

# Two Large German Banks Merge: Time Machine® Meets Challenges & Needs in Major Migration & Consolidation Project

*Time Machine allowed 500 systems across complex Window/Linux/Unix platforms with n-tiers architecture and 1,600 banking applications to be fully tested within an 18-month deadline for the mission critical integration of two banks!*

## About the Customer

The newly combined entity is the leading bank for private and corporate clients in Germany. With the segments Private Clients, Mittelstandsbank, Corporates & Markets, Central & Eastern Europe as well as Asset Based Finance, the bank offers its customers an attractive product portfolio and is a strong partner for the export-oriented SME sector in Germany and worldwide. With the merging of the two banks in 2009, they now have a total of some 1,200 branches, resulting in the densest network of branches among all private German banks. It has above 60 sites in more than 50 countries and serves approximately 14 million private clients as well as one million business and corporate clients.

## Technical Challenges

After the two large German banks merged, one of the primary goals was to consolidate the combined servers and applications. This meant the two previously separate banks would have to merge, migrate and consolidate over 1,600 applications from the combined banking systems. Adding to the complexity of their situation is they run more than ten different operating system versions and, additionally, they use Microsoft's Active Directory (AD) for LDAP directory services, single sign-on, and domain authentication across many of their systems, the latter of which further complicates date and time testing. Their goal to complete this project was set at eighteen months!

One of the requirements for merging the two financial institutions was that their IT processes must be able to handle numerous date and time events. As with any banking organization, the applications running at both entities process a vast number of temporal events daily, weekly, monthly etc. These range from loan maturity dates, monthly billings, and interest calculations and on and on. Therefore, testing of all date and time logic across the breadth of their applications was clearly necessary to verify the migration and integration of the software services from the merger of the two banks.

In general, running date, time, time-zone and duration-triggered event tests can be complicated at best due to difficulties that arise from changing the system time, such as database reloads, backup problems, file time stamps issues and more. Adding Active Directory in fact

eliminates the ability to do any forward date testing as AD's explicit use of Kerberos for domain authentication requires that every machine in the network has its system time no more than five minutes offset from the Domain Controller's (DC) time. Simply put, if the system time difference between any machine and the DC is more than five minutes, that machine is locked out of the network.

Some of the specific obstacles needing to be addressed by a solution for the customers testing:

- Requirement to test all core applications which run on multiple OS platforms
- Need for software testing solution that allows "time travel" without changing the system time
- Managing the changes to future dates across hundreds of servers
- The solution must be able to provide virtual clocks within an Active Directory environment
- Need flexibility in the licensing model across all platforms

One quote from the customer summed all this succinctly: "What we need for some upcoming tests is some software that allows us to 'time travel' without changing the system time."

## Time Machine Solution

The customer presented the date and time testing challenge to their onsite consultancy firm. As it turned out, this group has had many successful experiences using Time Machine with other migration projects around the globe and recommend Time Machine as a solution. After a very largescale proof of concept evaluation, Time Machine was chosen.

## Implementation

SolutionSoft Systems' Time Machine provided the now combined large banking organization an easy process for integrating all data, applications, and servers.

In late December 2009, the Bank agreed to the solution suggested by their consultant and purchased Time Machine for all their UNIX, Linux, and Windows testing platforms, more than 1,184 servers.

The project was streamlined through the use of Time Machine, decreasing valuable time and increasing productivity in the application testing process of the integration. As the software allows running simultaneous Time & Date testing scenarios, the customer immediately saw an overall cost savings on manpower, hardware and software costs.

Incorporating Time Machine into their test strategy, they were able to:

- Meet all project requirements to test core applications running on multiple platforms
- Time travel all applications to any and all required future dates
- Streamline their testing process and duration

## About Solution-Soft

Solution-Soft is the leading provider of Intelligent Data Optimization (IDO) solutions, which address the urgent need for management of business-critical applications and data.

The flag-ship Time Machine product is a proven solution for enterprises to ensure mission critical applications are delivered on time and within budget. Solution-Soft works closely with consultant and strategic partners around the world in all industries to achieve clients' business objectives with ultimate ROI.

Founded in 1993, Solution-Soft is privately held and based in Silicon Valley, CA, USA.

## Contact

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## Customization Required for the Implementation

### RPC control of Solaris Virtual Zones

At the request of the client, Solution-Soft provided an extended mechanism to allow the control of virtual times and dates within and local to a specific Solaris Local Zone. Previously all virtual clocks were global across all Solaris zones and controlled from the master zone. This was due to the shared kernel architecture that is fundamental to the design of Solaris Zones. Solaris Local Zones are a type of server virtualization from SUN Microsystems.

### Global Time Management

The customer had a further request that managing the changes to virtual clocks across many machines should be an easy and secure process and would apply the changes simultaneously on how ever many machines were specified. Solution-Soft provided a SSH layer process to allow this. This gave the bank the ability to control the virtual date across many machines from a single console.

### Conclusion

SolutionSoft System's Time Machine provided the now combined large banking organization an easy process for integrating all data, applications, and servers. The bank utilized Time Machine across all their UNIX, Linux, & Windows testing platforms with more than 1,184 servers. As a result, the 1,600 applications were tested successfully and the project was finished within the 18 month deadline.