

# The Geo-Web

Enabling GIS on the Internet

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## In the Beginning

- GIS was independent
- The GIS analyst or manager was typically a one-person shop
- He/she created the data, analyzed the data, and printed the maps

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## Along Came the Internet

- The proliferation of networks and the Internet caused a chain-reaction
  - GIS data was easy to share
  - Increasingly larger datasets were shared
  - GIS data was stored (self-sharing) on the network

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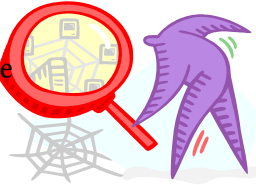
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## Old Habits are Hard to Break

- Centralized GIS on the network
  - Clearinghouses
  - One-stop-shops
- Someone was in charge



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## But the One-Stop-Shop Broke

- What now?
- Re-invent the one-stop-shop
  - There are now more than 100,000 GIS clearinghouses
  - Each state, each large agency, each large company
  - Why so many one-stops?
    - Data incompatibilities
    - Standards
    - Control issues

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## Control Fallacies

- Protect trade secrets
- Data security
- Intellectual property



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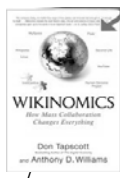
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## Prove It!

- IBM
- Boeing
- What do these two examples have in common?
  - Mass-collaboration
  - Open structure
  - De-centralized organization(for more, read “Wikinomics”)



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## The Web 2.0

- The Next Generation
  - All about mass collaboration
  - Mash-ups
  - Synergy
  - Distributed, de-centralized systems(for more, read “The Starfish and the Spider”)



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## Collaboration is New?

- Traditional collaborations were:
  - A selected team of colleagues
  - Hierarchical in structure
  - Breadth of knowledge relatively narrow
- Mass collaboration is:
  - An open set of contributors
  - De-centralized in structure
  - Breadth of knowledge can be extremely broad

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## A Grand Experiment

- Can Web 2.0 concepts be applied GIS and spatial analysis... spatial problems?

11/2/2009

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## A Challenge

- Engage the public to act as a community of practice
- Find a suite of uniquely qualified minds to contribute pieces of the puzzle

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## The Role of GIS

- Collect spatial data
- Prepare maps and models
- Perform spatial analyses to discover trends, spatial patterns, and relationships

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## The Role of GIS (cont'd)

- Use ArcGIS Server and web services to make all these geo-spatial data available to everyone
- Help build the Geo-Web

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## Fulfilling our Role

- ArcGIS Server, web services

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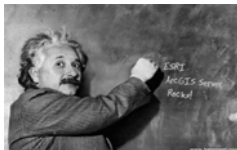
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## ArcGIS Server



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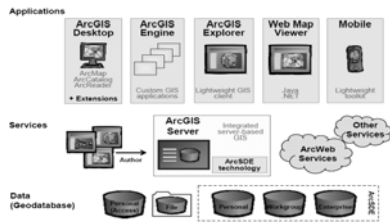
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## ArcGIS Server: Architecture

- Two ADF choices

- .NET
- Java



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## ArcGIS Server is...

- Scalable
- Open (java and html)
- Also uses .NET
- Easy for clients to use (*maybe easier*)

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## ArcGIS Server can...

- Deliver ArcMap MXD project files (Map service)
- Deliver a Geodatabase (GeoData service)
- Create WMS Services
- Create KML Services
- Create ArcWeb Services (next generation IMS)

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### **ArcGIS Server requires...**

- Server
- Sufficient hard drive space
- Consider number of expected hits when selecting CPU and cache

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### **Installation of ArcGIS Server**

- Before beginning you *must*
  - Install IIS
  - Install .NET framework (2.0 or later)
    - Note: If planning to host ArcWeb Services, really need to install Visual Studio 2005
  - Install JRE
  - Make sure you are fully patched
  - *All must be installed and running correctly before proceeding*

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### **Installation of ArcGIS Server**

- Then, using the installation CD, install ArcGIS Server for the .NET framework
  - During installation you will need to:
    - Accept defaults!

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## Post-Installation Setup

- Assign a number of passwords to new *system* accounts
- Errors do not require uninstall but only re-run of post-installation setup.

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## Post-Installation Steps (pt. 1)

1. Log out and log back into your operating system account or restart your machine. This will allow the permissions that you changed during the GIS Server Post Install to take effect.
2. Set up access to the GIS server.  
The ArcGIS Server security model uses the operating system's security model to determine who can connect to and administer the server. You will need to determine which users require administrative access to the server, and then use the operating system tools to add them to the ArcGIS Server Administrators group (agsadmin) on the server object manager (SOM) machine. At a minimum, you will need to add yourself (ADMIN) to the agsadmin group

In the same way, you should identify which users will only need user-level access, and add them to the ArcGIS Server Users group (agsusers) on the SOM machine.

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## Post-Installation Steps (pt. 2)

3. Organize your GIS data and set the appropriate directory permissions. The services you run on your GIS server are created from the same resources that you work with in ArcGIS Desktop. These are resources such as ArcMap map documents. To publish them on your server, you must make these resources and any data that they reference accessible to the SOC machines and the SOC Account that you created during the GIS Server Post Install.
4. Connect to your GIS server.  
To administer the server, you need to log in to Manager or create an administrative connection in ArcCatalog or through the Web Manager. You can then configure the server's properties, add additional machines, and add services.
5. Add services to your GIS server. In order to make your GIS resources available to others, you need to publish them as services. As part of this process, you'll specify which capabilities of the resource will be available to end users.

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## Process of creating an ArcGIS Web Service site



1 Author a map  
– Using ArcMap



2 Create *your* project's ArcGIS Server Map Service



3 Create an ArcWeb Service (this creates the actual website (html's etc).

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## Key Concepts

- GIS is everywhere
- The Internet is a great way to deliver GIS
- Today –and in the future- web enabled GIS will be increasingly important
- Students need to know the fundamentals of serving GIS data and services on the web and the practical application of this technology

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## Questions...Assignment



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