

Industry Profile Series

Onshore & Offshore Software Solutions

By Terry Gill (Reprinted from Ocean Resources Magazine™)

Every industry has its unique equipment, methods, challenges and terminology. Visual Tag System™ (VTS™) provides software tools to develop operator interfaces for advanced applications across all types of industry including both the onshore and offshore energy sectors.

VTS is a home grown product. It was developed by Trihedral Engineering, which was founded in 1986 in Bedford, Nova Scotia. The VTS system was released in 1988. Ten years later, the company opened an additional office in Aberdeen, Scotland to address the growing needs of the European market.

VTS is human machine interface (HMI) software which runs on Windows NT and Windows 2000/98/95. [Note: As of 2012, VTS is compatible with Windows 7® (32 or 64-bit), Vista® (32 or 64-bit), 2008 Server® (R2), XP® (SP3) or 2003 Server® (with Windows patch)] "One of the main benefits of the Windows-based system is cost," says Keith Donaldson, Manager of Business Development for Trihedral's UK operations. "Most of the business world relies on PC's, and as a result, the cost has gone down considerably, whereas proprietary systems are produced in limited quantities, and are therefore expensive. In addition, most operators are familiar with the Windows environment, and use PC's in the office and while traveling, so they don't require specialized training, and enjoy the benefits of continuity".

HMI software is employed in situations where an interface is used repeatedly for similar equipment or systems. HMI software has greatly improved the implementation costs and delivery time in such situations. Traditionally, the HMI solution has been to build new graphic objects for reuse and to cut and paste sections from previous projects, a method which is prone to programming error, and can be extremely costly.

According to Keith Donaldson, the software has three distinct applications in the offshore industry. One is in the control of sub-sea systems. Using VTS software, one of Trihedral's system integrators developed an advanced product for oil rigs providing sub-sea monitoring and control. This application includes graphical displays, complex calculations and interfaces to sub-sea control pods and advanced sub-sea monitoring equipment including corrosion and sand detectors, multi-phase flow meters and high accuracy down hole gauges. The system issues valve and choke commands as well as monitoring reservoir information.

The largest project to date is for 35 wells with a daily flow of 215,000 barrels. The oil and gas is extracted from four fields by using gas lift, water injection and water flood. The application includes control of riser base gas lift and hardwired I/O to an emergency shutdown system.

Another project has a very high pressure well with suitable piping which was taken to a sub-sea manifold with two barrier valves and a special analogue computer control module. Normal rated piping was then used to feed back to the platform with huge cost savings. To satisfy safety criteria, barrier valve tests including partial closure and leak tests, 2 out of 3 voting on pressure sensors and methanol flushing was required, all controlled and monitored through VTS software. Graphic profiles of the valves closure and leak rate were uploaded, displayed and stored by the application.

Another VTS application developed by Digital Applications International (DAI), a local systems integrator, for Phoenix is Monarch. This application is a user friendly well monitoring and archive software solution capable of easy configuration, connection to all Phoenix gauges, easy integration, and highly scalable for use in a single well environment or multiple wells. It provides pump performance and statistical analysis of well data and allows the operator annotation of events. At a glance, the operator can see exactly what is happening in the well.

DAI has also developed an advanced protocol converter which allows a number of distributed control systems (DCS), traditionally inflexible and unable to communicate with each other, to interact using VTS™. This facilitates the monitoring, archiving and display of information gathered from data centers and the offshore plants so management can see the consolidated data in a single place. The data is then routed through the VTS system in Scotland, and transferred to a control center in Norway, where the information is used for leak detection purposes. This system, installed in late December 2001, has had zero downtime to date.

VTS supports modems and remote access from offices on shore and around the world. "One of the strongest features of VTS™ is that it allows control and monitoring from remote locations. The remote configuration is superb. You can configure and completely change the application while monitoring live data without affecting the offshore servers, and then update the changes on-line once you're satisfied," says Mr. Donaldson.

TRY IT FOR YOURSELF

Download the 90-day Trial
Trihedral.com/demo

VTScada is a trademark of Trihedral Engineering Limited

