Solution-Soft

TIME MACHINE: SIMULATING TIME FOR CRITICAL APPLICATION TESTING

INTRODUCTION

20,000 virtual clocks
24 time zones
1 server

Time Machine:
Virtual clock testing tool for application testing

Core Benefits

• *Save Hardware & Software costs*

• *Boost Deployment Productivity*

• *Mitigate Risks from Mission Critical Application Failures*

• *Ensure Large Scale Deployments*

• *Finish On Time and Under Budget*

Many industries have business processes triggered by time-based events. Whether you're testing settlement dates, billing cycles or payment schedules; time shift testing is an integral part of a tester's toolkit when it comes to ensuring optimal test coverage.

Rigorous and moreover reproducible application testing is the cornerstone for any test strategy in order to verify and validate that the system will operate the way it has been designed and, ultimately, requested by the business. Many companies struggle with enabling their applications and test environments to allow test engineers to easily update the testing date. Consequently, they cannot be certain if their test coverage truly encompasses all critical scenarios.

As a result, the test engineers frequently lack sufficient resources to complete comprehensive testing: from a test environment and a test data point of view. The commonly used method of waiting for a time trigger to occur (e.g. month-end cycle, end-of-day processing, etc.) is often not a practical way to test given the ever increasing demands of time-to-market conflicting with the desired full scope of time/date related test processes. A thorough software test process needs to involve running the applications with actual data in their target environment, executing the applications through an extensive range of past, present and future dates and letting the test engineer and business users scrutinize the results for any functional inconsistencies. All of your existing programs and system functions should be tested in a current date/time environment while you test the future viability of the new programs in the same environment; interacting with all interfaces in an end-to-end test scenario.

TIME MACHINE VIRTUAL CLOCK SOLUTION

Time Machine is a unique date and time simulation software testing tool that speeds application testing and deployment. It is designed to facilitate testing and simulation of specified system dates and times without modifying or resetting the system clock which is time consuming, error prone and not possible within an Active Directory or Kerberos secured environment.

Time Machine allows defined user, groups and processes to run under any future date, past date or time zone desired while the underlying system time remains unchanged. With thousands of customers spanning several decades, Time Machine has proven itself to be a powerful solution for performing critical application testing.

With Time Machine, you can also define the virtual clock speed to accelerate or decelerate the pace of testing. Once set, a 'virtual' date and time is provided whenever the user or application calls the system for date or time. Time Machine does not require any program or back-end database modifications.

TESTING CHALLENGES BY INDUSTRY

Financial / Banking

Today's top financial and banking organizations are continuously deploying, upgrading or modifying their key financial applications which all need critical date-based testing to guarantee proper operation including date-triggered events. Without proper month-end and year-end testing (e.g. generation of customer statements, debt management systems, functional controls and other banking applications) they could incur grave financial consequences.

Public Sector

Government agencies such as taxation, human services and education, for example that provide services to distribute benefits such as child support, unemployment and social security or have ERP or financial aid systems where they must perform testing of time triggered processes need to perform testing using specific dates. The critical nature of these processes is self-evident, so test engineers must expend tremendous time and energy planning and coordination efforts to ensure that their test scenarios are scheduled properly to account for these cycles.

Utilities

Today all top level Telecom and Public Utilities sector players must test their core systems (ERP, CRM, etc.) to ensure time triggered events work properly (processing of billing cycles, with frequent tariff changes and product (un-)bundling scenarios).
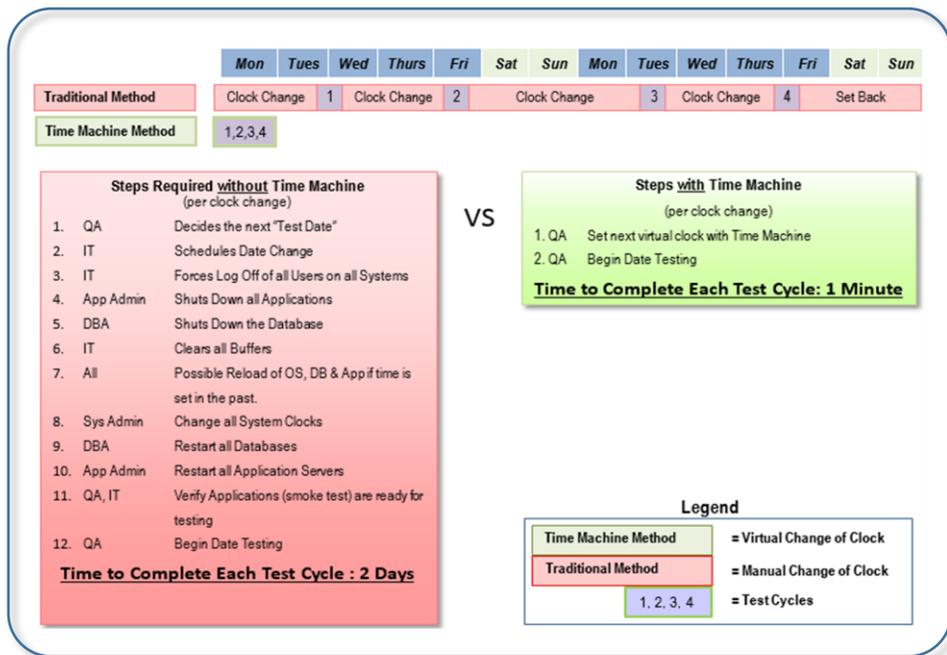
ACTUAL CUSTOMER TEST RESULTS

Case 1

SAP Testing Results for a Major Australian Telco

This client's final results showed the traditional method without using Time Machine took over 2 weeks to complete a single SAP regression test cycle. Using Time Machine the entire process was automated and they were able to complete it in just one day which allowed them to complete their regression testing on time, under budget, and without requiring any additional testing environments.

Although this is an SAP example, the process steps are the same for most mission critical systems where temporal testing is regularly performed.

Case 2

Infrastructure Consolidation & Migration Testing for 2 of the largest German Banks

After the merger of two of the largest German banks, their application test teams determined that Time Machine was the only effective solution that allowed them to fully test the merging, migration, & integration of their environment.

- 1,600+ applications
- 500+ Unix, Linux & Windows servers
- n-tier architecture
- 18-month deadline

Why is using Time Machine better than resetting your system clock?

Problems Resolved by Time Machine

- **Makes Files Unusable:** Files with the wrong time-stamp may develop in your production or development environment, rendering them unusable to many applications

- **Causes System Access Problems:** Forgetting to reset the system clock on a system when a test run is completed could result in other users being unable to log on to the computer.

- **Requires a System Reload:** After each clock change to your system, database and test environments may require reloading. This process can add days to your project.

- **Requires All Users to Log-off:** Resetting the system clock may require that you force a log-off of all users using the system.

- **Invalid Clocks = System Problems:** Production systems will not run correctly on machines with an invalid system clock setting.

- **Impacts All Development & Testing Projects:** Any long-term development and testing projects are impacted by manually changing your system clocks.

- **Software Licenses Expire:** Demo, rental, and leased software will immediately expire!

- **Problems with System Logging & Recoveries:** Logging and recovery may not function correctly.

- **Backups Fail:** Backups could miss crucial files.

Features & Benefits of Time Machine

- **20,000 Virtual Clocks:** Offers up to 20,000 simultaneous programmable virtual clocks to support a variety of applications and user/group requirements.

- **Travel to Past, Future, running or frozen clock:** Virtual clocks can be set to the past or future, running or frozen in time, and specified by absolute or relative values.

- **Variable Speed Clock:** Using the Variable Speed Clock function, applications can run up to 1000 times faster or slower than real time.

- **One System can perform multiple simultaneous tests:** Concurrent testing of multiple virtual clocks enable one test environment to become multiple test environments.

- **Save Costs:** Save hardware and software costs

- **Boost Productivity:** Boost engineering team productivity.

- **Mitigate Failures:** Mitigate risks for mission-critical application failures.

- **Successful Deployments:** Ensure large scale software projects finish on time and under budget.

- **Unique Solution:** A sole solution for Active Directory or Kerberos date based testing.

- **Save Time & Resources:** Saves valuable time & resources for especially complex ERP or CRM application deployments such as SAP R/3, Oracle Financials, Siebel, PeopleSoft, Tibco, etc.

SolutionSoft Systems, Inc.
2350 Mission College Blvd.
Suite #777
Santa Clara, CA 95054
U.S.A.

Toll Free: 1.888.884.7337
Phone: 1.408.346.1400
Fax: 1.408.346.1499

www.solution-soft.com