AARON J UDY, G ISP

- Esri Certified Enterprise Geodatabase Management Professional
- GIS Certification Institute (GISCI) GIS Professional Certification
- Certified Scrum Master
- Ninja (No, really!)
MARICOPA COUNTY ASSESSOR’S OFFICE

- Fourth Largest Assessment Jurisdiction in the Nation
- Ownership Changes (sales) 271,260
- Parcel Splits (new creates) 2,000
- New Subdivision creates 345

PERMITS WORKED

PARCELS BY TYPE

2014
SO WHAT IS ATLAS ANYWAY?

- Automated Version Reconcile and Post
- Version Reconcile Order Prioritization Based on Historic Data
- Automated Nightly Compression
- Reconciliation Resilience – Failed Reconcile Management
- Automated Self-Recovery From Failed Compression
- Automated Version Cleanup
- User Feedback
EDITING ENVIRONMENT (PRE-ATLAS)

**PostgreSQL**
- Esri Parcel Editor (Spatial Data)

**Oracle Spatial**
- Custom Built Parcel Management System
- Esri Workflow Manager
- Area of Interest Feature Class
- Esri Data Reviewer
OBSTACLES

• Reconcile and post can be resource and time intensive
• Some users create larger, more complex versions
• Lack of metrics or data for comparison
• Limited hours in a day
  • Nightly ETL processes
  • DB locks
• Non-database savvy users handling reconcile and post
  • Locked versions
  • Complex geodatabase administration functions/concepts
  • Deciding the best order to reconcile and post
    • We process versions differently
But, what’s wrong with esri’s suggested reconcile order?

NOTHING IS WRONG ... JUST A DIFFERENT APPROACH
CONCERNS

• Users purposely crashing ArcMap to stop reconcile
  • “It was taking too long”
  • “I had to catch my bus”
  • “I thought it would block the compress”

• Interference with nightly compression

• Administrative connections as SDE user

• Mapping group was about to purchase additional machines to supplement the machines that were busy reconciling and posting

• User complaints regarding reconcile and post performance
GROUND WORK

Teach the Machine to Decide

Business rules + Human intuition

Log Collection

Actual metrics + Build history

Bridge Systems

Link databases     Maintain data models     Maintain support
BRIDGING SYSTEMS

PostgreSQL
- Esri Parcel Editor (Spatial Data)

SQL Server
- ODBC Link Database

Oracle Spatial
- Custom Built Parcel Management System
- Esri Workflow Manager
- Area of Interest Area of Interest Feature Class
- Esri Data Reviewer

Utilize SQL Server’s ODBC DB Linking
TEACHING THE MACHINE
...THE CREATION OF ATLAS

GOALS

- Prioritize jobs (versions) intelligently
- Asynchronous
- Ensure full nightly GDB compression
- Gracefully recover from user mistakes
- Maintain geodatabase security
- Minimize costs
- Increase efficiencies
- Decrease interruptions
- Remove human processes

LESSONS

- If you can say it, you can code it
- “The only reason for time is so that everything doesn’t happen at once.” – Albert Einstein
- ArcSDE locking, just go with it, it’s there to protect you
- Don’t bypass ArcObjects!
- Successful doesn’t always mean successful, capture all messages
- Design resilience into the process
- Plan to monitor in advance
- If you aren’t sure, log it
PRIORITIZATION
TEACHING THE MACHINE INTUITION

7 PM Day 1 – 12 Noon Day 2

- Age – Oldest
- Area Size – Biggest
  - Utilize the larger time window for potentially longer reconciliation
- Version State Size – Biggest
  - Utilize the larger time window for potentially longer reconciliation

“Crunch Time” 12 Noon – 6 PM

- Area Size – Smallest
  - Less likely to interfere with nightly compression
  - Potential for a greater number of smaller versions to be completed
- Version State Size – Smallest
  - Less likely to interfere with nightly compression
  - Potential for a greater number of smaller versions to be completed
- Percent of User’s Versions Over Threshold – Smallest
  - Less likely to interfere with nightly compression
  - Potential for a greater number of smaller versions to be completed
- Percent of User’s Volume Overall – Largest
  - Presumes user capability and trust based on workload
- Percent of User’s Jobs R&P Time Overall – Smallest
  - Users whose versions take less processing time overall present potential for more a greater number of smaller versions to be completed
- Age – Oldest
  - Increases constraints each hour until compress
STACK

- Prioritization Services
  - Intuition meets workload
- Reporting Services
  - Building machine experience
- Staging Services
- Monitor Interface
  - Failed job review/resubmission
  - Status override

Atlas Core
Processes Versions via ArcObjects

Monitor Interface
Human Feedback

Prioritization Services
Version Management Based on Business Needs Scheduling & Proven History

Reporting Services
Logging History Error Reporting

Staging Services
Testing
SYSTEM FEEDBACK

USER LEVEL

RSS

ADMINISTRATIVE LEVEL

Kiosk Monitor
TECHNOLOGIES BEHIND ATLAS

CORE

• Python
• Arbitrary PHP Web Services (not RESTful)
• Windows Scripting
• SQL

MONITOR

• HTML5
• CSS3
• PHP
• JavaScript
MONITOR INTERFACE – DEFAULT
MONITOR INTERFACE – WORKING
MONITOR INTERFACE – CRITICAL
ATLAS KIOSK
RETURN ON INVESTMENT

• Cost (-)
  • Developer Time = $1,800
    • Plus One(1) Cube of Mt. Dew and Five(5) Energy Drinks = $17.42

• Savings (+)
  • New PCs and Support = $3,500
  • GIS User Labor Per Year = $23,000
  • First Year Savings $26,500 - $1,800 = $24,700
  • Savings Each Year After = $23,375
  • Five(5) Year Savings Projected = $118,200

• Version Throughput Has Increased From 7-8 to 15-18 Per Day (+)
  • Monetized Productivity Improvement Per Year = $11,500
  • New First Year Savings $24,700 + $11,500 = $36,200
  • New Savings Each Year After $23,375 + $11,500 = $34,875
  • New Five(5) Year Savings Projected = $175,700
QUESTIONS
Esri

www.esri.com
developers.arcgis.com/javascript/

Clouds

www.clicktorelease.com/blog/how-to-make-clouds-with-css-3d#

Charts

www.fusioncharts.com

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