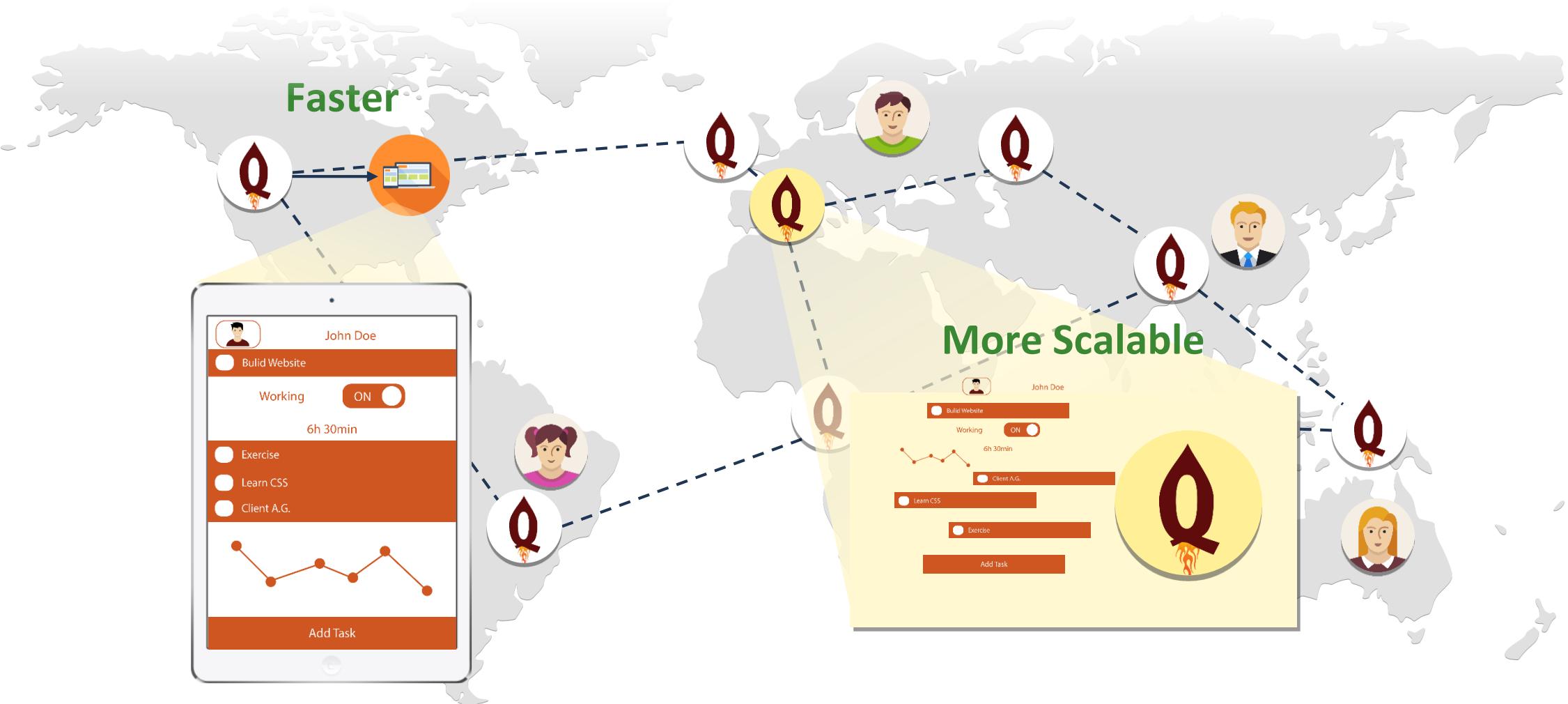
Speed Kit delivers the site **faster**.

Data is automatically served from the nearest **cache**.

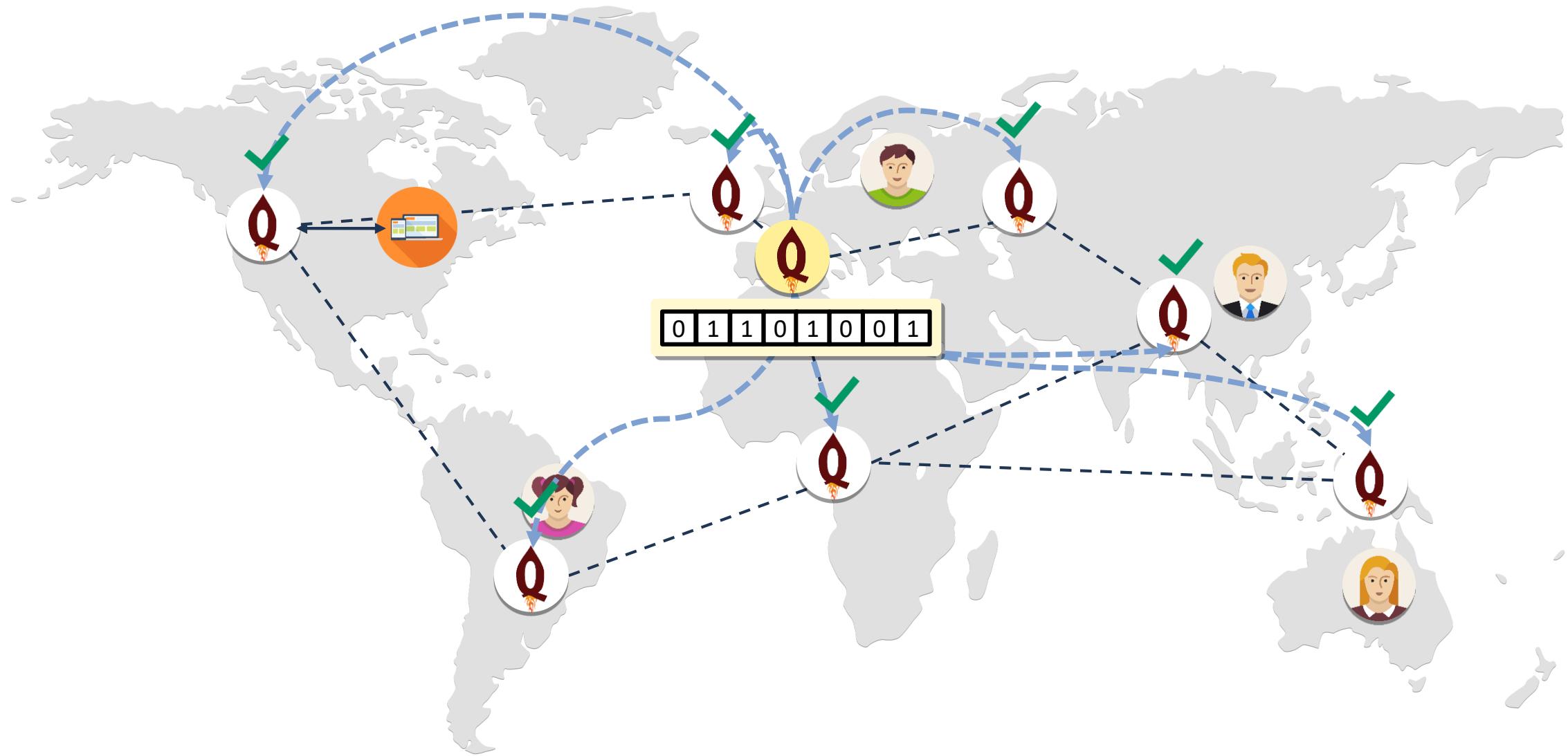


Speed Kit helps scaling to more users.

The legacy backend can now sustain heavier load.



Data is kept **consistent**.



Speed Kit helps scaling to more users.

The legacy backend can now sustain heavier load.

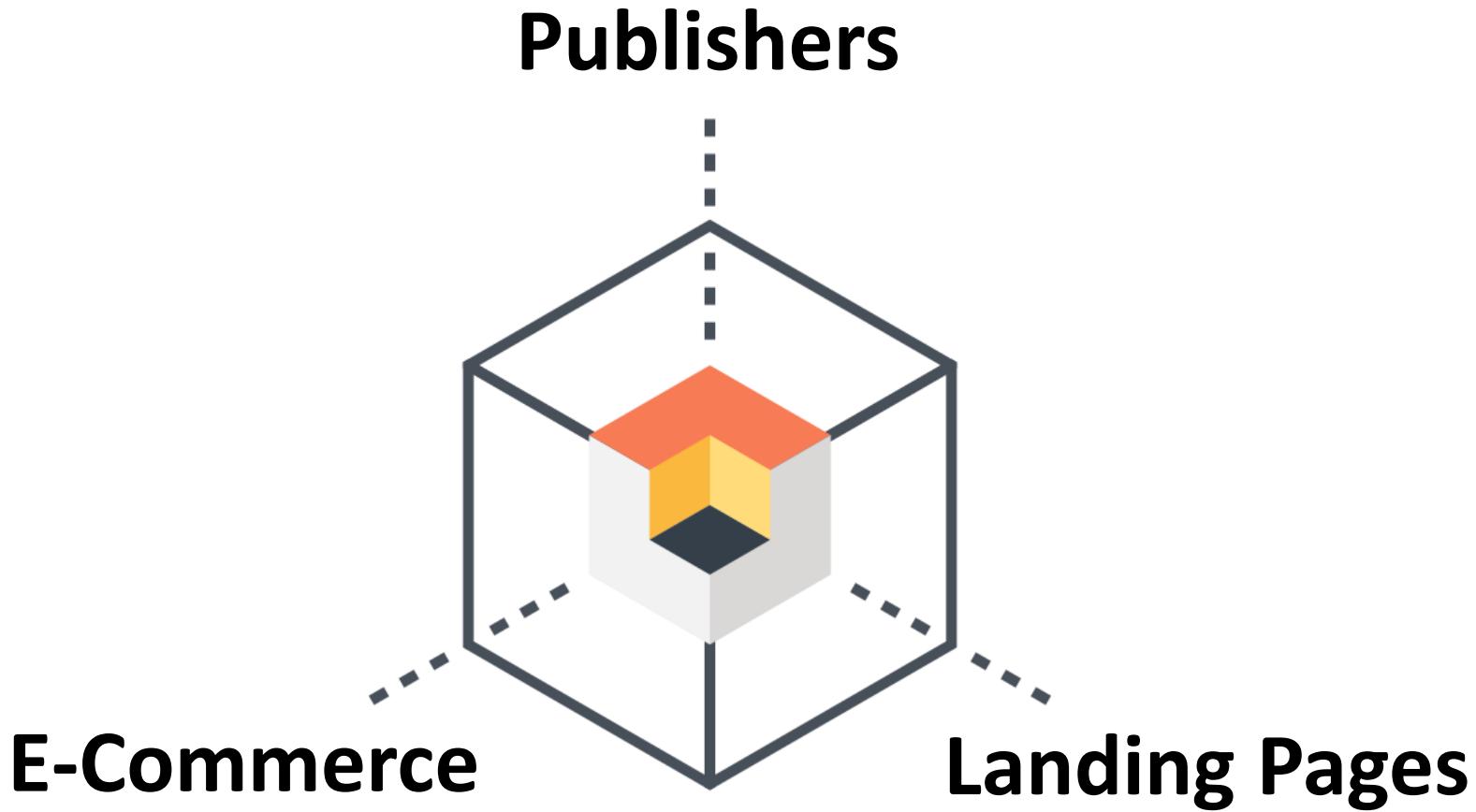
Novelty: caching dynamic data.

Backed by

30 man-years of research.

-
- F. Gessert, F. Bücklers, und N. Ritter, „ORESTES: a Scalable Database-as-a-Service Architecture for Large-scale Cloud Data“, in CloudI 2014, S. 1–4.
 - F. Gessert und F. Bücklers, „ORESTES: ein System für horizontal skalierbaren Zugriff auf Cloud-Datenbanken“, in Informatiktage 2013, 2013.
 - F. Gessert, S. Friedrich, W. Wingerath, M. Schaarschmidt, und N. Ritter, „Towards a Scalable and Unified REST API for Cloud Data Stores“, in 44. Jahrestagung der Gesellschaft für Informatik, Bd. 232, S. 721–724.
 - F. Gessert, M. Schaarschmidt, W. Wingerath, S. Friedrich, und N. Ritter, „The Cache Sketch: Revisiting Expiration-based Caching in the Age of Cloud Data Management“, in BTW 2015.
 - F. Gessert und F. Bücklers, *Performanz- und Reaktivitätssteigerungen von OODBMS* vermittels der Web-Caching-Hierarchie. Bachelorarbeit, 2010.
 - F. Gessert und F. Bücklers, *Kohärentes Web-Caching von Datenbankobjekten im Cloud Computing*. Masterarbeit 2012.
 - M. Schaarschmidt, F. Gessert, und N. Ritter, „Towards Automated Polyglot Persistence“, in BTW 2015.
 - W. Wingerath, S. Friedrich, und F. Gessert, „Who Watches the Watchmen? On the Lack of Validation in NoSQL Benchmarking“, in BTW 2015.
 - S. Friedrich, W. Wingerath, F. Gessert, und N. Ritter, „NoSQL OLTP Benchmarking: A Survey“, in 44. Jahrestagung der Gesellschaft für Informatik, 2014, Bd. 232, S. 693–704.
 - F. Gessert, „Skalierbare NoSQL- und Cloud-Datenbanken in Forschung und Praxis“, BTW 2015
 - W. Wingerath, F. Gessert, S. Friedrich, N. Ritter „Real-time stream processing for Big Data“, *Big Data Analytics It - Information Technology*, 2016
 - F. Gessert, N. Ritter „Scalable Data Management: NoSQL Data Stores in Research and Practice“, *32nd IEEE International Conference on Data Engineering, ICDE*, 2016
 - F. Gessert, W. Wingerath, S. Friedrich, N. Ritter “NoSQL Database Systems: A Survey and Decision Guidance”, *Computer Science - Research and Development*, 2016
 - F. Gessert, N. Ritter „Polyglot Persistence“, *Datenbank Spektrum*, 2016.

Speed Kit is independent of the tech stack.



Works for Publishers.

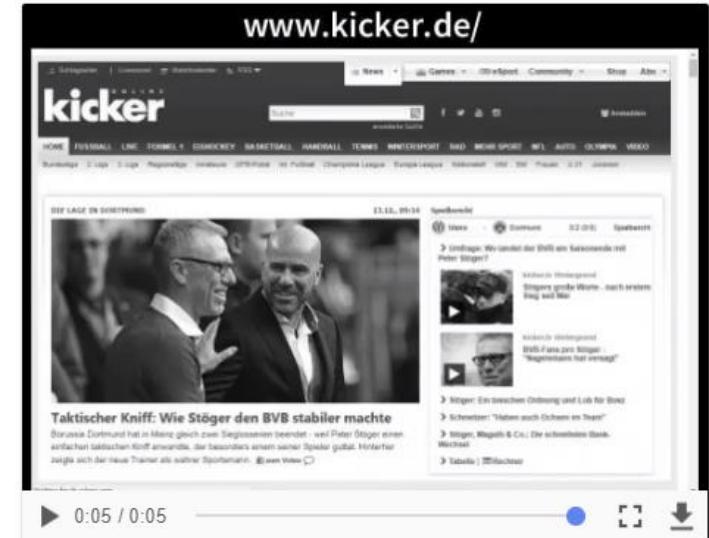
kicker.de

Your Website without Speed Kit



3754ms	1st Meaningful Paint	1941ms
3675ms	1.96x Faster Speed Index	1877ms
814ms	29.07x Faster Time To First Byte	28ms
7147ms	1.27x Faster DOMContentLoaded	5637ms
17344ms	1.47x Faster FullyLoaded	11761ms
3.8s	1.41x Faster Last Visual Change	2.7s

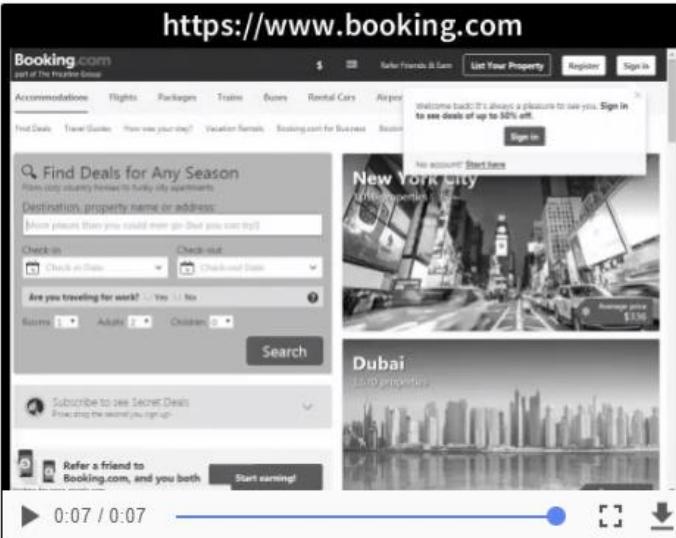
Your Website with Speed Kit



Works for Portals.

booking.com

Your Website without Speed Kit ↗



2.05x Faster
1402ms Speed Index 685ms

3.24x Faster
1280ms 1st Meaningful Paint 395ms

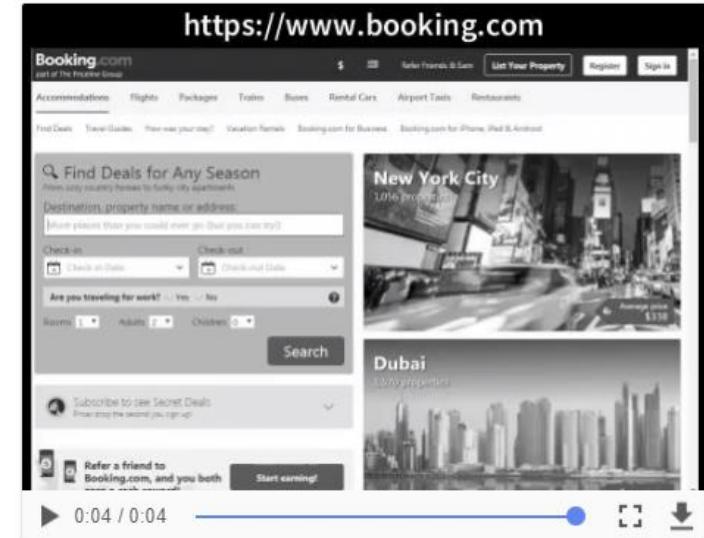
30.38x Faster
790ms Time To First Byte 26ms

1.81x Faster
1620ms DOMContentLoaded 894ms

1.15x Faster
4239ms FullyLoaded 3698ms

3.34x Faster
4.3s Last Visual Change 1.3s

Your Website with Speed Kit ↗



Works for Landing Pages.

coca-cola.com

Your Website without Speed Kit ↗



3707ms	Speed Index	1303ms
3578ms	1st Meaningful Paint	562ms
77ms	Time To First Byte	29ms
3557ms	DOMContentLoaded	726ms
6314ms	FullyLoaded	4165ms
4.4s	Last Visual Change	2.2s

Your Website with Speed Kit ↗



Works for E-Commerce.

alibaba.com

Your Website without Speed Kit ↗



2889ms	Speed Index	1341ms
3218ms	1st Meaningful Paint	2296ms
1544ms	Time To First Byte	17ms
2441ms	DOMContentLoaded	1274ms
5884ms	FullyLoaded	3642ms
3.5s	Last Visual Change	2.4s

Your Website with Speed Kit ↗



Works for Brands.

braun.de

Your Website without Speed Kit ↗



	5.16x Faster	
2721ms	Speed Index	527ms
6187ms	1st Meaningful Paint	643ms
659ms	Time To First Byte	21ms
7317ms	DOMContentLoaded	786ms
7898ms	FullyLoaded	3151ms
7.4s	Last Visual Change	1.7s

Your Website with Speed Kit ↗





Which **business impact**
do these improvements
have?

How much is being **2.2s faster** worth?

Publishers and Ad-driven Businesses

+16% Revenue

(PLT Original - PLT Speed Kit) / (19000 - 5000)

[DoubleClick study \(p. 3\)](#) "The Need for Mobile Speed" based on 4,500 real websites



E-Commerce

+22% Revenue

(PLT Original - PLT Speed Kit) * (1 / 100)

[Amazon study \(p. 10\)](#) "Make Data Useful" using A/B tests on the Amazon shop





“

Every **1s** of page load improvement
equals a **2% conversion** rate increase
for Walmart.com

”

Cliff Crocker, Aaron Kulick, and Balaji Ram, “Real User Monitoring at Walmart.com: A Story in Three Parts,” 2012.



“

Staples.com shaves **1s** from load time,
improves **conversion rate by 10%**.

”

Cliff Crocker and Steve Skroce, “How to Measure Revenue
in Milliseconds,” 2014.

AliExpress



AliExpress reduced load time by **36%** and recorded a 10.5% increase in orders and a **27% increase in conversion rates** for new customers.



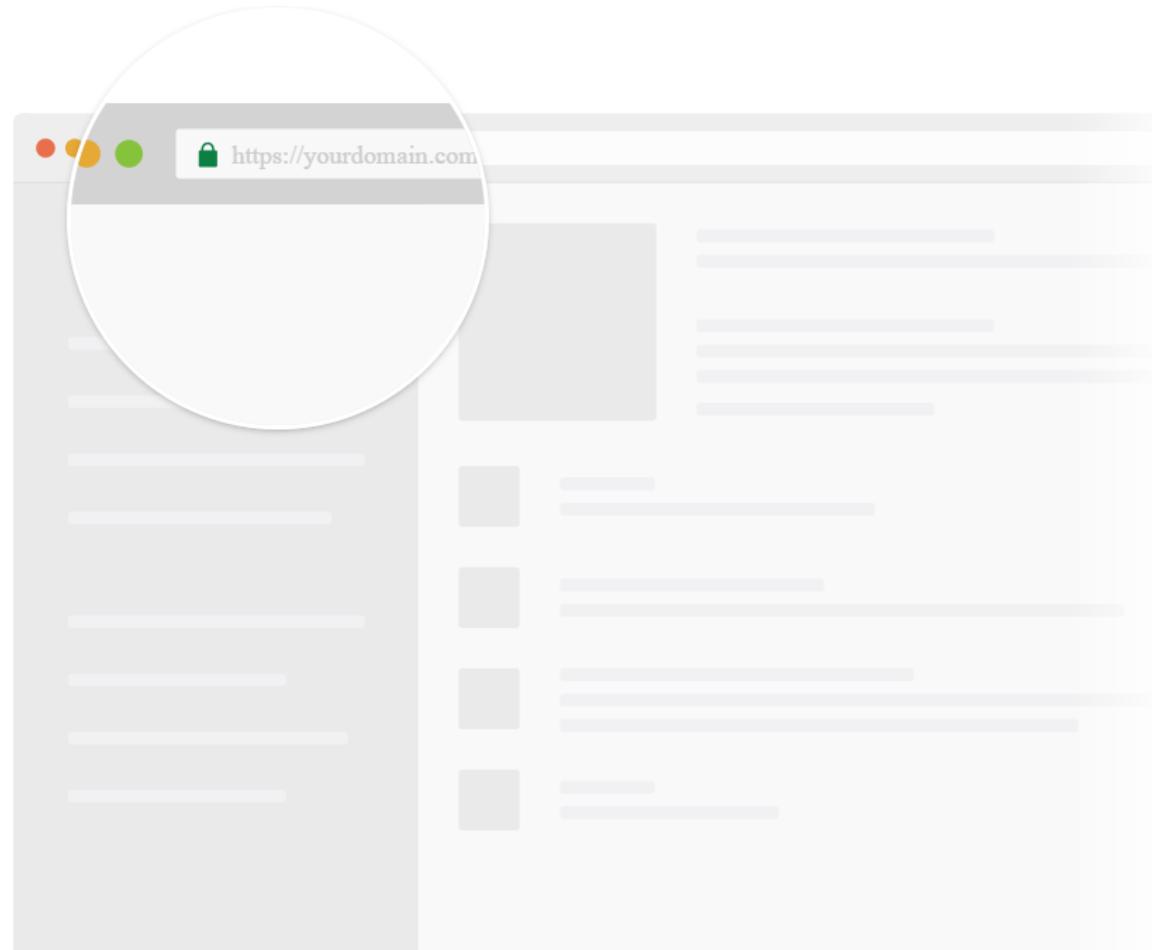
Alibaba presentation at Akamai Edge,
“Future of Commerce,” 2016.



Adding Speed Kit to your site.

1. Configure Domain

Set which sites/URLS
Baqend should accelerate
(white- and blacklist,
dynamic blocks).



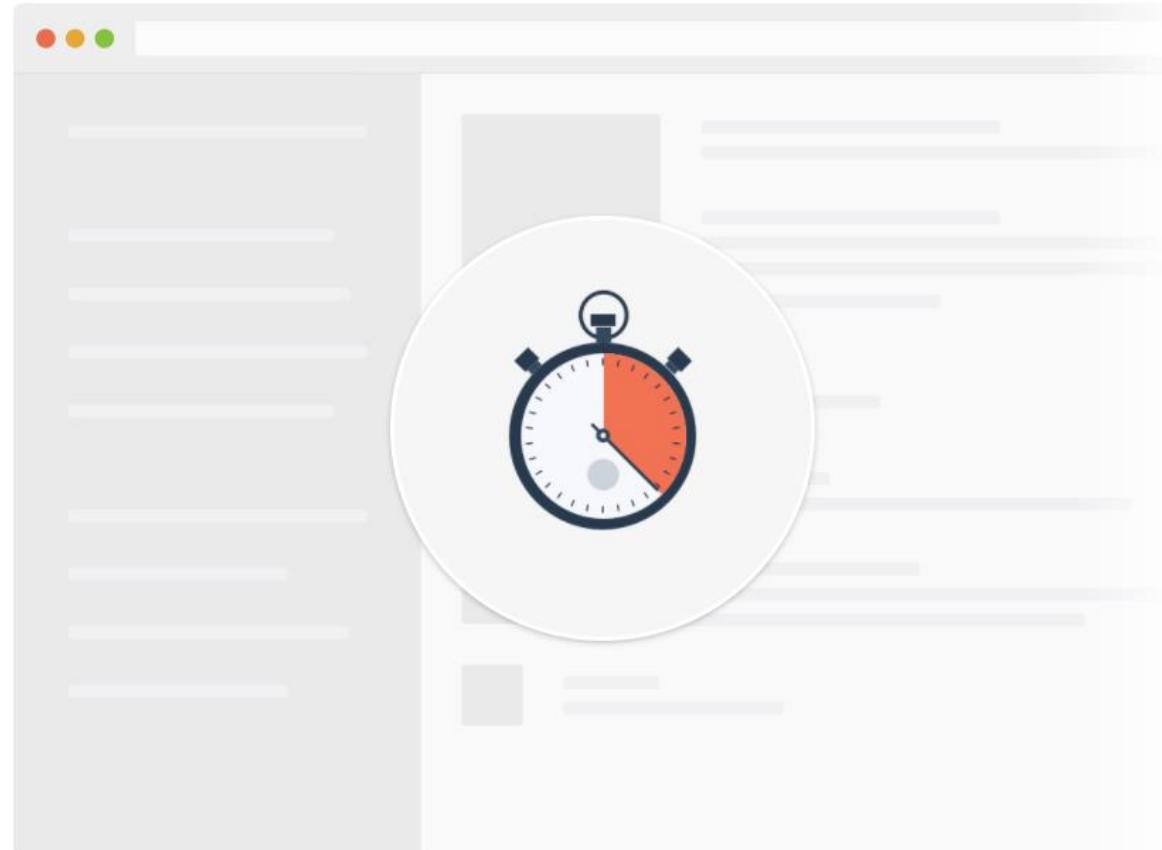
2. Include Code Snippet

Add Speed Kit to your website's HTML and upload the Service Worker.

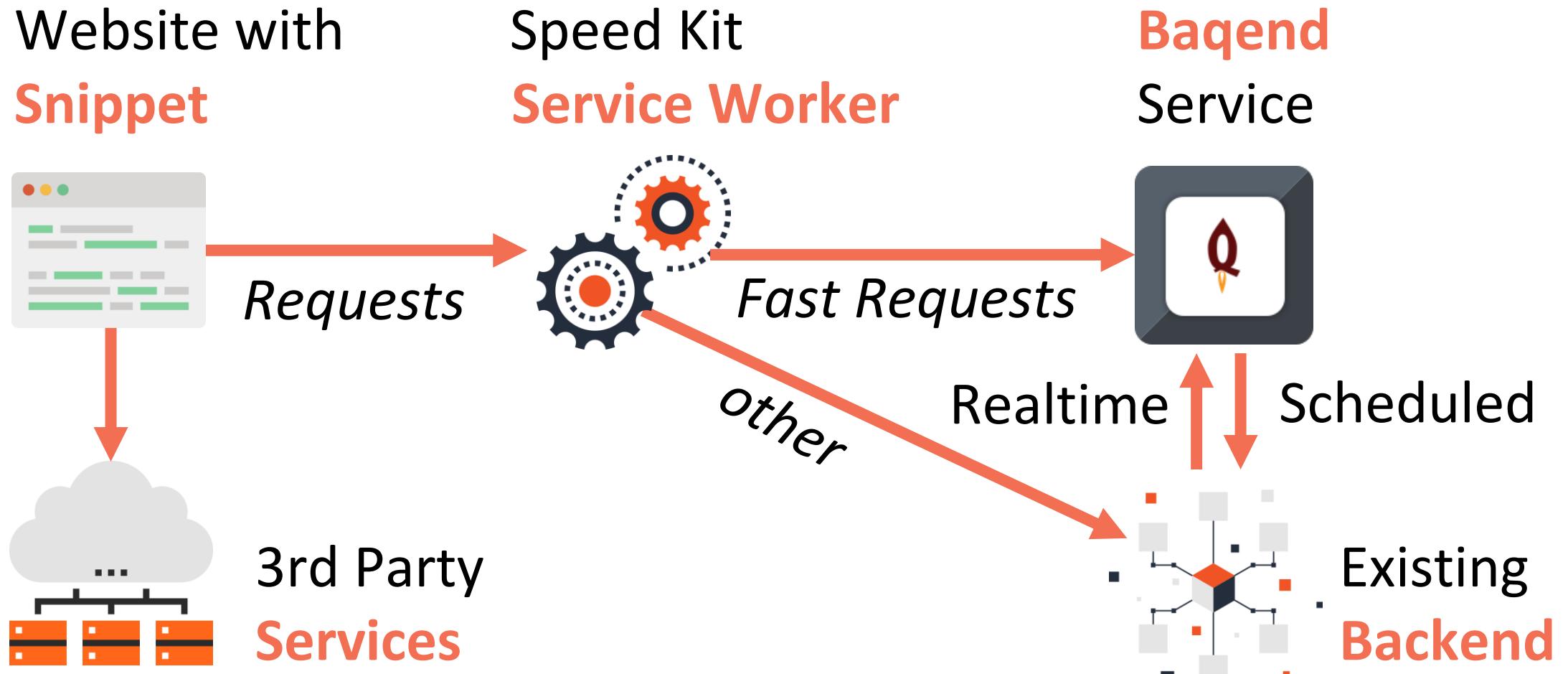


3. Speed Kit is Active

Speed Kit intercepts requests
and serves them through
Baqend's infrastructure.



How it works under the hood



How is Speed Kit different from **CDNs**?



Better
Performance



Simpler
Integration



No Vendor
Lock-in

It works for them.



golem.de
IT-NEWS FÜR PROFIS



fussballdaten

~2.5× Faster

~2.1× Faster

Speed Kit Integration In Detail

2 easy ways to **refresh data**

Baqend Service



Realtime ↑ Scheduled ↓



Existing **Backend**

Scheduled: Cron Job

Realtime: Manual, API Call

HTML CSS Javascript Feed Audio Video Image Font

- URL Prefixes/Regexes
- Arbitrary Queries on url, eTag, lastModified, contentType, mediaType

Speed Kit Integration In Detail

2 easy ways to **refresh data**

Baqend Service



Realtime ↑ Scheduled ↓

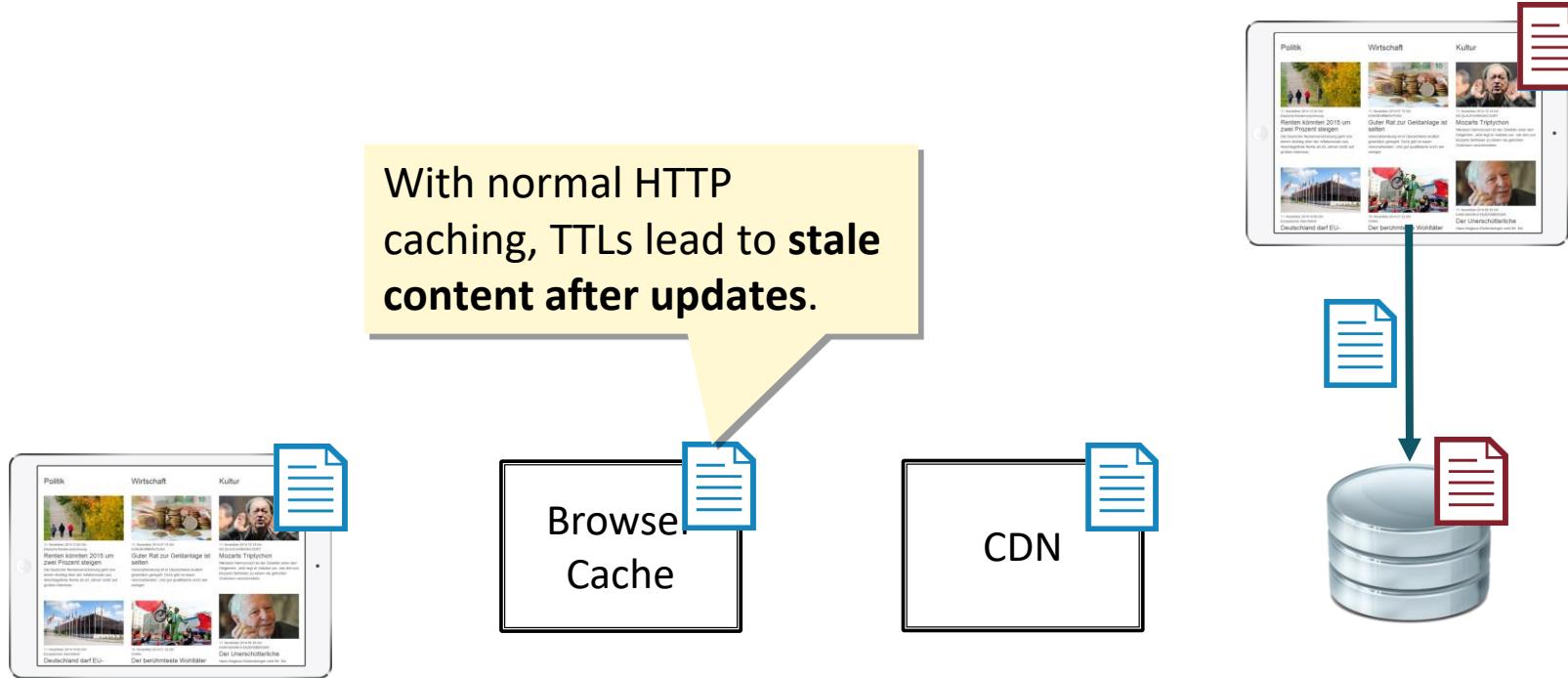


Suggested default is scheduled
refreshing with:

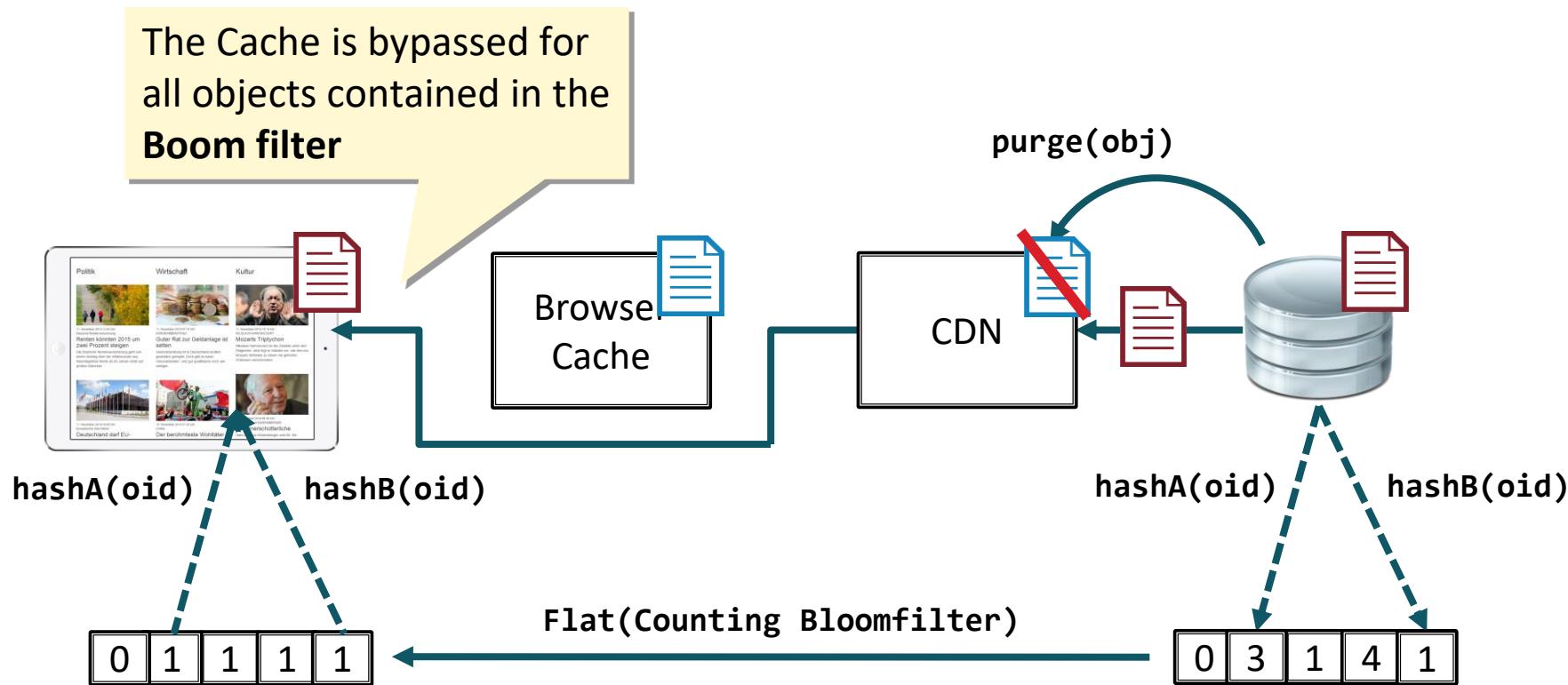
- **Landing Pages** every **1min**
- **Other HTML** every **10min**
- **Assets** every **1h**

Existing **Backend**

How Baqend solves Cache Coherence

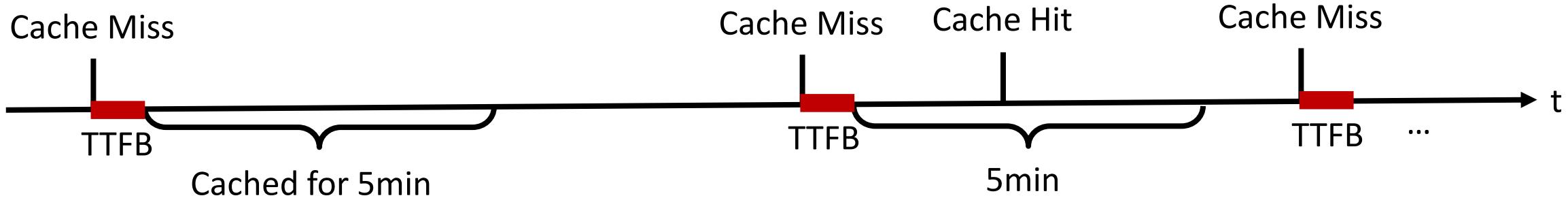


How Baqend solves Cache Coherence

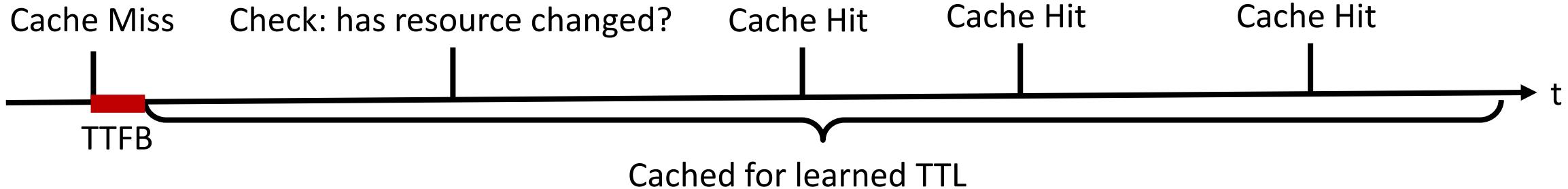


How is this different from Micro-Caching?

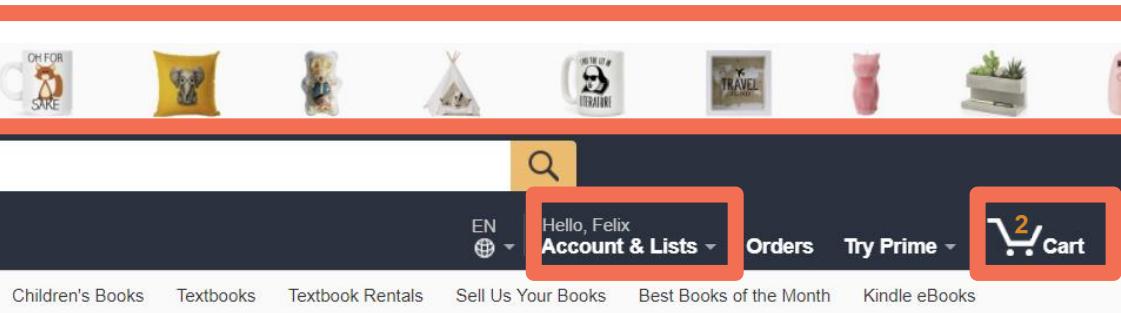
5-Minute Micro-Caching



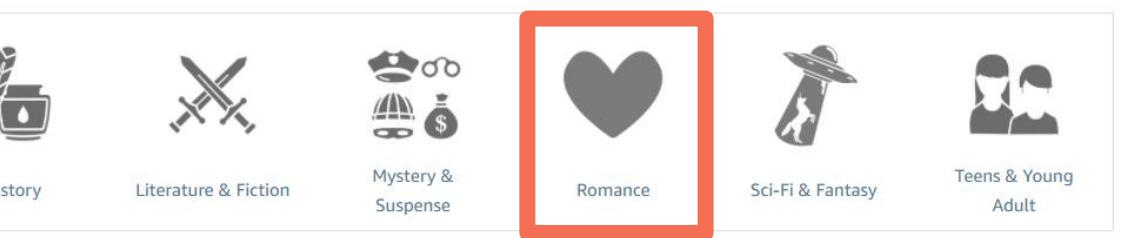
Sped Kit's Caching



Caching User- or Segment-specific Content



Amazon



Speed Kit's **Dynamic Blocks**:

1. Blocks **defined** by query selector.
2. Speed Kit loads a fast anonymous & the personalized view in **parallel**.
3. Dynamic blocks are **replaced**.

Transform sites into **Progressive Web Apps.**

When Offline:



→ Website becomes **offline-capable PWA.**

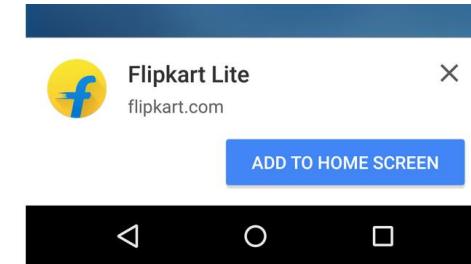
Transform sites into Progressive Web Apps.



Fast **Loads**
through Caching



Offline Mode
(Service Workers)



Add-to-**Homescreen**
and **Push**

→ Website becomes **offline-capable PWA**.



Dead Simple Pricing.

#Requests + #Bytes
= Pay-as-you-go

Requests

First 150K Requests	free
Next 10M Requests	0.34€ / 10K Requests
Next 140M Requests	0.25€ / 10K Requests
Next 360M Requests	0.20€ / 10K Requests
Over 500M Requests	Contact Sales

Traffic

First 4 GB	free
Next 200 GB	0.34€ / 1 GB
Next 3000 GB	0.27€ / 1 GB
Next 7000 GB	0.25€ / 1 GB
Over 10 000 GB	Contact Sales

Speed Kit in Summary.



**50-300% Faster
Page Loads**



**Works with
Current Site**



**Improves
Scalability**



**Automatic
Offline Mode**



Make page speed your
competitive advantage.

www.baqend.com