Successful Implementation Of Interact (Real Time Data Transmission) In Testing Services To Allow Remote Witnessing Of Testing Operations And Multi-Point Collaboration (Latif Gas Field - A Success Story)

Tofeeq Ahmed, Moien Siddiqui, Amjad Hussain, Chia Boon Shin, Asif Hussain, Zia Nabi Butt, Rao Nouman

OMV, Islamabad-Pakistan, Schlumberger, Islamabad-Pakistan

Abstract

Secure monitoring of well site operations via Internet has made a significant impact on how oil and gas companies plan and execute their operations. InterACT is a web-based application used to witness and deliver well site data in real time using a reliable Internet hub. InterACT in Testing Services is enjoying a number of advantages which can be summarized as below:

- Allow immediate and better decision making with rapid data interpretation and remote expert support.
- At any time during or after the test, data can be downloaded and imported into E&P software tools for further analysis, and their results and reports can be posted back unto the InterACT hub.
- Reduce costs through optimized cleanups and shorter well tests.
- Reduce travel and logistical costs, as well as HSE exposure.
- Enable remote operations with limited local support.
- Provide data confidentiality with secured login and continuous encrypted transmission.

Data from DART, Vx Multiphase flow meter, events, real time plots and any other data useful for operations can be monitored at bases and offices of E & P companies especially for exploration and remote location wells for expert’s opinion and making timely decisions.

Theme of this paper is to demonstrate different steps to design and plan InterACT job on an exploratory well of OMV Pakistan. It also describes successful implementation of InterACT technology which was introduced first time in Pakistan and its advantages for Exploration and Production (E & P) companies.

Introduction

InterACT is a web-based application used to witness and deliver well site data in real time using a reliable Internet hub as shown in Figure-1. It improves operational decision making during well testing and cleanup operations. Operators, partners, and experts at remote locations can witness and collaborate on testing operations as though all were present at the wellsite. Based on multilevel access authorization, experts not available at the wellsite can monitor well testing data at their individual locations through a standard Web browser. Informed decisions can be made and implemented in a timely manner; especially when unexpected events require quick decisions.

Applications:

- Remote witnessing of testing operations.
- Testing operations requiring multipoint collaboration.
- Operations demanding external expert support and knowledge.
Figure-1 InterACT HUB and acquisition system.

Features of InterACT:

- Secure monitoring
- Data Download & Upload
- Temporary data back-up
- Multi level access
- Chat

Satellite Internet Requirement:

In order to facilitate well sites with internet, we need mobile system to allow coverage at any remote location. BGAN (Broadband Global Area Network), VSAT and i-direct are some of the options available in Pakistan to provide a mobile satellite service that offers high-speed data. These systems enable users to access e-mail, corporate networks and the Internet and transfer files.

We need to select the best system for satellite internet based on the following features.

- Cost
- Bandwidth
- Size & Weight
- Set-up time
- Vendor support (required or not)
- HSE Exposure

In some locations, internet provided by rig authorities on well site can be used to run InterACT without using third party satellite internet system.

**History and Requirement**

One of the challenges to Exploration and Production companies is to reduce operations cost to minimum. Timely decisions by the help of real time data monitoring in local head offices and head quarters can help oil and gas companies reduce the overall cost. To meet the requirement, InterACT is being used in various segments like REW (Formally called Wireline), Well Services, D&M and Testing Services all over the world to deliver real time data. Keeping in mind the importance of on-time decision making, Testing Services, Pakistan also introduced InterACT to make reporting and decision making process more efficient.

**Well Selection**

In Pakistan, most of the E & P companies head offices are either in Islamabad or Karachi where as Testing Services base is in Islamabad. A field map of Pakistan is shown in Figure-2 where small rigs show where different companies are operating. Most of the locations are remote as there are no main cities around. To give an example, for OMV (Pakistan) Exploration G.m.b.H, equipment takes 72 hours to arrive at location where as personnel take 36 hours to move from base to well. Most likely same is the case with other oil and gas companies like Eni Pakistan and Oil and Gas Development Company Ltd. (OGDCL).

HSE exposure has also been one of the major challenges to all local and multinational companies in Pakistan. Besides a few local companies, a number of multinational companies like OMV, Eni, BP, BHP Billiton, are operating in Pakistan where personnel have to come to Pakistan for well site operations monitoring. As per Schlumberger QUEST risk assessment by HSE department, most of the locations in Pakistan are high risk areas as shown in Figure-3. This is also verified by E & P companies that they agree with QUEST ratings and having the same security risks working in these areas. In order to reduce the HSE exposure, we came up with the idea of introducing InterACT in Testing Services, Pakistan.
Case Study

Latif field was discovered in 2007. Currently the field is producing at an avg: gas rate of 30 MMscfd. Latif- X well was drilled and completed in Mar-2010. First InterACT job in Pakistan was successfully introduced at Latif-X well.

Job Execution

Client : OMV (Pakistan) Exploration G.m.b.H
Field : Latif
Well : Well X-1
TD : XXX m
Job : DST and Completion Integrity Test

Process Flow Diagram

Job Design:
After self training, next step was to design a job within the available resources and minimum time. We started with creating InterACT accounts for OMV (Pakistan) and Schlumberger personnel. In order to connect to Internet using third party systems, BGAN (Broadband global area network) was chosen. REW was consulted for BGAN who also helped in training of use and set-up of BGAN as shown in Figure-5. OMV personnel were trained to use InterACT hub efficiently and make the most of this service. Before going for a job, a test run was done in base in order to minimize problems on well site which was successful.

Figure-3 Slb QUEST rating in Pakistan

Figure-4 InterACT process flow diagram

Figure-5 Job design flow diagram

It is very important for exploration companies to successfully execute the operations. In order to make well site and head office communication effective, we ran InterACT successfully for the 1st time in Pakistan in Feb-10. We also did it for Completion Integrity Test in Mar-10 where head office and senior management was able to successfully monitor operations in their head office.

BGAN Thrane Explorer 700 was used in order to connect to satellite internet. It was placed over surface testing lab cabin. By the help of BGAN launch-pad, an angle of 63 degree and direction of 190 degree south was found best for the particular location (Latif field). This angle and direction helped achieve signal strength of 51.9 db Hz. By the help of this BGAN set-up and DART (Software), we were able to successfully send the real time data to office for 56 hours in DST-02 and 67 hours in Completion Integrity Test (CIT). Figure-6 shows a typical InterACT real time data plot.

Figure-6 Typical InterACT real time data plot.
**Significance**

Most of the E & P companies in Pakistan are MNCs who have their head offices located in other countries. OMV has their head office in Austria, BP in UK, PETRONAS in Malaysia, MOL in Hungary, BHP in Houston. InterACT makes it easy for them to collaborate and discuss the well site operations with maximum information due to real time data monitoring which makes it quick to decide and reduce the overall cost of operations. Keeping in mind the security situation in Pakistan, InterACT helps E & P companies reduce HSE exposure and get expertise from local head offices.

**Conclusion**

The first InterACT service in Testing Services to E & P companies in Pakistan was successfully introduced at Latif field. The successful introduction of a new service in E&P sector of Pakistan will surely improve oilfield operations by making onsite & timely decisions.
ABOUT THE AUTHORS

Tofeq Ahmad

Tofeq Ahmad is currently working for OMV (Exploration) Pakistan as Production Manager since June 2009. Previously he worked for BP Pakistan for 08 year. He has over 16 years of experience in E & P industry mainly in Petroleum, Production & Operations Engineering. He received B.Sc Petroleum Engineering from University of Engineering & Technology Lahore Pakistan in year 1991.

Moien Ahmed Siddiqui

Moien Ahmed Siddiqui is currently working with OMV (Pakistan) Exploration G.m.b.H as a Senior Petroleum Engineer since 2003. He is mainly involved in Production and Operations Engineering.

Amjad Hussain

Amjad Hussain is currently working with OMV (Pakistan) Exploration G.m.b.H as a Petroleum Engineer since last about 4 years. He received B.E Petroleum Engineering from Mehran University of Engineering & Technology Jamshoro, Pakistan. He is mainly involved in Petroleum reservoir, Production and Operations Engineering. He was nominated as Best Engineer in 2009 for OMV (Pakistan) at Salzburg, Austria. He is author of 05 SPE papers presented at International & national forums and has been an active member of SPE.

Chia Boon Shin

Chia Boon Shin is a Malaysian National and currently working with Schlumberger as Operations Manager for testing Services, Pakistan since April, 2010. He is mainly involved in managing Schlumberger Specialized services for Exploration and production companies in Pakistan. He has worked in various departments of Testing Services over the last 10 years with an initial 3 years in field operations.

Asif Hussain

Asif Hussain is currently working with Schlumberger as Field Services Manager for testing Services, Pakistan since August, 2009. He is mainly involved in managing Schlumberger field operations and services for Exploration and production companies in Pakistan. He has worked in various countries in different departments of Testing Services over the last 20 years with most of his career in field operations.

Zia Nabi Butt

Zia Nabi Butt is currently working with Schlumberger as Field Quality Champion (FQC) for Testing Services, Pakistan since October, 2009. He is mainly involved in taking care of the quality of services that Schlumberger provides to its customers.

Rao Nouman Abdullah

Rao Nouman Abdullah is currently working with Schlumberger as Senior Field Engineer. He joined Schlumberger in July, 2007. He received B.E Mechanical Engineering from National University of Sciences and Technology (NUST), Rawalpindi, Pakistan in year 2007. He has been working in various sub-segments of Testing Services over the last 3 years. He participated in All Pakistan Technical Conference with two technical papers, held at GIKI, Topi, Pakistan in 2007.