SUCCESS STORY

Thales Alenia Space Finds Secure and Cost-Effective Solution in CHARON-SSP

The Challenge

Thales Alenia Space was running a SPARC Sun Fire 480R with two network boards and 4 GB of RAM on Solaris 5.8. They were using the system to support their final customer, the Centre National des Etudes Spatiales (CNES), the French space agency much like NASA. The SPARC was used by Thales Alenia Space to process data from IASI interferometer (see https://iasi.cnes.fr/en/IASI/index.htm) when it was assembled, integrated, and tested before its long journey in space. However, Thales Alenia Space also has 1) to ensure that these processings can be applied to data from the orbiting interferometer during the whole IASI life, which is around 20 years, and 2) to compare the resulting computations to those obtained when IASI was on earth. Since it is risky and costly to maintain computers for decades, Thales Alenia Space envisaged to virtualize the SPARC but only if strong performance requirements are met, both in terms of speed and floating point precision. As the hardware aged, Thales Alenia Space knew they needed to do something to protect and extend the life of their applications. Each application on the SPARC system was tested, certified, and already in use with other satellites. Adopting an entirely new solution would require rewriting, retesting, and recertifying the applications, which for many organizations is prohibitively time-consuming and expensive.

The Solution

After rejecting the idea of a full migration, Thales Alenia Space considered an open source solution—but the team had real concerns about the quality of the support as well as the performance levels of this type of solution, which were unlikely to match the original hardware. Then they learned about CHARON-SSP.

There were many factors that led Thales Alenia Space to choose CHARON-SSP. For one thing, it was an established solution they could implement and use now, instead of having to wait for a new solution to be written, tested and certified. CHARON-SSP would require a minimal amount of time for implementation, including migration and tests. Performance with CHARON-SSP matched the expectation of the Thales Alenia Space team, and it had X11 capabilities as well as floating point precision, both of which were very important to Thales Alenia Space.

“My concern was to maintain our old software for 20 more years,” said Lionel Daniel, design authority of image acquisition and processing test bench at Thales Alenia Space, “and I think that running CHARON-SSP inside of a VirtualBox is the simplest, most lasting, and most cost-effective solution.” With CHARON-SSP, there would be zero downtime due to hardware failure. “CHARON-SSP eliminated my fear of a hardware crash,” Mr. Daniel stated later, once the new solution had been implemented. “Now, if the computer running CHARON-SSP crashes, all we have to do is to start another computer, install VirtualBox, and import and run the virtual machine containing CHARON-SSP.”

The learning curve for the employees working with the SPARC system was minimal, as the application would not be modified and engineers would be able to interact with it just as they had before. Mr. Daniel explained, “The transition from hardware to software was quite smooth, both in terms of user experience and in terms of mathematical computations.” Another strong case for CHARON-SSP was the availability of 24/7 support through Stromasys, which could be provided in the local language.

ThalesAlenia Space
A Thales / Finmeccanica Company

CUSTOMER PROFILE

Thales Alenia Space, a joint venture between Thales (67%) and Finmeccanica (33%), is a key European player in space telecommunications, navigation, Earth observation, exploration and orbital infrastructures. Thales Alenia Space and Telespazio form the two parent company “Space Alliance,” which offers a complete range of services and solutions. Because of its unrivaled expertise in dual (civil/military) missions, constellations, flexible payloads, altimetry, meteorology and high-resolution optical and radar instruments, Thales Alenia Space is the natural partner to countries that want to expand their space program. The company posted consolidated revenues of 2.1 billion euros in 2015, and has 7,500 employees in eight countries.

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The Result

Thales Alenia Space installed CHARON-SSP/4U over an Oracle Virtual Box. The implementation was completed in just a matter days, which included the CHARON-SSP installation, migration, X11 and network settings, as well as a full test of the system. After the installation was completed, Stromasys provided remote support to make a few final adjustments, as needed. "They are a skilled team that really takes care of our concerns," said Mr. Daniel. "Working with the CHARON-SSP engineer was a pleasure."

With CHARON-SSP, Thales Alenia Space found a high-quality and cost-effective solution that would enable them to support CNES, and CNES will be able to continue their important research, unimpeded by aging hardware. In the words of Mr. Daniel, "CHARON-SSP is clearly a great replacement for our aging SPARC workstations."

About Stromasys

Stromasys is the original and leading provider of enterprise-class cross-platform virtualization solutions, including PDP-11, Digital VAX and Alpha, HP 3000, and SPARC servers. The company extends the life cycle of business and mission-critical systems through virtualization, modernization, and system enhancement.

Founded in 1998 and headquartered in Geneva, Switzerland, and in Boston, Massachusetts, with sales offices as well as engineering, development, and research labs located around the world, Stromasys has implemented more than 5,000 cross-platform virtualization solutions for the world's leading companies in over 50 countries.

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> **Lionel Daniel,**
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> Design Authority,
> Thales Alenia Space