

VIZWORX

Overview

Oil and gas companies acquire extremely large amounts of overlapping data, most of which is either directly geospatial in nature, or geolocated. This includes both subsurface and surface data, as well as aerial data from sources such as Sky Hunter. Various groups within the companies "own" different portions of these data sets. However, the ability for these groups to effectively and efficiently communicate the value and meaning of their data sets to each other can be difficult. GeoViz has been developed to simplify this process and improve the overall decision-making capabilities of these companies around geospatial data.

Phase 1 of this project developed the base correlative interaction system supporting the following capabilities:

- Multi-layer geospatial data interaction on a large touch screen display
- Meta data query and display for geospatial point data
- Sub-window Workspace creation and interaction
- IP connected mobile device connection to Workspace(s)
- Full mobile device interaction with connected Workspace, mirrored on touch screen display and vice versa
- Mobile device switching between Workspaces
- Outputting of visible geospatial extent to PDF
- ArcGIS 10.2.2 integration

Phase 1 completed at the end of December 2014 with the installation of the system in the Devon corporate IT environment in Calgary.

Phase 1 has already shown the benefit and opportunity that exists in providing a collaborative geospatial environment where teams of people can physically come together to make decisions. During the process of the Phase 1 development a number of additional capabilities were identified as being beneficial to add to the base system to expand its collaborative functionality. Phase 2 of this project will focus on these additional capabilities.

VizworX develops software through an agile development methodology. This methodology involves creation of stories (descriptions of how users should interact with the system), rapid iterations and frequent customer interactions to guide the software development process. The exact feature sets that are implemented will therefore depend on the customer feedback and direction given throughout the project.

VIZWORX

Project Review

GeoViz was a joint project between Devon, Husky, Cenovus, Suncor, PTAC and VizworX, with support from Sky Hunter. Devon provide the geospatial data to be used as example data and was the primary user contact for the development process.

There were some initial delays in starting the project due to contract signing and agreements with IHS (the supplier of some of the data that Devon provided). However, once these were resolved the project got fully underway. The VizworX development team worked closely with the Devon GIS group in scoping each of the project priorities and validating the resulting functionality once it was developed. This relationship was very effective.

Periodic meetings were held with the broader project team, which included representatives from Devon, Husky, Cenovus, PTAC, VizworX and Sky Hunter. Suncor was unavailable for these meetings. These meetings provide both project updates to the people present, as well as provided feedback and priority adjustments to the development team.

The end result of this development process was a deployed system at Devon Calgary in December 2014. Devon is also planning for a similar deployment at their Kansas City headquarters in early 2015.

Functional Details

Multi-layer geospatial data interaction on a large touch screen display

The base system on which GeoViz was developed utilizes a large touch interactive display. GeoViz provides the capability for the user to create and load projects consisting of multiple layers of geospatial data. It then provides full touch interaction to these layers with capabilities such as zoom, pan, layer opacity, layer visibility, and time-shifted layer comparison.

Meta data query and display for geospatial point data

In addition to the basic capabilities, GeoViz allows the user to query the meta data associated with geospatial point data. As an example this could be information on wells, including location, SPUD date, well owner, production values and so forth. Essentially any meta data that has been associated with the point data can be shown through a simple touch interaction.

Sub-window Workspace creation and interaction

VIZWORX

To enable multiple people to simultaneously interact with the geospatial data in a true physically co-located collaborative fashion, GeoViz provides the capability for users to open up individual workspaces. Each of these workspaces provides full capability for zoom, pan, adjusting of layer opacity and layer visibility, and performing meta data queries. This allows individual users to highlight specific areas of interest and share this view with other people present.

IP connected mobile device connection to Workspace(s)

In addition to the ability for physically co-located users to work with the geospatial data, GeoViz extends this capability to remote users. Through an IP connected iOS or Android device a user is able to directly connect to any open workspace and see exactly the same view as users who are physically present.

Full mobile device interaction with connected Workspace, mirrored on touch screen display and vice versa

In addition to seeing a workspace remotely, mobile users have exactly the same capability to zoom, pan, adjust layer opacity and layer visibility, and perform meta data queries. Changes to either the mobile view or the workspace view are immediately reflected in the other view, providing fully integrated collaboration between physically present users and remote users.

Mobile device switching between Workspaces

If there is more than one workspace open, remote users have the ability to switch between open workspaces. This capability further enhances the collaborative interaction between remote users and those physically present.

Outputting of visible geospatial extent to PDF

GeoViz allows users to take a “snapshot” of the current geospatial extent shown on the main touch display and output it to a PDF file. This PDF file can then be saved, shared or printed.

ArcGIS 10.2.2 integration

GeoViz has been integrated with ESRI ArcGIS 10.2.2. This is the version that our current customers are just deploying, providing compatibility for current and future use.