Enterprise IT Architecture implementations: An ONGC Perspective

Speaker:--
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ONGC
India’s Most Valuable Company

One of the Largest
Integrated Exploration & Production (E&P) Company in the World
✔ Is Asia’s best Oil & Gas company, as per a recent survey conducted by US-based magazine ‘Global Finance’.

✔ ONGC contributes about 81.5% of domestic crude oil production and about 79.2% domestic natural gas production.

✔ ONGC's overseas arm ONGC Videsh Limited (OVL) is biggest Indian multinational, with 25 Oil and Gas projects in 15 countries.
Corporate Office, Dehradun (INDIA)
Registered Office, New Delhi (INDIA)

National Oil Company with Asset Based Structure

Operates in diverse logistics
In Onland & Offshore areas

COMPANY PROFILE
Application Areas In ONGC

- Drilling & Workover Projects
- Survey Projects
- R&D / Consultancy Projects
- Joint Venture Projects
- E&C Projects
- Dry Docking

ONGC making tomorrow brighter
A Consolidated Standardized Information Management System was felt to be needed in the 80s and 90s.
✔ Function based Organization
✔ Multiple stand alone applications
✔ Time lag between market realities and decision making
The need for Information

Past Reality
- Function based Organisation
- Multiple stand alone applications
- Time lag between market realities and decision making

An Effective Integrated Information System to enable ONGC to achieve business excellence

ERP for Enterprise-wide Transformation

The need for Information
ONGC INFORMATION MANAGEMENT SYSTEM (PAST)
Interfaces between Islands of Information

PRESENT SCENARIO

INFORMATION CONSOLIDATION FOR EFFICIENCY

PROJECT ICE

PRESENT SCENARIO
✔ Optimization and standardization of business processes to enable integrated information availability

✔ Elimination of duplication of activities across business processes by capturing data at source point.

✔ Facilitate information consolidation at corporate level.

✔ Availability of information at the right time, at the right place, thereby, enhancing managerial control.

✔ Integrating all business applications under single platform with minimum interfaces.
23 Modules Covering almost the entire Business
Architecture Of Workplace

PROJECT ICE. (cont.)
Data flow

1. WP Client → Log in info → Workplace Server
2. Workplace Server → HTTP → ITS Server
3. ITS Server → HTTP → BW WAS Server
4. Workplace Server → HTTP → R3 Server
5. R3 Server → HTTP → Non SAP Server

PROJECT ICE (cont.).
Key Executives can access from anywhere anytime

- Web browser access
- Single sign-on
- Portal: industry-specific, role-based, personalized, drag & relate

Access from Anywhere Anytime

Internet-Business Framework

- Open Internet standards
- Non mySAP.com
- mySAP.com solutions
- Trim Optim
- Legacy

Cockpits

Marketplace

Partner

SAP

CRM

BBP

Supply Chain

SEM

BW

LO

HR

FI

R/3

Partner

Company boundary

Inside

Outside

- e-procurement
VENDOR FRIENDLY ENVIRONMENT
BENEFITS

✓ REDUCE COSTS.
REDUCED PAPERWORK AND ABILITY TO COMMUNICATE WITH VENDORS ONLINE.

✓ INCREASE REVENUE.
E-TENDERING ENABLED TO GET BETTER SERVICE AND PRICES FROM SUPPLIERS.

✓ SECURE OPERATIONS.
ALL SUBMITTED BID DOCUMENTS ARE DIGITALLY SIGNED AND ENCRYPTED.

PROJECT ICE (cont.).
Integration of data is a core requirement in E&P.

TYPICAL E&P INFORMATION TOPOLOGY

Courtesy: www.energistics.org
Exploration Activities

Data Acquisition
- Geology
- Seismic
  - 2D 3D & 4D
- G M Survey
- Geochemistry

- Wells
- Drilling
- Logs & VSP
- Production
- Reservoir

- Films/Papers
- Tapes
- Cores

Data Processing & Management

Data Processing
- Geology
- Seismic
  - 2D 3D & 4D
- G M Survey
- Geochemistry

Data Management

Data Interpretation

- Spatial browsing
- Textual browsing

Data Access to users

CGG Paradigm
Schlumberger Paradigm
IIWS Business Applications

ONGC

Making tomorrow brighter
• Every day, all around the world, 1000’s of E&P professionals just can’t find what they want!
  - They want ALL relevant information, whether in digital format, reports, emails, shared drives, or external storage.

- Even if they can find it, it has no or limited context, so they might end up reformatting data.
- With shrinking headcount, fewer people are doing more work and are extremely short of time.

EXPLORATION AND PRODUCTION INFORMATION NETWORK
PROJECT EPINET
Single validated E & P data base throughout ONGC

Flow of analytical & interpretation Data to EPINET

Integrated E&P Database

EPINET OBJECTIVE

Compliance of industry standards & best practices

Web based reporting And current E&P data flow into EPINET
- PPDM & POSC/Energistic compliant data model
- UNIX based application
- Database engine
  - ORACLE 8i
  - ORACLE Forms 6
  - ORACLE Reports 6
  - SQL*Plus 3.3.2
  - PL/SQL 1.5.7
- Operating system
  - Sun Solaris 8
  - SGI Irix 6.5.3

Finder 9.2 Standards
INTEGRATION OF THE REAL TIME DATA FROM THE PRODUCTION INSTALLATIONS, DRILLING RIGS AND PLANTS BOTH IN ONSHORE AND OFFSHORE

ONE BIG GAP IN IT INFRASTRUCTURE

SUPERVISORY CONTROL AND DATA ACQUISITION PROJECT SCADA
SALIENT FEATURES

☑ 3-TIER ARCHITECTURE

☑ INCLUDES ALL 247 PRODUCTION INSTALLATIONS, 75 DRILLING RIGS AND 2 PLANTS COVERING ONSHORE AND OFFSHORE OPERATIONS

☑ ALL INSTALLATIONS SHALL BE MONITORED ON 24 X 7 REAL-TIME BASIS.
PROJECT SCADA (cont.).
The Business Decision Support

Integration for decisions

Interrelation and analysis of data

Collection of process data & field reports

Asset control room

Tier-I

Tier-II

Tier-III

PROJECT SCADA (cont.).
BENEFITS

✓ REAL-TIME INFORMATION AVAILABILITY.
   IDENTIFICATION OF PRODUCTION/DRILLING RELATED PROBLEMS

✓ IMPROVED EFFICIENCY
   THROUGH REAL-TIME DATA COLLECTION, INFORMATION INTEGRATION & DISTRIBUTED MANAGEMENT.

✓ INTEGRATION WITH OTHER PROJECTS
   DATA TRANSFER TO E&P DATA REPOSITORY PROJECT EPINET AND INTEGRATION WITH PROJECT ICE.

PROJECT SCADA (cont.).
ENTERPRISE ARCHITECTURE IMPLEMENTATION.

ONSHERE DATA MIGRATION

ICE

COrPORATE HQ.

GSC & GCP

CTF

WIPs

GGs & EPSs

ETPs

RIG

Asset HQ (SCADA)

IDT

VRC

EPINET
• On-Line information directly from the Worksites.

• Management Response Time Largely Reduced

Information for informed decisions
Common E&P Data Model throughout ONGC.
- Improved integrated interpretation
- Faster & focussed decision making
- Reduced exploration risk & cost
- Avoidance of data degradation
- Intellectual gains in terms of data management skills
Energistics has provided reviews from time to time on EPINET project.

ONGC and Energistics have jointly presented papers and participated in various E&P Conferences and Seminars.

ONGC-Energistics technical programs organized during SPG-2004, SPG-2006 and during IORS-2004 in India.

Association with POSC/Energistics.
To get the benefits of standardization through SIGs (Special Interest Groups), ONGC constituted SIG teams on:

- Geology SIG,
- Drilling WITSML SIG,
- Production PRODML SIG,
- Data Management SIG.

The four SIGs have the members from different domain executives of ONGC for participation & interaction of SIG activities and its implementation in ONGC.
To get the benefits of standardization with continuing association with OpenGroup standards for pilot projects of ONGC and past projects as well.

Looking forward to gain more about business standards by becoming part of OpenGroup Conferences and getting chance to discuss about the best practices in the industry.
Thank You