Realizing the Value of Real-Time Monitoring
A Service Company Perspective
Who is this guy?

- 27 years with Schlumberger in various international management roles
- Current position: Global Real-Time Operations Manager
- Responsible for oversight of the many facets of data acquisition/delivery and associated added-value generation across the various product lines
- Authored various Real-Time related industry articles and technical papers
- SPE Intelligent Energy Committee member (2010-2014)
Our Services

Producing the Reservoir
Completions, Artificial Lift, Well Intervention

Finding the Reservoir
WesternGeco

Characterizing the Reservoir
Wireline, Testing Services

Optimizing the Reservoir
Well Services

Integrated Project Management
Schlumberger Production Management

Reservoir Software, IT & Interpretation
Schlumberger Information Solutions, PetroTechnical Services

Accessing the Reservoir
Drilling & Measurements, M-I SWACO, Geoservices,
Drilling Tools & Remedial, Bits & Advanced Technologies
Vendor Neutral Wellsite Data Aggregation & Delivery

- **3rd Party Web Storage**
- **Web Storage Service Company Hosted – Temporary**
- **Local Storage Operator Hosted – Permanent**
- **Service Company 24x7 Data Transmission Monitoring**

**Data Aggregator**
- Mud Logging
- Rig Sensors
- MLWD/LWD
Real-Time & Drilling Related Commercial Workflows

Data Aggregation
Vendor Neutral Data Aggregator

Regional Real-Time Storage
Web Storage
Service Company
Hosted – Temporary
Operator Hosted
– Permanent

Visualization & Analysis
- Drilling Monitoring & Optimization
- Geosteering
- RT WBS & Pore Pressure
- RT PetroΦ & G&G model update
- 3D Geomechanics Updates
- Vendor neutral software
Real-Time Monitoring Benefits to Schlumberger

- Collaborative approach to support critical operations
- Access to global network of expertise
- Consistent situational awareness
- Improved communications across all stakeholders
Critical Operations Monitored

• Real-time problem diagnosis & help desk support
• Pre-run quality checks - Equipment initialization/programming validation
• Survey quality/directional trajectory/well placement monitoring
• Formation evaluation data quality monitoring
• Rate of Penetration Optimization (ROPO)
• Pore pressure/wellbore stability monitoring
• Bit life optimization
• Drill string washout monitoring
• BHA shock and vibration monitoring
Standards are Critical

- Wellsite connectivity
- RTM hardware standards
- Data security standards
- KPIs and business systems to measure & manage
- Audits & remedial work plans
- Remote expert services processes, business models
Oversight and Chain of Command

Industrialized Workflows Key to Successful Change Management

- Formalizes ‘who does what and when…’
- Promotes domain integration
- Ensures ‘right data at the right time’
- Improves operational consistency
- Supports best practices
- Enhances productivity & accountability
- Provides a platform for process improvement
- Enforces company policies and regulatory compliance
Expertise
Understand Your Personnel Resources

- Robust competency management system
- 24x7 staffing planning
- Right profiles / right-sizing
- Standard job descriptions
- Cross domain integration
- Formalized training courses
- Compensation structure
- Clear development paths
Escalation/Communications Protocols

Geomechanics event/recommendations from GMA

- RTOC
- Validate data w/ Contractor stakeholders

Is data correct?

Y
- Identify source of problem
- Fix
- N
- Is the event still present?
- Y
- Call to RTOC/GME/GMA
- Record Event in system

Operational Instructions to be followed after solving the problem

YP

Operational Instructions to be followed after solving the problem

Document properly and involve all respective Team members

Event Solved?

N

- Call Contractor Senior Ops
- Call Operator Superintendent
- Call Operator drilling manager

GME: Geomechanics Engineer
GMA: Geomechanics Advisor
RTOC: Real-Time Operation Center
WE: Well Engineer
WSS: Wellsite Supervisor
Monitoring Tools
Making the Complex Understandable

• Drilling performance optimization
• Visualization of BHA in depth and time for rapid comprehension
• Swift identification and problem precursors to minimize unplanned NPT
• Express scan of drilling risks and events to aid decision making
Effective RTM Support Enablers

- Standards
- Processes
- Expertise
- Escalation
- Advanced Monitoring Tools