ACCELERATING COMMON BUSINESS SOFTWARE WITH THE POWER OF GPUs & DEEP LEARNING

DIETER WEILER, Q2WEB GMBH, CTO
LISON WEILER, SHARERADO UG, FOUNDER AND CEO

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Challenge Performance

Traditional IT is dominated by applications, just using CPUs:

• Best performing CPUs like Intel Platinum 8180 deliver 1TFlop computing power for 10K Euro.
• 90% of the installed serverbase is using older Intel Xeon with a maximum of 20 Gflop per core.
• In combination with socket or core-based pricing of OS and application software this leads into a price-trap when needing better performance.
• Also the possible performance is limited by the maximum size of servers, because cluster-enabled software is much more expensive and more complicated to maintain.

We will show, how to outperform this prehistoric computer by using the power of GPUs!
GPU Power

GPUs are the outstanding solution for accelerating database applications a 1000 times faster:

• A high-end GPU makes it easy to substitute complex databases architectures.
• Interfaces like Javascript and SQL enable most programmers to benefit from the power of GPUs.
• If you have seen the positive effects of using GPU, it will be difficult to realise a new project without them.

The first step to move towards a GPU project is simply to get started!
What we provide

• Our applications provide **real-time insights** into large Telco and IoT infrastructures & networks.

• For example: **Millions of KPIs** are continuously calculated based on data from tens of millions devices and billions of measurements.

• It is a **full stack vertical application** that integrates seamlessly into existing environments due to its open interfaces.

• Proven solution based on **20 years project experience**.

• Newly developed **GPU technology in production since years** and continuously improved.

• Substitution of multi-million Oracle SW/HW-Cluster.
Business areas

Telco: realtime MDM/KPI calculation/field-service management

eCommerce: white label sharing/digital content shop

eHealth: different teletherapy application (speech and mimic)

OS-software: extending different application

Customer projects

- Substitution of existing databases like MySQL, Oracle, MS-SQLserver
- Extension and revitalisation of existing databases
- Lowering license fees

Solutions

- OLAP like KPI-Engine
- GPU accelerated in-memory database Yaacomo
Our solution: Yaacomo db

Full feature transactional in-memory database: powered by GPU

Our biggest installation with 4xK80

- 2 Billion row updates per day
- 300 external systems connected by JDBC or Tipco/SOA interface
- More than 1 million complex read-request per day
- > 10000 user

Integrated Interfaces to data-lakes like Hadoop or Solr.
Yaacomo Integration

MySQL-Gatekeeper to access MySQL-database and Yaacomo in parallel:

• Important for certificated applications
• Write/update/delete in both databases in parallel
• Read by configuration/learning algorithms against one or both databases
• The fastest wins!

Goals:

➢ Tuning of the database
➢ Reduce load on the mysql-database
➢ More informations in the Yaacomo-Database for more complex queries
➢ Addition apps on the data are using exclusively the yaacomo-database
Yaacomo Integration

Simple access to databases:

- MySQL-compatible interface
- JDBC/ODBC/JSON connector
- Oracle/MySQL/MS-SQL compatible

- Extending existing databases with new functionality
- Extending the scope and lifetime of existing applications
- Merging information from different applications for new insights
Live Presentation/Video

- Importing **millions** datarows/second into the database
- Parsing /analysing/storing the data in the **GPU**
- Application of analytic and ML-Algorithms on the data before storing in the database in **real-time**
- Accessing and visualization the new data **in parallel** to the load-process
- Showing database operations like insert/update/delete on **big datasets**
- **Showing database operations** like commit and rollback
- **Showing performance numbers** compared to other databases
Thank you for listening.

contact

Q2WEB GmbH
Kronprinzenstraße 82-84
40217 Düsseldorf
Germany
Dieter Weiler, Dipl. Inf., CEO
phone: +49 (0)211 159 694 -15
email: dieter.weiler@q2web.de

Sharerado UG
Kronprinzenstraße 82-84
40217 Düsseldorf
Germany
Lison Weiler, Founder and CEO
phone: +49 (0)211 159 694 -36
email: l.weiler@sharerado.com