Integrating Mobile Work Management Systems with ArcGIS Enterprise

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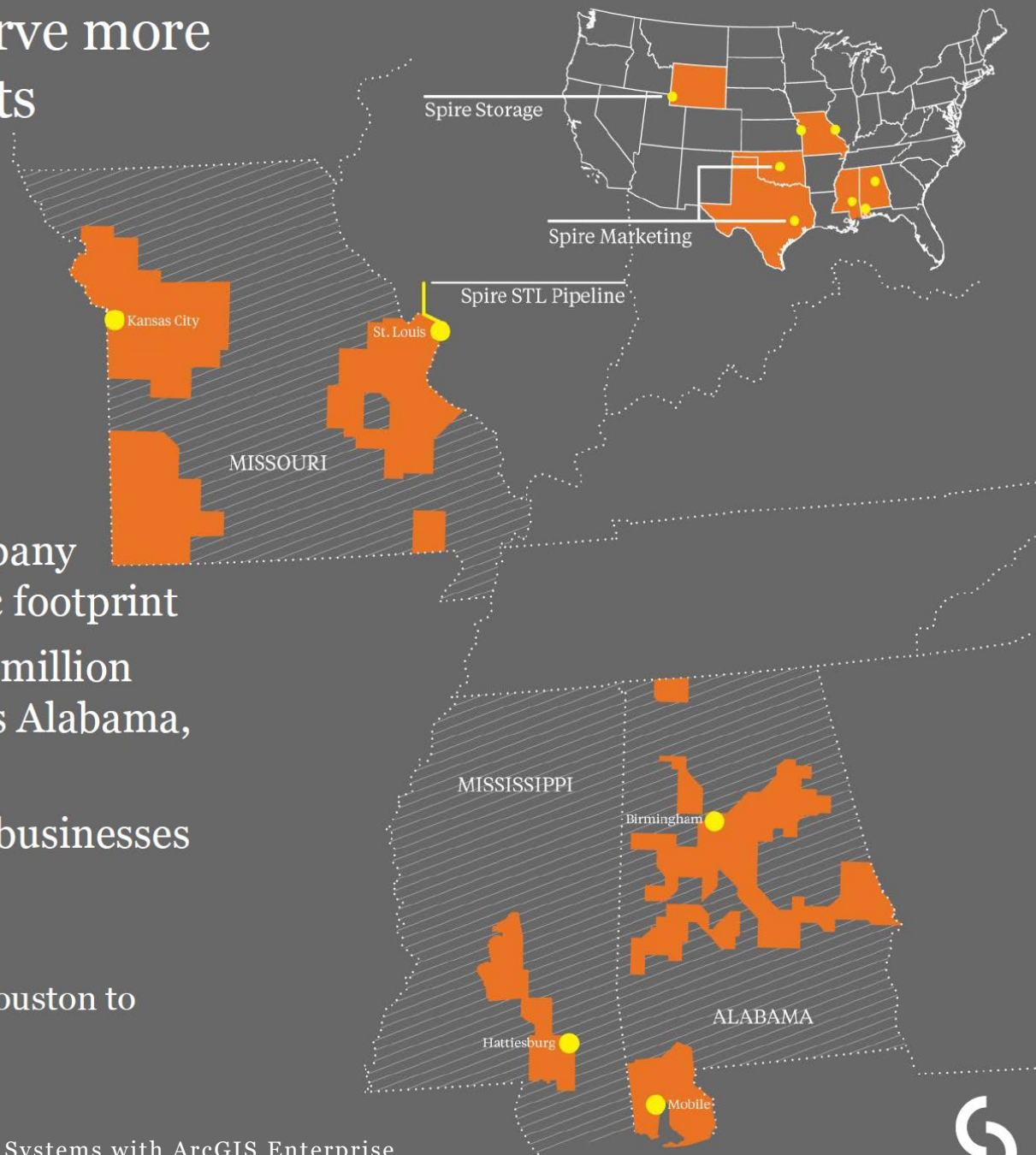ESRI User Conference 2021

spire

Agenda

- About Spire

- Project Background

- System Infrastructure

- Integrated Work Flow

- Demo

- How Its Done: From Click Mobile to ESRI

- How Its Done: From ESRI to Click Mobile

- In Summary

We've expanded to serve more customers and markets

- We've transformed our company by increasing our geographic footprint

- Our gas companies serve 1.7 million homes and businesses across Alabama, Mississippi and Missouri

- We are advancing our other businesses

  - Expanding into gas storage
  - Pursuing Spire STL Pipeline
  - Opening a business center in Houston to support Spire Marketing

Project Background

- In 2016/17 Spire embarked on a selection process to upgrade/replace its current Mobile Work Management System

- Key Business Requirements
  - Ability to interface with existing work and asset management system – Maximo
  - Ability to interface with existing customer management system – Oracle CC&B
  - Ability to access a map on multiple platforms (ie Mobile Device or Laptop)
  - Ability to view/search company assets or inspection areas in a map as part of the workflow
  - Ability to report "conditions" around assets in a map
  - Ability to bring asset or GIS information back to the Mobile Work Management System to limit data entry.

- Click Software was ultimately chosen to replace and enhance the current system

- Spire One Project was kicked off in the spring of 2019.
  - Develop and implement the new system and business requirements
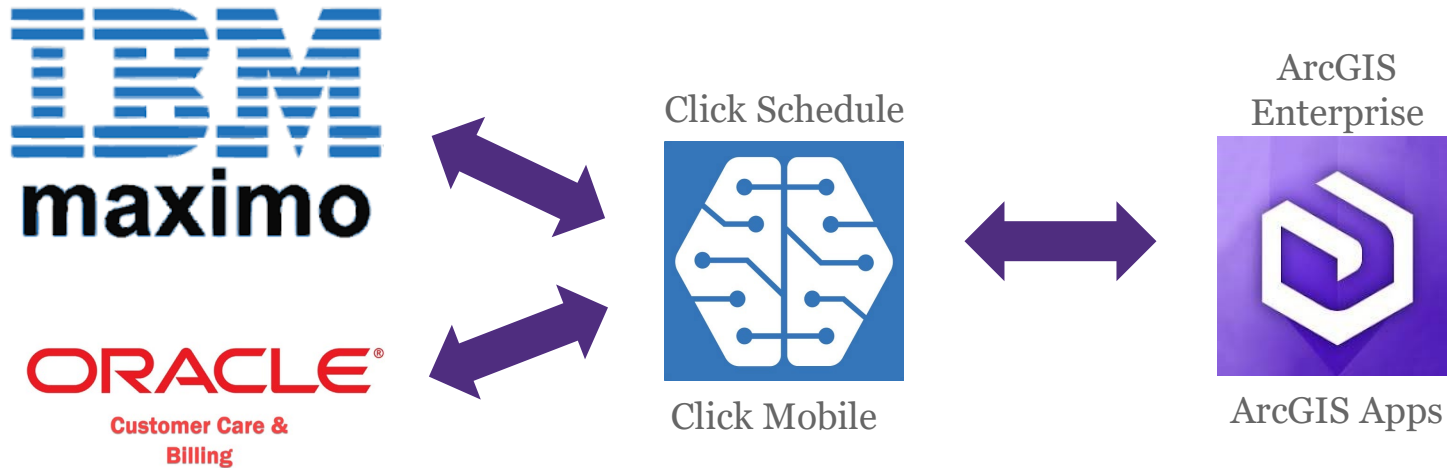 - Phased approach

System Infrastructure

- GIS
  - Desktop and Databases
    - ArcGIS 10.6.1 and ArcFM 10.6.1a
    - ArcGIS Pro 2.7 (mostly used to create publish services and content for Enterprise/Server)
  - ArcGIS Enterprise
    - 10.7
    - Multi-Machine Deployment
    - ESRI App Suite
- IBM Maximo – v 7.6.0.8
- IBM Maximo Spatial – v 7.6.0.2
- Oracle CC&B – v 2.6.0.1.0
- Click Software – v8
- Fusion Middleware

Integrated Work Flow

ArcGIS
Enterprise

Click Schedule

Click Mobile

ArcGIS Apps

- These assets or areas are assigned in Maximo via PM schedule or Work Order

- Once the work is scheduled and assigned its sent to Click Mobile to be worked

- User needs the ability search and zoom to asset or inspection area in the GIS Map as part of workflow and bring GIS information back to Click to complete the work

Integrated Demo

How Its Done: From Click Mobile to ESRI

- URL Parameters - Supported in both Browser and Mobile App integrated workflows

- Allows for bi-directional data exchange between applications

- To ESRI

  - Browser: https://<servername/webadaptor.domain>/portal/apps/webappviewer/index.html?id=cea364cfd5ea4a039ac189834fab323e&query=Leak%20Survey%20Areas,MXLOCATION,3118659

  - Collector: arcgis-collector://?itemID=6b464622f8c24bfe9a709b589904accb&referenceContext=search&search={MXLOCATION}

  - ArcGIS Field Maps: https://fieldmaps.arcgis.app?itemID=6b464622f8c24bfe9a709b589904accb&referenceContext=search&search={MXLOCATION}

- Embedded links in the Click Mobile Form

- Search values auto-populated in Click from the assets or areas specified from Maximo

How Its Done: From ESRI to Click Mobile

- URL Parameters are used to bring information from the GIS feature pop ups to pre-populate the Click completion forms.

- From ESRI

  - Browser:
    "https://<servername.domain>/broker/brokerframe.html?_from=esri&_sendparams=true&set?Action=leak&Data=FeatureID:" + $feature.objectid + "|Region:" + $feature.region + "|County:" + $feature.county + "|City:" + $feature.city + "|TownCode:" + $feature.towncode + "|Sector:" + $feature.grid + "|District:" + $feature.district + "|StreetAddress:" + $feature.streetaddress

    - Browser uses I-Frame embedded in the Pop-Up Title that reference arcade expression.

    - Broker program on portal server passes values from WebApp pop ups to click completion forms.

  - Collector/Field Maps:
    "<AppName>://set?Action=leak&Data=FeatureID:" + $feature.objectid + "|Region:" + $feature.region + "|County:" + $feature.county + "|City:" + $feature.city + "|TownCode:" + $feature.towncode + "|Sector:" + $feature.grid + "|District:" + $feature.district + "|StreetAddress:" + $feature.streetaddress

    - URL parameters launch user back to Click app and open the specified completion form and prepopulate the appropriate fields from GIS

In Summary...

- Benefits:
  - Seamless User Experience
  - Real-time integration and asset information via ArcGIS Enterprise
  - Data Quality enhanced – Pre-population of data points via Attribute Rules
  - Multi-platform Integration (Web and Mobile App)
  - Configuration not customization
  - Enhanced Scalability

- What's Next:
  - Continuous improvement of integrated workflows
  - Expanding integrated workflows as defined by business
  - Look to standardize to one Platform (hardware dependencies)
  - Look to consolidate Web Apps and Mobile Web Maps

Thank You!

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