Ministry for Primary Industries
Manatū Ahu Matua

Providing image services using mosaic datasets and Windows file shares

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www.mpi.govt.nz

Where I come from

What I do

Government ministry regulating

- Forestry
- Agriculture
- Horticulture
- Biosecurity
- Fisheries
- Food Safety
- Animal Welfare

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What I do

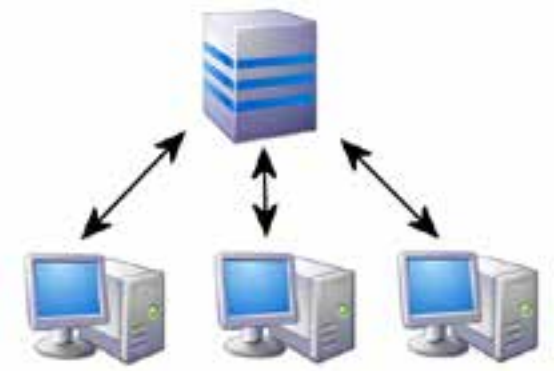
My role with MPI

- GIS Analyst in Spatial Analysis Services Team
- Manage 15 terabytes of digital imagery
- Administration for ArcGIS for Server
- Development of GIS web applications

Background

Situation

- External image service provider
- Limited control
- Poor performance



Problem

- Provider decided to stop providing services.
- I had to develop a solution quickly
- No access to ArcGIS for Server
- Provide for multiple users consuming at the same time

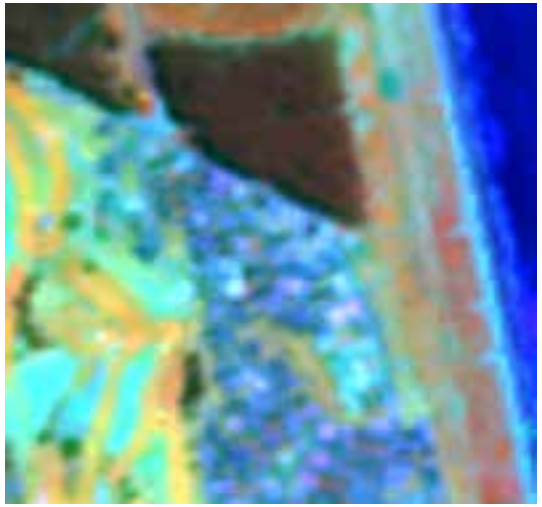
Providing image services using mosaic datasets and windows files shares

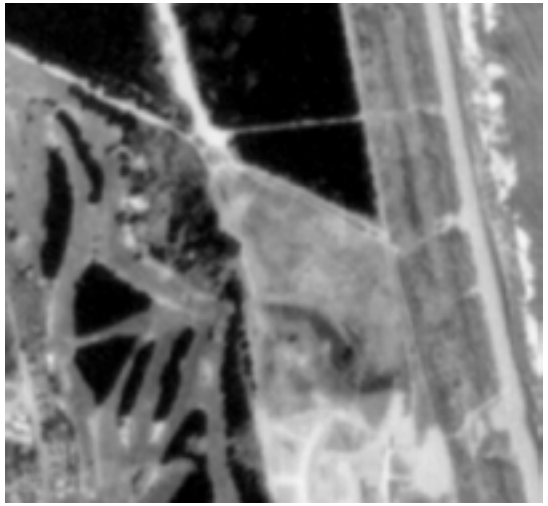
Simple workflow using only:

- ArcGIS Desktop
- Windows file sharing
- External hard drives

What types of datasets do I manage

- Ortho- rectified aerial photographs
- Satellite imagery from many sensors
- Scanned aerial from diapostives
- LiDAR



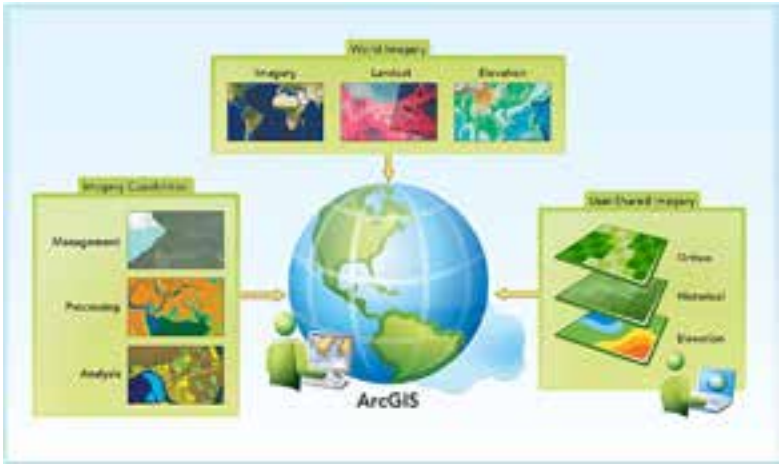


Workflow overview

1. Requirements
2. Create a mosaic dataset
3. Add data
4. Remove overlaps
5. Build overviews
6. Analyzing mosaic datasets(optional)
7. Share on the network

1. Requirements

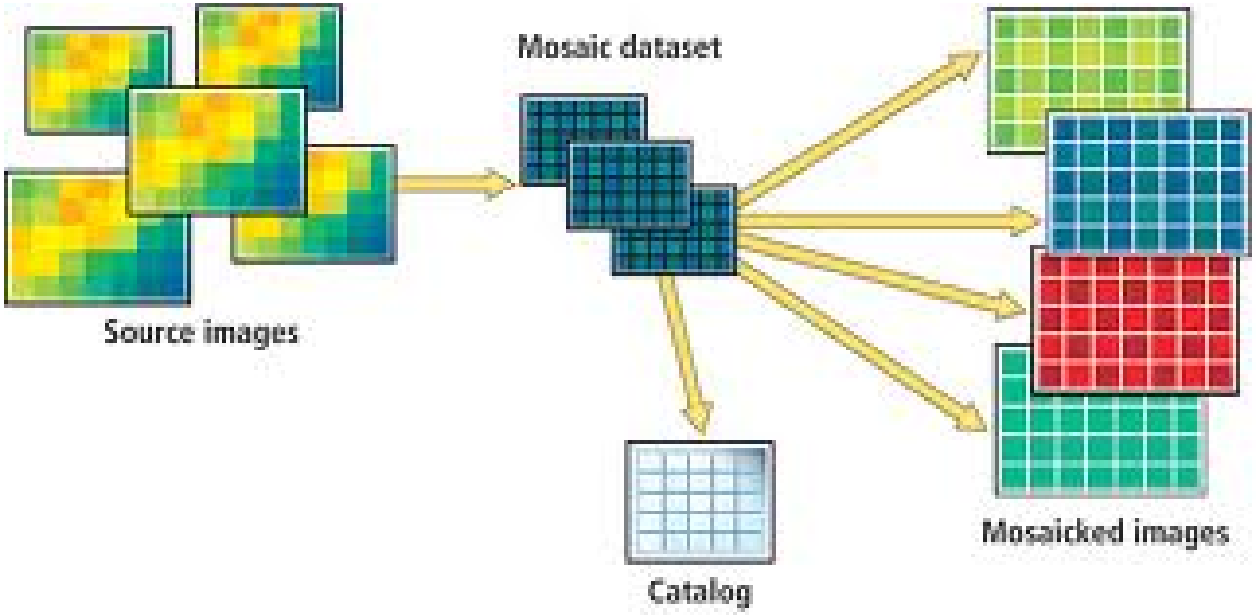
- Identify the data – has it been pre-processed? What levels of metadata has vender supplied?
- Purpose – E.g. does the user need to change image bands?
- Storage requirements – how big is the dataset?
- Prepare the data for sharing – image conversion and compression



2. Create a Mosaic Dataset

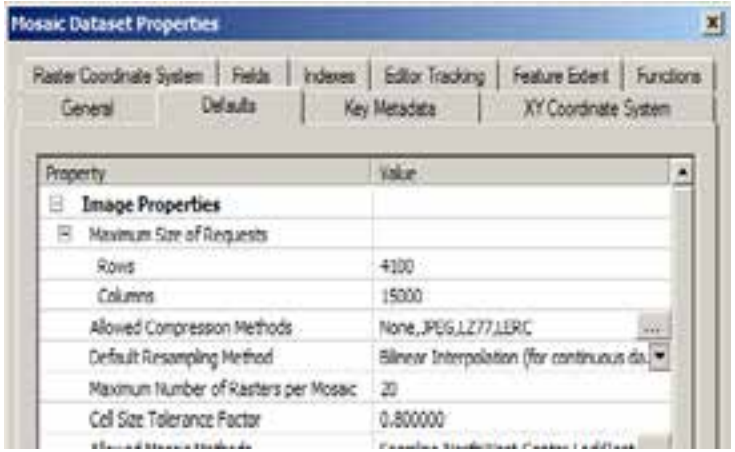
What is a mosaic dataset?

- Created as an empty container
- References your source images



2. Create a Mosaic Dataset

1. Using arc Catalog, create a mosaic dataset in an empty geodatabase.
2. Set the default spatial reference to the desired coordinate system.
3. Under the ‘environments’ tab, set a compression method.

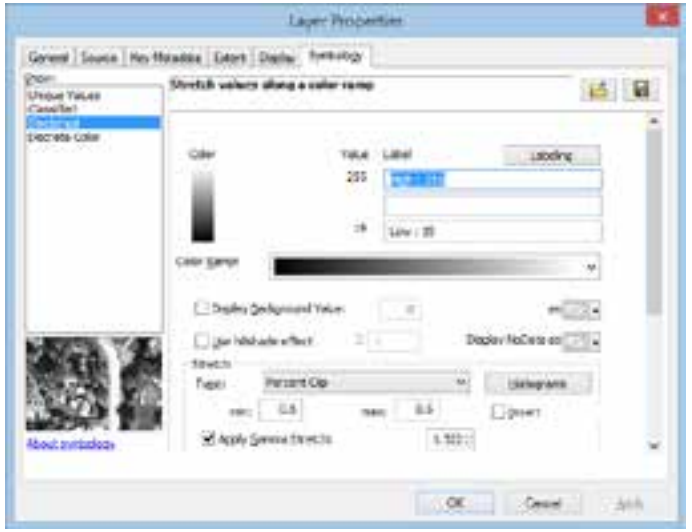


3. Add data

Add raster data to the mosaic dataset

Optional setting changes:

- Cell size ranges - sets the raster cell size
- Pyramids - building pyramids increases overview performance
- Statistics - calculate statistics to allow perform certain tasks
- Exclude duplicates - helps reduce duplicate rasters



4. Remove overlaps

Remo

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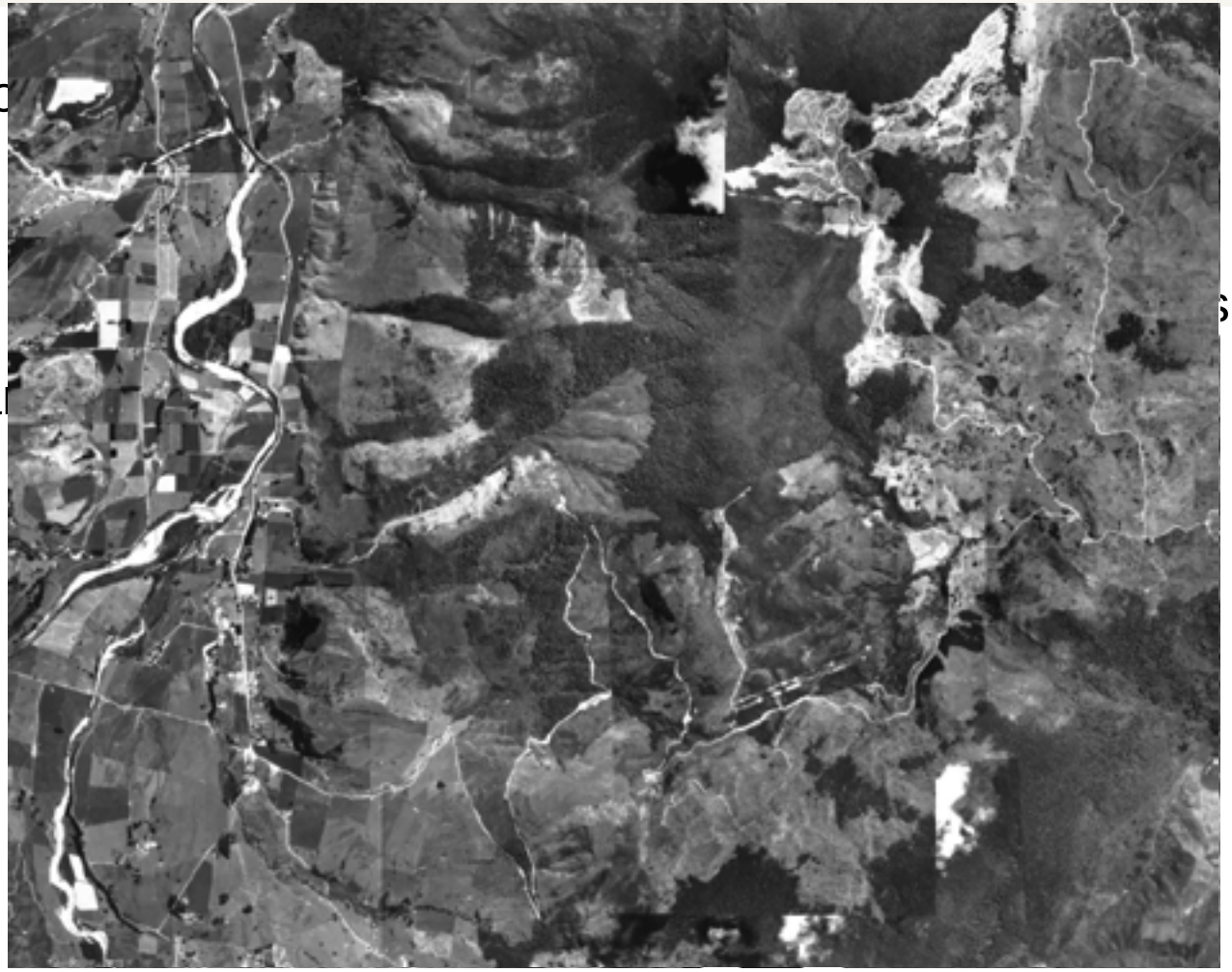


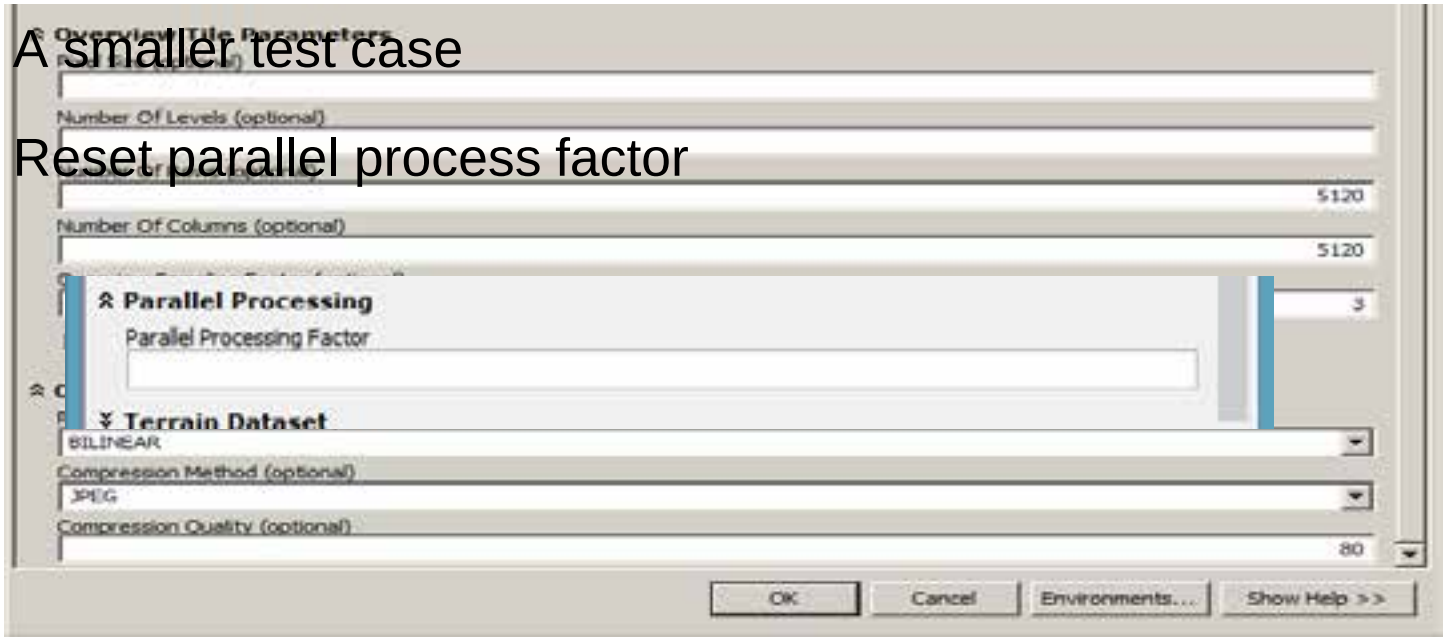
5. Build overview

What are overviews?

- Lower resolution images created from source data.
- Used instead loading source imagery when viewing at small scales
- Overviews increase display speed and decrease CPU usage

5. Build overview

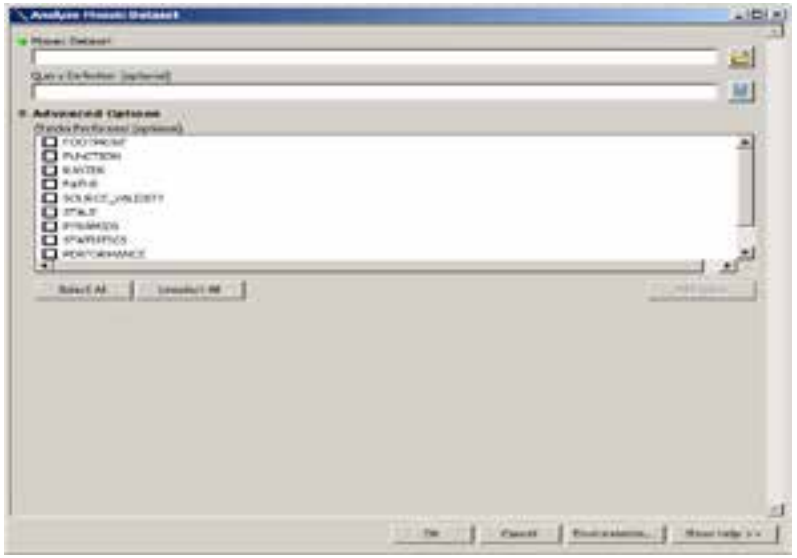
1. Planning: Define Overview output location and number of display levels
2. A smaller test case
3. Reset parallel process factor



6. Analyzing mosaic datasets

Why Analyze your dataset?

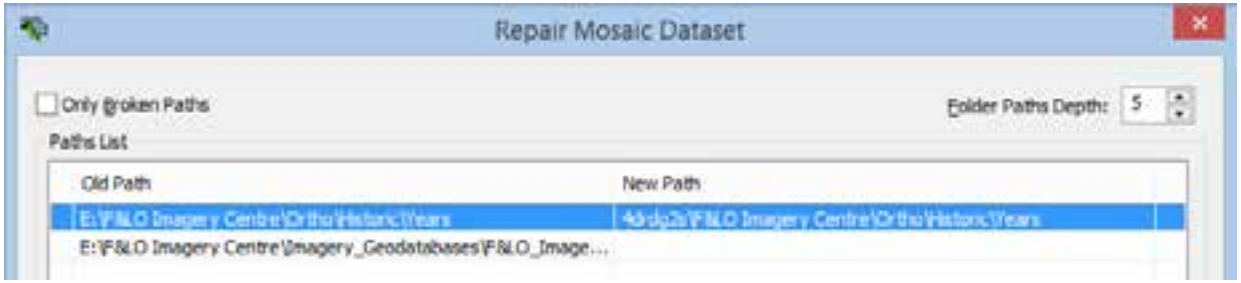
- Checks for errors
- Helps optimize dataset and increase performance



You can still share your mosaic if it has errors or warnings

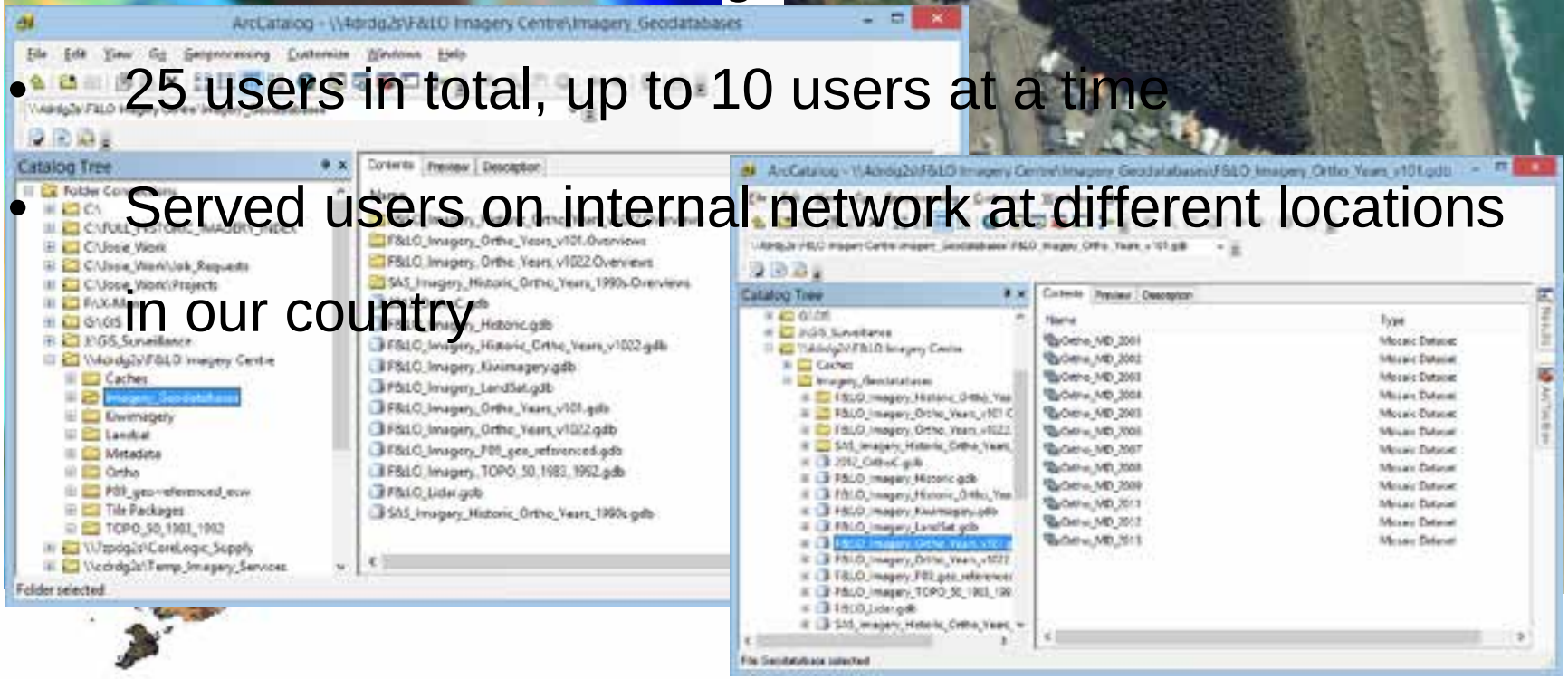
7. Share

- Using Windows explorer file options, share the folders that contain the finished mosaic datasets.
- Edit user permissions to allow read or modify access to users.
- In ArcCatalog, Repair mosaic dataset paths to match the universal naming convention (UNC) used by your internal network



Example of product

- Finished product was used until we got server.
- Ran 40 services totalling 15 tb of data
- 25 users in total, up to 10 users at a time
- Served users on internal network at different locations in our country



System requirements

1. A standard GIS workstation

(preferably with USB 3 connection)

1. Windows 7 or above
2. Administrator privilege
3. ArcGIS Desktop 10 or above
4. External Storage for your data

(RAID hard drives are excellent)

Benefits

1. Cheap storage
2. Easy searching
3. Fast processing
4. Accessible to multiple clients
5. No ArcGIS for server required

Questions?