

Implementing Data Share Through Open Source Portal Platforms

presented by

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and

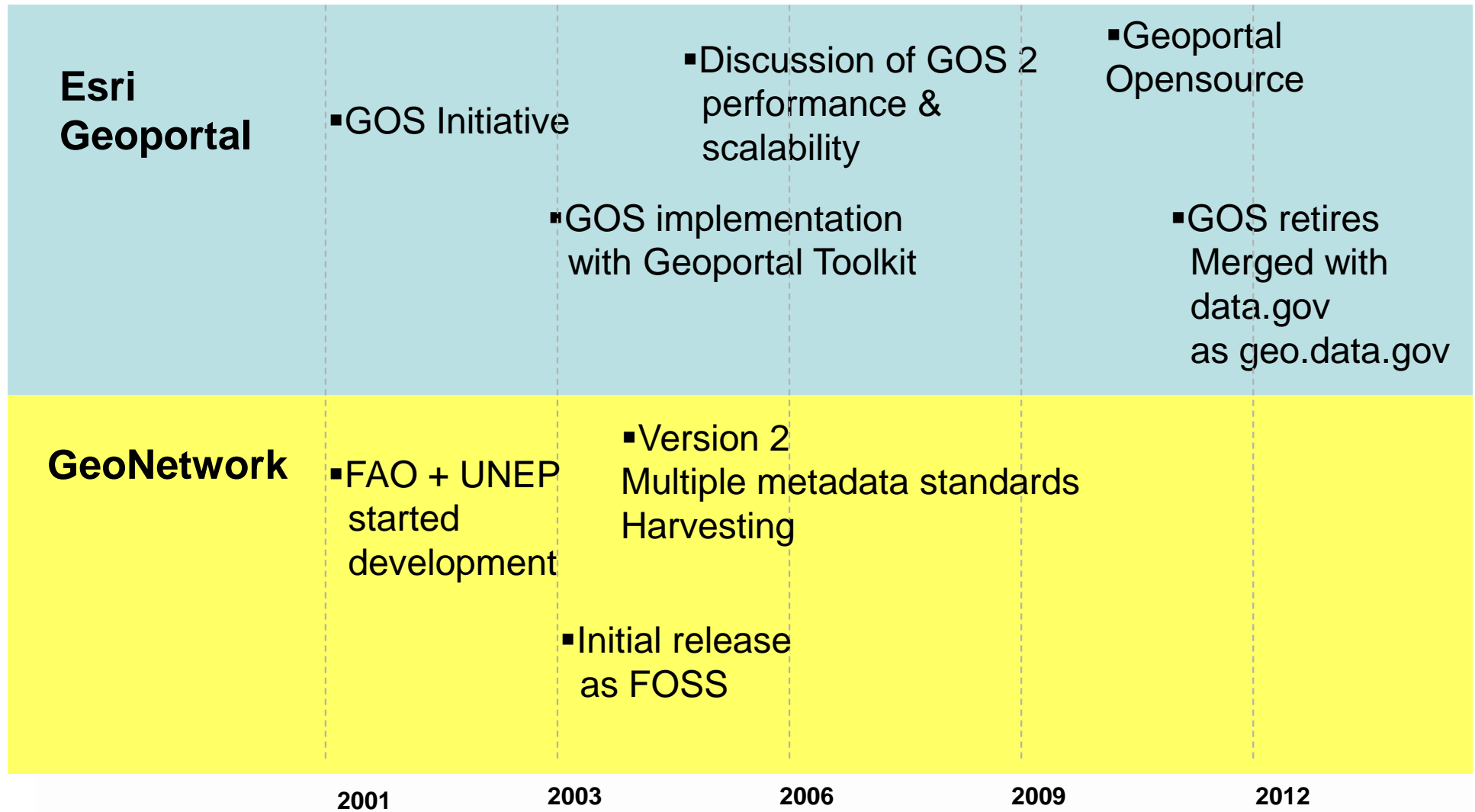
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Spatial Data Infrastructure (SDI)

- An SDI is *to acquire, process, distribute, use, maintain, and preserve spatial data through*
 - *Technology*
 - *Policies*
 - *Standards*
 - *Human Resources,*
 - *and related activities necessary*
- *A geospatial data portal is an important part of an SDI*

Tale of Two Portals



Outline

- AGIC Data Sharing Guidelines
- Data Sharing Models and Web Portals
- Esri's Geoportal Server OpenSource
- GeoNetwork Opensource
- Conclusion

Arizona Data Sharing Guidelines

- “A Blueprint for Geospatial Data Sharing Policy in Arizona”
 - Developed by AGIC Administration & Legal Committee
 - Currently under review – discussed fully in next session!
- Provides guide to data sharing best practices
- Conforms to ARS provisions for data sharing
 - No written agreement necessary between agencies – okay to share if you’re custodian
 - Sharing agency retains custodial ownership of data
 - Okay to prohibit redistribution of data, if desired
 - Okay to exempt from commercial fees
 - Sharing agency not liable for data errors

Arizona Data Sharing Guidelines

- Arizona portal should support
 - Data sensitivity levels, w/ detailed procedures for each
 - Confidential – restricted
 - Confidential – sensitive
 - Public
 - User roles
 - Data steward = data creator
 - Data integrator = adds value to data by adding info or other QA/QC procedures
 - Data custodian = data host or archiver
 - Metadata (based on FGDC 1998 standards)
 - Citation, description, time period of content, bounding box, keywords, dataset constraints, metadata/contact/distribution info

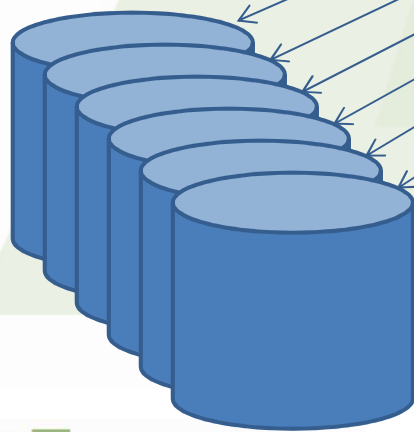
Arizona Data Sharing Guidelines

- Arizona portal should also support
 - Configuration options for sharing data, published on servers
 - Within sharing agency
 - Located within other agencies
 - Leased with commercial providers
 - Options for exposing data
 - Metadata only
 - Services (WMS, WFS, APIs)
 - Web mapping applications
 - Data file available for download
 - Options for accessing data
 - Display only
 - Data service (via API) in web map applications
 - “Clip n Ship” or partial file download of user-defined map extent
 - Download (via URL)

Current Statewide Model

Absence of policy has led to this common scenario

- Users must contact each agency directly to request and (hopefully) obtain desired data



Pros

- Agencies control access to data
- Agencies control use of data
- Data is usually current

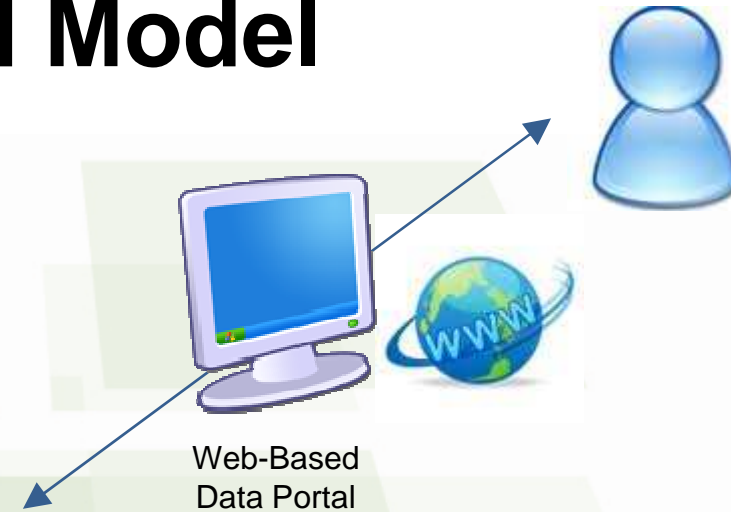
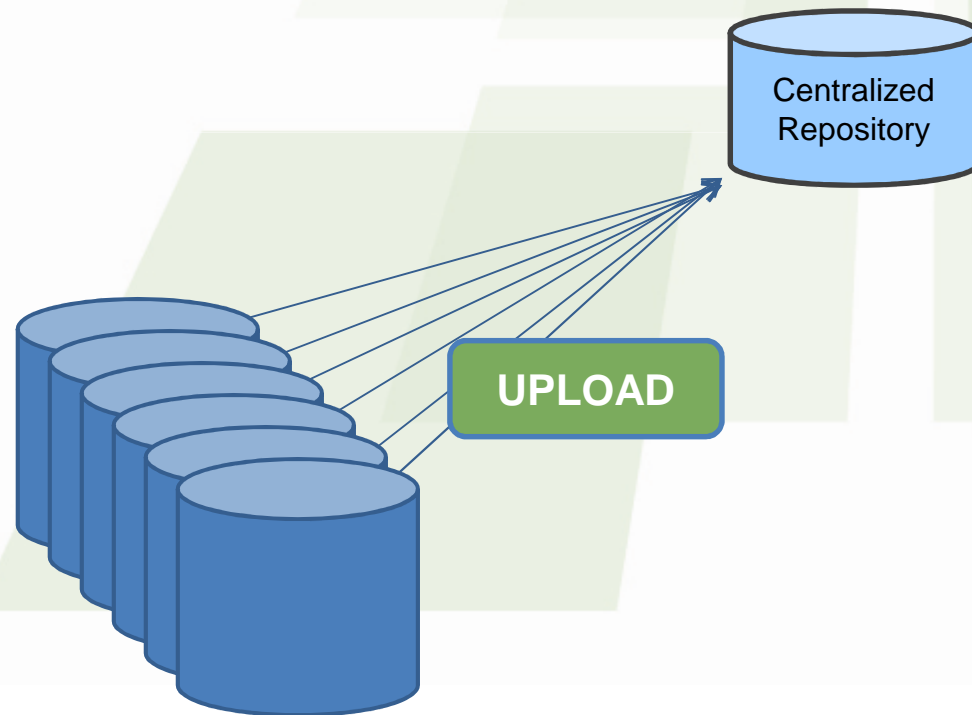
Cons

- Requester must know which agencies to contact for data
- Requester must know what data to request
- Process is not user-friendly, not a one-stop shop

Centralized Model

Description

- Geospatial data located in one place and maintained by managing agency
- Ex) State of Utah's AGRC, a variation of this approach
- Other states?



Pro

- One-stop shop for requester
- High data quality
- Uniform policy enforcement

Cons

- Contributed data must follow specific protocols set by managing agency
- Results in duplication of effort
- Results in duplication of storage
- Data may not be current (process lag)

Federated Model

Description

- Geospatial data located on servers maintained by owner agencies
- Ex) NOAA, FAO



Pros

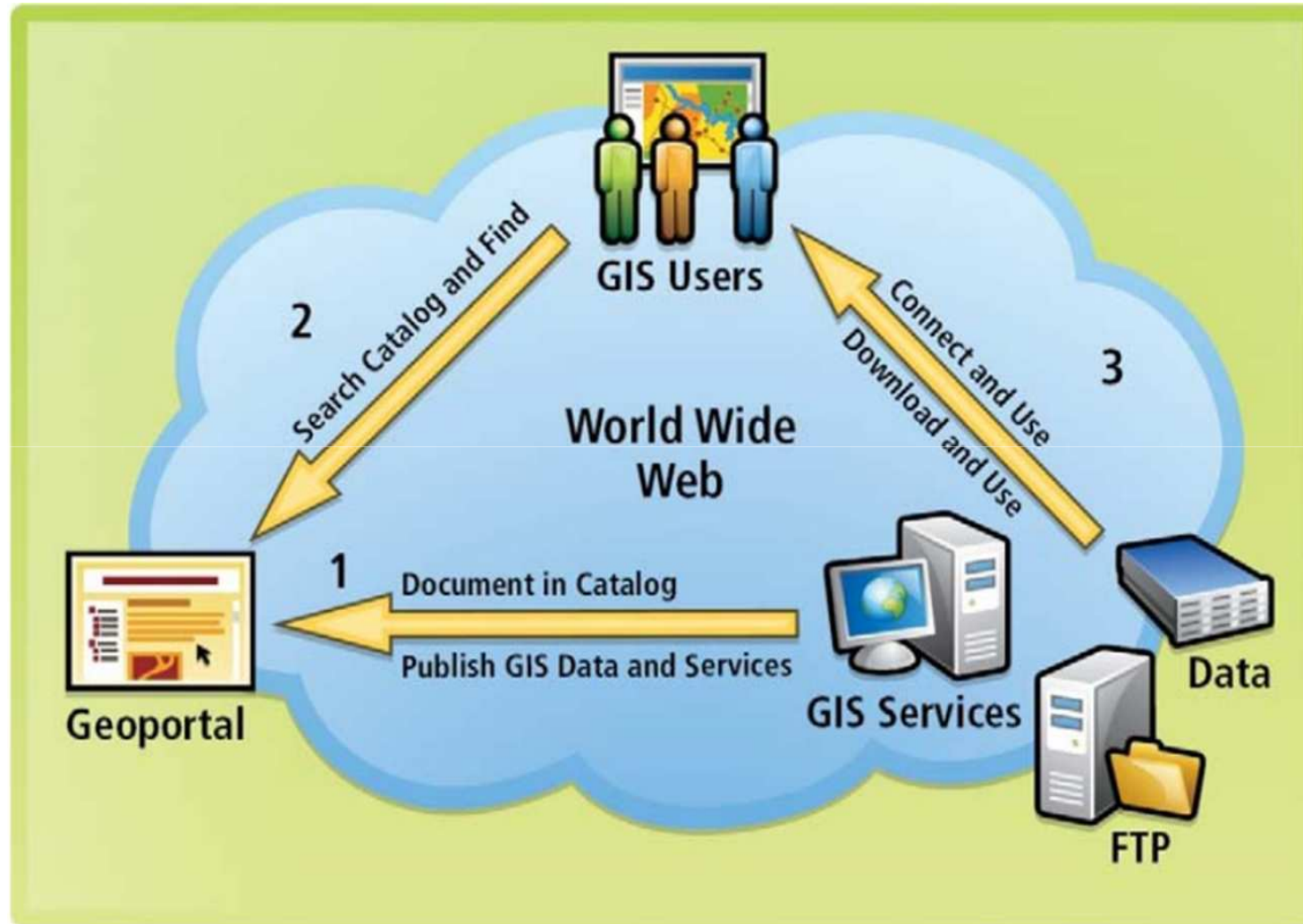
- One-stop shop for requester
- Agencies control access to data
- Minimizes duplication of effort
- Reduces data redundancy
- No lag in data updates

Cons

Esri Geoportal Server Description

- Geoportal Server is NOT
 - ArcGIS Server
 - ArcGIS for Portals
 - arcgis.com
- Geoportal Server IS
 - A “central access point” for geospatial data
 - A free, open source product from Esri

Esri Geoportal Server Conceptual System Components



Esri Geoportal Server

The screenshot shows a web browser window displaying the Montana GIS Portal. The browser's address bar shows the URL: `gisportal.msl.mt.gov/geoportal/catalog/main/home.page;jsessionid=9868FC3725EB573DFD51A112DB2DCF81`. The page header includes the **mt.gov** logo and navigation links: [Login](#), [Register](#), [Help](#), [About](#), and [Feedback](#). A green navigation bar contains links for [Home](#), [Advanced Search](#) (active), [State Library](#), [GIS Coordination](#), [Framework Layers](#), and [Map Viewer](#).

Advanced Search

TEXT SEARCH
fish

Search Tips

SORT BY
Relevance

GEOGRAPHIC SEARCH
 Anywhere Intersecting Fully within

1) Hold Shift key and draw a box. 2) Select Intersecting or Fully Within. 3) Set other search criteria and click Search or press Enter.

Results 1-10 of 74 record(s)
[1](#) [2](#) [3](#) [4](#) [5](#) [>](#) [Last](#)

Expand results [Zoom To Results](#) [Zoom To Searched Area](#)

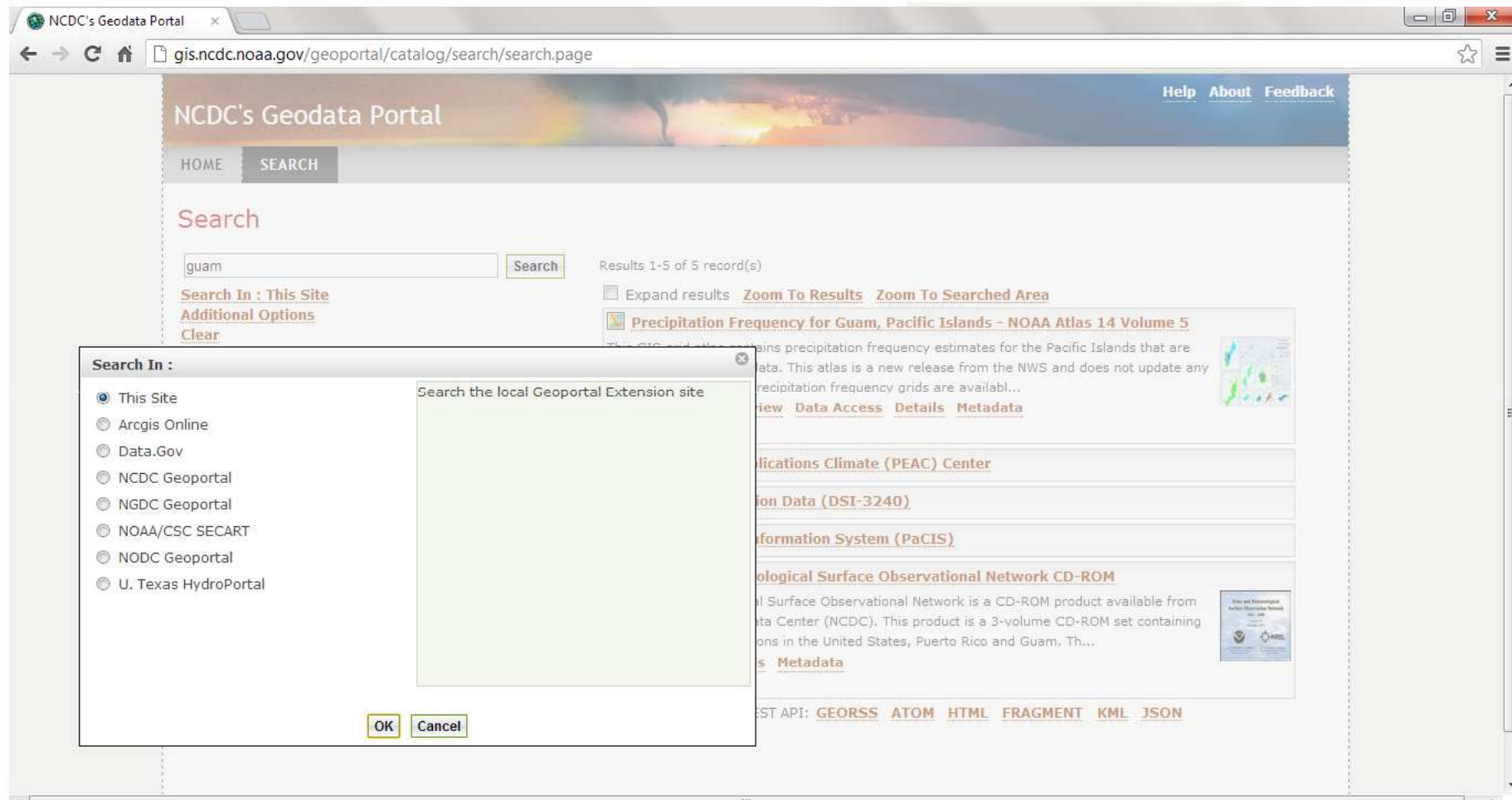
- Montana Fish Distribution - Lakes**
Lake fish distribution compiled and maintained by Montana Fish, Wildlife & Parks (FWP).
[Download](#) [Metadata](#) [Metadata \(XML\)](#) [Zoom To](#)
- Montana Fish Distribution - Streams**
Fish distribution for Montana streams compiled and maintained by Montana Fish, Wildlife & Parks (FWP).
[Download](#) [Metadata](#) [Metadata \(XML\)](#) [Zoom To](#)
- Montana Fish, Wildlife & Parks Commissioner Districts - 2010**
Montana Fish, Wildlife & Parks Commissioner Districts - 2010
[Download](#) [Metadata](#) [Metadata \(XML\)](#) [Zoom To](#)
- Montana Fish, Wildlife & Parks (FWP) Fishing Access Sites - Polygons**
- Montana Fish, Wildlife & Parks (FWP) State Parks - Polygons**
- Montana Fish, Wildlife & Parks (FWP) State Parks - Points**

Esri Geoportal Server

The screenshot shows a web browser window displaying the 'City of Raleigh Geoportal' download page. The browser's address bar shows the URL: `maps.raleighnc.gov/geoportal/catalog/download/download.page`. The page has a navigation menu with 'HOME', 'SEARCH', 'BROWSE', and 'DOWNLOAD' (which is highlighted). Below the navigation is a 'Download' section with instructions on how to use the page to download data from a selected area on the map. The instructions mention that due to file size limitations, entire datasets are not available through this page and that users should visit the 'SEARCH' or 'BROWSE' pages for full datasets. The main content area is divided into three steps:

- Step 1: Zoom in and select an area:** This section includes a map of a residential area in Raleigh, NC. A red line indicates a selected area. The map shows streets like 'Str. Hand Rd', 'Falls Of Neuse Rd', and 'Litchford Rd'. A scale bar and pan/zoom controls are visible.
- Step 2: Select Data:** This section contains a list of data layers with checkboxes to select them for download. The layers are grouped into categories:
 - Administrative Boundaries:**
 - Annexations
 - Citizen Advisory Council Districts
 - City Council Districts
 - Leaf Collection Zones
 - Environmental:**
 - Drainage Basins
 - Riparian Buffers
 - Parks and Recreation:**
 - Greenway Trail Structures
 - Greenway Trails
 - Greenway Areas
 - Parks
 - Places:**
 - Places of Interest
- Step 3: Complete ordering details and click "Download":** This section contains a form for providing an 'e-mail address' and a dropdown menu for 'Feature format', which is currently set to 'File Geodatabase - GDB - . gdb'.

Esri Geoportal Server



Esri Geoportal Server

- Demo
 - Registering resources (Geoportal Manager)
 - Search and access resources (User)

Esri Geoportal Server

- Management considerations
 - Cost
 - Hardware and installation requirements
 - Security
 - Importance of data

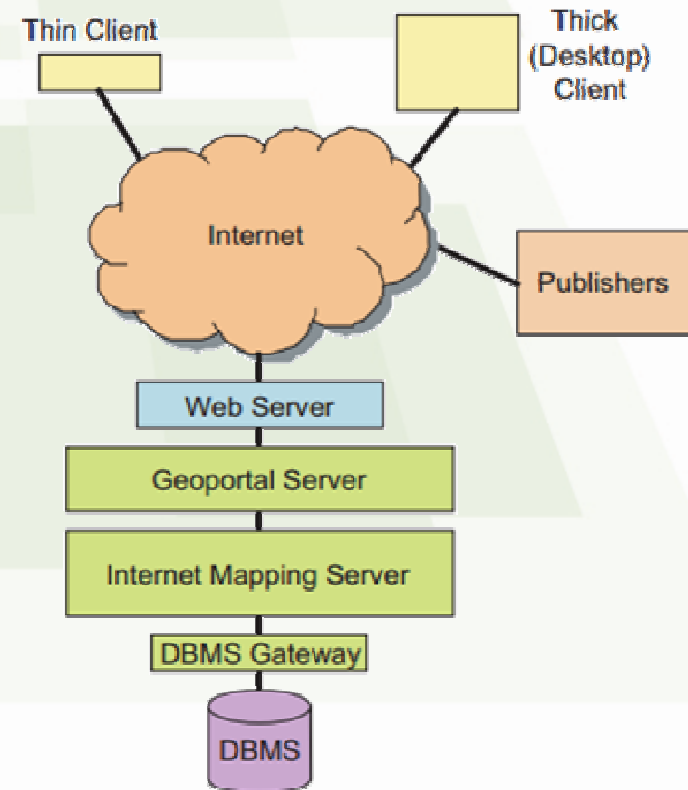
Esri Geoportal Server

■ Cost

- Organizational arrangements / internal workflows
- Hardware and underlying software
- Staff time for installation
- Staff time for specific customizations and operations management
- Staff time to work with participating data services
- Planning and coordination with IT
- Technical training on Geoportal management and use

Esri Geoportal Server

- Hardware and underlying software
 - Operating System
 - Database
 - Java
 - Servlet Container
 - Mail Server Access
 - Directory Server and LDAP
 - ArcGIS Server Services
 - Esri JavaScript API
- Installation



Esri Geoportal Server Security

- Set up distinct groups and privileges
 - Guest, User, Administrator
- Federated model gives control of data back to data originators
- Geoportal can restrict data access from groups but it does not determine user access to the actual data/web service itself

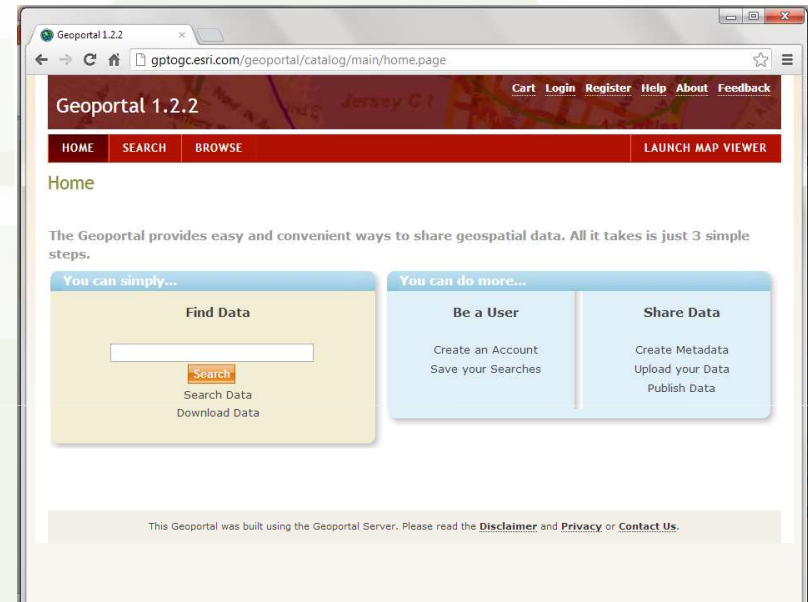
Esri Geoportal Server

- Find out more
 - Product website
 - SourceForge website
 - LiveDVD demo available
 - Esri Geoportal sandbox



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<http://gptogc.esri.com/geoportal/catalog/main/home.page>

GeoNetwork Opensource Introduction

- Purpose
 - Connect spatial information communities
 - Share data of various sources without undermining ownership
- Principles
 - Standards-based
 - ISO TC211, OGC
 - Low cost
 - FOSS stack
 - GPL V2
- Development
 - Initiated by UN Agencies
 - Carried over by OpenSource Communities (OSGeo Project)

GeoNetwork Opensource Main Features

- Search on geospatial catalogues
- Uploading and downloading of data
- An interactive web map viewer
- Online map layout generation/export
- Online editing of metadata
- Harvesting and synchronization of metadata
- Fine grained access control

GeoNetwork Opensource Software Installation

- Platform independent
- Low hardware requirements
 - Processor: 1GHz
 - Memory: 512 MB
 - Free disk space: 250MB
- Easy default installation with following other software installed
 - JRE
 - Jetty as default HTTP Server and Servlet Container
 - McKoiDB as default database
 - Optional Geoserver
- Broad browser support
 - IE 6 or higher, Firefox v1.5 or higher, Safari V3 or higher

GeoNetwork Opensource Metadata

- Standards
 - *ISO 19115:2003*
 - Implementations: *ISO 19139: 2007*, FGDC, Dublin Core
- View and Search
 - All
- Editing
 - Editor only
 - Template-based
 - Mandatory, Conditional, Optional fields
 - Validation

GeoNetwork Opensource

Key Steps to Publish a Map

- Prepare metadata
 - Enter or import
 - Validate
- Link to resources
 - On-line WMS services
 - Data for download
 - Metadata
 - Parent/child
 - Service metadata
- Compute extents for keywords
- Assign privileges
- Assign categories

GeoNetwork Opensource Map Access Control

- Group-based privileges assignment
 - Guest, Registered User, Editor, Admin
- Privileges
 - **Publish:** search and view map
 - **Download:** download map
 - **Interactive Map:** get an interactive map
 - **Featured:** map is placed in the Featured Maps of the home page
 - **Notify:** receive notification that map has been uploaded

User and Group Administration

- Users
- Groups
 - By division – assessors, elections, transportation, etc
 - By level – all, intranet, guest
- User Profiles
 - Administrator
 - User admin
 - Reviewer
 - Editor
 - Registered user
 - Any user

GeoNetwork Opensource Metadata Ownership

- Visualization
 - Public Metadata can be viewed by anyone
 - Metadata owner
 - Administrator
 - User or group with view privilege granted
- Editing
 - Metadata owner
 - Administrator
 - Assigned reviewer
- Privilege management page is accessible by
 - Administrator
 - Metadata owner
 - Reviewers

GeoNetwork Opensource Harvesting

- Process of collecting remote data and storing them locally for faster access
- Sources
 - Another GeoNetwork node
 - A WebDAV server
 - A CSW 2.0.1 or 2.0.2 catalogue server
 - An OAI-PMH server
 - An OGC service: WMS, WFS, WPS and WCS services
 - An ArcSDE server
 - A THREDDS catalog
 - One or more Z3950 servers

GeoNetwork Opensource Sample Sites

- See list

<http://lat.lib.virginia.edu:8080/geonetwork/>

- Highly customized look and feel

<http://lat.lib.virginia.edu:8080/geonetwork/>

AGIC Requirements & High-Level Comparison

AGIC Data Sharing Guidelines	GeoPortal	GeoNetwork
Can share data for which it is custodian	X	X
Retain custodial ownership of any data provided	X	X
May prohibit redistribution of data if notification given	X	X
Provides for data sensitivity levels	No	No
Provides for user roles	X	X
Provides for metadata	X	X
Data published on network server, accessible over web	X	X
Supports possible data sharing/access options		
metadata only	X	X
services (OGC, APIs)	X	X
web mapping applications	X	X
data file download	X	X
clip n ship	customize	customize

GeoSUR's Selection

- GeoSUR Program is a regional initiative to integrate and disseminate spatial data in Latin America and the Caribbean. Its advisory board was given the following document during the selection process, which resulted in the selection of Esri Geoportal in 2007
http://gridnairobi.unep.org/chm/africa_programme/GeoNetwork_and_ESRI_GIS_Portal_Toolkit_Comparison-GDNBI3027.pdf
- The site is currently running Esri's Geoportal Server OpenSource (version 1.0)

Outlook

- GeoNetwork Opensource is going to grow, mostly internationally
- Geoportal Server OpenSource will see growth in the international landscape.
- We believe ArcGIS Online is going to be the new platform on which data sharing portals are to be built.

Questions?

Thanks for attending!