Postbank AG: Highest availability for SAP banking applications on zSeries

Deutsche Postbank AG is one of Germany's leading retail banks, with 11.5 million customers and over 20 million accounts. Giro banking, brokerage and savings are accessed via a modern multi-channel architecture, and Postbank's services are available to customers in 9,000 branches of Deutsche Post AG (the German post office) and via cash machines, the Internet and call centers. The mass of data transferred daily requires a high-performance IT system, and highly available applications. To this end, SAP and Postbank are developing a new solution for its core banking applications. The first module, Financial Services Business Partner (FSBP), has been in operation since November 2002, and the Giro module has been in regular operation since October 2003. SAP Banking Information Cockpit (BIC) and SAP Business Intelligence (BI) were put into production simultaneously.

IBM: Ideal for SAP applications

The new business processes that Postbank AG adopted when implementing SAP required the creation of a new IT environment designed specifically to support SAP applications, and to meet the high availability requirements of a bank. IBM was chosen as partner for implementation and provision of the infrastructure. The SAP solutions run on four IBM @server zSeries model 900 servers running z/OS, with IBM DB2 as database server, and eight IBM @server pSeries model 690 servers as application servers.

Complete security

To withdraw cash, transfer money and call up account statements, Postbank customers access information through over 9,000 branches and more than 2,000 proprietary cash machines. For a banking operation of this size, the requirements regarding reliability, availability and scalability of the application, and the system platform, are correspondingly high: 24/7 uninterrupted uptime, and no data loss even in case of disaster. As part of Postbank AG's development partnership with SAP, numerous system engineering optimizations and new innovations were developed with the support of the IBM labs. Implementation was carried out in collaboration with IBM Global Services and IBM Business Consulting Services.

Overview

The Challenge

High availability, transaction security and data security, even in case of disaster, on a scalable and high-performance platform for 11,5 million customers

The Solution

Industry: Financial Services
Application: Account Management with FSBP, BIC and SAP™ BI
Software: DB2®; Tivoli SA®
Hardware: IBM @server® zSeries®; IBM @server® pSeries®; IBM TotalStorage Enterprise Storage Server
Services: IBM Global Services, IBM Business Consulting Services

The Benefits

Enqueue server safeguarding, highly available transaction safeguarding; at the same time, improvement of performance, automation

IBM | SAP

Action 1: Parallel Sysplex

The high availability solution for Postbank AG was realized as a Parallel Sysplex configuration with DB2 data sharing on a zSeries basis. As a parallel database, DB2 UDB for z/OS is immune against failure of an individual system, because SAP immediately switches to another DB2 UDB for z/OS subsystem within the data sharing group (SAP sysplex failover). Data sharing additionally allows for excellent database scalability, as the database load can be distributed across parallel access systems. In case of disaster, Postbank AG also relies on the zSeries solution: the Parallel Sysplex has been extended to a Geographically Dispersed Parallel Sysplex (Geoplex), where the two logical units are set up in physically separate locations.

Action 2: Replicated Enqueue Server

The architecture inspection revealed that an important single point of failure was yet to be eliminated: SAP systems feature a special locking mechanism which synchronizes database access to prevent two transactions from altering the same data set at the same time. If this enqueue server fails, the system is temporarily affected because the current procedures are aborted - a risk that would be acceptable for less business-critical applications, but not for Postbank's SAP solution. To solve this problem, programmers at IBM and SAP jointly developed a classical availability solution, using infrastructure techniques to provide a solution for the application area – for the first time. The locking table of the enqueue server is mirrored synchronously to a second system (using the so-called Enqueue Replication Server), so that if one system fails, the second can take over the enqueue server without disruption.

Action 3: Autonomic Computing

To round off the picture, automation software was required to perform cross-system monitoring of all the software components involved, and autonomously correct errors by restarting or relocation. Here, too, Postbank chose an IBM product: Tivoli System Automation. This was developed for Parallel Sysplex and Geoplex, and also supports heterogeneous server landscapes. Sample automation rules are available for highly available SAP environments.

Action 4: IBM TotalStorage

Control of the creation of system and database backups is also fully automated, using IBM TotalStorage Enterprise Storage Server (ESS). One factor that had to be taken into account is that the system continuously mirrors all processes to parallel machines - and simultaneous mirroring and backing up are not possible. The solution to this problem: ESS FlashCopy. In certain intervals, all processes are "frozen" for a few seconds. This time window is sufficient to fully document the system's status quo without affecting operation.

First experiences

Ten Postbank SAP systems are now controlled via System Automation. Not all these systems have the same absolute high availability demands, but the autonomous control mechanisms enable excellent integration into the data center workflow and allow the SAP systems to be managed by the controller.

> *"Together with IBM we have developed an unrivalled high availability scenario for our SAP solution. At the same time we have enabled economic operation of our IT landscape. SAP and IBM have understood our strategic requirements."*
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> Dr. Thomas Mangel, CTO Postbank Systems AG (Bonn, Januar 2004).

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