

# GAD upgrades database systems to boost power and productivity



*IT staff migrates to IBM DB2 10 and IBM IMS 12 software to modernize its banking infrastructure*

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## Overview

### The need

Address performance and capacity issues due to growing transaction volumes, maintain 24x7 system availability, and address strict government audit requirements.

### The solution

Upgrade to IBM® DB2® 10 for z/OS® and IBM IMS™ 12 to speed banking application rollouts, while supporting peak transactions of 400 to 600 per second.

### The benefit

Enables up to 10 percent higher annual transaction volumes with existing CPU capacity. Helps ensure 24x7 system availability by introducing parallel binds that minimize application downtime and increasing staff productivity.

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GAD eG (GAD) is the data processing center and IT service provider for a variety of co-operative banks known as *Volksbanken* and *Raiffeisenbanken*, as well as a software development company for the cooperative organization *Genossenschaftlicher FinanzVerbund* in north and central Germany. Its responsibilities range from development and sales of banking software to provisioning of electronic banking services to IT consulting and education. GAD has approximately 1,800 employees who serve 460 branch banks, support 29.6 million customer accounts and oversee more than 70,000 distributed devices.

As the only provider serving corporation banks in northern and central Germany, GAD has seen its revenue increase from EUR620 million in 2009 to EUR650 million in 2010. However, hosting all data, transactions and information for high-volume banking establishments on its mainframe means that GAD is always looking for ways to reduce costs, as well as satisfy strict government audit requirements, by continuously modernizing its mission-critical IT infrastructure.

The challenge for GAD's data processing center is remaining resilient to meet business mandates from the banks, as well as round-the-clock access for online customers. In fact, nothing less than 24x7 availability for its center's many applications and roughly 170 systems is acceptable, as GAD routinely processes as many as 400 to 600 transactions per second during peak throughput periods. This transaction volume, which adds up to a



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—Andreas Wagner, First Line Manager, GAD

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staggering 13.3 billion transactions per year, continues to increase by 5 to 10 percent annually. In an environment characterized by ever-increasing workloads, identifying new ways to reduce application downtime remains an ongoing priority.

To provision vital applications and support its banking customers online, GAD operates a total infrastructure solution called bank21, which integrates diverse platforms, applications and technologies to deliver maximum customer value. In the course of conducting IBM IMS 12 Quality Program Plan (QPP) testing, GAD quickly identified the potential for new, productivity-enhancing features and improved CPU utilization that could be realized by upgrading its IBM DB2 data server environment to IBM DB2 10 for z/OS for transaction processing.

### **Upgrading to DB2 10 delivers out-of-the-box stability**

GAD upgraded to IBM DB2 10 for z/OS, and began by cloning its production environment within the test environment to run massive batch programs. “The first thing we wanted was out-of-the-box stability and resilience from DB2 10—support from IBM made that happen, eliminating potential compatibility issues with our legacy systems,” says Andreas Wagner, first line manager at GAD. “Ultimately, we were able to run ‘big batch’ processing in the new version of DB2 without any application changes, which saved us a lot of time and effort.”

Saving time and effort is important, as GAD operates many four-way and eight-way data sharing systems, with workloads running through IMS and transactions through DB2. “Besides production workload, 500 developers are also using DB2, so it’s a big part in our environment,” says Wagner.

Serving GAD customers requires a large and complex production environment. Of the company’s 45 data sharing systems, fully two-thirds of these systems are dedicated solely to provisioning services for its different production environments. These environments are split into different logical partitions (LPARs) with different number of data sharing member per LPAR, depending on the workload by GAD’s customers.

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## Solution components

### Software

- IBM DB2® 10 for z/OS®
- IBM IMS™ 12
- IBM WebSphere®

### Servers

- IBM® zEnterprise® 196 (z196) servers
  - IBM System z® Integrated Information Processor (zIIP)
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Realizing infrastructure improvements and savings across such complex IT infrastructure required a new approach that only DB2 10 for z/OS could provide. “We began testing the new features in DB2 10 at a granular level to see where we could improve performance and efficiency,” says Wagner. “In the process, we were able to get better visibility into CPU usage and gain functionality we never had before.”

For example, leveraging the new functionality in DB2 10 allowed GAD to perform and monitor parallel binds for the first time. Parallel binding in DB2 10 enables GAD to optimize tasks to achieve minimum elapsed time for bind processing during new or changed application rollout. “Being able to control parallel tasks at bind time is an important feature that significantly reduces downtime during our application rollouts,” says Wagner. “It gives us more throughput for the binding process.”

## Standardizing on System z speeds performance, maintenance and scalability

Considering the many critical-path databases, production systems and LPARs that make up GAD’s bank21 solution, it’s not difficult to imagine that the underlying hardware would also need to conform to the highest possible standards of security, performance and reliability to meet the company’s needs—and IBM System z delivered. “We’re now running eight z196 servers with z Integrated Information Processor (zIIP) coupling, and that gives us a real edge for simplifying maintenance and rolling out fixes,” says Wagner. “In a distributed environment, depending on the number of affected systems, database maintenance tasks can take weeks—System z allows us to maintain 170 systems in a fraction of the time.

Further advantages GAD experienced with z196 servers were faster CPUs and the ability to add more CPUs and memory on the fly, making it easier to support the company’s 45 data sharing groups. The hardware also provides essential performance and scalability to support GAD’s bank21 solution, which utilizes IBM WebSphere® software for both its web and application servers. To facilitate integration between the DB2 for z/OS data server and OO-JAVA-based bank21 application portion, the

company selected IBM WebSphere Application Server. With the new option from DB2 10 for z/OS, the customer expects opportunities for optimized price performance (e.g. using high-performance database access threads).

### **Reducing CPU usage helps keep costs flat as business grows**

DB2 10 provided improved visibility across GAD's vast assortment of existing databases, along with startling new insights into CPU usage. "We quickly realized that DB2 10 could accommodate our annual 5-to-10 percent increase in transaction volume without forcing us to increase CPU capacity, which represents an important cost savings," says Wagner. "We were pleasantly surprised by DB2 10's ability to reduce CPU usage with better memory access and shorter processor times, because that puts us in a great position to handle even greater increases in transaction volume moving forward."

### **Adopting parallel binds provides time savings of 50 percent**

By taking advantage of the features in DB2 10 new function mode, GAD was also able to accelerate its twice-yearly application rollouts by taking a new approach to the bind/rebind process for loading and unloading data. "DB2 10 enabled us to cut the time to do parallel binds by 50 percent during QPP testing, which helps us maintain 24x7 availability," says Wagner. "We saw improved availability and performance for loading and unloading data in our production system too. With the capability of DB2 10 to provide optimized parallel bind for static BINDs, the time required for application roll-out bind processing at GAD could be reduced by over 50 percent."

### **Accelerated application provisioning boosts productivity**

Among the software's many time-saving new features, DB2 10 also adds more support for DBA tasks by online schema evolution, which makes it possible to change indexes and table spaces without having to unload the

data or drop and re-create the objects. “Features like online schemas and DB2 10 compilers gave us some rapid productivity gains for provisioning applications, so that we can service the environment and deal with increased workloads without adding additional staff,” says Wagner.

In addition, new audit functionality in DB2 10 greatly simplifies the process of meeting government requirements, an important issue in the banking industry. “We have activated the audit feature on all tables on the mainframe to run special traces,” says Wagner. “So we now have greater security and peace of mind for legal compliance and reporting tasks.”

### **Engaging with IBM positions GAD to meet future business needs**

As GAD has been using IMS databases for back-end workloads through its bank21 solution, participating in the IMS 12 Quality Partnership Program gave the company an opportunity to work with the latest version of IMS ahead of its formal GA launch. “We rolled out IMS 12 in our production environment before it reached GA, and there are some interesting features which we also plan to activate in the near future,” says Wagner. “Because we’ve had such a long relationship with IBM, we know we can rely on them to give us innovative solutions. The best part is knowing that expert service and support is always there whenever our evolving business needs demand it.”

### **For more information**

Please contact your IBM representative or IBM Business Partner, or visit the following website: [ibm.com/software/systemz](http://ibm.com/software/systemz)

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