

# MAGSEIS FAIRFIELD USES A SEA OF DATA TO SUPPORT ENVIRONMENTALLY RESPONSIBLE ENERGY EXPLORATION

Using Panasas ActiveStor®, the Norway-based Company Delivers Precision Seismic Data Services to Clients Around the World

## SUMMARY

### CUSTOMER

Magseis Fairfield

### SIZE

520 employees worldwide

### LOCATION

Oslo, Norway

### INDUSTRY

Energy

### CHALLENGE

- Provide high-precision reservoir images that help clients reduce risk and increase operational efficiency
- Collect and store huge, growing volumes of seismic data
- Manage reliable, rugged storage that supports the creation of sophisticated marine surveys

### SOLUTION

- Scales to meet growing data volumes, with multiple generations of technology working together
- Extends use of shipboard storage technologies to nontechnical geoscientists
- Achieves consistent high performance regardless of applications, workloads, or number of users

### RESULTS

- Easily increases data storage from 250TB to 1600TB and beyond
- Expands ability for scientists to maintain storage solutions
- Improves productivity by minimizing system downtime, thanks to the solution's exceptional reliability and 24x7 Panasas support
- Enhances reliability of data access and timely delivery of analysis to clients



“Even when we bring on additional data, Panasas still performs exactly as we would expect. We can count on the solution to handle everything we can throw at it. That helps us meet our deadlines and ensure that clients get the information they need.”

Janie Garcia

Manager of Onboard Processing  
Magseis Fairfield

Energy companies are under tremendous pressure to safely and cost-effectively extract oil and gas from undersea reservoirs. To better understand where and when they should drill, these firms rely on seismic surveys to provide complex decision support information.

Magseis Fairfield is a geophysics firm that specializes in providing seismic 3D and 4D data acquisition services to exploration and production (E&P) companies. Using advanced ocean-bottom node (OBN) technology, the services enable the high-resolution imaging of geologic structures and reservoir data. With this data, energy

companies can evaluate future opportunities and improve current reservoir development, maximizing the value of their multimillion-dollar E&P projects.

The company's Marine Autonomous Seismic System (MASS) and a range of Z technology — combined with automated handling, deployment, and retrieval systems — allow Magseis Fairfield to offer clients safe, efficient acquisition of high-quality 4D data.

Magseis Fairfield has extensive experience in seismic acquisition, from traditional ocean-bottom cable systems to their groundbreaking Z node design. With the recording system, battery, and sensors encapsulated into one unit, truly removing the requirement of cable systems, they revolutionized the industry. Their patented node design has been the keystone of seismic acquisition projects since 2007. They have over 30 deep water acquisition projects in the Gulf of Mexico alone. Branching out in 2009 to the Red Sea, North Sea, West Africa, Caribbean, and South America, they have expanded their node system technology to transition zone, shallow water, and permanent monitoring systems. These designs have been used across the globe by various companies, each recognizing the benefits of this outstanding technology.

The traditional seismic acquisition relies on at least two seismic vessels: a shooting vessel and a recording vessel or node vessel. The shooting vessel releases high-energy sound waves into the water column, radiating down through the subsurface layers. Akin to a radar, the reflection of these sound waves is used to create an image of the subsurface. The recording vessel, in this case a node vessel, deploys node units to the sea floor to record the feedback reflections of those sound waves from the subsurface layers. With the combination of the two vessels, the recorded seismic data provides an image of the subsurface geologic formations and characterizes the subtle changes in active recovery reservoirs. Because node systems can be deployed in almost any survey design and record data for up to 160 days, ultra-long offset, full-azimuth surveys are easily within reach.

These survey designs allow for unparalleled imaging and opportunities for hydrocarbon discovery. With increasing concerns about the conditions of ocean life and the effect of seismic acquisition on reefs or other benthic communities, the cable-less nodes have significantly reduced the deployment artifact. Node units are less than a meter in diameter and, by removing the dragging of heavy optical cables on the sea floor, they have decreased the risk of damage to existing systems.

Yet increasing regulatory, shareholder, and environmental demands on energy companies are intensifying the challenges of data collection and storage. Clients need detailed, high-quality information to create more accurate reservoir models, which helps them reduce the risk of drilling errors, avoid unnecessary disruption of natural sites, and streamline resource extraction.

“Marine surveys are changing, covering wider geographic areas and acquiring much larger data volumes offshore,” says Janie Garcia, manager of onboard processing at Magseis Fairfield. “Our data storage for offshore projects has grown from 250TB per vessel to as much as 600TB. This data is critical for our clients, so we cannot afford failure of any type when it comes to storage.”

### RUGGED TECHNOLOGY AND DEPENDABLE SUPPORT

Magseis Fairfield initially chose Panasas ActiveStor nearly 10 years ago to meet its

shipboard data storage requirements for marine surveys. The company now runs several generations of Panasas storage technology throughout the enterprise. Together, these Panasas solutions provide 1600TB of storage that support a wide range of client projects.

“Our storage solution must be robust enough to survive the offshore environment,” explains Garcia, who is responsible for overseeing, managing, organizing, and facilitating the data for shipboard scientists and ensuring data quality for clients. “This system is being accessed 24 hours a day. We require the flexibility to move equipment from one vessel to another and from one country to another. The storage system must be able to tolerate this type of constant handling. We have considered other solutions, but none offer the full complement of technology and remote support that Panasas does.”

### Ease of Use

The geoscientists who use ActiveStor receive hardware and software training, but they are not technology experts. There is no dedicated IT department on the vessels. For these reasons, Magseis Fairfield requires a storage solution that offers fast, simple operations and remote support. The survey teams also need a solution with an intuitive, graphical management interface so even nontechnical personnel can perform maintenance and solve problems.

Panasas, in fact, has the simplest solution to manage in the industry. Its ability to deploy and scale in hours (not days or weeks) sets the industry standard. User training requirements are limited. Thanks to the intuitive, consistent interface, training developed years ago by Magseis Fairfield is still relevant for its users today.

“Thanks to the Panasas architectural design, it’s easy to move components, scale storage, test systems, and keep things running effectively,” says Garcia. “Our teams can perform maintenance and deploy new systems quickly. The modularity makes the solution flexible enough to make any changes needed to support each client project.”

### Reliable, Consistent, and Predictable Performance

With ActiveStor, Magseis Fairfield takes advantage of consistently high performance,

no matter which applications, workloads, or users employ the solution. A single offshore acquisition consists of 80 to 100 personnel, including navigators, geophysicists, marine mammal observers, and remotely operated vehicles (ROV) pilots. Considering that staffing a vessel with a full crew can cost companies over \$200,000 per day, an extended outage could cause a loss of hundreds of thousands or even millions of dollars. A highly reliable storage solution reduces the risk of downtime.

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### Dependable Support

Panasas’ 24-hour-a-day remote support ensures that an expert is always available to geoscientists who need help troubleshooting storage issues. Equipment can be replaced when needed, but downtime is rare. “If our storage solution cannot meet client needs, our projects will miss the mark,” says Garcia. “Part of the reason we’ve relied on Panasas for so long is that the solution and support they provide give us peace of mind.”

### EVOLVING TECHNOLOGY NEEDS

Magseis Fairfield is considering moving some of its IT solutions from the ships to its offices, relying more on remote data processing and storage technologies. That shift may require additional flexibility from its technology solutions, but Garcia isn’t worried.

“Whether we’re working in the office or on ships at sea, we need to have robust, consistent equipment that crews can use intuitively,” she says. “We know we can count on Panasas to provide a reliable, adaptable, and easy-to-use storage solution.”



**6.4X**  
increase in  
data storage from  
**250TB to 1600TB**