



Jason Wilson
GIS & Geoscience
Business Analyst

SM Energy's Enterprise GIS Deployment Strategy

Agenda

- About
- Guiding Principles
- The Beginning
- What Changed
- What's New
- What's Next
- Lessons Learned
- Closing



About Me

- Geoscience & GIS Business Analyst at SM Energy for the last 4 years
- GIS Analyst & Geo-Tech at EnCana Oil and Gas for previous 5 years
- GIS Analyst & Cartographer at the Colorado Geological Survey for 8 years



About SM Energy

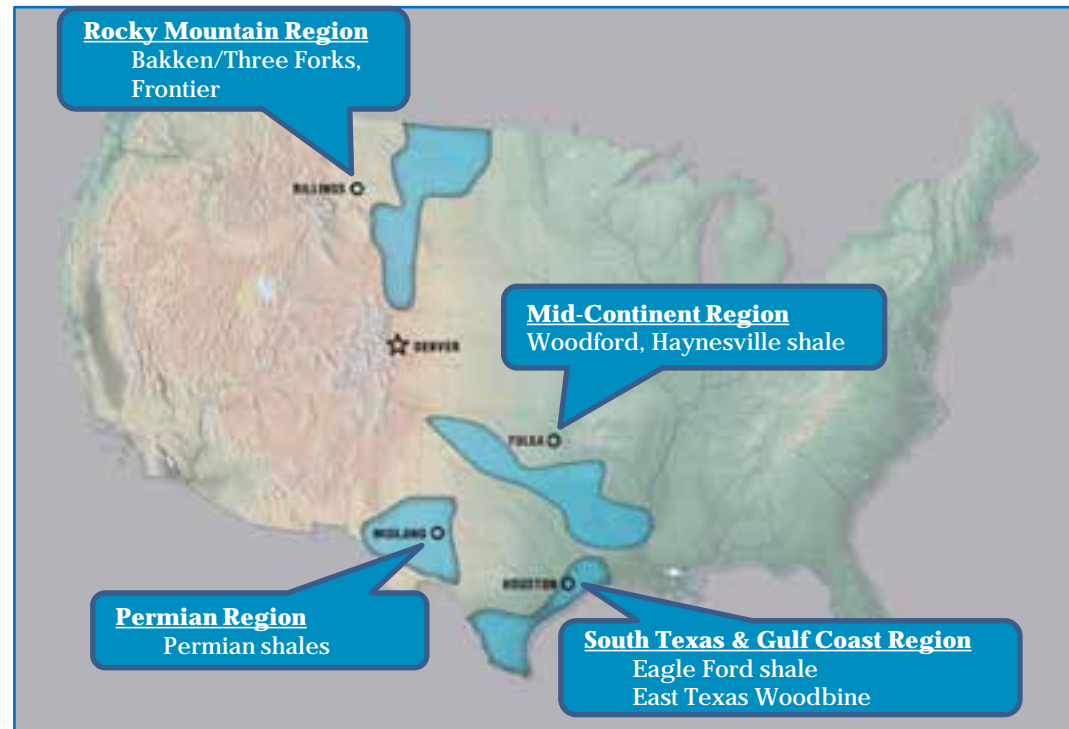
- Independent Energy Company
 - Focus on the exploration, exploitation, and production of natural gas and crude oil in the United States.
 - Founded in 1908 and incorporated in 1915. Became a public company with an initial public offering in 1992
 - Transitioned from a land holding company to full E&P Company 8 years ago



SM Areas of Operation

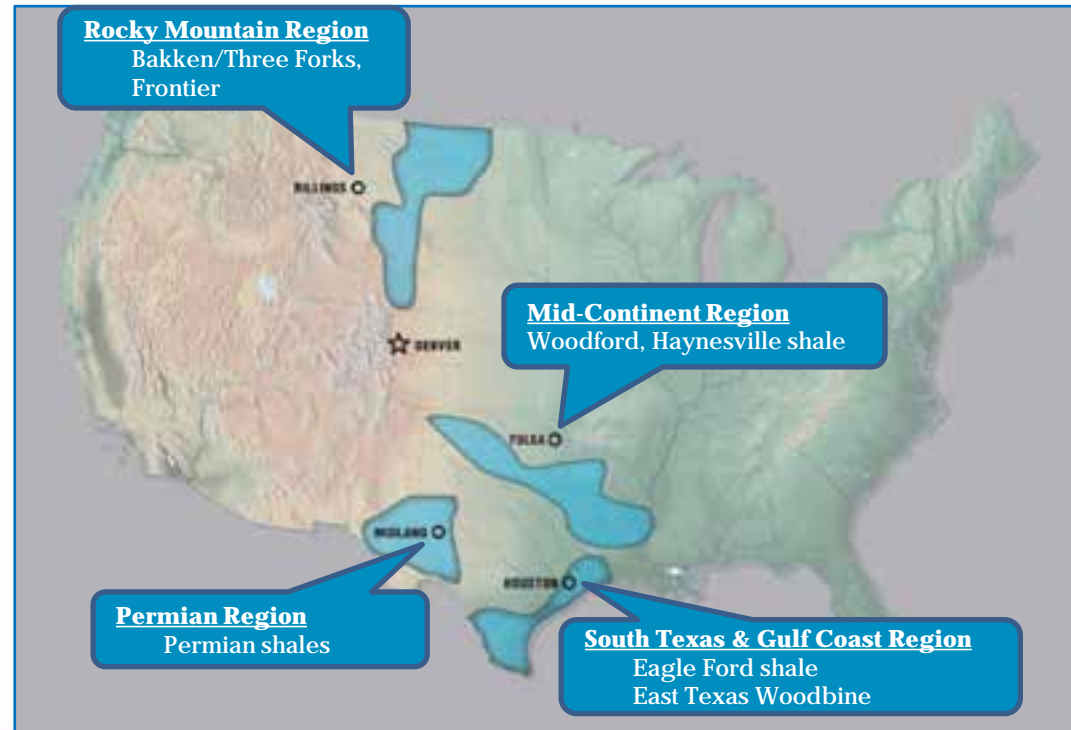
- **Four Core Areas**
 - **Rocky Mountains**
 - Billings, Montana
 - **Mid-Continent**
 - Tulsa, Oklahoma
 - **Permian Basin**
 - Midland, Texas
 - **Gulf Coast**
 - Houston, Texas

- **Corporate Office**
 - Denver, Colorado



Challenges

- Currently ~800 Employees and ~150 Contractors
- Corporate Office in Denver
 - Accounting, IT, & Executives
- 4 Regional Offices
 - Engineering
 - Geology & Geophysics
 - Operations



Guiding Principles

- Make GIS available to all employees
- Focus on web mapping; de-emphasize desktop
- **It Must Be Fast**
- **It Must Be Easy to Use**



In The Beginning

- 4 years ago; Initial Landworks implementation
 - I took this over 1 month after go live
- Only a handful of proficient users in ArcGIS Desktop
- All land mapping performed by regional power users (GeoTechs and Land Techs)



The First Web App

- Custom Silverlight Web App
 - Operated Leasehold
 - Operated Wells
 - Vendor Data
 - Centralized Data Mart
 - SM Rig Tracker (WellView Integration)



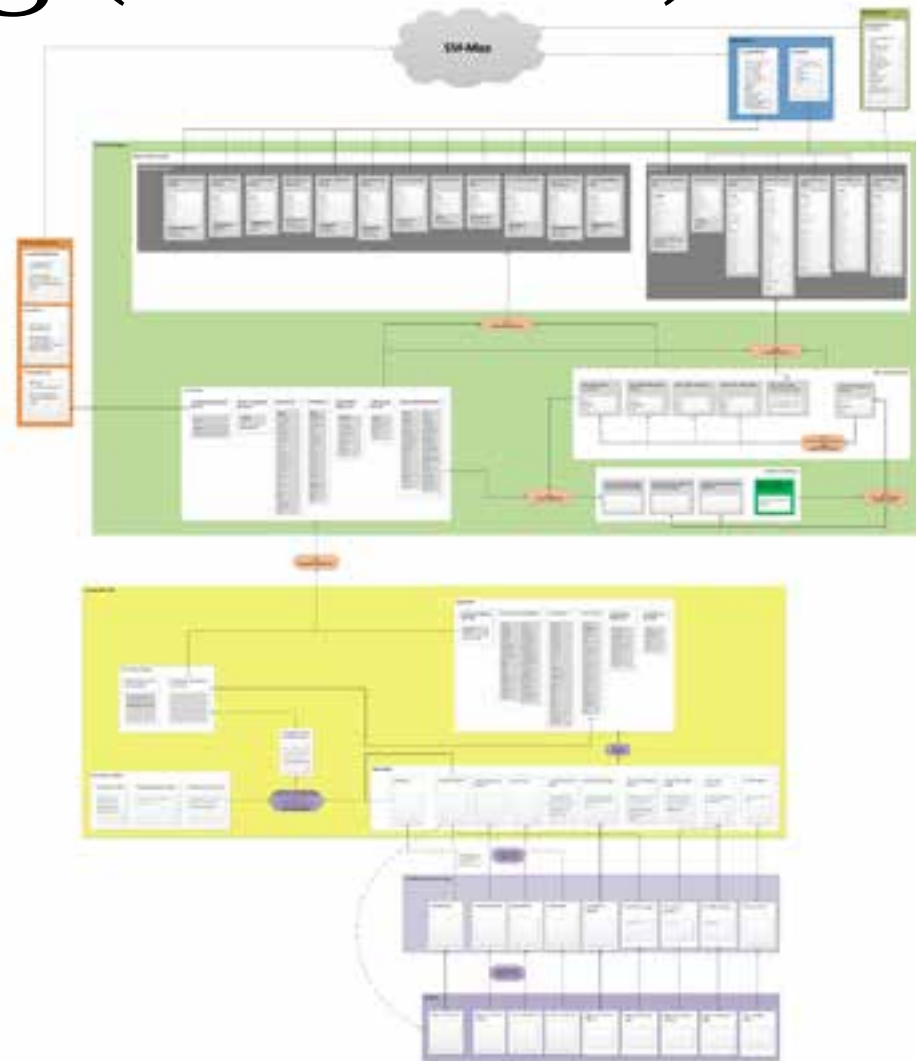
Land Mapping

- Custom Enterprise Land Mapping system
 - Needed better integration with SM-Map
 - Automated daily updates for entire leasehold position
 - Needed additional business layers
 - Expiration, Pugh Clause, Depth Severance, etc
 - Regional Formation Query Tool



Land Mapping (continued)

- Enterprise system developed in-house
 - Excalibur
 - Kourier
 - SQL Server
 - ArcSDE
 - FME
 - SM-Map



Initial Statistics

(~500 Employees in 2010)

- ~250 unique users per month
- ~50 visits/day (non-unique)
- Used by Field Offices
- Used by Executives
- Use of application steadily increased the first 3 years



What Changed

- Developer resources in high demand with company growth
- Last production update to SM-Map June 2012 (minor update)
 - System is going stale
- New focus on using vendor maintained software and systems vs. custom apps



New Challenges / Opportunities

- Need ability to deliver mapping information to iPad/iPhone (HTML 5)
 - All staff is mobile and standardized on iOS
- New Land System coming this year
 - Switching from Excalibur to Quorum
 - Need to integrate with web mapping



The New Platform

- Geocortex Essentials
 - Implemented platform Q1 2014
 - Ported over all existing tools and functionality
 - Testing out HTML 5 Viewer
 - Out of the box integrations



Geocortex Continued

- Implemented as one monolithic site
 - Prefer over building multiple focused sites
 - Manage access to information and tools with Active Directory
- Helps with Training and Maintenance



Original

Geocortex Essentials



Geocortex Optimizer

- Statistics gathering platform
- Allows for in-depth analysis of layer use and performance
- Configurable alarms
- Monitors ArcGIS Servers, IIS and Geocortex Essentials



Voyager GIS

- Implemented spatial search and indexing tool in each office
- Federated search
- Integrated with Active Directory
- Geocortex Essentials Extension



ArcGIS Online

- Focused Use, not planning to make our enterprise solution
 - Facilities field collection utilizing Collector for ArcGIS
 - Lease and Well geocoding layers for integration with Business Intelligence tools
 - Geocortex Essentials Integration



Lessons Learned So Far

- Our users prefer the interface
 - Intuitive Ribbon toolbars
 - More stable platform
 - Lots of enhancements and features over original
 - Global Search
 - Identify Tool with links and attachments
 - Powerful filters and queries



Search and Filter



What's Next

- Quorum Land System
 - Base system that impacts entire company
 - Begin GIS development work this summer
 - Go live in December
 - Direct integration between Quorum Land and Geocortex (searches and reports)



Well Master

- Energy IQ's TDM (Trusted Data Manager)
 - PPDM Based
 - Well Header and Bottom Holes
 - All IHS Well Data
 - Blended with SM Interest Wells



FME Server

- Enhanced Data Delivery Engine
 - Migrate data processing off of ArcGIS Server
 - Allow complex multiple layers and formats for exporting



SeisQuest

- Geophysical Data Management System
 - Index and metadata stored in SDE
 - QC seismic data within Linux and build shapefiles once passed QC statistical validation
 - Available to all users through Geocortex/SDE/ArcGIS Server integration

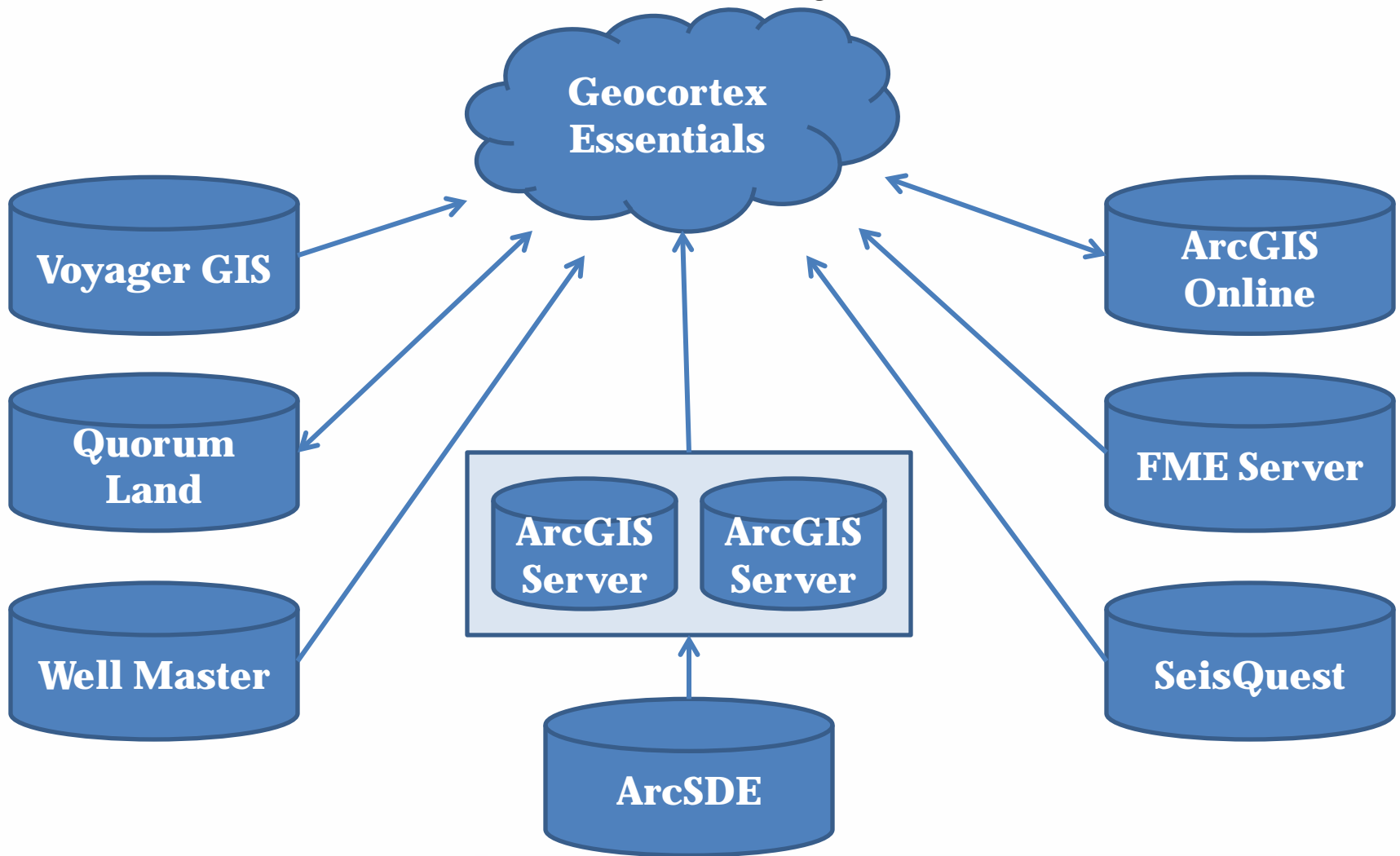


Long Term Plan

- **Well Master, continued build out**
 - Production Data
 - Geoscience Data
- **Business Specific Workflows**
 - Land Reports
 - Scout Ticket Reports
- **SCADA Systems and Real Time Dashboards**



The Final System



Closing

- Guiding Principles Lookback
 - SM-Map is available to all employees
 - SM-Map is web based
 - **It Is Fast**
 - **It Is Easy to Use**
- One location for all geospatial data



Questions?

Jason Wilson

GIS & Geoscience Business Analyst

jwilson@sm-energy.com

(303) 864-2560

