



# Revolutionizing Reservoir Simulation With SilverStorm

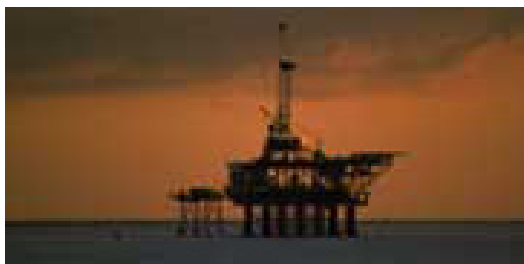
## Results

- Simulations complete in half the time with three times the computational throughput
- 3 year ROI of 150%

## Executive Summary

Competition in all industries is fierce. This is especially true for the oil and gas industry where the ability to accurately and quickly track and forecast supply ratios, model geophysical phenomenon, and develop safe, efficient instruments and tools is vital to company viability.

Top oil and gas companies, in partnership with SilverStorm Technologies, acquire high performance clustering solutions that will allow them to achieve their performance, efficiency, and data integrity goals, thereby improving overall business performance.



## The Problem

For most companies, modeling geophysical phenomenon takes large, expensive systems and days of computation to render a result.

In the oil and gas industry, by the time the result has been delivered and confirmed, reserves could go dry. This interruption of output flow is extremely costly to oil companies as it has ramifications all the way to the end customers who use the petroleum products. Quite often, when computations take too long or results are inaccurate, competitors discover, lease, and tap the oil field first, costing the company millions in lost revenues.

No successful company can afford either of these scenarios, but, as with all companies, they also need to watch the costs of bringing in a new solution. The typical processing environment, which often consists of several large, monolithic mainframe servers, is not able to complete the simulations rapidly enough to meet their business requirements.

## The Customer

One large oil and gas company, ranked as one of the highest producers of petroleum products worldwide, chose SilverStorm Technologies as their networking partner to deploy their next generation IT infrastructure.

This top oil and gas company began looking for a high performance clustering solution that would provide the speed, low latency, and scalability they needed, both now and into the future. After extensive testing in their development lab, this company chose the SilverStorm solution.

## The Test Environment

They tested their solution using the SilverStorm 3000 InfiniBand switch combined with Fabric Access software to connect ten Itanium-2 based servers with PCI-X HCAs all running RedHat Linux. The company was extremely pleased with both the results of the performance tests and the expert technical support they received.

## The Production Solution

"We were not able to meet our performance needs with any other interconnect solution we tested so we turned to a high performance solution with SilverStorm providing the

Most top oil and gas companies have established comprehensive research and development facilities encompassing the fields of petroleum geology, drilling, production, gathering and transportation, machinery, and instrumentation. Over the past half-century, these companies have invested over a billion dollars in scientific and technological capital for research and development with a profitable five times (or more) return on their investment.

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interconnect. We found the transport performance to be impressive with the High Performance Linpack (HPL) results over 82%. We were especially pleased with the performance handling large packets. In addition, when we ran into problems with the MPI layer of our application, SilverStorm quickly helped us resolve the issue to get us up and running,” reported the customer. Today, the SilverStorm solution is operational, supporting over 120 Itanium-2 nodes and is expected to double by the end of the year. They have already started migrating other simulations over to their high performance cluster to take advantage of the flexibility, scalability, and efficiency of the environment.

### The Customer Benefit

This leading oil and gas company has had the SilverStorm solution operational in their data center since September 2004. Simulations are finishing in one-half to one-third the time they used to, providing them with three times

the computational throughput. They are already realizing business growth directly associated with the performance improvements they are experiencing with the SilverStorm solution. This oil and gas company, who never invests in technology without the expectation of significant return on their investment, expects a three year ROI exceeding 150%.

### Conclusion

SilverStorm’s professional, dedicated and expert staff supplied this company with a working solution in less than two days—even resolving problems in non-SilverStorm software. SilverStorm’s high performance solution now provides this oil and gas giant the ability to simulate their oil and gas reserves on a semi-realtime basis, thereby significantly improving working efficiency and improving their business performance. “We will definitely look to SilverStorm for efficient, high performance solutions in the future.”



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