APS' Story:
Implementing ArcGIS 10.2.1 & FM 2.0

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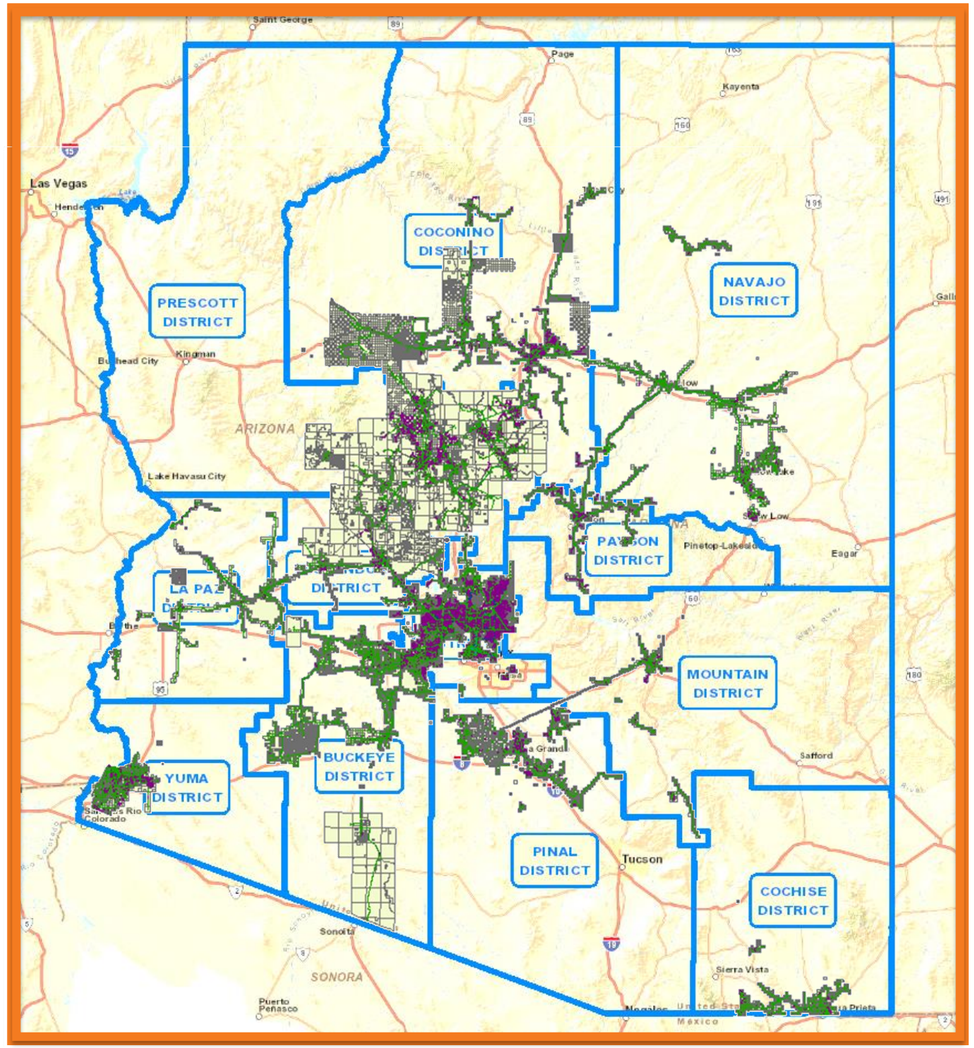
At the 2014 Esri conference, both ESRI & Schneider Electric told the EGUG community that ArcGIS 10.2.1 with Feeder Manager 2.0 is their supported environment for Utilities and strongly encouraged everyone to upgrade.

APS has been working with ESRI and Schneider to do exactly this, and selected POWER Engineers as our partner.

We will report on our GIS journey, implementation project strategy, key considerations, production implementation, challenges, lessons learned. & performance benchmark testing of ArcGIS 10.2.1 with FM 2.0.

Background

- Incorporated in 1886 serving Arizona State
- 34,645 square mile service area (30% of the state)
  - ✓ 424 substations
  - ✓ 28,937 distribution line miles
  - ✓ 5,434 transmission line miles
  - ✓ 54 generation units
- Second largest generation fleet in the Western US
- Palo Verde Nuclear Generating Station – total output 4,030 net megawatts
  - ✓ Largest power generator in the U.S.
  - ✓ Meets the electrical needs of approximately 4 million people around the clock
- 1.2 million customers
- 6,700 employees

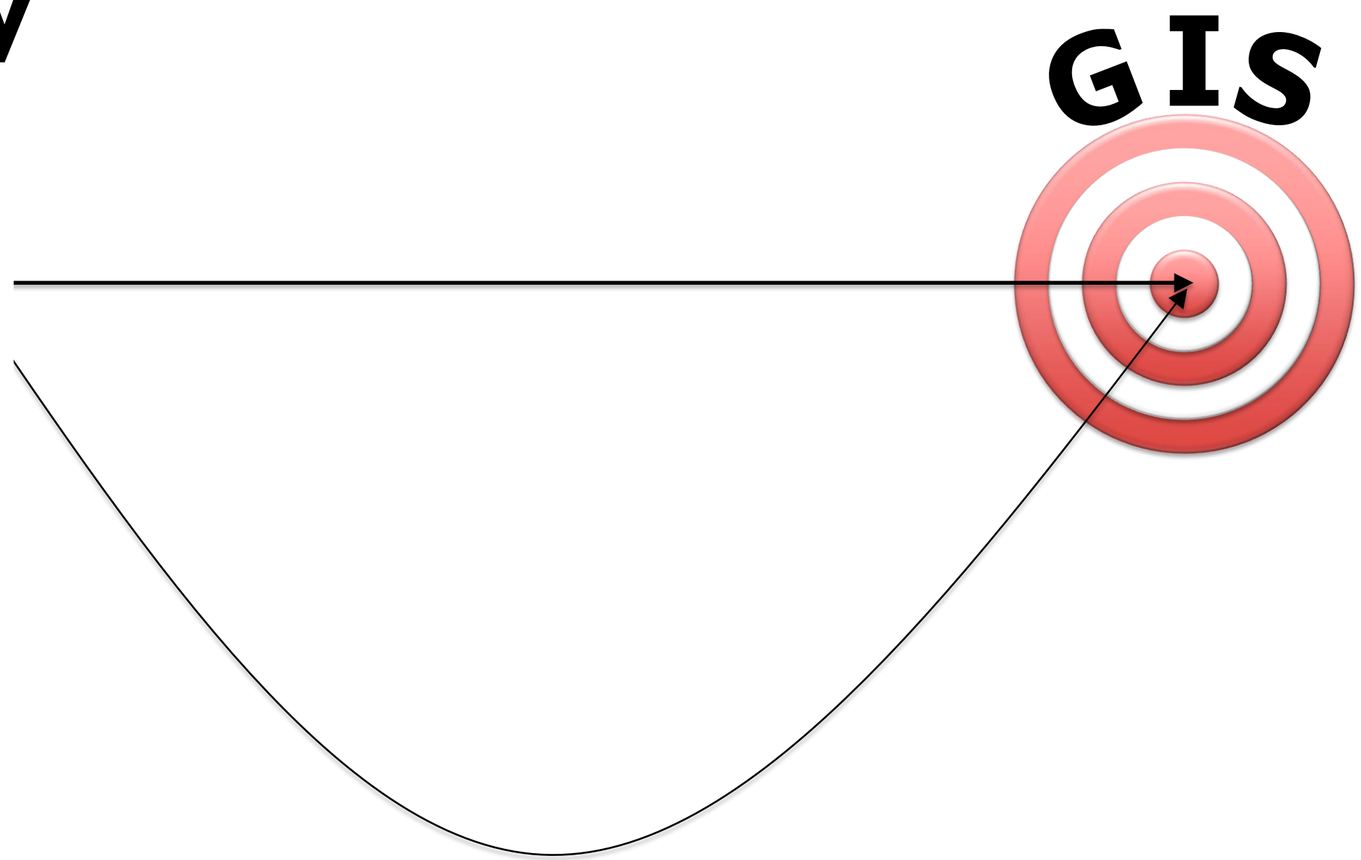


POWER Engineers Background

- Established in 1976
- 2300+ Employees
- Offices Nationwide & Overseas
- Average over 20 years experience
- Esri Foundation Partner of the Year
- Industry leading independent consulting group
- Deep domain expertise in electric, gas, water, wastewater, municipal utilities, cities, communications, & other industries

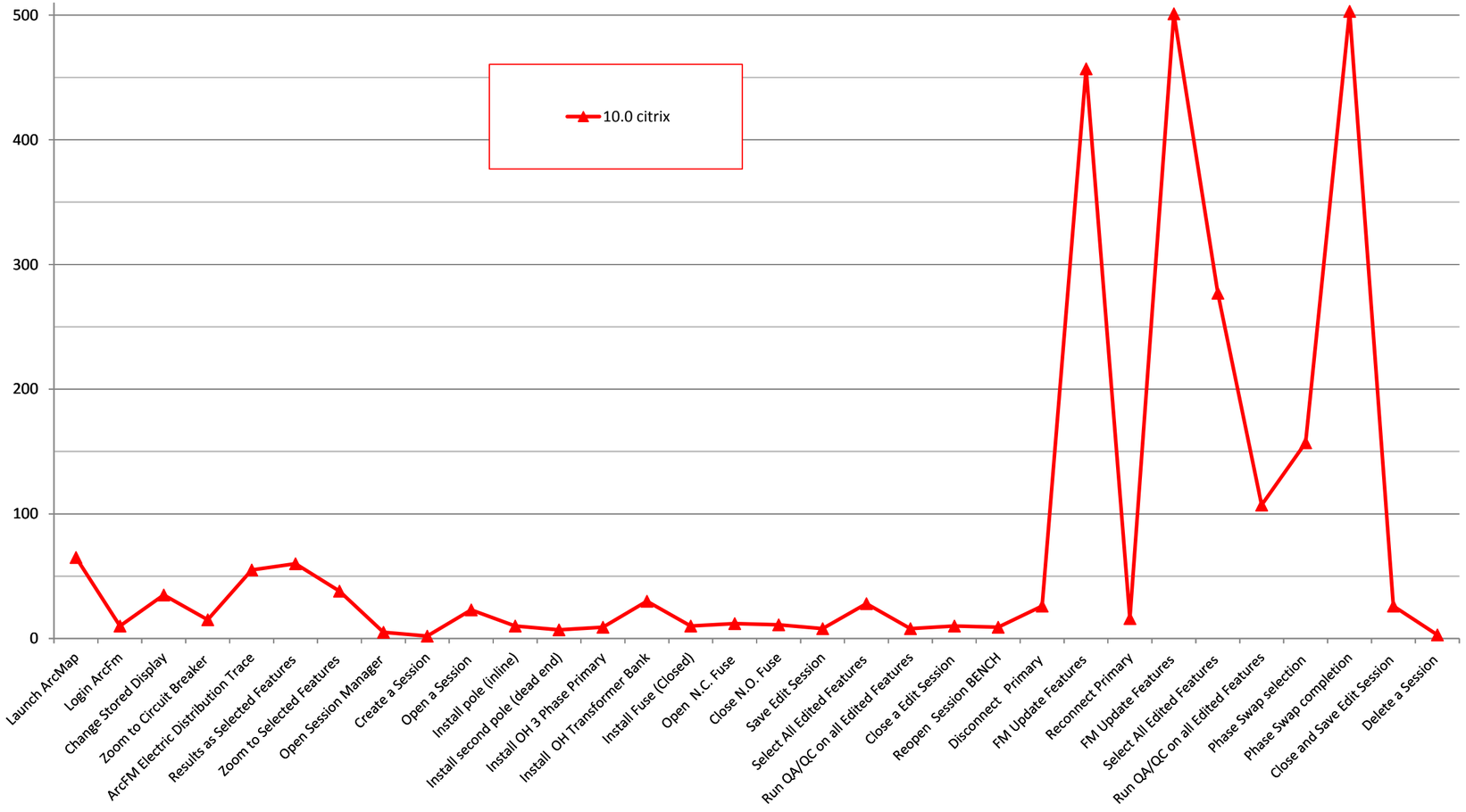
20 Year GIS Journey

- 1994 -
  - ArcI
  - Powe
- 1999 -
  - Flexi
  - Appl
  - Busi
  - 200
- 2014 -
- To cos



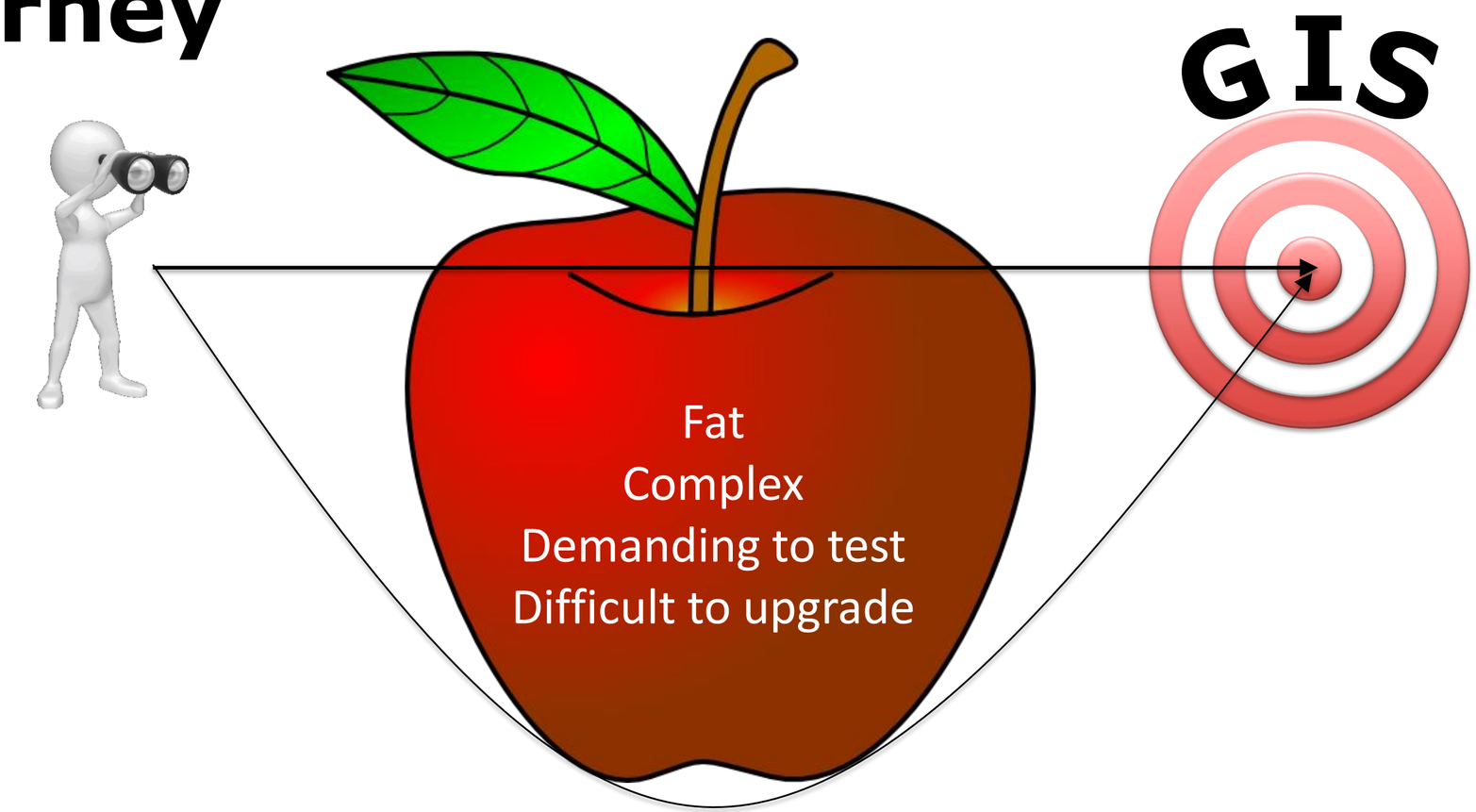
iness, Unsustainable

Performance Benchmark- 10.0 Production



One Edit Session
32 Tests
Track Wait Times

20 Year GIS Journey



Flexible

Easier

Sustainable

Implimentation Strategy

- Gather Requirements
- Design system with eye on what is available in core
- Involve End Users early
- Change Processes
- Multiple Test Cycles

Key Considerations

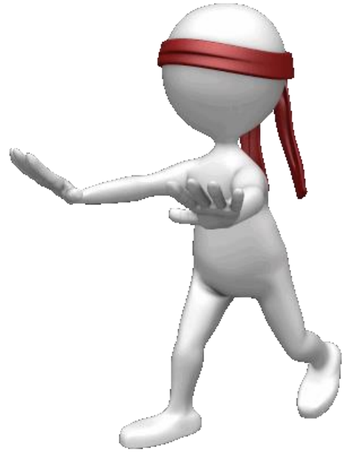
- Current Processes
- Performance / Productivity
- Data Quality
- Supportability
- Interfaces

Implementation

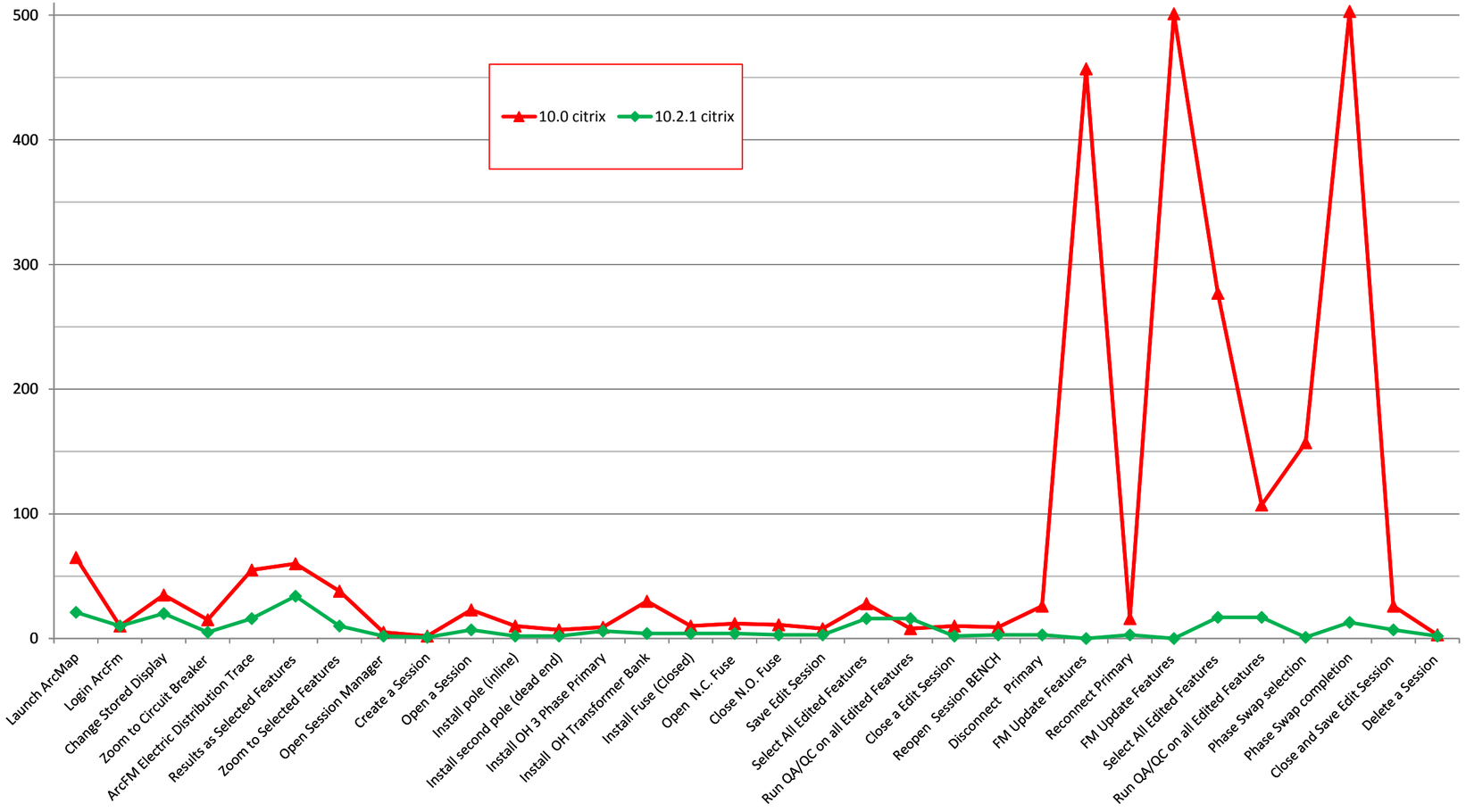
- Desktop
  - New CITRIX Servers
  - Printing
- GDB changes
  - Remove Feeder Manager 1 fields
  - Change subtypes
  - Add network features
- Feeder Manager 2
  - Data
  - Interfaces
- Web
  - MXD changes
  - New Servers
  - F5

Challenges

- Vendor Defects
- Other teams
- Time and Resources
- Test Cases
- Turnover
- Training



Performance Benchmark- 10.2.1 Production



One Edit Session
32 Tests
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Lessons Learned

- Time and Resources
- Mapper knowledge
- Hardware differences
- Dry Runs
- Interfaces


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About APS:

Arizona Public Service (APS) Company is the largest electric utility in Arizona and is the principal subsidiary of Pinnacle West Capital Corporation.

Its nearly 6,400 megawatts of generating capacity, approximately 6,000 miles of transmission lines and 29,000 miles of distribution lines enable APS to serve nearly 1.2 million customers in 11 of Arizona's 15 counties – a service territory covering approximately 35,000 square miles.

APS originated as the Phoenix Illuminating Gas & Electric Light Company in 1886 and now employs 6,400 people in Arizona and Northwest New Mexico.

Review APS' Enterprise HA Architecture:

- Oracle GeoDatabases
- Citrix
- Application servers
- Web Servers

Key Project Considerations:

- Focus on new Core functionality vs old Custom Code to provide custom functions.
- Changes & compromises for business workflows.
- Improve mapper efficiency and reduce software upgrade and maintenance costs.
- Engage Power Engineers.
- Remove custom code that validated data during the editing process and replaced with automated

QA/QC to ensure that invalid data cannot be posted (Switch from "protect and prevent" to "trust but verify").

Lessons Learned:

- Performance Benchmark Testing of ArcGIS 10.2.1 with Feeder Manager 2.0
- ESRI support & learnings
- Schneider support & learnings
- APS's Successes and Struggles

APS User Environment

- Desktop Users
  - 20 Editors
  - 40 Viewers
- Web Users
  - 10 Editors
  - 400 Viewers

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APS Past

- ArcGIS/ArcFM 10.0 SP5
  - Citrix 4.5
    - Intel ????
    - RAM
- Oracle 11.2.0.3
  - AIX 6???
  - SDE Service for Maintenance
  - ST_GEOMETRY
- ArcGIS Server 10.0 SP5
  - Windows Server 2003
    - Intel ???
    - RAM
  - IIS6

APS - Now

- ArcGIS/ArcFM 10.2.1 SP??
  - CITRIX 6.5
    - Windows Server 2008 R2
    - Intel???
    - RAM
- Oracle 11.2.0.3
  - AIX 6??
  - ST_GEOMETRY
- ArcGIS Server 10.2.1 SP??
  - Windows Server 2008 R2
    - Intel
    - Ram
  - IIS7

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