# InfiniFlash™ Platform Successfully Addresses Telespazio VEGA's Satellite Simulation Challenges

## Solution Focus

• Storage for virtualized environment

## Challenge

• Performance issues, limited scalability, and aging storage technology

## Solution

• InfiniFlash IF150

## Key Results

• Performance increase delivers faster access to data

• Enhanced internal IT operations

• Optimized storage capacity through scale-out functions

• Data center space savings

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*"When we were introduced to InfiniFlash, we were excited to hear that we could get the performance we needed without the economic worries."*

**Christian Schmidt**
**Head of ICT at Telespazio VEGA**

## Summary

When Germany's Telespazio VEGA Deutschland, a leading consulting, technology and engineering services business, sought a solution to upgrade its storage system, their highest priorities were performance and cost. They needed a solution that would work within a large virtualized environment, was scalable to support their growing storage needs, and most importantly, one that offered high performance, but low cost. With the help of ISV partner, Nexenta®, and IT partner, OV-IT GmbH – a distributor of high quality IT products and solutions – the InfiniFlash™ 150 platform was deployed at Telespazio VEGA. The company is now enjoying significantly improved performance, scalability and a smaller data center footprint, all at a cost they didn't think was possible.

## Background

Located in Darmstadt, Germany, Telespazio VEGA is a 350-person subsidiary of Telespazio S.p.A, headquartered in Rome, Italy. The company has a long heritage in the area of aerospace systems and operations, engineering services, consulting and technology, and offers a broad portfolio of products and services. With 80% of its revenue coming from its space business, Telespazio VEGA primarily works with institutional clients such as the European Space Agency, the European Meteorological Organization, the German Aerospace Center and the European Astronaut Centre.

With deep expertise in developing and maintaining simulators, mission control systems, mission planning systems, robotics and automation in space, and future frameworks for space, Telespazio VEGA is the prime contractor for the European Space Agency, working to develop an infrastructure for all satellite mission control systems. Telespazio VEGA develops and supports customers like the German Air Traffic Control with software development

and maintenance. They also have a long-standing collaborative relationship with Germany's military aviation sector, developing helicopter simulators used primarily for cockpit procedures and maintenance training.

Alexandra Sokolowski, Marketing and Communication Manager for Telespazio VEGA Deutschland, recognizes the requirements and demands of the technology that supports the kind of high-performance environment found at Telespazio VEGA. "In space you usually have only one chance to get it right," said Sokolowski. "So, before a button is pressed, we need to be very, very thorough in everything we do. We are very precise and very time-conscious. It's critical that we make good decisions and quick decisions."

## Terrestrial challenges to satellite simulations

According to Christian Schmidt, the Head of ICT at Telespazio VEGA, one recent example of challenges that can hinder making those quick decisions, happened while working on a project for European satellite navigation, called the Galileo project. "The simulators have to work in real time, and that's where we had an issue. The Galileo project, when completed and live, will support 30 satellites flying around the Earth, and we needed to be able to simulate all possible actions and options that might take place."

Schmidt and Sokolowski explained that Telespazio VEGA was tasked with developing and maintaining the Galileo constellation simulator so that it simulates each and every individual satellite in orbit. To make things even more challenging, not every satellite was built by the same manufacturer. "On top of that," said Sokolowski, "the satellites are inter-dependent, so the simulator needs to produce not only data for one satellite but for several, and to be able to predict, for example, the availability of navigation data coverage and the validity of the data. So what happens if one

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satellite has a malfunction? How does this affect the constellation? How does it affect the users on earth? And how long will it take, for example, to recover it and what can we do in between?"

Telespazio VEGA's constellation simulator tests these different scenarios, and the tests need to achieve very high performance. The more simulators, the more complex the process becomes. At present, there are 18 simulators. By the end of the project, there will be 30 simulators. Obviously, the need to avoid bottlenecks in the system is of utmost importance.

### The Introduction of the InfiniFlash Platform

Schmidt knew that his group needed to find a solution that would offer better, higher performance than the existing system but at a cost that wouldn't break their budget. "We have a large, virtualized environment. All simulators are virtualized and running on VMware®, and they are really read/write intensive; there is a huge amount of IO intensive data being produced – millions and millions of files. This was where we had been facing issues with the existing storage system. The read/write and IO capacity of the existing system couldn't cope with the requests that were coming in.

"We were aware of the development of flash over recent years, but because we thought the cost would be enormously high, it never entered our minds to go in that direction," said Schmidt. "When we were introduced to InfiniFlash, we were excited to hear that we could get the performance we needed and stay in budget."

When it came time for Telespazio VEGA ICT to replace their SAN, they first asked to do a Proof of Concept (POC) with the InfiniFlash platform. "There was still a bit of skepticism there… I wasn't going to invest 100K in a technology I couldn't test out in my own environment," said Schmidt. "We got really great support from SanDisk to help us with the POC. Ultimately, we found out, first hand, that the performance numbers and the economic numbers were exactly what we had been promised and that it was an ideal solution for us. So we said, 'okay, let's go for it.'"

### Convincing Project Teams with Impressive Results

During the POC test phase, the InfiniFlash platform was used by several Telespazio VEGA project teams and was tested by the ICT group itself. All tests produced very good results. In fact, due to the positive test results and the high demand from the project teams, an IF150 80TB* was implemented in October of 2016, ahead of the original schedule. "All of the project teams raved about how well InfiniFlash performed and said that it was exactly what they needed to improve their daily work. I am told by the various teams that by using InfiniFlash, performance has increased tenfold. Today, we are no longer facing the IO problems we experienced before. We're extremely pleased with the significant improvement in performance for our teams."

One peripheral benefit of deploying InfiniFlash at Telespazio VEGA is that, by using the latest, most innovative technology, the organization stays ahead of their competition in the aerospace industry. Being recognized as a group that offers cutting-edge solutions is good for business and also a strong recruiting tool for the best developers who want to work with the most innovative systems. "Making sure that our developers feel good about what they do and being able to offer them the best working environment is a big plus for Telespazio VEGA as an international employer," said Sokolowski. "We have employees from more than 27 different countries in our company. The city of Darmstadt is not the biggest place in the world, so we want to make the workplace really attractive for them, both from the standpoint of social environment, and also as a working environment."

### InfiniFlash: The Significant Impact of Cost Efficiency and Performance

Telespazio VEGA claims that with InfiniFlash they now have much faster access to stored data which enhances their internal IT operations, optimizes their storage capacity through scale-out functions, and provides a noticeable space savings in their data center. Schmidt and his team could not be more satisfied with the benefits they are receiving from the InfiniFlash system: "It's not only the cost savings, but also it's great to have this system on site, the one point which matters. Now our storage solution is easily expandable so that if we need to increase our storage capacity in the future, we can easily do so. Presently we're using only 80 or 90 terabytes but when the time comes, we know that we will be able to expand up to half a petabyte and still get the same great results."