HPC, AI & Cloud

CASE STUDY

GLOBAL ENERGY OPERATOR ACCELERATES DEEPWATER DECISIONS WITH VIRIDIEN HPC

60% REDUCTION IN CYCLE TIME BY DEPLOYING PROPRIETARY FWI ON EXTERNAL HPC PLATFORM

OVERVIEW

A global energy operator achieved a 60% reduction in reservoir characterization cycle time by deploying its proprietary Full Waveform Inversion (FWI) technology on Viridien's HPC platform. The collaboration accelerated the delivery of actionable subsurface insights and established a repeatable, scalable foundation for future deepwater exploration programs.

CHALLENGE

Deepwater exploration depends on timely, high-quality subsurface imaging to support critical drill/no-drill decisions. To expedite its imaging capabilities, the operator sought to deploy its proprietary FWI technology on an external HPC platform for the first time. The initiative required seamless integration of specialized imaging workflows, validation of performance at scale, and a framework capable of supporting future projects.

- **Cycle time** – shorten reservoir characterization timelines (which were taking up to 18 months) to accelerate time to deepwater drill/no-drill decisions
- **Technology integration** – deploy complex and proprietary FWI technology on an external HPC platform for the first time
- **Performance validation** – benchmark existing cloud HPC infrastructure for compute-intensive workloads against Viriden's HPC environment

RESULTS

By deploying its proprietary imaging technology on an HPC platform optimized for seismic workflows, as well as leveraging Geovation software for rapid facilitation, the operator achieved significant gains in speed, performance, and scalability. The collaboration with Viridien established a proven framework for running advanced imaging workloads while accelerating the delivery of subsurface insights for more-informed exploration.

- **Accelerated workflows** – reduced projected reservoir characterization timelines **from 18 months to 7 months**
- **Superior performance** – achieved approximately **2x higher node** throughput and up to **4x greater compute efficiency** compared to cloud HPC
- **Scalable deployment model** – established a framework for future global deployment of proprietary FWI workflows

60%
Reduced
CYCLE TIME

18→7
Months to
DECISION

2X
Higher
THROUGHPUT

4X
Compute
EFFICIENCY

WHY VIRIDIEN HPC

The operator selected Viridien for a combination of purpose-built infrastructure, proven expertise in seismic imaging workloads, and a collaborative delivery approach. Together, these capabilities enabled the successful deployment of proprietary imaging technology on an external HPC environment, delivered superior performance compared with previous cloud benchmarks, and established a scalable foundation for future deepwater imaging projects.