



BRAINREPUBLIC

Powered by
MongoDB & no-SQL

Mongo Berlin
October, 4th 2010



Andreas Jung
www.zopyxgroup.com

/ME

- Developer (backend) and software-analyst
- Strong background in Python, Zope and Plone
- Former Zope 2 release manager
- Co-founder and chairman of the German Speaking Zope User Group (DZUG)
- Director of the Zope Foundation
- Member of Plone Foundation
- Author of tons of add-ons for Python, Zope and Plone
- Head of ZOPYX





The Zope and Plone Expert Network

- German based full-Service partner network
 - ZOPYX (Tübingen)
 - Veit Schiele (Berlin)
 - Zetwork (Oldenburg)
 - Banality (Essen)
- Python, Zope, Plone & other cool stuff





Agenda

- What is BRAINREPUBLIC?
- „no-SQL“ technologies used in the project
- Evaluation of technologies
- My view on MongoDB - pros and cons
- BRAINREPUBLIC architecture





BRAINREPUBLIC

See Who's Talking

BRAINREPUBLIC is the social network for anyone who wants to talk face-to-face — or just audio or chat — with like-minded people from anywhere at any time

Gain expertise, share experiences or meet new friends. Built by brains for brains, BRAINREPUBLIC is free to join and easy to use.

If you ask us, it's a no-brainer.

Got a brain? Join for FREE.

Enter just a three pieces of info to get started. It's that easy.



zopyx group



Request a talk

 Search

Interests

Brains (190 online)

Feedback

Let's get started

Welcome to the BRAINREPUBLIC

- ✓ **Request a talk.**
Post a question, review responses, and choose a brain to talk with.
- ✓ **Browse topics and brains.**
Look around. Offer expertise or learn from others. Expand your mind.
- ✓ **Find and be found by brains with similar interests.**
Adding interests to your profile makes it easier for other brains to find you.
- ✓ **Talk by video, audio or chat at exceptional quality.**
You decide when and how to brain out.

You're never under any obligation at BRAINREPUBLIC.

It's your choice if you want to talk — and to whom. If the brain you want is online, you can talk directly in whichever format you agree upon. Otherwise, just leave a message and decide together the best time to connect.

On people's mind

	Replies	Posted
> I am looking for a 68' Ford Mustang Convertable, nicely restored, ready to drive. Who can help me finding the right spot to get closer to my...	0	4 days ago
> My daughter is developing strangely in the last past months since she turned 15. Anybody out there who can help me with your experience?	2	5 days ago
> Do you want to stop drinking? Together we reach your aim by an effective short-term therapy. Call me.	0	1 week
> Trying to understand the rules of baseball? Anybody has an idea?	0	1 week

Here's how it works

Start talking about relationships, gadgets, your startup, whatever. Just by sharing ideas, you'll find brains with answers to your questions or questions for your answers. Then contact them via video, audio or chat.

Create a network of brains you enjoy braining out with. Everyone has unique experiences, and that goes for the brains in your network, and every brain in theirs. You get the idea.

To charge or not to charge? That's up to you and the brains you connect with. You might choose to share ideas and advice for free. Or you may charge a fee. At BRAINREPUBLIC you can turn your experience into value. If members find your insights worth the price, go for it!

f Oliver Kruse, Susi Carreira, and 25 others like this. - Unlike



Hall of Fame

Brain	Fellows	Talks	Rating
avolicious	1	1	★★★★★
usphilly	1	2	★★★★★
DanielErdmann	1	3	★★★★★
ollik333	1	4	★★★★★
eumeu	1	6	★★★★★





Request a talk

Search

Interests

Brains (190 online)

Feedback

Let's get started

Welcome

✓ Request a talk

Post a question

✓ Browse topics

Look around

✓ Find a brain

Adding it to your list

✓ Talk by video

You decide

You're new

It's your choice

directly in what

best time to chat

On people

> I am looking for a

restored, modern

spot to go

> My daughter is

since she was

your experience

> Do you want to stop drinking? Together we reach your aim by

an effective short-term therapy. Call me.

> Trying to understand the rules of baseball? Anybody has an

idea?

What do you want to talk about?

close

Post a new topic here.

Pose a question, share ideas, ask for insights — whatever you want to talk about, enter the topic below and BRAINREPUBLIC will connect you with a brain who wants to have that conversation with you.

Posting a topic is **free** and comes with no obligation. Based on the responses you receive, you can decide if, when, and to whom you'd like to talk to live!

Your topic:

I would like to find people who could help me improving my German. I already had classes in school but I would like to talk with people since books are simply not enough.

170/512

+ Post topic

s,
Just by
with
estions
them via

enjoy
unique
he brains
in theirs.

at's up to
with. You
I advice
e. At
ur
rs find
for it!

25 others

Rating

★★★★★

usphilly

1

2

★★★★★

DanielErdmann

1

3

★★★★★

ollik333

1

4

★★★★★

eumeu

1

6

★★★★★



ollik333

● online

Activities (0)

Profile

Log out (also from Facebook)



BRAINREPUBLIC

See Who's Talking

Request a talk

resolution

Search

Interests

Brains (204 online)

Feedback

On people's mind

No replies yet

All

	Replies	Posted
> I offer social and business dispute resolution. Don't wait until your conflict becomes destructive – get it out of your life. Call me and together...	0	1 week
> I am interested in a long distance Ph.D program in Conflict Resolution. Is somebody out there who could give me some advice?	0	1 week

Brains with matching interests

No brains with matching interests found. If you would like to appear here as the first brain matching your search term, just add it to the interests in your profile.

Most popular topics

philosophy peace distance golf mustang
mediation program literature term dispute
experiences sport operators operating
algorithms google therapy religions
bioinformatics spot programs mandarin
independent captcha study hotels suffix
resolution empiric health manga
code issues baseball equations
interessed rules morse differences
differential business dream
understanding scrum switching visit
darkroom **plone** visting insight
similarities safari flash variables crashes
ford touristic math teacher **conflict**
analog photography comics convertible
content system policy attractions microsoft
security computers equation programming
partial tree

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See Who's Talking

[Request a talk](#)

[Interests](#)
[Brains \(204 online\)](#)
[Feedback](#)

On people's mind

No replies yet

All

	Replies	Posted
▼ Anyone here that understands Plone security in deep? A short tutorial would be great! Perhaps also some insight into debugging security issues.	1	1 week

[+ Add a new talking offer](#)

Responses for this request

Posted



spamsch – 0 talk(s)
● offline

commercial 1 week

I have 8+ years of experience with Plone – I think two sessions (15 minutes each) would be enough to explain the basics. I will use TeamViewer (<http://www.teamviewer.com/>) in addition the the chat module provided by this platform to access your screen.

Cost for this talk: US\$ 0.50 / min



Like [Frank Diestelhorst](#) likes this.

This response has been talked about 0 times.

Most popular topics

philosophy peace distance golf mustang
mediation program literature term dispute
experiences sport operators operating
algorithms google therapy religions
bioinformatics spot programs mandarin
independent captcha study hotels suffix
resolution empiric health manga
code issues baseball equations
interested rules morse differences
differential business dream
understanding scrum switching visit
darkroom plone visting insight
similarities safari flash variables crashes
ford touristic math teacher conflict
analog photography comics convertible
content system policy attractions microsoft
security computers equation programming
partial tree

Brains with matching interests

No brains with matching interests found. If you would like to appear here as the first brain matching your search term, just add it to the interests in your profile.





BRAINREPUBLIC
See Who's Talking

ollik333

● online

✉ Activities (0)

👤 Profile

🔌 Log out (also from Facebook)

▶ Request a talk

attractions

🔍 Search

📄 Interests

🧠 Brains (199 online)

★ Feedback

On people's mind

No replies yet All

	Replies	Posted
▼ Visting New York and Washington DC next week...anyone interested to talk to me about some secret and interesting places one should visit (besides the standard touristic attractions)?	1	1 week

Responses for this request

Posted

🗑 Delete



🧠 olland333 – 4 talk(s)
● online
★★★★★

free 1 week

I have been to Washington DC a couple of times. There are a couple of interesting things that you might want to check out. Please call me so that we can find something which fits your interests.

👍 Like 📘 Karim Roth, Frank Diestelhorst, and one other person like this.

This response has been talked about 1 times.

Brains with matching interests

No brains with matching interests found. If you would like to appear here as the first brain matching your search term, just add it to the interests in your profile.

Most popular topics

peace comics manga interessed spot
content mediation bioinformatics variables
microsoft similarities teacher morse health
conflict experiences suffix crashes
algorithms math sport partial switching
policy study **resolution** dispute issues
program tree code darkroom operating
security scrum independent hotels
convertable literature touristic captcha
philosophy google ford programs visting
programming business mandarin equation
operators **understanding** insight
computers differential flash photography
empiric differences rules equations visit
attractions therapy analog safari distance
term religions dream mustang golf
plone system baseball

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BRAINREPUBLIC
See Who's Talking

ollik333

● offline

Activities (0)

Profile

Log out (also from Facebook)

Request a talk

Search

Interests

Brains (190 online)

Feedback

Ampelman

See Who's Talking

close



Talk to me



Waiting for Ampelmann1967 to accept the call.

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ollik333

offline

Activities (0)

Profile

Log out (also from Facebook)



BRAINREPUBLIC

See Who's Talking

Request a talk

Search

Interests

Brains (190 online)

Feedback

Ampelman

See Who's Talking

close



Click here to enable your webcam



Open settings

Hello ollik333. Type your text messages here and press the Enter key to submit.

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See Who's Talking

Request a talk

Search

Interests

Brains (190 online)

Feedback

Ampelman

See Who's Talking

close



Open settings

Hello ollik333. Type your text messages here and press the Enter key to submit.

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See Who's Talking

Request a talk

Search

Interests

Brains (190 online)

Feedback

Ampelmar

See Who's Talking

close



Talk to me



Microphone gain and talking mode

Video size and quality

General

Close settings

Mic is on

Medium

Speaker

Window

Medium

Settings

Report abuse

Help

Hello olik333. Type your text messages here and press the Enter key to submit.



See Who's Talking

close

spg22 is currently offline or busy. You can send a message or try again later.

Ask questions that only spg22 can see — and schedule a date and time for a live talk. Please don't forget to add your time zone (e.g., EST for Eastern Standard Time). If you don't want to send a message, please click on the close button at the upper right corner of this window.

Message is empty or too long.

Your message:

Hello spg22, thank you very much for your feedback. I am the product manager of BRAINREPUBLIC and it is always appreciated to hear from the users. Probably you mean something which is similar to STACKOVERFLOW? Do you want to talk to me about this? I appreciate hearing from you! best regards, Oliver Kruse

305/240

+ Post message



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Discover new friends through talking

close



Open Settings

Hello nickname. Please click here to type text messages. To send a message please press the enter key.



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Choosing a database and tools for BRAINREPUBLIC

- **Criteria:**
 - fast
 - scalable
 - distributed
- **Special requirement:**
 - having fun :-)



Powered by



repoze.bfg



mongoDB



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repoze.bfg

- BFG is a "**pay only for what you eat**" Python web framework
- based on WSGI (Web Service Gateway Interface)
- What makes BFG special:
 - **It's tested**
 - **Simplicity**
 - **Minimalism**
 - **Documentation**
 - **Speed**





- fulltext search-engine based on Apache Lucene
- REST-style API for HTTP (XML/JSON)
- flexible field-based configuration through XML
- many plugins
- fast
- scales up/vertically (data partitioning)
- scales out/horizontally (clustering)





- AMPQ (Advanced Message Queuing Protocol) based message queue
- Open-Source (VMWare)
- implemented in Erlang
- very fast (7500 messages/second)
- very stable
- flexible routing mechanisms for messages
- support for clustering
- implements producer & consumer pattern



Possible database candidates

- ZODB (Zope Object DataBase)
- RDBMS
- „no-SQL“ databases
 - key-value stores
 - document-oriented databases:
 - MongoDB
 - Couchdb



Evaluation of key-value storages

- breaking more complex data structures into key-value pairs is a pain
- Map-reduce is brainfuck
- implementations do not provide a „traditional“ query API



Evaluation of document-oriented storages

- schema-less databases are nice
 - easy to deal w/ requirement changes
 - JSON suitable for complex data structures



MongoDB	CouchDB
very fast (>10K ops/second)	pretty slow
native drivers (TCP/IP)	REST/HTTP API
Map-Reduce rich query API	Map-Reduce
Master-Slave Replica set Sharding	easy replication

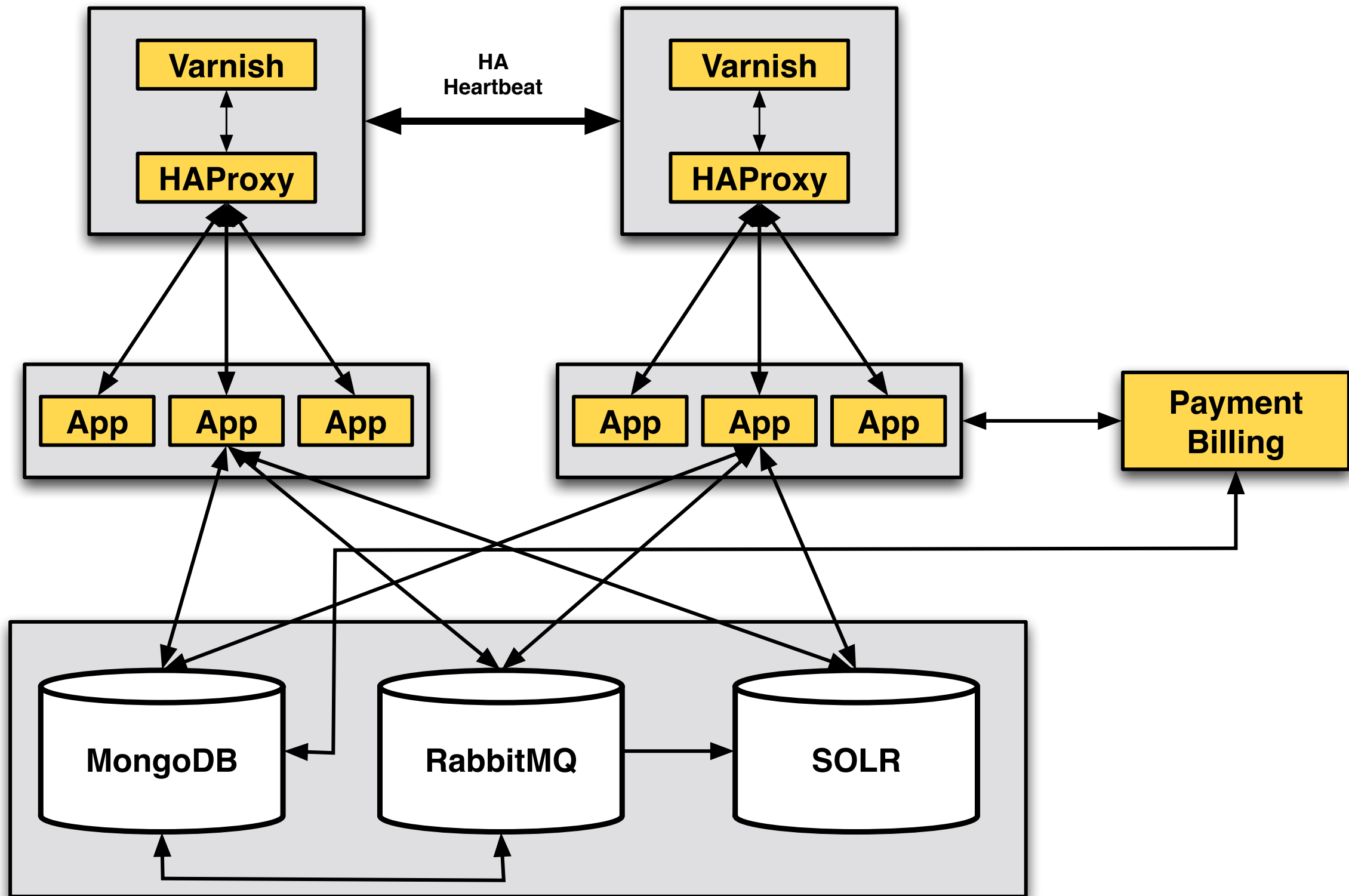


So why MongoDB (and not CouchDB)?

- Performance, performance, performance
- implementing a fast system on top of HTTP-based web-services/APIs is a bad idea
- Rich query API (the world needs more than pure M-R)
 - JSON-like queries are not my thing
(better syntax needed?)



BRAINREPUBLIC Architecture



Lessons learned/Looking back

- MongoDB is kind of the „swiss knife of the no-SQL“ DBs
- very fast and reliable
- very low entry-barrier
- easy programming
- offers more than Map-Reduce
- 10gen seems to have ambitious goals with MongoDB
- good documentation (update website, books upcoming)
- very good community support (IRC, mailing list)



My wish list...

- Poor replication performance (Master-Slave: 2.5-3 MB/sec)
- Indexes should fit completely into memory?
- A more fine-grained authentication model?
- Parallel map-reduce?
- Better usage of existing indexes (vs. compound indexes)?
- An alternative query API (not based on JSON) possible?





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