Evolution of the Runtastic Backend

Velocity Europe 2018

Simon Lasselsberger
Lead System Architect

@lasssim
@lister
@lasssim
OUR VISION

We want every individual to live a more aware and active lifestyle with Runtastic, leading to a longer, happier life!
<table>
<thead>
<tr>
<th><strong>Runtastic By The Numbers</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>We are</strong></td>
</tr>
<tr>
<td>4 Founders</td>
</tr>
<tr>
<td>8 Years Old</td>
</tr>
<tr>
<td>We were profitable after just 20 Months</td>
</tr>
<tr>
<td>235 Employees</td>
</tr>
<tr>
<td><strong>We come from</strong></td>
</tr>
<tr>
<td>38+ Countries</td>
</tr>
<tr>
<td><strong>We have</strong></td>
</tr>
<tr>
<td>3 Offices in Linz, Vienna And Salzburg</td>
</tr>
<tr>
<td><strong>Our products are available in</strong></td>
</tr>
<tr>
<td>15 Languages</td>
</tr>
<tr>
<td><strong>We are</strong></td>
</tr>
<tr>
<td>1 Team with a single vision</td>
</tr>
</tbody>
</table>
Our 2017 Priority Markets

**TOP MARKETS**
Dedicated in-house marketing & communication resources for Central & Southern Europe (GER, FRA, ESP, ITA, AUT, SUI), UK, United States, Japan, China & Brazil.

**ADDITIONAL MARKETS**
Dedicated communication resources for Holland, Turkey, Russia, Poland, India, Korea, South & Central America, Canada and Australia.
EACH DAY WE HAVE
150,000
NEW DOWNLOADS

WE HAVE MORE THAN
120 MILLION
REGISTERED USERS

WE BOAST OVER
230 MILLION
TOTAL APPDownloads

WE HAVE MORE THAN
3,472,757
FANS AND FOLLOWERS
Environment

Hosting
- 4 Servers
  - Ali, Senna, Lauda, Agassi
- Desktop hardware
  - 4GB RAM, 2 CPUs
  - Dolby surround sound
- Cheap and uncomplicated
- Helped us to grow in the early days
- Mixed responsibilities
- Manual setup of machines

Team
- 2-3 people for backend and operations

Source: https://www.youtube.com/watch?v=PLyQcpXKo4
2011

- Binary
- Mobile Gateway
- Web Page
- Sport Activity
- Binary

1-1
2011 - 2014

Web Page

Mobile Gateway

Restore
Routes
KPI
Appendix
Gamification
Samples
Abilities
Products
Payment
Live Tracking
Users

Cassandra

MongoDB

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SLIDE NO. 14
Environment

Hosting
- Switch from Hetzner to T-Systems
  - Not stable enough
  - Couldn’t offer the hardware we needed
  - Cassandra cluster migration (6 months)
- Own hardware
  - Virtualization OpenNebula
  - Dedicated machines for DBs
  - 2 Cells in Data Center

Team
- Dedicated Backend Team (9 People)
- Dedicated Infrastructure Team (2 People)
2015 - 2016

Web Page

Mobile Gateway

Hub

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Other Services

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Database Full

63 DAYS
2015 - 2016

Web Page

Mobile Gateway

Hub

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- Products
- Payment
- Live Tracking
- Users
- ~15 other Services

- Cassandra
- MongoDB
- Percona Server

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Hexagonal Architecture

Allow an application to equally be driven by users, programs, automated test or batch scripts, and to be developed and tested in isolation from its eventual run-time devices and databases.

Alistair Cockburn
2015 - 2017

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Environment

Hosting
- Switch from T-Systems to Linz AG
  - Not enough space
  - 2 Cell strategy doesn’t fit quorum technologies (MongoDB, Cassandra)
  - Network bottleneck
- Room to grow
- More standardized setup
- More automation
  - Software defined network (Cisco ACI)
  - Software defined storage (Ceph)

Team
- Agile Transition (Backend and Client)
- Dedicated Infrastructure Team (6 People)
Agile Setup

- Agile Coach
- Roadmap Council
- Architects

PM

Chapter

Chapter

Guild
Future Plans

- Mobile Gateway
- Restore Routes
- KPI
- Appendix
- Gamification
- Users
- Live Tracking
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- Hub

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Future Plans

Future Plans Diagram:

- Restore
- Routes
- KPI
- Appendix
- Gamification
- Samples
- Abilities
- Products
- Payment
- Live Tracking
- Users
- ~15 other Services

Diagram connectivity:
- Hub
- MongoDB
- Cassandra
- Percona Server
Deployment

Current state
- 7 different setups
- Initial developer machine setup is a pain
- Chef not consistent over environments
- All-in-one machines need to be huge
- Manual deployments

- Development
  - Jenkins
  - Experimental Jenkins
- Staging
- Pre-Production
- RENO
- Production

All-in-one Machine
Deployment

Future plans

- Provide one way to deploy services in any environment
- More flexibility and responsibilities for squads
- Better fit for Agile process
- Less maintenance overhead
- Proper automation
- CI/CD
Future Plans

Development

Jenkins

Staging

Production

Future Plans

Development

Jenkins

Staging

Production

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Future Plans

Orchestration Service
Simon Lasselsberger 08:51
Thank you very much!

rosi APP 08:51
Anytime. That's what I'm here for.

Simon Lasselsberger 08:51
I will be around, come talk to me anytime or follow me on twitter or linkedin.

rosi APP 08:51
Sure. Let's talk!