



Modernization: Myths, Facts and Strategies

Government Technology Conference
February 17, 2010



Myth or Fact?

The Railroad Commission of Texas is responsible for the regulation of the railroad industry in Texas.



Agenda

- RRC Mission, Goals and History
- Historical Perspective on Technology
Evolution and Modernization at the RRC
- Current Strategy
- Conclusions
- Q&A



RRC Mission

- We serve Texas by:
 - Our stewardship of natural resources and the environment
 - Our concern for personal and community safety
 - Our support of enhanced development and economic vitality for the benefit of Texans



RRC Goals

- Energy Resources
 - Support the development, management, and use of Texas' oil and gas energy resources to protect correlative rights, provide equal and fair energy access to all entities, ensure fair gas utility rates, and promote research and education on use of alternative fuels.



RRC Goals (cont.)

- Safety Programs
- Environmental Protection
- Public Access to Information And Services



Railroad Commission History

- Established in 1891 – Authority over railroads
- 1917 – Authority over pipelines and oil and gas conservation
- 1920s – Motor carriers and natural gas regulation
- 1930s – Regulation of oil and gas production
- 1970s – Authority over coal and uranium surface mining
- 1990s – Research and education on alternative fuels; motor carrier responsibility transferred to TXDOT
- 2005 – Transfer of last rail function to TXDOT



Myth or Fact?

- Modernization challenges faced by IT organizations is a recent phenomenon.



Technology Evolution at the RRC

- Mainframe
- GIS
- Web Applications
- Mobile Computing
- Document Imaging
- Information Resources



History of RRC Mainframe

- 1954 – first computerized system – create lists of all districts, fields, operators, leases and wells in the state – punch cards
- 1962 – Formulas automated to calculate oil well allowables – Proration System – IBM 1401 – supported batch processing and magnetic tape
- 1966 – Automated regulation of gas wells
- 1968 – Burroughs B-2500 – multi processing capability – migration from tape to disk



History of RRC Mainframe

- 1970s to 1990s – Conversion to CICS
- 1978 – IBM 370/158
- 1981 – Amdahl 470/V6
- 1986 – Amdahl 5860-200E – 128 mb memory – acquired from DPS
- 1996 – IBM Multiprise 2000 Model 2003-116 – 256 mb memory, 2 10 mb ethernet ports, 160 Gb disk
 - By mid-90s, 44 O&G and 36 non O&G mainframe subsystems
- 2005 – Web to mainframe bridging via CICS
- 2009 – IBM Model 2096 E02 – z/OS 1.9 - located in the Austin Data Center



History of GIS at the RRC - Building the GIS Data

- 1985 – Implemented tools and processes to build computerized mapping data
 - Converted physical maps to electronic format
 - 1 million oil and gas wells – completed in 1994
- 1987 – Gas Services began using the system to build hazardous liquid and natural gas pipeline data into the database



History of GIS at the RRC - Using GIS Data (last major upgrade)

- Implemented tools and processes to facilitate the use of GIS data in the decision support process including inquiry and map data analysis – Started in 1995 and completed in 2000
 - Implemented relational database
 - Ability to link descriptive data from the mainframe and PC applications with GIS data
 - Implemented cost effective distributed viewing capabilities
 - Enhanced GIS data exchange capabilities
 - Enhanced emergency response capabilities



Current GIS at the RRC

- State steward of oil and gas well layer and pipeline layer
- Other Layers
 - Original Texas Land Survey
 - Gas Plants and Refineries – critical infrastructure
- GIS Public Viewer
 - 1.5M page views per month
 - Links to business applications and document images including well logs
- Xmap on Mobile Computing Devices



History of Web Development

- Electronic Compliance and Approval Process (Drilling Permits) – 2001
- Oil and Gas Migration (OGM) Project - 2001 – 2007
 - Goal: Migrate from the mainframe to the distributed systems environment
- Post OGM Era – 2005 -
 - Current strategy; ongoing



Oil and Gas Migration Project

- Challenged modernization effort – 2001 to 2007
- Initial plan
 - Convert all mainframe programs to open systems architecture
 - Re-engineer business processes
 - Complete in 4 to 5 years
- FY 2003 – contract problems led to termination
- Reasons for failure:
 - Underestimated the effort
 - Underestimated the complexity (e.g., data migration, re-writing custom code)
 - Re-engineering while re-writing



Change in Strategy

- Modernization without Full Migration
 - Little to gain in re-writing business rules and program code that worked in order to migrate from one platform to another.
 - Cost reduction was a stated driver, but experience has shown that mainframe costs are not greater than distributed systems costs.
- In-source application development



Change in Strategy

- Focus on Automating Regulatory Processes
 - Offer industry online filing capabilities
 - Reduce paper exchange between the RRC and its customers
 - Improve agency workflow through enhanced tracking and audit procedures
- Provide enhanced tools and increased access to data for decisions
 - Build data warehouse
 - Offer ad-hoc reporting capabilities

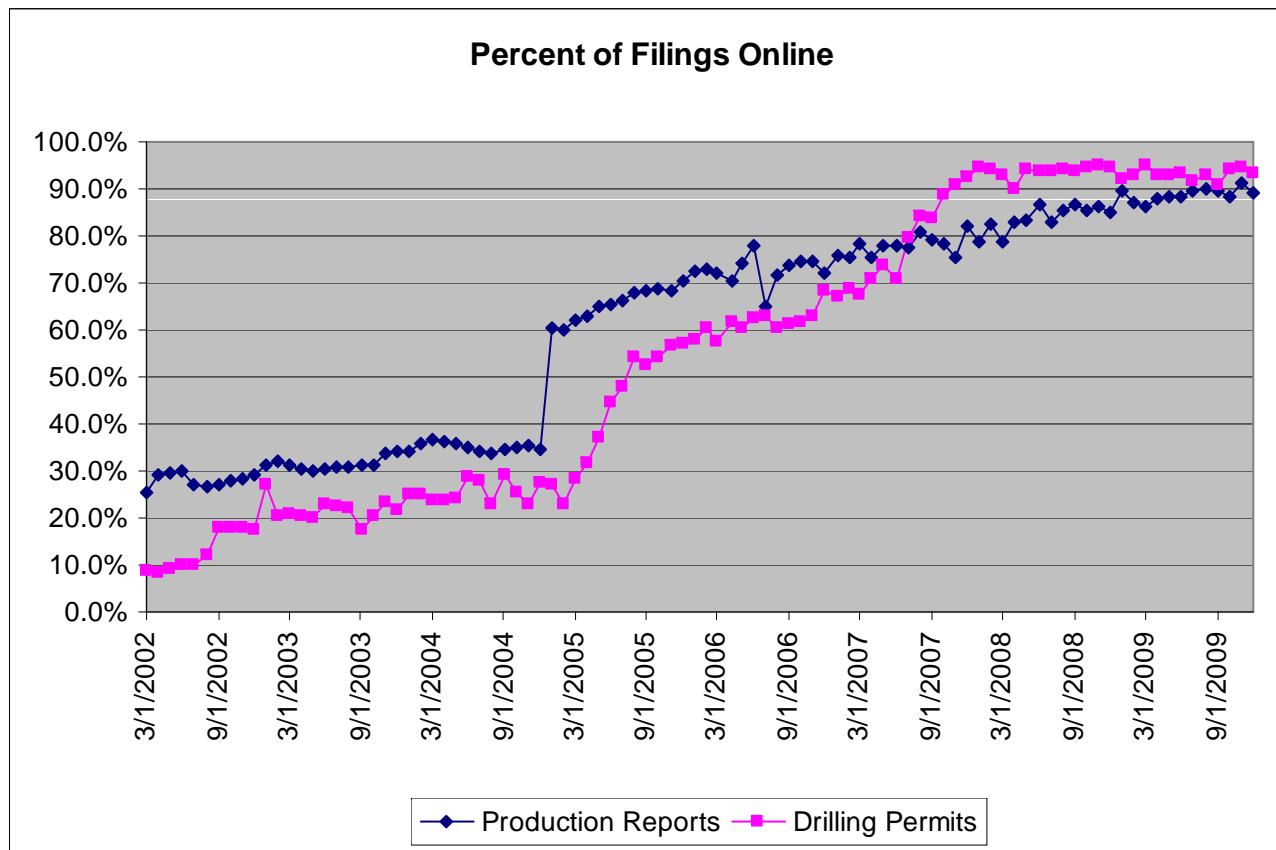


RRC Online

- External Applications In Production
 - Production Data Query (PDQ) – 3M page views/month
 - Production Reporting – includes imaging component (Neubus, Inc.)
 - Drilling Permits (W-1)
 - Disposal/Injection Well Monitoring Report (H-10) – includes imaging component (Neubus, Inc.)
 - Online Fee Payment System
 - Remittance Management System - internal
 - Expanded Web Access to Oil and Gas Data



Electronic Filing Adoption Trend





RRC Online

- Projects in Progress
 - Online Filing Completion Forms
 - Oil Field Clean-up (OFCU) Business Process Management System



Mobile Computing

- “Outriders” – District staff working out of their homes in order to be close to the regulated activity
 - Never used computers
- 196 Panasonic ToughBooks deployed
- Deployment occurred in phases
- All field staff equipped



Mobile Computing

- Current Functionality
 - Web Access
 - Applications, reports, schedules, rules, etc
 - GIS/GPS
 - Delorme XMap
 - Mainframe Access
 - Reduced requirement as mainframe data is made available over the web



Imaging

- Statewide Digital Imaging Services Contract through CCG and TSLAC (Neubus, Inc.)
 - Business Application Integration
 - Production Reporting
 - Disposal/Injection Well Monitoring Report (H-10)
 - “10th Floor” Project
 - Potential Files, Completion Files, Well Logs
 - Indexed and OCR
 - Hosted by Neubus
 - Google type search capabilities



Information Services

- Oil and Gas records
 - Hardcopy and microfilm
- Electronic Records
 - Mainframe data
 - Digital Map data
 - Well Logs
 - Drilling Permits



Major Project - FY2010 and FY2011

- District Field Operations Reporting and Management System (DFORMS)
 - To facilitate the collection of inspection data, scheduling inspections, documenting activities related to inspections, tracking field incidents and reporting of district activities
 - Mobile and server integration technology
 - will allow inspection data to be entered in the field using mobile devices
 - the inspection data will be uploaded to RRC's servers which will integrate the inspection data with other RRC systems



RRC Current Vision and Strategy

- Vision
 - Integration of GIS, Business Applications, and Document Imaging to support the Commission
- Strategy
 - Pursue projects that can be completed within 1 to 2 years
 - Prioritize based on “what’s the next best thing to do”
 - Use the platform that is most appropriate



Modernization Myths

- Modernization challenges for IT organizations is a recent phenomenon
- Your current platform is too (fill in the blank)
- We have a tool that will auto-magically convert all of your code
 - There is no silver bullet!



Modernization Strategies

- Think Big – Vision and Goals
 - Vision and Goals - RRC vision - Integration of GIS, Business Applications, and Document Imaging to support the Commission
 - Standard architectures
- Start Small
 - Perform architectural proof of concept (APOC)
 - Pursue projects that can be completed within 1 to 2 years



Modernization Strategies

- Retain and replenish your core competencies (e.g., business knowledge)
- Plan
 - Prioritize through IT governance
 - Use the platform that is most appropriate
- Be flexible
- Keep your eye on the prize
 - Keep a long term perspective, but not too long



Q&A

Bowden C. Hight

Director of Information Technology Services

bowden.hight@rrc.state.tx.us