Providing critical geospatial information through enterprise systems – a US Forest Service experience

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General Business Requirements

1. Visualize large volumes of imagery data from centralized location
   - Internal only (Forest Service and BLM)

2. Need to serve authoritative data to public
   - Standardized data
   - Non-standard data

3. Need centralized access capabilities for large volumes of raster data (and Lidar data)
   - Need access for basic analysis
   - Ideally would allow for data mining and modeling of data
General Business Requirements

1. Visualize large volumes of imagery data from centralized location
   - Image Services ArcServer 10.2

2. Need to serve authoritative data to public
   - Standardized data Raster Data Warehouse
   - Non-standard data ArcGIS Online

3. Need centralized access capabilities for large volumes of raster data (and Lidar data)
   - Charter to determine best solution starting this summer
Statistics (last 30 days) - 9.x services

- Average daily connections: 10416
- Number of active services: 438
- Average daily users: 695
- Number of unique users: 4111 (8319 in last year)

- Percentage use - based on connection to services
  - NAIP 46%
  - Maps (softcopy, FVM, etc) 38%
  - Resource photography/other imagery 11%
  - Terrain 5%
Image Services ArcServer 10.2

NAIP Image Services
CONUS for each year of NAIP 2007-2013

2007

2008

2009

2010

2011

2012

2013
FS Image Server ArcServer 10.2

NAIP Image Services
Resource photography - individual services by project

2009-2102
FS Image Server ArcServer 10.2

Other Raster Services

eTOPO  Viewing scale dependent USGS topo maps at 1:24000, 1:100,000 and 1:250,000 scales

Forest Visitor Maps

Primary Base Series - up-to-date 1:24000 topo maps administered by USFS
FS Image Services ArcServer 10.2

Uses of NAIP and Resource Imagery

Inventory sampling assessment
FS Image Services ArcServer 10.2

Uses of NAIP and Resource Imagery

Verification of data produced from mapping projects
FS Image Services ArcServer 10.2

Uses of NAIP and Resource Imagery

Reference Data canopy cover maps (example: Medicine Bow Route NF)
FS Image Services ArcServer 10.2

Uses of NAIP and Resource Imagery

Heads up digitizing to update or delineate historical features
FS Image Services ArcServer 10.2

Esri Base Maps - FS image services

NAIP 2013 CIR

NAIP 2013 Natural Color

Esri Base Imagery
Raster Data Warehouse

... As part of the Enterprise Data Warehouse (EDW) to serve this need:

1. To provide public access to authoritative Forest Service produced raster datasets

- Governance process in place from EDW
- CONUS level datasets were to be served first
- Raster Data Warehouse is still not ready to go ...

Some more immediate needs will be met this year
Forest Inventory and Analysis Atlas project

Working with Esri to create web-based story maps
Forest Inventory and Analysis Atlas project

Working with Esri to create web-based story maps

Types of Forest Communities

Forest communities are made up of diverse assemblages of plant species. These assemblages are distributed quite widely across the landscape.

Collecting species data is often a daunting task, as it can be difficult to identify individual species within a large area. However, there are several techniques that can be used to improve the accuracy of species data collection, including:

- **Visual Identification**
- **DNA Analysis**
- **Remote Sensing**

These techniques can be used in combination to improve the accuracy of species data collection. For example, visual identification can be used to identify individual species within a large area, while DNA analysis can be used to identify individual species within a sample. Remote sensing can be used to identify individual species within a large area, and can also be used to identify individual species within a sample.
Forest Inventory and Analysis Atlas project

Working with Esri to create web-based story maps

Feature a wide variety of assemblages in the United States
Other services to be produced by Esri for Atlas Project

1. Web based stories for:
   - Types of Forest Communities
   - Wildland Fire Management
   - America’s Private Forest Owners

2. User data ingest for value adding
   - Ability to do analysis and create new content

3. User result posting and source linkages
   - Ability to publish ‘value added’ products to portal
Other CONUS raster data for public Access

Monitoring Trends in Burn Severity

http://www.forestrygis.com/BurnSeverity/

class thematic burn severity data

- Unburned/Low
- Low
- Moderate
- High
- Increased Greenness
- Non-mappable area
ArcGIS Online Implementation for FS Non-standard data

Welcome to the U.S. Forest Service on ArcGIS Online

The U.S. Forest Service is using ArcGIS Online to share maps, data, and applications for use by other federal agencies as well as the public. Users can find and use map services published by the Agency, together with their own data, to create web maps and mashups.
QUESTIONS?