5D

Directional Drilling Design Display and Database

The Drilling Visualisation Research Consortium   Boulder Colorado

- Developing Interactive Viz tools for Drilling
- Formed in 2000 with funding from BP
- Now supported by Chevron Texaco, Agip and Exxon Mobil
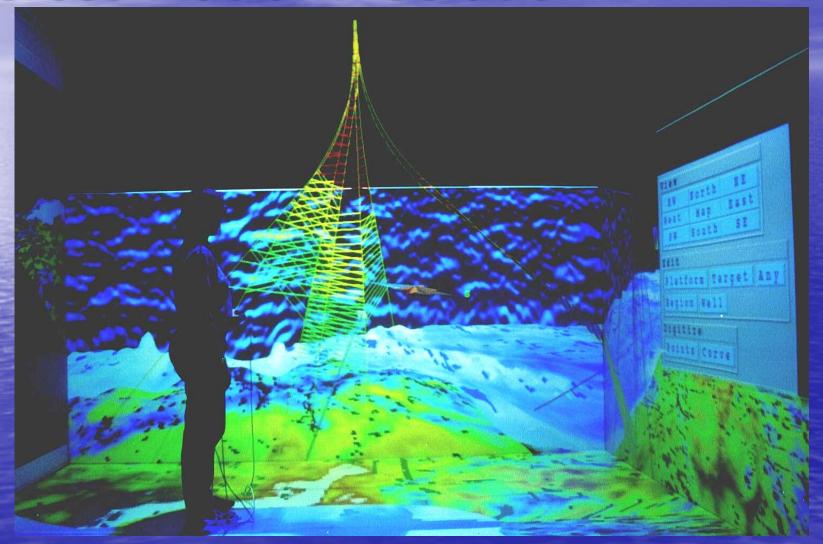- Based in the University of Colorado

Tech 21   (Inverness Scotland)

- Delivered COMPASS in 1986
- Delivered PC Oilplan in 2001, the first optimal solution, used by BP, Shell, Exxon, Chevron, BHP, Apache, Kerr McGee…
- Pioneered Planning, Survey and Anti-collision Algorithms now industry standard
- Still involved in worldwide operations consultancy
- Small, fast reacting, innovative, independent company.
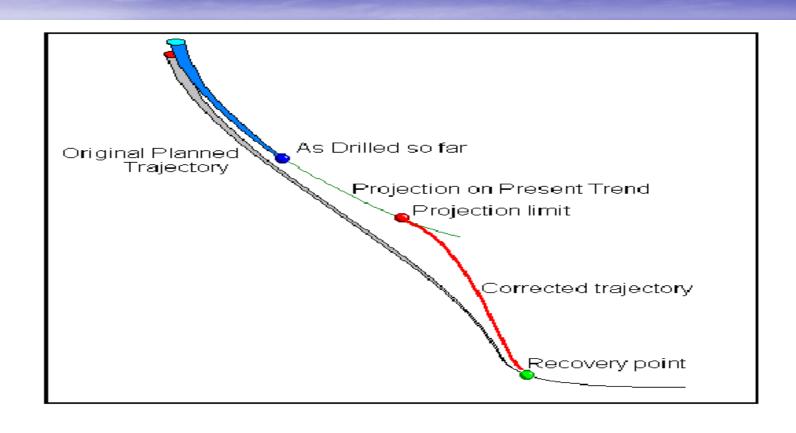
Why a new Package Now

- Tomorrows tools will use Visualisation for everything
  - User Interface
  - Database Access Levels
  - Interactive Planning
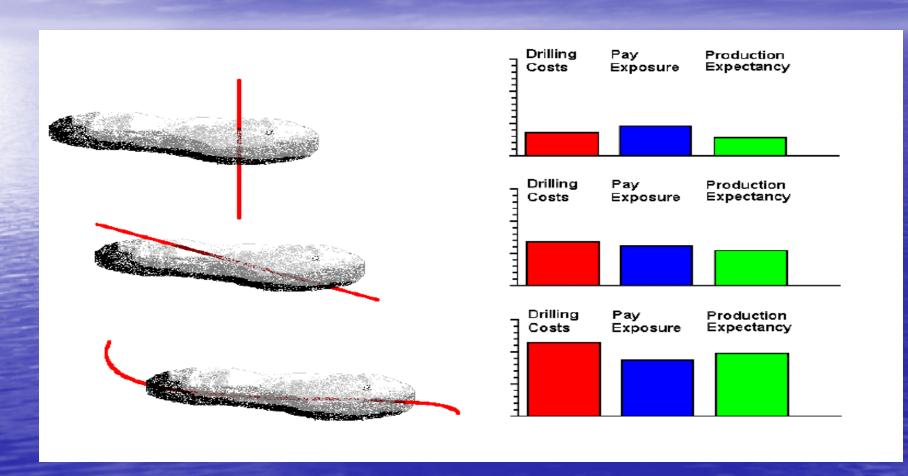 - Anti-collision
  - Review and Collaboration
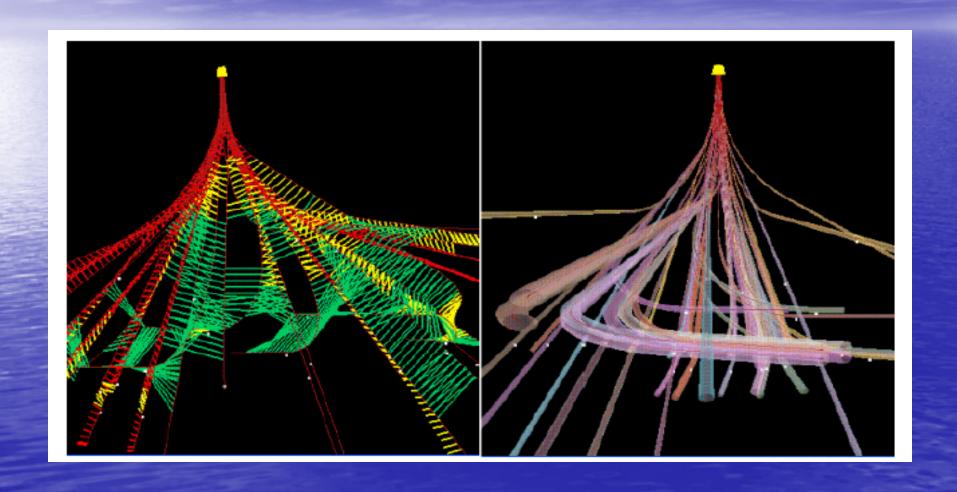
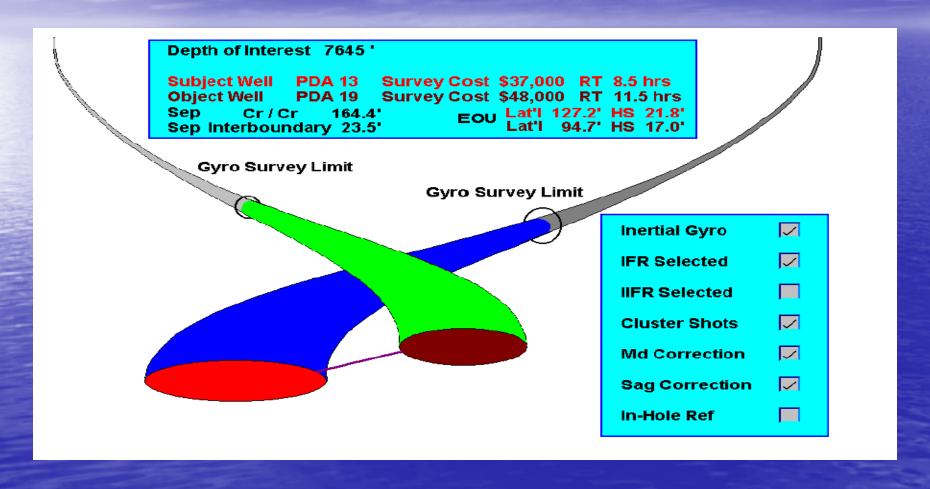# Cross Platform Solution

Planning While Drilling

Target Optimisation

Anti-Collision Visualisation

Interactive Survey Programme Design
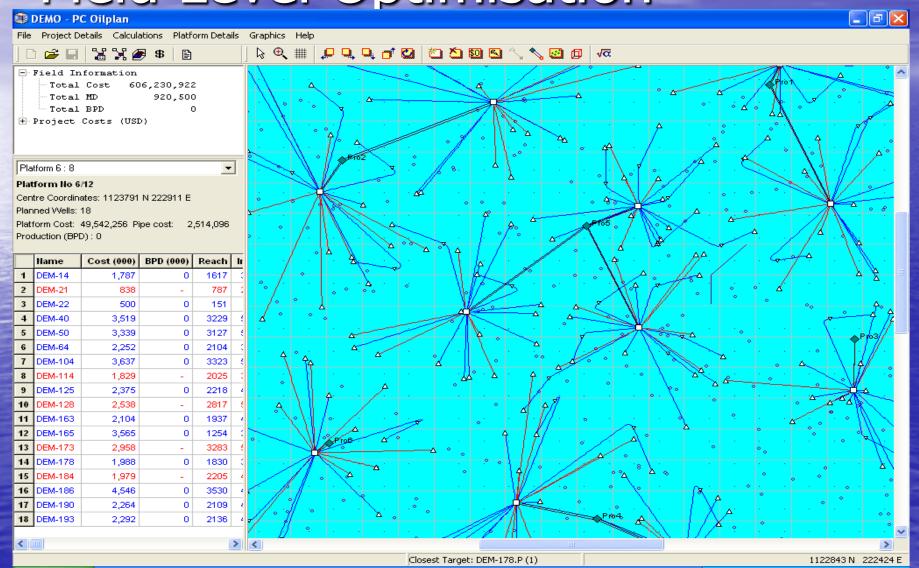
5D Features

- Planning, Survey, Anti-collision in one module
  - Sequential Plan–Analyse–Adjust is slow
  - Quicker workflow
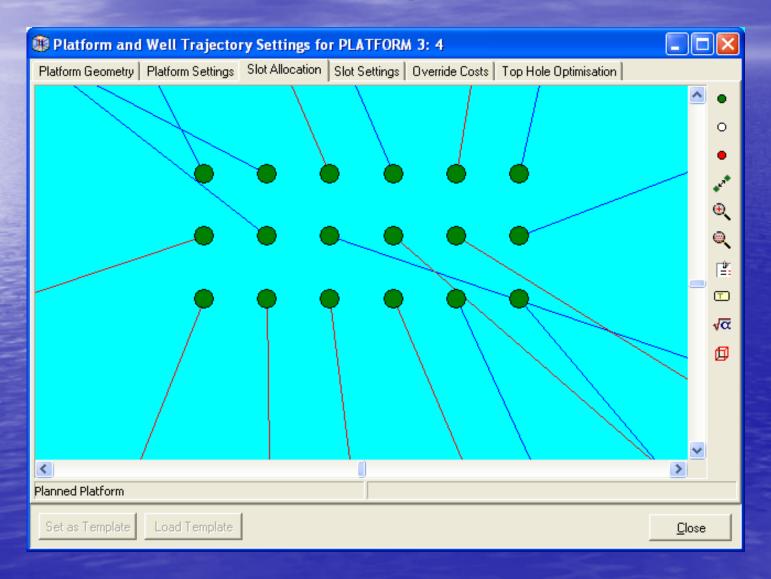 - Multi-disciplinary approach

  - See Demo

Optimised Solutions

- The Solution v A Solution
  - Optimised at Field Level
  - Optimised at Platform Level
  - Re-Optimised after each survey acquired
  - Cost, Risk and Time optimisation

Field Level Optimisation
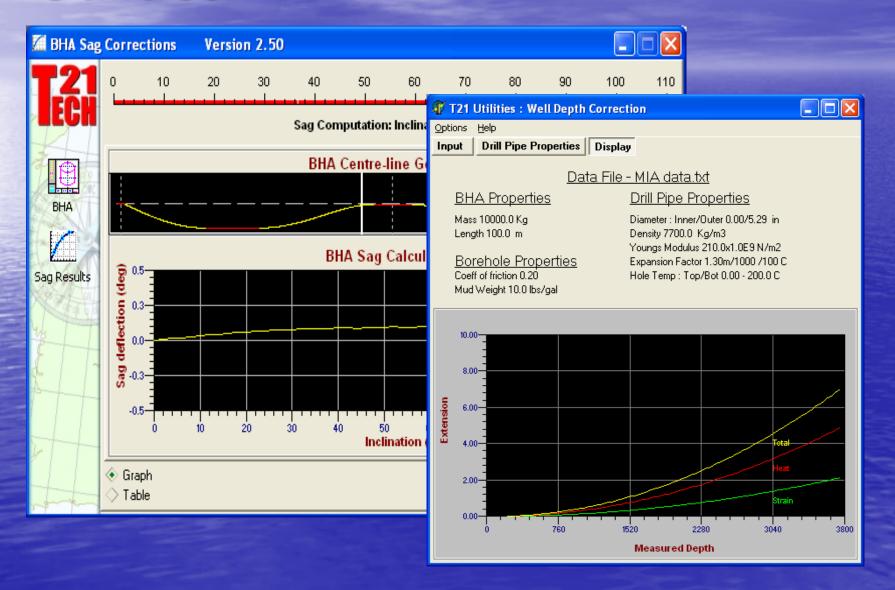
Platform Level Optimisation

Using High Speed Rig Comms

- Data Collaboration
  - Field User can share data and share decisions with HQ
  - HQ kept up to date with field and can see instantly field status

Improving the Learning Curve

- Multi Level User Status
  - Three levels of user
  - New Users get started quickly
  - Infrequent Users only see relevant options
  - Power Users get full access and locking capability

Utilities

The Source Code Shop

- Survey Correction
  - Sag Correction
  - Depth Correction
  - IFR / Mag Interference
- Well Planning
  - 3D trajectory algorithms
  - Optimal Landing Curves
  - Live Anticollision
  - Constant Toolface RSS trajectories
  - Optimal Top Hole Arrangement
- Utilities
  - BHA Analysis
  - Torque & Drag
  - Geodetics