

A Game Changer - Time Machine® makes it Possible for Alstom to Time Travel for SNCF ICONIS' Critical Testing Cycles to Ensure the Real Time Train Tracking System is Error Free

Quote

“Because of Time Machine, we have the guarantee that all enhancements and bug fixes actually fix any issues that we’ve discovered. With Time Machine integrated with our regression test, we can ensure our application’s functionalities match the specification alone with the software life cycle.”

*David Jemmi,
ATS Architect at Alstom*

About Alstom

Alstom Group in France develops and markets a complete range of systems, equipment, and services in the railway industry. It is one of the world's largest manufacturers of high-speed trains, tramways and metros, electrical and diesel trains, information systems, traction systems, power supply systems, and track work. The company also operates in the rail infrastructure market, designing, producing, and installing infrastructure for the rail network. These include information, electrification, communication systems, track laying, station utilities, as well as workshops and depots. Alstom Transport operates in 70 countries and employs 26,000 people.

About SNCF

The Société nationale des chemins de fer français abbreviated as SNCF, French for "French National Railway Company" is France's national state-owned railway company. Founded in 1938, it operates the country's national rail traffic along with Monaco, including the TGV, on France's high-speed rail network. Its functions include operation of railway services for passengers and freight, as well as maintenance and signalling of rail infrastructure. About 14,000 trains are operated daily. In 2010 the SNCF was ranked 22nd in France and 214th globally on the Fortune Global 500 list. It is the main business of the SNCF Group, which in 2020 had €30 billion of sales in 120 countries. The SNCF Group employs more than 275,000 employees in France and around the world.

Project & Challenge

Alstom was contracted by SNCF to deploy one of Alstom's popular railway traffic management applications, ICONIS, which tracks train locations in real time and detects /reports on potential conflicts.

ICONIS is a real time system and each day it applies the rules via algorithms to generate new data, such as data for trains on the tracks, the topology of the system, etc.. Although each day's data is quite similar to the day before, it is impossible to be sure that same rules will be applied with today's data, and the system may or may not behave the same way with each day's data.

About Solution-Soft

Solution-Soft is the leader in virtual clock, time shift testing software solutions for the ever-changing digital world. Our market proving product Time Machine is widely utilized by Global 2000 companies since 1997. Customers are across market sectors including 3M, AMEX, Australia Tax Office, BBC, Boeing, British Gas, Covered CA, Discover, Fed Ex, Federal Reserve Bank, Orange, NAB, SNCF, and Zurich Insurance.

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

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This also mean if testing discovers issues with today's real time data and development team come up with fixes two month later. There is no way to confirm if the fixes actually fix the bugs with data after two months even if they could be quite similar!

Changing the system clocks is also impossible. The ICONIS system is deployed on several servers, so it's very problematic to touch all the servers, but also, it was forbidden by the client, SNCF.

The Time Machine Solution

For testing, Alstom regularly creates reference data by using one days' recorded data from multiple sources and creates a "global" reference database with timestamps for each data points. They then run their tests with this reference database on a target date with Time Machine to time travel to the match target date.

This way, Alstom can ensure the system would behave exactly the same way on that target day when the fixes come back two months later! Time Machine enabled the team to reproduce the same test cases, by time traveling the live application and other modules today, with target yesterdays' reference data, and all without any impact whatsoever to the live system! Without Time Machine, this would be impossible to achieve!

Time Machine Sync Server enables multiple systems and critical components within ICONIS real time system to time travel together to the target date. Sync Server's URL API further empowers test automation for both none-regression and regression tests. The efficient boost to test team and infrastructure team are tremendous! "Because of Time Machine, we have the guarantee that all enhancements and bug fixes actually fix any issues that we're discovered. With Time Machine integrated with our regression test, we can ensure our application's functionalities match the specification alone with the software life cycle." Said David Jemmi, ATS Architect at Alstom