Arkansas Geographic Information Office

The Carbon Project
Innovative Geosocial Solutions

2010 NSDI CAP – Arkansas Geo-Synchronization
Project Overview

Contacts:
Learon Dalby | learon.dalby@arkansas.gov | @LearonDalby
The Carbon Project | info@thecarbonproject.com | @CarbonProject

www.TheCarbonProject.com

Copyright © 2010 Carbon Project Inc.
Building & maintaining NSDI requires new ways to meet challenges
Geo-Synchronization can help us get there together

I have a Road update…
Overview

- Develop, deploy and sustain federation for exchanging local, state and national framework data using geo-synchronization services and common data models.
- Must bridge the gap between current production operations and the FGDC vision.
- The AGIO leads project, and deploys a geo-synchronization capability in its facilities.
- Uses geo-synchronization software from The Carbon Project and ESRI’s ArcGIS Server.

Coordinating Local, State and National Data Stores Framework Data Exchange through Automated Geo-Synchronization
Partners

• AGIO

• Arkansas Geographic Information Systems Board

• Arkansas GIS Users Forum

• The Carbon Project
Unique Challenges - Solutions

• Challenge - Ingest county transportation data into geo-synch federation, synchronize state-level to federal-level databases.

• Solution (without disrupting current processes) – Use common folder structures of FTP updates from 73 Arkansas counties
  • Polling/transformation capabilities extracts data changes and transmit them to geo-synch service using ATOM feeds & Web Feature Server Transactions (WFS-T).
  • Then update a state-level ArcGIS WFS-T Server.

• Provides a bridge between current processes and a new generation of NSDI geo-synchronization
Unique Challenges - Solutions

Let me process those Shapefiles…
Roles

A Publisher is a person (or system) that creates, deletes or inserts features. The Publisher submits the operations to the CloudSync service and monitors the review results.

A Reviewer is an authority figure that has the final word on the changes. The Reviewer monitors any changes within his/hers jurisdiction and approves or rejects them.

A Follower is a person (or system) who is interested in any sync-transactions made to a specific service (e.g. DBA, IT, COI etc.) Changes are reported via an RSS feed.
The **Change Feed** reports to the **Reviewer** about change requests from Publishers.

The **Resolution Feed** updates the **Publisher** about the results of changes review.

The **Replication Feed** reports of successful transactions to a **synced** service.
Standards-based Architecture

Publisher creates or changes features on a registered layer

Publisher Submits Change Request

Reviewer Approves or Rejects the Change

Inform Publisher of Approved or Rejected Changes

Inform Reviewer of Change Request

Inform Followers of Changes

Arkansas GeoSynchronization Services (ArGSS)

Registered County Layers (Shapefiles)

Layer A

Folders, polling, transposition templates

Update Approved Changes on Registered Layers using generated WFS Transactions

WFS-T

Federal Layer A₀

WFS-T

State Layer A₁

WFS-T

County Layer Aₙ

FTP

Feature Layers are registered for synchronization

Synchronized Services and County Updates

Copyright © 2010 Carbon Project Inc.
Geo-Synchronization

New Production Sources

Files to Transactions Service

Publishers

Files to Transactions Service

Synchronized Providers
- Federal Agencies
- State Agencies
- Utilities/Services
- Commercial

Existing County Level Deployment Configuration

GIS operators

ArcGIS

ArcSDE

ArcGIS Server

Database

Shapefiles
Gaia WFS-T and Geo-Synch

Gaia Geo-Synch Extender for NSDI Users...

Copyright © 2010 Carbon Project Inc.
Geo-Synch Management

Layer follows Layer…”
Circular Deployment

Diagram showing circular deployment with layers labeled A0, A1, and A2 connected in a circular manner through WFS-T.
Collaborative Project Tasks

Jun 10  Jul 10   Aug 10  Sep 10  Oct 10  Nov 10  Dec 10  Jan 11  Feb 11  Mar 11  Apr 11

Development, Deployment, Sustainment

Community Engagement

Project Coordination
Thanks!
The Carbon Project
Innovative Geosocial Solutions

2010 NSDI CAP –
Arkansas Geo-Synchronization
Project Overview

Contacts:
Learon Dalby | learon.dalby@arkansas.gov | @LearonDalby
The Carbon Project | info@thecarbonproject.com | @CarbonProject

www.TheCarbonProject.com

Copyright © 2010 Carbon Project Inc.