Presentation is loading
The Page Load Problem

Average: 9.3s

100ms

10s

100ms

10s

100ms

10s

Loading...

- 1% Revenue
- 9% Visitors
- 9% Traffic
If speed can boost so many Business KPIs...

...what causes slow page load times?
State of the Art

Two bottlenecks: latency und processing
Make the Web Great Again
Fresh Data from Ubiquitous Web Caches

Low Latency

Less Processing
New Caching Algorithms
Solve Consistency Problem
New Caching Algorithms
Solve Consistency Problem


F. Gessert, N. Ritter „Scalable Data Management: NoSQL Data Stores in Research and Practice“, 32nd IEEE International Conference on Data Engineering, ICDE, 2016.

What impact does Baqend have in practice?
TOWELL+ Platinum Grau & Anthrazit

19,95 €*

HINZUFÜGEN

PLATINUM GRAU BEIGE

MERING WEISS BEIGE

GRAPHITE SCHWARZ SCHWARZ
< 1 second
Page Load Time

8.7%
Conversion Rate

3%
Server Usage

Shops in "Die Höhle der Löwen"
The Google Page Speed Scores for Season 3, 09/06/2016
10x Faster Than Amazon

„Our conversion rate was **7.8% at 100K users** in a couple of minutes. Experts from industry told us we wouldn’t be able to reach **1%**. A significant factor for this success was the incredible **page load time**.„
How is this technology used for development?

Baqend Cloud is a SaaS
The World's Fastest Backend

Build websites and apps that load instantly.

Tutorial App

THE BAQEND PLATFORM

Sky-rocket your Development

Start building now. Baqend Cloud is free and easy to get started with.
Firebase
Real-Time Synchronization

- Update notifications for specific subtree
- Order by a single attribute
- Apply a single filter on that attribute
  → Partial application state synchronization

https://firebase.googleblog.com/2016/07/have-you-met-realtime-database.html
Baqend
The German Answer to Firebase

- Update notifications for complex queries
  - Keep your query up-to-date
- Compose filters on many attributes
- Order by many attributes

Also:
- Comprehensive data model
- Sophisticated access control
- Compute real-time metrics
## Why Query Complexity Matters

<table>
<thead>
<tr>
<th>Table</th>
<th>Matching Conditions</th>
<th>Ordering</th>
<th>Firebase</th>
<th>Baqend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Todos</td>
<td>created by „Bob“</td>
<td>ordered by deadline</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Todos</td>
<td>created by „Bob“ AND status = „active“</td>
<td></td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Todos</td>
<td>„work“ in the name</td>
<td></td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Todos</td>
<td>„work“ in the name AND status = „active“</td>
<td>ordered by deadline AND by creator’s name</td>
<td>x</td>
<td>✓</td>
</tr>
</tbody>
</table>
Automatic Object, Query and File-Caching
End-to-end Example

False-Positive Rate: \[ f \approx \left(1 - e^{-\frac{kn}{m}}\right)^k \]
Hash-Functions: \[ k = \left\lfloor \ln(2) \cdot \left(\frac{n}{m}\right) \right\rfloor \]

With 20,000 distinct updates and 5% error rate: **11 KByte**
Show me some Code!
Getting Started with Baqend

Try this: www.baqend.com/tutorial.html
Baqend Team

4 Computer Scientists
+2 PhD Researchers
+3 CS Students

1 Business Economist
Looking For:

**Technical Evangelist (m/f)**

- Technical Writing
- Sales
- Conference Talks
- Workshops & Trainings

---

**Baqend Team**

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- 1 Business Economist

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**Your Application**

- Website Database
- Structured Data
- · Authentication
- · Access sights
- · Data storage
- · Logging
- · Encryption
- · Queries & search
- · File storage and hosting
- · Schemas & types
- · Push messages
- · Real-time sync

**Backend Code**

- · Data Validation
- · Business Logic (e.g., payment process)
- · Background tasks (e.g., emails)

**Frontend - Logic**

- · Angular.js
- Layout, Design, ...

---

**Automated cloud infrastructure & CDN distribution**

**HTTP**

**JavaScript**

**Baqend SDK**

**Hybrid apps can use the same API, data and business logic, etc.**

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**Recommended by you, Harries Kuhlmann, and 289 others**

**Building a Shop with Sub-Second Page Loads: Lessons Learned**

Here is the story of how we leveraged research on web-caching and NoSQL systems to prepare a webshop for hundreds of thousands of visitors.

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**Malte has joined the conversation 14:30**

"HI, I have a quick question regarding the sorting of query results."

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**Workshops & Trainings**

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Our Core Features

>250% Faster Loads

Automatic Scaling

Faster Development

#1 Users are happy and buy everything.

#2 Never be afraid of PR again.

#3 The nerds have time to catch some fresh air.

Sources
http://de.slideshare.net/felixgessert/talk-cache-sketches-using-bloom-filters-and-web-caching-against-slow-load-times
Our Vision for Baqend:
„A web without load times“

www.baqend.com
@Baqendcom