

Collaboration Rooms as an E & P Tool

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Abstract

Collaboration, visualization, and team rooms are becoming an integral part of the exploration and production work process. This technology is more accessible, easier to support and cost effective. The effort to introduce and adopt this technology within the E&P environment has reduced to the point that a simple "here's how to get going" session suffices for teams to become independent in even a complex facility. It is common for companies to have numerous rooms either for specific purposes or to accommodate a variety of needs.

In this paper, I will walk through the Nexen Inc. story. It is a good story. The success of our first facility led to our Dallas office developing their own facilities to manage our Gulf of Mexico properties. One year after our first room was rolled-out, we built two additional rooms in our Calgary office. I will share the elements of our success, how we determined our success and how we have maintained that level through today. We have had our challenges and there are learnings that are worth sharing. I will conclude with what I see the future holds.

Introduction

My personal first experience with the idea of a visualization room was at Aramco in Saudi Arabia. Every Thursday a business unit presented their work to the management team. In preparation for these meetings, plots of seismic data, maps and various other interpretations would be plotted out and pasted to the walls, layers deep, to get everyone's work up to show. Inevitably, the plotter would crash Wednesday night. I discovered the computer in the conference room could access the data on the workstations. Rather than plotting out my interpretation, I organized my work in windows and walked through my presentation live to my interpretation project. It was not the "live" presentation we do today as far as navigating within the project but it was hitting my interpretation project live. That was 1992.

Fast forward to the new millennium. Through Landmark, I was a consultant to PanCanadian (now Encana) during the time they were in the process of adopting this technology and building their Terradeck. I was also back at PanCanadian after their roll-out. My consulting to PanCanadian was not directly with the Terradeck, however, I did see aspects of how they implemented their facility and how the facility was managed. My primary consulting client was BP. One of my roles was being the back up pilot in their HIVE (Highly Immersive Visualization Environment). Whenever the pilot was unable make a session I stepped in. This had its challenges since often the prep work for a session would be lost such as items required would be somewhere I did not have access to, or the setup on the system was changed since I last time I was pilot and thus things did not work as expected. With the above current day experiences, I saw there was plenty of upside to these facilities as well as plenty of challenges that need to be managed. These experiences helped me in my advisor role in the development of the Nexen facility.

The Nexen Story

As part of our Technical Computing Strategy a visualization facility was proposed in 2002. This would be Nexen's first experience on designing this type of facility. Research covered other facilities in Calgary and Houston, previous experiences and ideas from the integration company Fakespace. The design was focused on usability, collaboration and flexibility. Design and construction took most of the year.

We also had the goal to create a comfortable environment that would encourage teams to spend all day in the room if required. It was important that the hardware was similar in configuration but highest end possible for performance in both data manipulation and graphics. For flexibility and collaboration, six keyboards were installed that could be assigned to any of the three computers; UNIX, PC workstation or Smartboard PC. Multi-media of paper cross-sections and maps were accommodated with one wall being pinnable and the other being a magnetic whiteboard. This gave plenty of real-estate for hardcopy displays and for drawing illustrations. The chairs and tables were all on wheels so the room could be reconfigured from a work session environment to a presentation style quickly and easily. The screen is like a transparent velum. There is no flutter from different air pressure in the projector room to main room and it was easier to install than using a crane to lift a solid screen to our 24th floor. A 50" plasma screen with a Smartboard overlay was installed on a side wall for the third screen and a remote PC during video conferencing. The DVD and VHS have been found useful for various presentations.

The roll-out for our first room consisted of internal marketing - including a naming contest, a detailed presentation on the layout options, flexibility of the room and the collaboration capabilities. There was some fun with the visualization and a comparison of VHS and DVD visualization technology. All employees were encouraged to sign up for a presentation. There was so much interest we had to schedule additional sessions. Upper management showed their support by bringing the Board of Directors to a presentation. Two years later we are still giving this presentation to groups that have not had an opportunity to use the room or out of general interest. Additionally we are asked to present to outside visitors such as a chapter of Saskatchewan Air Cadets, University of Saskatchewan Engineers Society, aboriginal students from Long Lake, etc.

Initially, the room was used primarily for showing PowerPoint presentations as groups would do in a conference room. When the CEO requested an update of a West Africa project in the Bridge (winner of the naming competition) the importance of a live session presentation quickly became understood. Peer reviews, partner meetings, team meeting and team work sessions became more frequent. The Plasma screen was found useful during video conferencing with one of our international offices. The room has shown the benefit of flexibility of setup for accommodating session's needs and collaboration is easier with everyone having all their interpretation in the same room. The Bridge is often booked for full day sessions including bringing lunch in.

A key component of support is developing team independence in running the facility. This adds to the feel comfortable aspect for the Bridge. Support also required immediate response to issues. In a piloted facility this is an easier component since there is dedicated staff to the room. Without the pilot support needs to be on call and be able to put any current work on hold to address issues. Whether the issue is access to a drive or application related, responding quickly to downtime is critical for effectiveness in a collaboration room. If the session had 15 technical staff in it, minutes are costly. Booking and managing the bookings were also part of support. Booking the Bridge was made as easy as booking a conference room by adding it to the corporate Outlook and the list of all the conference rooms. As manager of the room I found there were many roles. From orientations, driver for larger presentations, negotiating to accommodate schedules and room tear-down and set-up all needed to be managed effectively.

Soon after the Bridge was completed the Dallas office heard of our design, roll-out, implementation and initial success. Some impromptu sessions were scheduled then a full day session was planned to cover key design ideas, support and roll-out. As a result our Dallas office built three rooms – two team rooms and one room focused on teleconference. With the Dallas office's facility completed I took the opportunity to visit their office and learn from their experience. They were seeing good utilization on their team rooms and showed me what can be done very cost effectively.

The Bridge's first year showed utilization fairly evenly split between International and Canadian business units. Technical Services and Corporate groups also contributed to the utilization. The overall goal was set to achieve 60% utilization. This goal was met throughout the year and in the last quarter of 2003 the utilization averaged 85%. We did not expect this level of utilization. With this utilization and the success seen by our Dallas office funds were found to build two team rooms.

International requested a team room that would be of easy access within their floors. The team rooms were built fully contained with projectors, computers and screen. These rooms do not have stereo capabilities or multiple keyboards but are equipped with high end UNIX and PC workstations. Even with the addition of the two team rooms the Bridge continued with a high utilization – averaging at 80%. The team rooms have averaged 50% however there are many sessions that are not entered into the calendar and thus not captured in the utilization. If the room is available, individuals or small teams will have an impromptu session to take advantage of the higher end computers and to quickly share some work. Additionally, not captured in the utilization is one group remotely accessing a PC while the group in the room uses the UNIX workstation in a session. How is double dipping captured in utilization?

Challenges and Learnings

In the design area there are a few "would likes" but none are show stoppers or things that cannot be worked around. In one of the team rooms the wireless PC keyboard/mouse has it's problems and requires more support than I had expected. We are considering other solutions for this PC keyboard/mouse such as running a wire. However, a wireless Crestron (the controller for the devices) in the Bridge will further assist the independence and flexibility in that room. This upgrade is now completed.

Support is a critical aspect to address. Support for the Bridge started out with information sessions where I would work with new teams to the room and show them what could be done specific to their project and session. I made suggestions on room layout, how to effectively utilize the front and side screens and how to encourage interaction with everyone in the session. My goal was to make the users independent on using any of the rooms on their own. Some took to the switching of devices and keyboards better than others but generally in most groups there is one techy person ready to take on the controls and set up the room. After two years I seldom need to orientate new users except for new employees.

The challenge with supporting a facility without a pilot is that you need to be "on call" at all times. When there is a group in one of the rooms and something does not work how they expect they need assistance immediately. It does not matter if you are involved with a general support issue, in a meeting, or in a mentoring session. Fortunately, the abandoned users appreciate the necessity of the dedicated support since it could be them having the next emergency. I, like anyone else, enjoy my holidays thus having effective backup is critical. As much as you ensure the backup is aware of issues it is a challenge to take on the full support and a challenge for anyone to pickup the support responsibilities on top of their already full schedule.

We have had our share of things going wrong. A construction person let a ceiling tile rub against the screen. We assessed repairs to the screen would be more visible than the original spot. The building experienced a power surge that took out the video conversion boards in one of the projectors. This only affected the VHS and DVD playing through one of the projectors. Bulbs blew earlier than expected and replacements took longer than expected to come in. This resulted in only one projector being available. Fortunately this was at the start of holiday season and sessions could be moved to the larger of the team rooms. Needless to say, challenges will happen, it is how effectively and creatively these are handled that makes these rooms a success.

From these issues we learned to have more spare parts pre-ordered. As our system gets older – 2 years with 3000 hours per year does age a system, being prepared is required to be responsive to the user needs and keeping the system available. More than one fully capable room would be a benefit for being adaptive to issues.

The Future

These rooms have proven their worth. The visualization room with specialized hardware will be used for specialized functions such as Schlumberger's Inside Reality. Collaboration rooms have shown their effectiveness for GG&E collaboration. This is simply an adjustment from what we have done during our pencil crayon and paper interpretation to the digital world. The future holds bringing more disciplines into the fold. Halliburton's Prospect Management is one example of heading in this direction. More downhole tools

are coming available for feeding data remotely back to the office. From the planning of the well on live depth converted seismic data through watching drilling progress within the geocellular model.

Stereo capabilities have had plenty of questions as to its adoption. Can users find their way within their seismic volume or geocellular model in 3D stereo? From our usage we see for visualization of complex fault zones and thick reservoirs with baffling shale plugs 3D stereo is critical to interpret in. I see 3D stereo will become integrated into the interpretation workflow as more interpreters become accustomed to working in this environment.

Further integration between more disciplines will bring a full breadth of applications into the collaboration rooms. Teams will have a flexible make up of disciplines participating in each session. As more data is required to be interpreted, seismic gathers, a multitude of attributes, etc the demand for fast processing and high-end graphics will make Linux the workstation of choice for both desktop and collaboration and team rooms.

The innovation and adoption of these facilities will continue and they will be a growing part of the tool set of the GG&E professional. From high-end visualization or collaboration rooms to team rooms each have their purpose in the E&P environment. These facilities show the evolution we have come through from the pencil crayon days of past.