



Industry
Aerospace

Objective
Create a dynamic system with a single control point for faster deployment of new, innovative services and resources

Approach
Implement an experimental platform needed to run and demonstrate proof of concepts in several domains and with different IT infrastructure needs

- IT matters**
- Provides a reliable, flexible, future-ready infrastructure that can easily handle massive data and processing and storage
 - Delivers a dynamic solution with simple management from a single control point

- Business matters**
- Allows ALTEC to provide an IT infrastructure to its clients and partners that can meet their technical goals while supporting business development
 - Offers the ability to easily analyze, evaluate, and test new technologies and platforms, and make modifications in real time
 - Enables ALTEC to respond to new business opportunities immediately instead of days

ALTEC launches a new business model for the future

HPE Synergy delivers a flexible, scalable foundation to respond quickly to new projects and opportunities



Founded in 2003, the Aerospace Logistics Technology Engineering Company (ALTEC) is the Italian center providing engineering and logistics services to support International Space Station operations, along with the development and implementation of future planetary exploration missions. In an industry

that relies on collection and processing of massive amounts of critical data, ALTEC needed to implement a dynamic infrastructure solution with a single software-defined data center (SDDC) control point to handle current and future innovative application services and automation.



“With the composable conceptualization, we can shut down specific services when they’re not in use, and use the same hardware to run services that are immediately needed. And if we need to scale up our existing environment, we simply increase the number of nodes that require more resources.”

– Rosario Messineo, Head of Ground Segment Engineering, ALTEC

HPE Synergy enabled ALTEC to deploy new, innovative services and resources faster and rapidly respond to new business opportunities.



Challenge

Aerospace Logistics Technology Engineering Company (ALTEC), based in Turin, Italy, is dedicated to the provisioning of engineering and logistics services to support the Italian and European contributions to the International Space Station (ISS). ALTEC is part of the ISS ground segment involving NASA, the European Space Agency (ESA), the Canadian Space Agency (CSA), the Japan Aerospace Exploration Agency (JAXA), and the Russian Space Agency (RSA).

“We are responsible for managing real-time telemetry and videos, voice communications, and tools that support daily operation of the International Space Station,” explained Michele Martino, Head of Engineering and Deputy Operations and Program Directorate at ALTEC. “This requires an extremely secure, efficient, ethically used infrastructure that is interconnected with the ISS ground segment, and also conforms to specific security and operational requirements.”

ALTEC is also responsible for the ExoMars 2020 Rover Operations Control Center (ROCC), which is responsible for managing the daily operations of the first European Rover on the Mars surface.

Additionally, ALTEC is one of six data processing centers at the Data Processing Center Turin (DPCT) for the Gaia mission. It is an ESA space astrometry mission that aims to create an extremely precise three-dimensional map of approximately one billion stars throughout the galaxy and beyond.

ALTEC is also a partner on the Space Rider mission—the first European orbital spaceplane designed for affordable and repeatable access to space.

The company recently shifted its business model from product-based to

solution-based—a shift that required the implementation of a new, more flexible infrastructure that could handle the enormous data storage and processing required by its agency partners and customers.

As an example, for the Gaia mission, ALTEC has more than 600-core for data processing and approximately 1.5 petabytes of data storage. The Gaia mission is considered the first scientific mission for Big Data, and for ALTEC, it represents a significant opportunity to learn about Big Data technologies, data analytics, data storage, and management of very large databases.

“Our challenge is that we needed a system with high availability, and yet require minimal effort for maintenance and monitoring, so automation is key,” said Michele Martino. “Data preservation is also vital—we always need the ability to access data and information.”

Solution

In order to find a platform that could meet their requirements, ALTEC searched for a solution that would allow them to provide the level of services their clients demanded.

“We had a number of research and development projects that helped us learn more about services like real-time data management and offline data processing, for example,” said Martino. “That’s when we looked into cloud technology to provide new ways of developing applications and move from a property infrastructure to service provisioning. That’s why we took time to analyze, evaluate, and test new technologies and platforms.”

“In addition,” he continues, “there was a change in the market. Our customers were asking for specific services, so we changed our business model to develop and provide software and services. We needed a new, robust, and

“HPE Synergy helped us transform from our old business model to a full cloud service provider business model in order to fulfill our customer requests.”

– Michele Martino, Head of Engineering and Deputy Operations and Program Directorate, ALTEC

Customer at a glance

Solution

- HPE Synergy allows ALTEC to prepare, update, and use server configurations to deploy services 3X faster than the previous solution.

Software

- HPE Synergy 480 Gen10 Compute Modules with Intel Xeon processors
- HPE ProLiant DL3xx and DL3xx servers
- HPE 3PAR StoreServ 7400
- HPE 3PAR StoreServ 8400
- HPE MSA P2000 G3 Modular Smart Array System
- HPE StoreOnce 6600 System
- HPE StoreEver ESL G3 Tape Library

future-ready platform that could help us meet these customer requests. HPE Synergy helped us transform from our old business model to a full cloud service provider business model in order to fulfill our customer requests.”

ALTEC’s infrastructure solution consisted of server, storage, and networking, with HPE Synergy, powered by Intel® Xeon® processors, as the control point for fluid resource deployment.

The solution, running with two HPE Synergy Image Streamers, included three frames, 18 compute modules, three storage modules, and two composers.

It was delivered, installed, configured, and deployed by HPE technicians with the support and collaboration of ALTEC’s IT team. The IT staff was trained during the setup process, which allowed them to become operational almost instantly.

Benefits

With HPE Synergy composable infrastructure in place, ALTEC is now able to perform a variety of different activities and projects simultaneously. The HPE Synergy solution also allows them to automate the deployment of applications and make adjustments in real time.

Two of the most important projects the company recently implemented are related to the development of data processing systems. The projects support monitoring of the territory (based on utilization of low-cost, airborne sensors suites, integrating satellite, and ground-based measurements) and of space weather forecast of solar coronal mass

ejection (based on observations received from different satellites). The ongoing projects require the ability to acquire and process an enormous amount of data and make the necessary modifications to keep the project on task.

“Basically, HPE Synergy enables us and our customers to make very fluid decisions,” said Rosario Messineo. “It’s very easy for us to have five different environments—container orchestration cluster, Big Data cluster, cloud open source software, virtualization cluster, and object storage cluster—to serve our client needs without spending time and money for provisioning services, storage solutions, and so on.”

The solution also provides the flexibility they need to quickly respond to customer needs.

“With the composable conceptualization,” explained Messineo, “we can shut down specific services when they’re not in use, and use the same hardware to run services that are immediately needed. And if we need to scale up our existing environment, we simply increase the number of nodes that require more resources.”

ALTEC continues to be satisfied with the quality, reliability, and high availability of their HPE Synergy solution, which has been running without blocking issues.

“Thanks to the HPE Synergy platform, we have been able to fully and quickly respond to customer opportunities and that sets us up well for the future.”

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