

Institut Français du Pétrole Uses SGI® Technology in Its Explorium™



The Institut Français du Pétrole [IFP] is an independent center for research and industrial development, education, professional training, and information for the oil, natural gas, and automotive industries. With a portfolio of about 15,000 patents fueled by a continuous stream of innovations, IFP is one of the world's foremost R&D centers, covering every aspect of the oil and natural gas industry: exploration, production, refining, petrochemicals, engines, and energy.

IFP's mission is to develop technologies that will provide the oil and gas and automotive industries with long-term growth, while respecting our environment.

IFP carries out major industrial development action through:

- A strategy of partnerships and alliances, from research to industrial completion
- An international policy of licensing processes and equipment
- Goal-oriented cooperation with small- and medium-size businesses

IFP's newest venture is a sophisticated SGI® Reality Center™ facility named the Explorium that applies the center's computing potential to IFP's own exploration, research, and development requirements, an outstanding tool serving industrial needs. The first user of the Explorium is IFP R&D and its subsidiaries, with activities in:

- 3D subsurface and fluid flow simulation and modeling
- Integrated geoscience studies where cross-disciplinary interpretation is key
- Highly skilled expert analysis and realization
- 3D molecular design
- Engine combustion for the automotive industry



"It is an important project, with various implications, bringing together cross-disciplinary teams of experts and nonexperts," said Laurent Grizon, manager of the Explorium project at IFP. This project is focused on two objectives:

- To be suitable for IFP users in scientific visualization [R&D, industry, technologies and software marketing, teaching and learning] with high computing and graphics power needs
- To be open for renting to international companies as well as small and medium businesses located in the Paris area

The Explorium project is also based on highly specialized 3D visualization and virtual reality research teams. The room is a research platform for collaborative, immersive, and interactive work [connection between Reality Center facilities, new device testing, full sensory immersion]. It must satisfy the new high-demand users: the specialists in R&D, industrial studies, and training are constantly oscillating between simulation and validation of very complex and various data flow. The use of this sophisticated environment by IFP's subsidiaries will also reduce the time and increase the quality of its multidisciplinary studies.

Services

IFP provides the technical assistance to Explorium users as follows:

- Guides them in the loading of data and use of software
- Ensures optimal use of the center's video and audio capabilities
- Finds customers approaches for each scenario implemented: software specification and testing, collaborative displays of calculations, project review, work sessions, etc.

All of this takes place in a controlled-access environment, and network security precautions ensure strict data and software security.

Features of the System

The heart of IFP's SGI Reality Center facility is its graphics system, which consists of a Silicon Graphics® Onyx2® InfiniteReality3™ supercomputer.

The Onyx2 supercomputer is configured with:

- Two processors [R12000™ at 500 MHz]
- 4GB of main memory
- Infinite Reality3 graphics system with 256MB of texture
- Three display channels offering about 3500x1000 pixels
- A cylindrical screen, with an arc 11 m wide and 2.8 m high
- An audio immersive environment
- An active stereoscopic [3D] implementation

The Explorium space, which is 150 square meters, can be used in either a work session [three to six people] or a large group presentation and collaboration activity [up to 20 attendees]. A multimedia meeting room is available for data loading and session preparation. The applications can be driven either from a console at the back of the amphitheater [with dedicated monitors] or directly from the work table in front of the screen, also equipped with keyboard and mouse.

SGI Professional Services

SGI Professional Services has tremendous experience installing and integrating Reality Center facilities. SGI Professional Services can not only provide the consulting needed in numerous related disciplines but can also handle the entire project management.

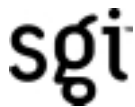
Professional Services's domain of expertise includes the following:

- Strategy workshop for identifying areas or workflows that can be improved by the use of immersive solutions
- Determination of requirements for the process integration of immersive solutions
- ROI analysis, design for multiusage
- Identification of scope of application deliverables
- Facilities assessment regarding all boundary conditions
- Draft selection and design of the system, software, hardware, and all other components
- Training and operational scope
- Proposal generation and customer presentation
- Software application design
- Creation, porting, or modification of applications
- Conversion of software to multipipe model [e.g., make it immersive solution ready]
- Performance tuning
- Data conversion/preparation or creation of batch tools for conversion
- Execution against software-specific deliverables
- Software testing
- Software installation and setup
- Training and postinstallation consulting

At IFP, a number of those capabilities have been deployed. And the result is there, operational since April 2001.



Explorium



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