

GeoPortals for NSDI

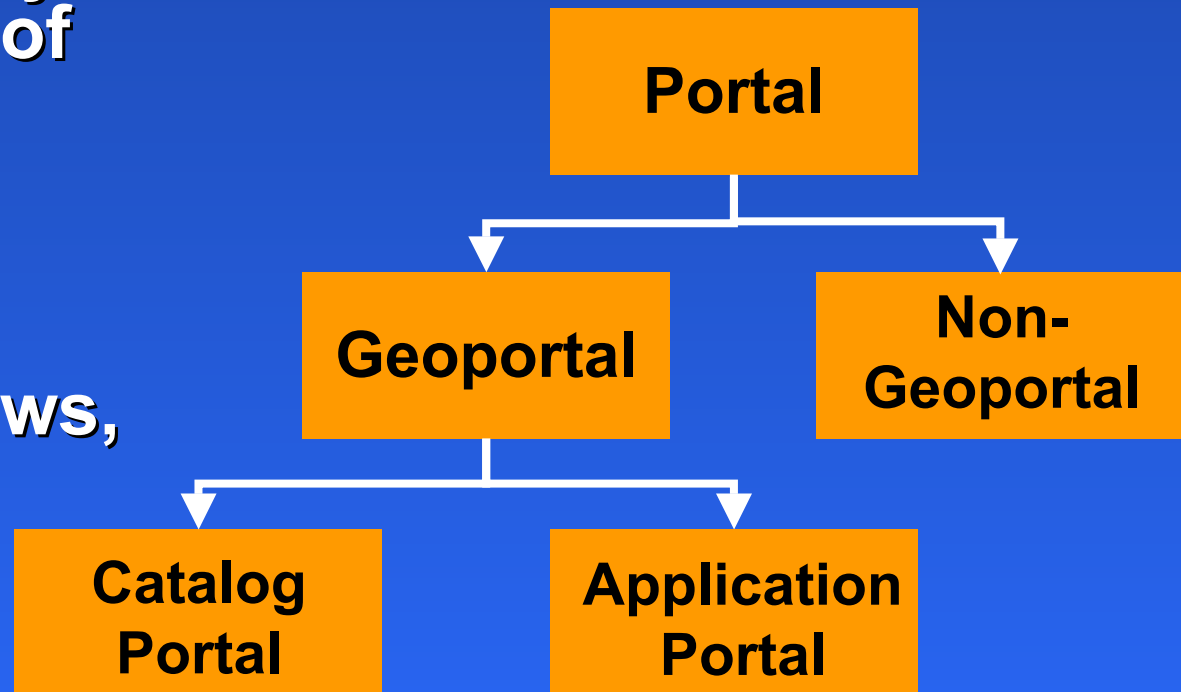
Dr David J. Maguire
Director of Products, ESRI

Outline

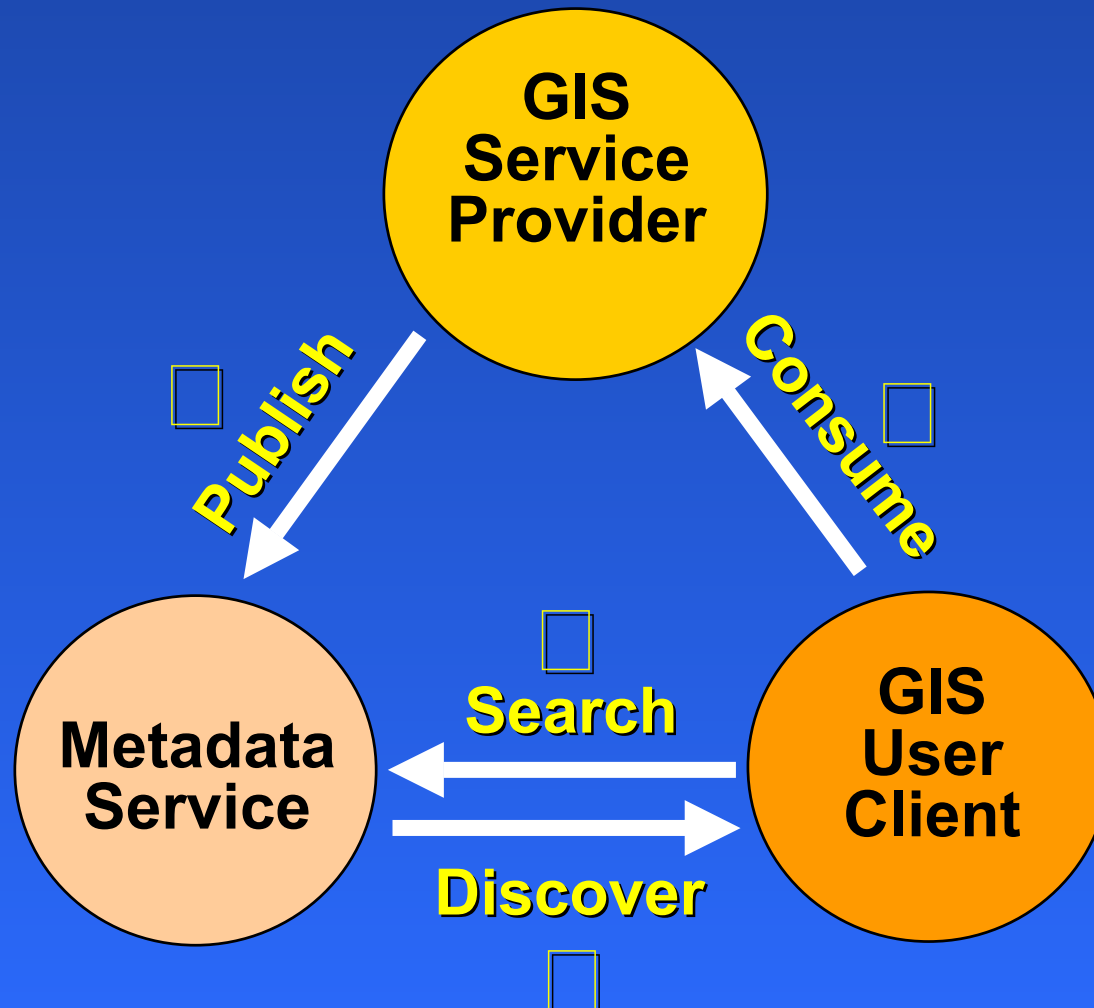
- **Geoportals**
- **How NSDI Geoportals work**
- **Web Services**
- **Data**
- **Conclusions**

Geoportals

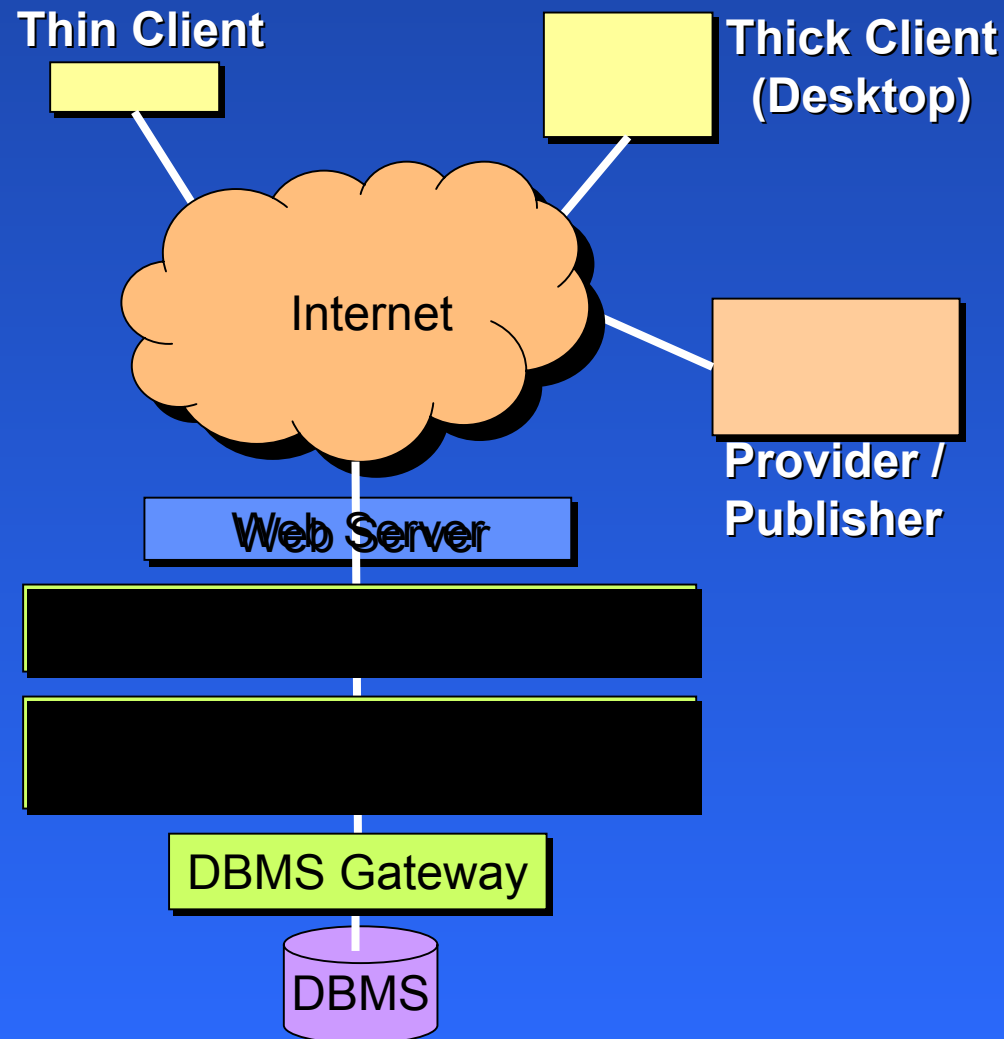
- Door or gateway to a collection of information resources
- Data sets, services, cookbooks, news, tutorials, tools
- Links to other sites



How Geoportals Work

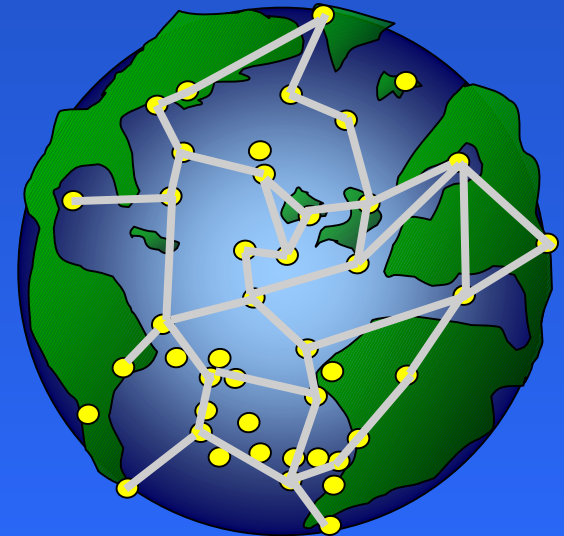


SDI Geoportal Architecture



SDI Technical Components

- **Network Infrastructure**
 - Internet/Intranet - Web
- **Applications: Discovery and Web Mapping**
 - Web Browsers & GIS Clients
- **Catalog Geoportal**
- **Servers: GIS Services**
 - Local
 - Distributed on other nodes
- **Content creation software**
 - Build and maintain data



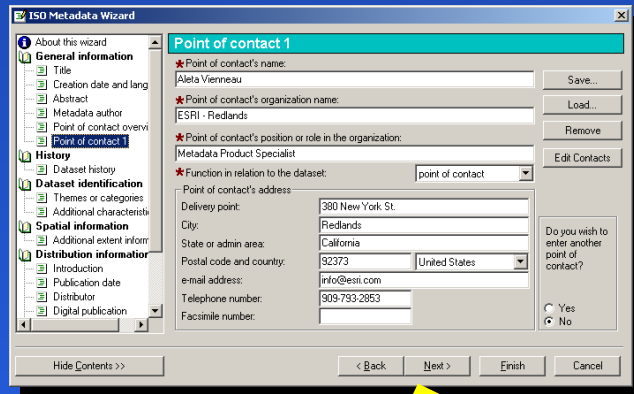
GIS Clients

- Simple Browser - HTML
- Browser + Applet
- Embedded maps
- Hand-held mobile GIS device
- Desktop GIS workstation



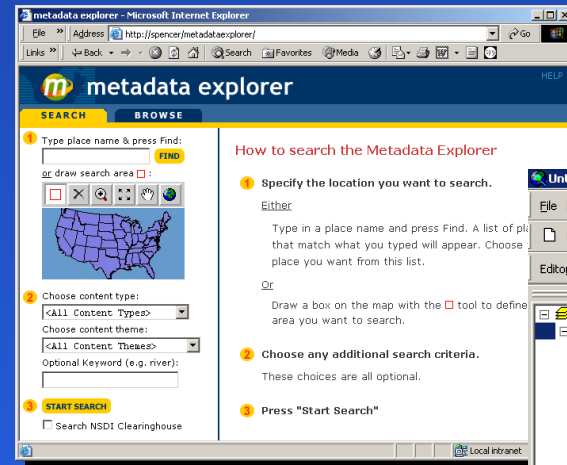
SDI Metadata Built-In

Create

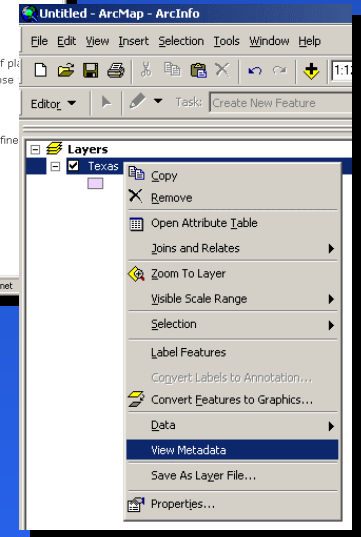


The ISO Metadata Wizard dialog box is shown, with the 'Point of contact 1' tab selected. The 'General information' section is expanded, showing fields for Title, Creation date and language, Abstract, Metadata author, Point of contact overview, and Point of contact 1. The 'Point of contact 1' section includes fields for Name, Organization name, Position or role, Function, Address, City, State or admin area, Postal code and country, e-mail address, Telephone number, and Facsimile number. The 'History' section shows a list of dataset history entries. The 'Dataset identification' section shows a list of themes and categories. The 'Spatial information' section shows a list of distribution information entries. The 'Distribution information' section shows a list of distribution information entries. The 'Finish' button is highlighted.

Search

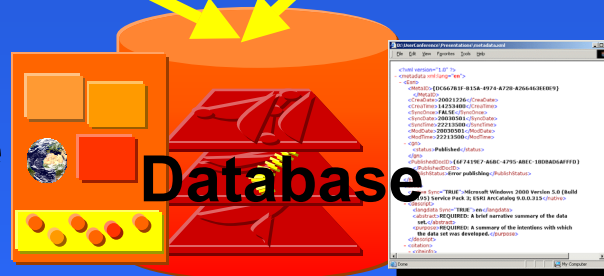


Use



Serve

Database



Using Standards (ISO, CEN, FGDC, OGC)

GeoPortal Metadata

[illegible]

ArcCatalog ArcInfo Internet Servers.usda, NJ DEP_BROWSE_Test_Metadata

File Edit View Geoprocessing Help

StyleSheet FDDC ESR

Contents Preview Metadata

Soil Survey Geographic (SSURGO) Database for Atlantic County, New Jersey (Projected to NJ State Plane Feet, NAD83)

Description	Spatial	Attributes
Horizontal coordinate system		
Details		
Bounding coordinates		
Horizontal		
In decimal degrees		
West: -74.98072		
East: -73.3057939		
North: 39.72991		
South: 39.28766		

[Spatial data quality](#)

Metadata Administrator - Microsoft Internet Explorer

Go Edit View Favorites Tools Info

Address http://gmda.net:8080/arcswt_appserv/06/07/mymetadatascreen

Metadata Portal

Your One Stop for Finding and Using Geographic Data

(Home) (Records to Review) (Publishers to Approve) (Editors to Approve)
(Recently Updated Records) (All Publishers) (All Publishers)

Records Waiting for Review

Get Selected Metadata for Review

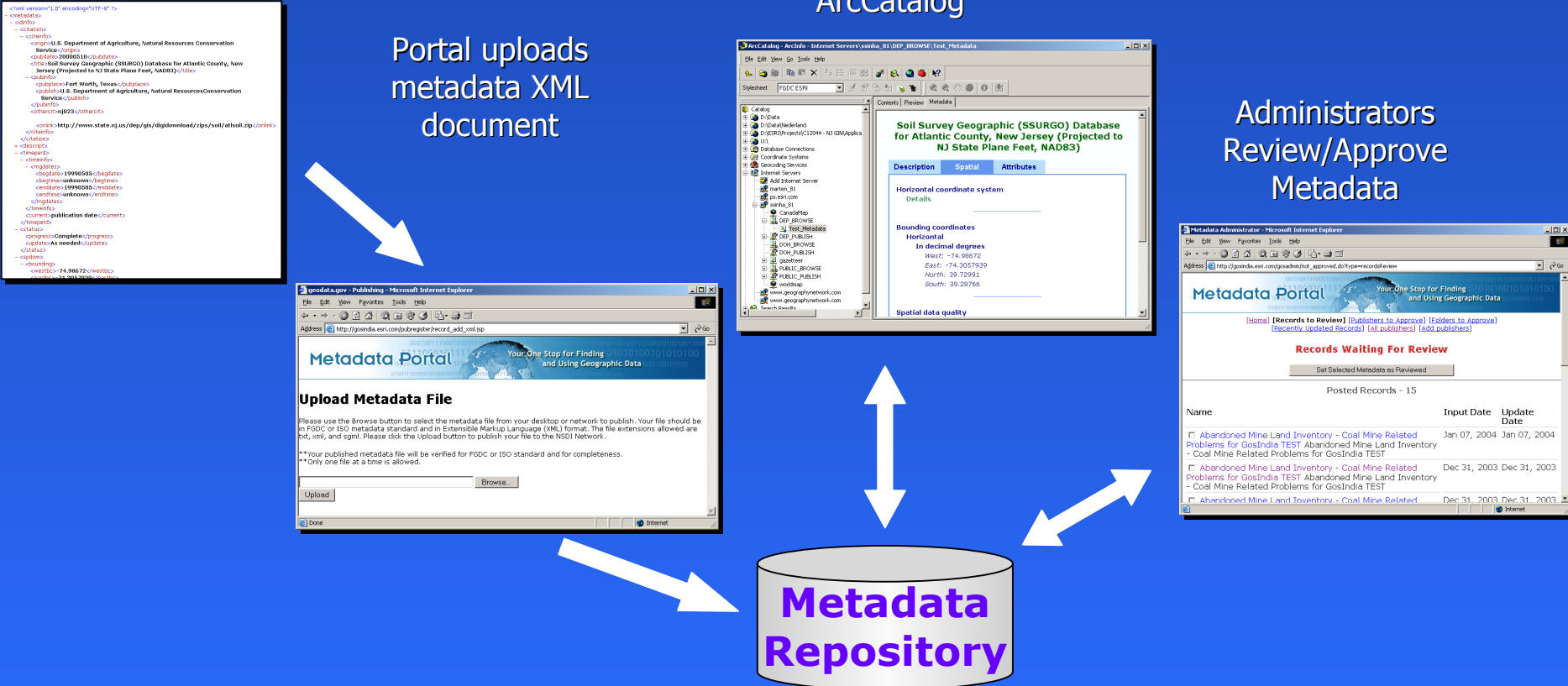
Posted Records - 15

Name	Input Date	Update Date
Abandoned Mine Land Inventory - Coal Mine Related Problems for Gosindia TEST	Jan 07, 2004	Jan 07, 2004
Coal Mine Related Problems for Gosindia TEST	Dec 31, 2003	Dec 31, 2003
Abandoned Mine Land Inventory - Coal Mine Related Problems for Gosindia TEST	Dec 31, 2003	Dec 31, 2003
Coal Mine Related Problems for Gosindia TEST	Dec 31, 2003	Dec 31, 2003
Abandoned Mine Land Inventory - Coal Mine Related Problems for Gosindia TEST	Dec 31, 2003	Dec 31, 2003

Internet

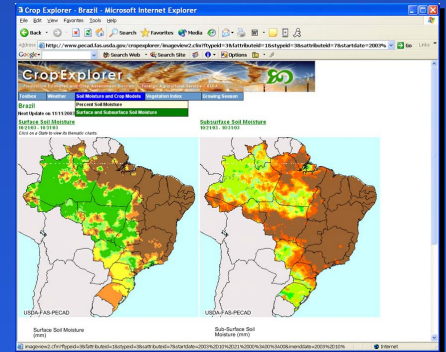


**Metadata
Repository**



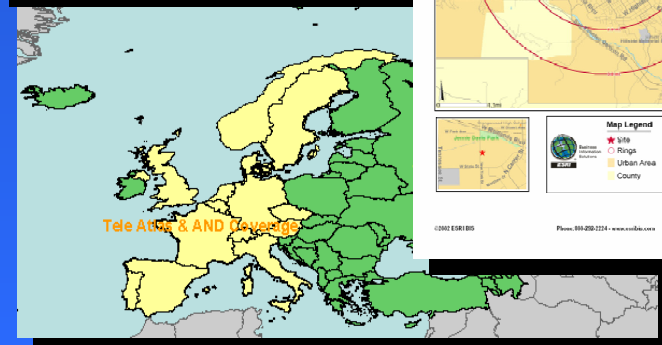
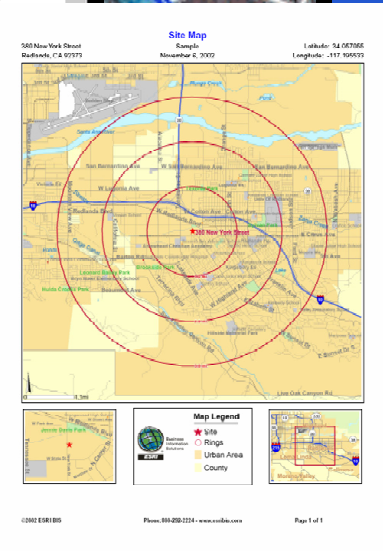
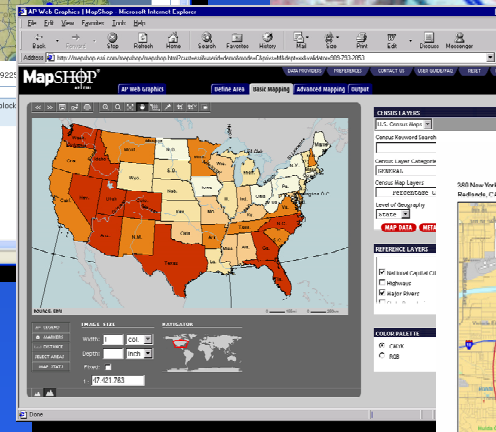
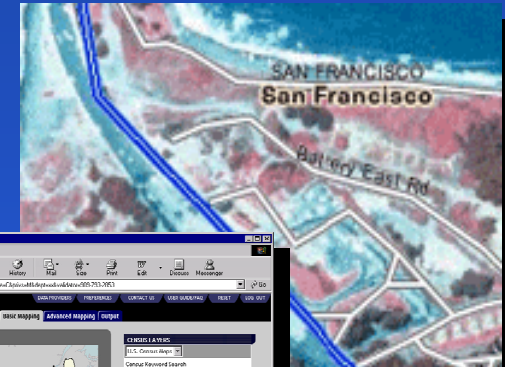
GIS Service

- On demand GI data and applications
- Accessible over the web
 - Remote / local
- Always on / available
- Like a utility (electric, telephone..)
- Use web services architecture
- GIS as Infrastructure



Web Services

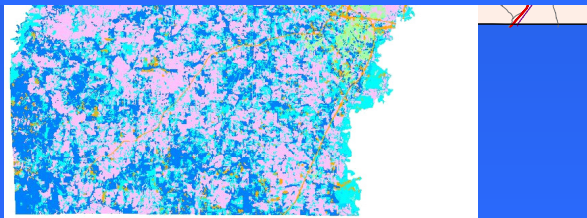
- Server
- Services
 - Mapping
 - Geocoding
 - Routing
 - Data download
 - Gazetteer
 - Business Intelligence
- Technology
 - .Net
 - J2EE



Framework Datasets

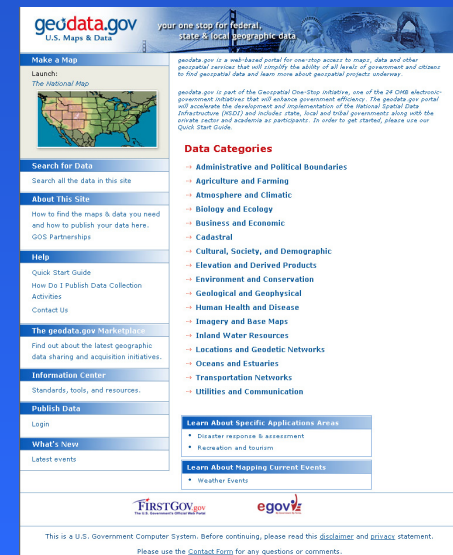


- Administrative Boundaries
- Base Cartography
- Bathymetry
- Cadastral
- Culture and Demography
- Geodesy
- Geology
- Soils
- Transportation
- Vegetation
- Water
- Wetlands



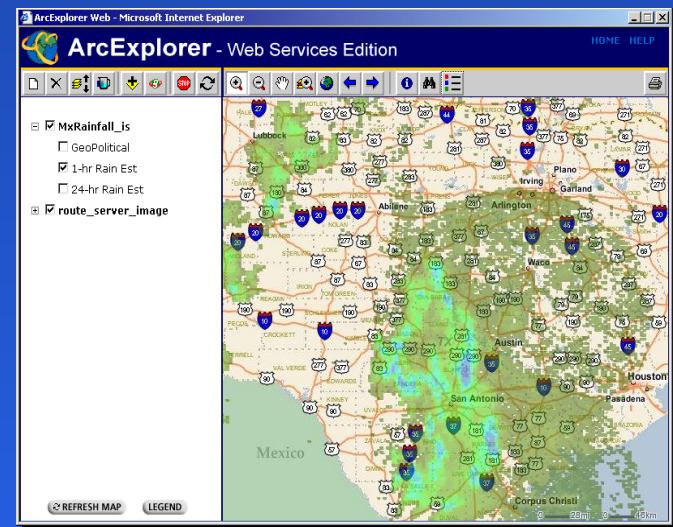
Geoportal Server Capabilities

- User interface
- Host user supplied content
- Search/query content by keyword, geographic area and theme
- Organize information as data categories
- User accounts / security
- Monitor site usage
- Collect feedback from users



Geoportal Viewer Capabilities

- Web browser-based
- Map navigation
- Printing
- Selection queries
- Data exploration
- Direct use of on-line web services
- Fuse multiple services into a single map

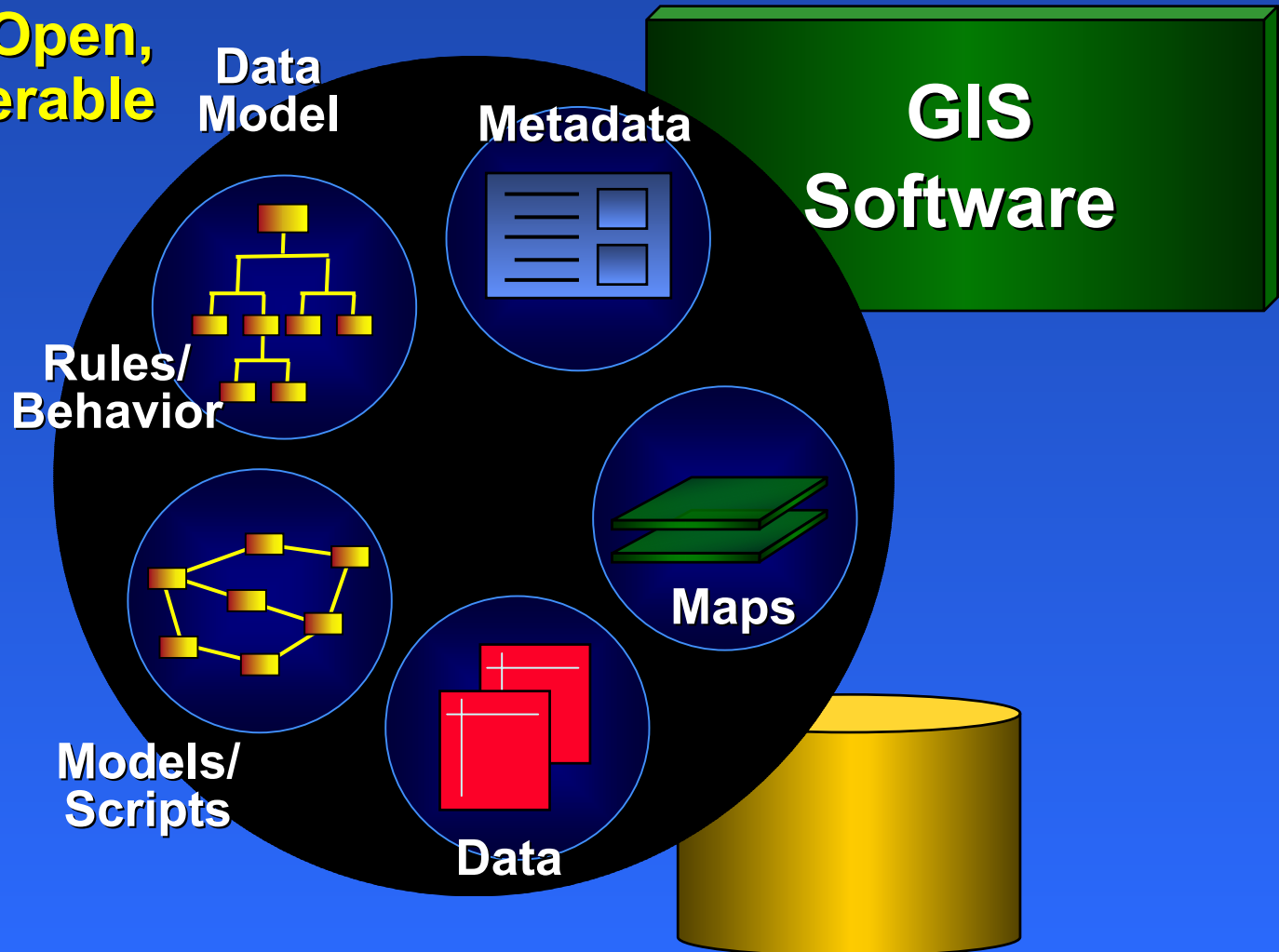


To Support New Global Requirements GIS Must Become More Intelligent

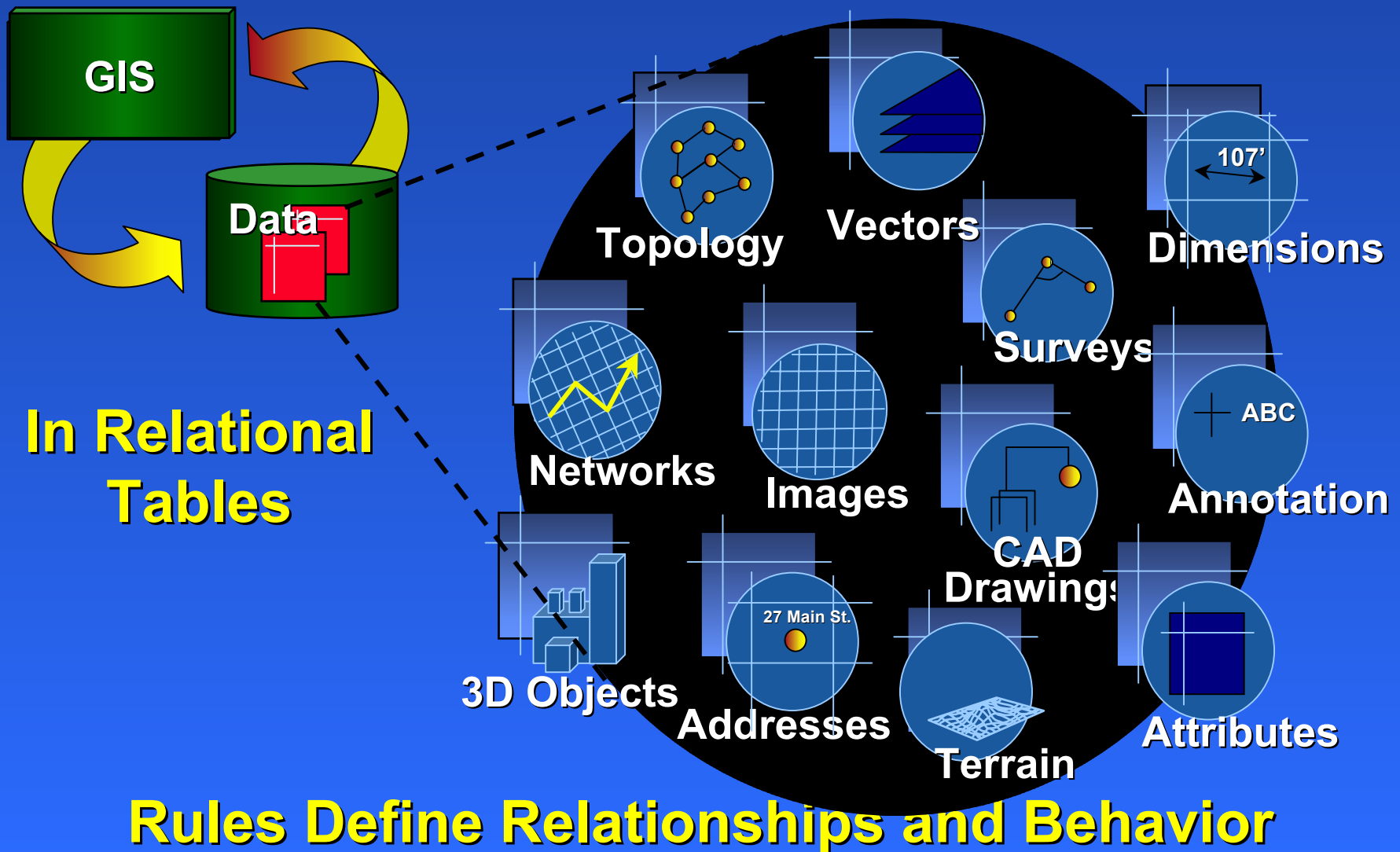
- From **Data** to **Information** to **Knowledge**

Manage Intelligence in Geodatabase

... Simple, Open,
and Interoperable

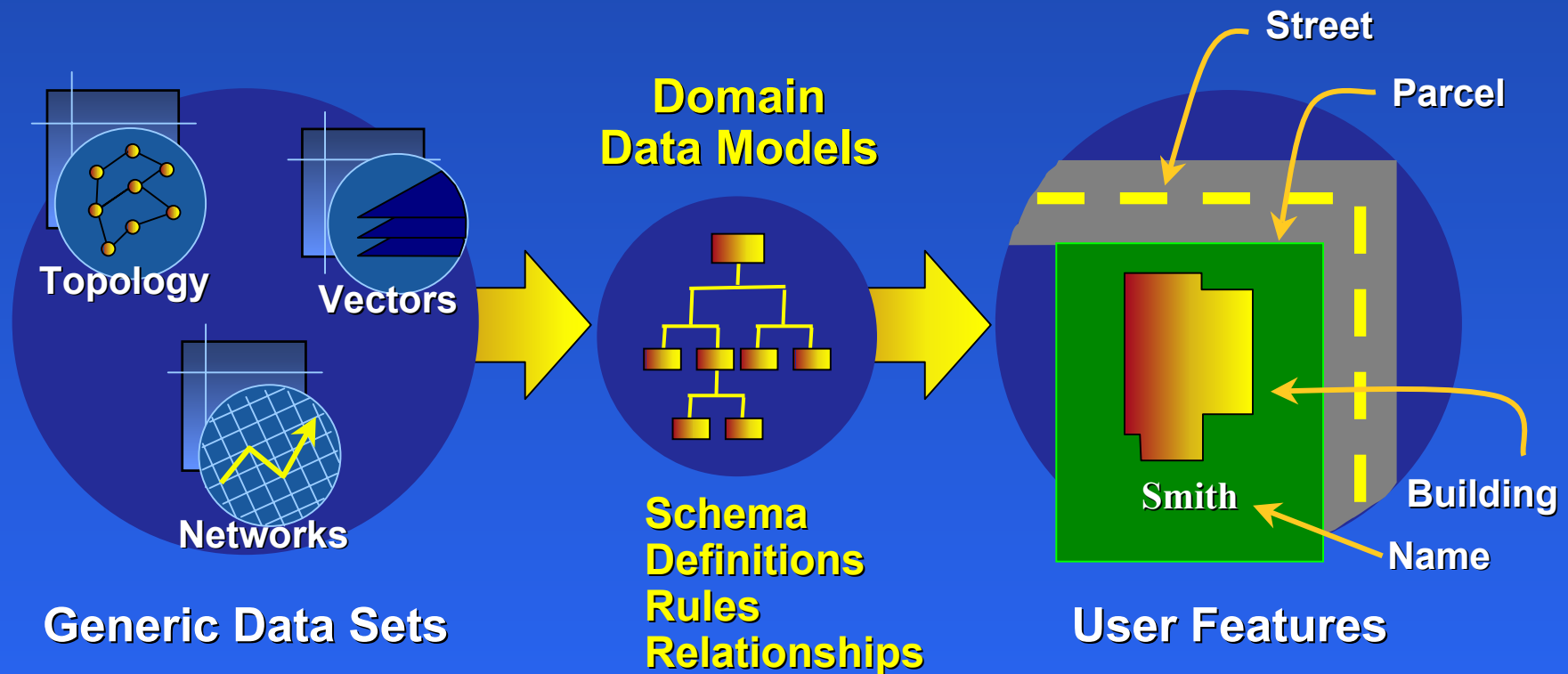


Support All The Generic Spatial Data Types



Add “Intelligence” To Features

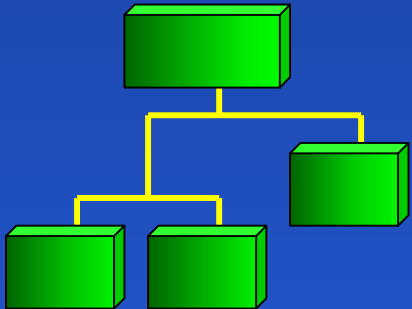
Using Data Models . . .



. . . Create Real World Features

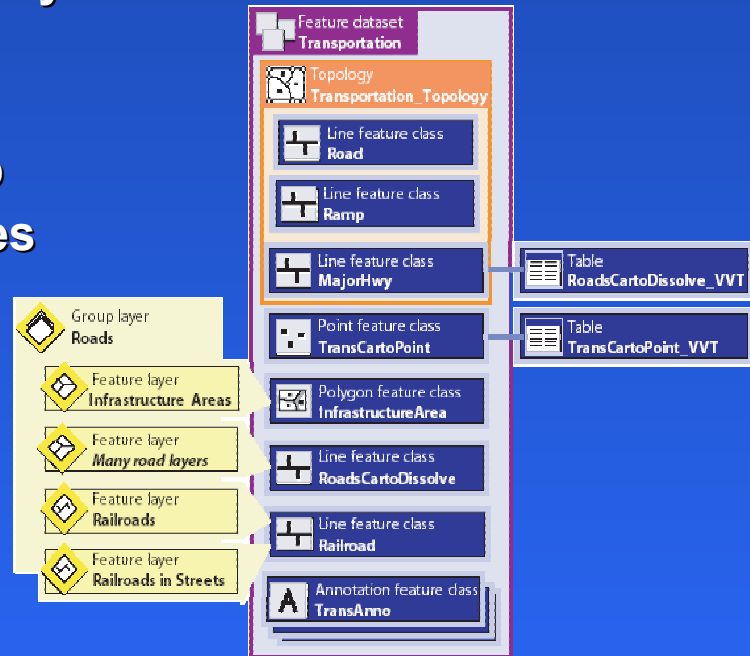
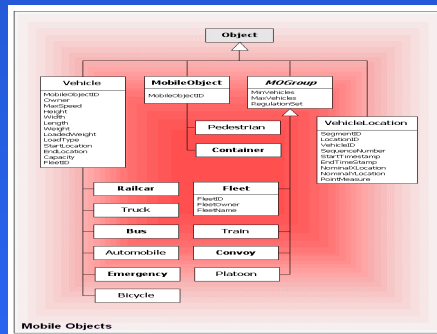
. . . More Usable Information

Domain Data Models Extend Basic Data Types



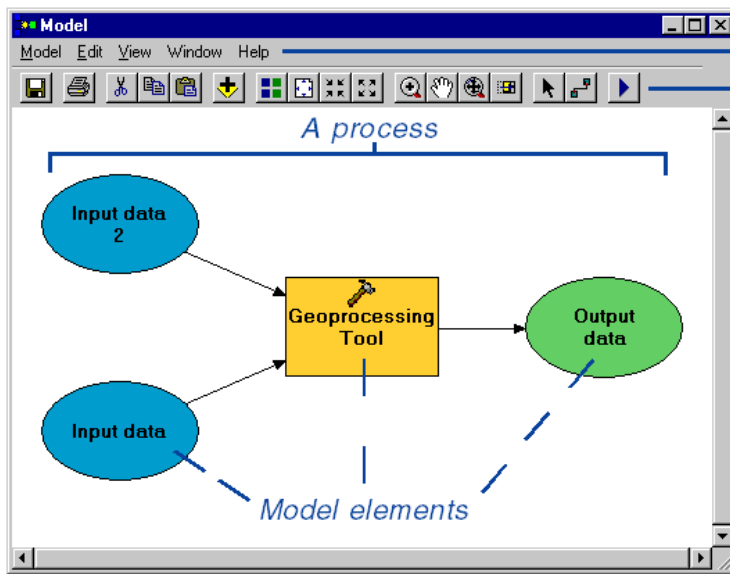
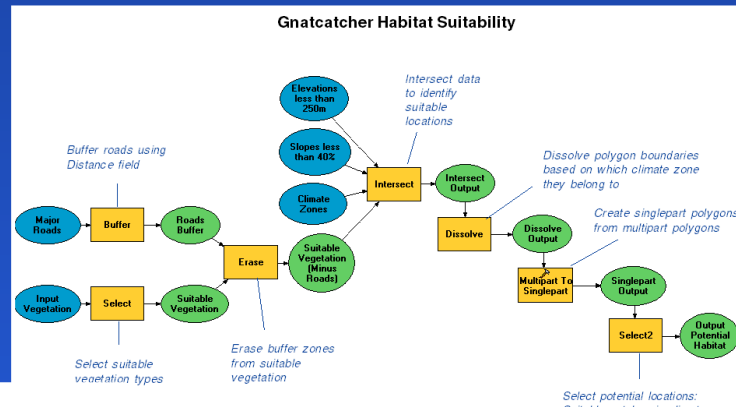
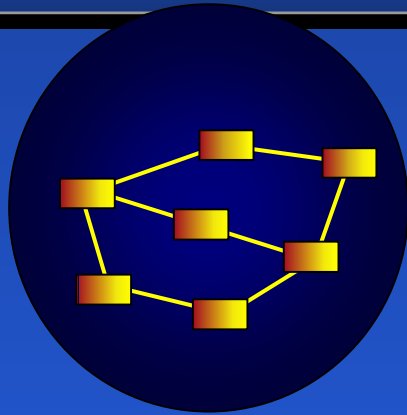
- Administrative Boundaries
- Hydrology
- Water/Wastewater
- Land Parcels
- Utilities
- Transportation
- Petroleum
- Pipeline

- Marine
- Environmental Facilities
- Biodiversity
- Forestry
- Defense
- Basemap
- Addresses
- Geology



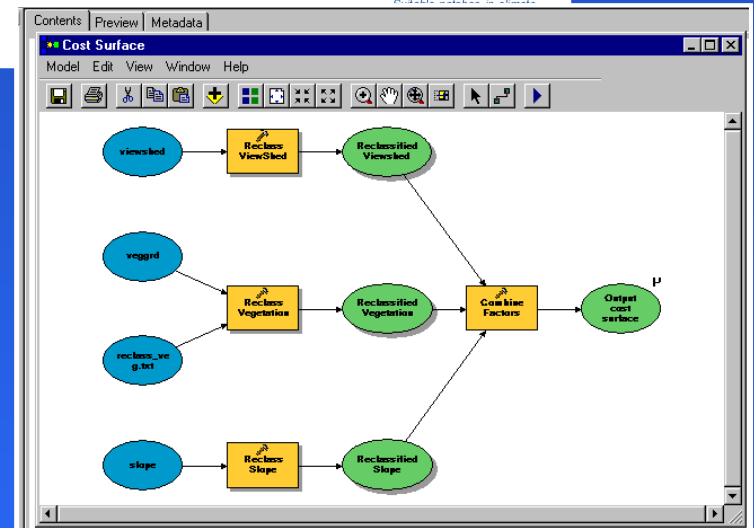
Built in collaboration with the user community by encapsulating expert knowledge to jump-start projects

Geoprocessing Models – Best Practices and Applications



Main menu
Toolbar

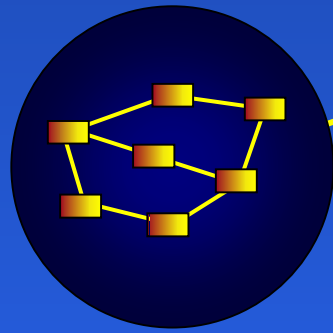
Model
diagram in
the
display
window



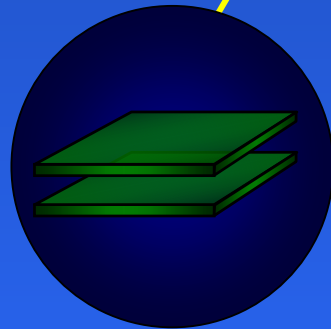
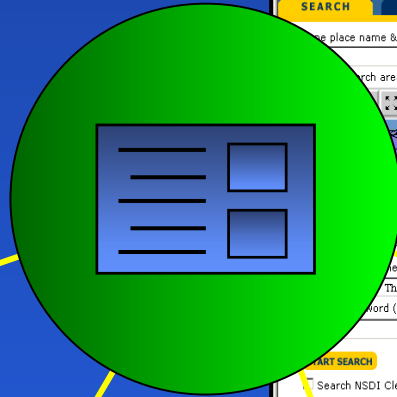
... Sharing Geographic Knowledge

Geodatabase Manages Metadata

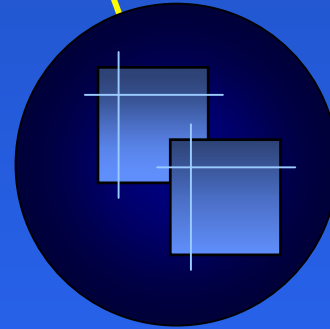
Documenting and Describing



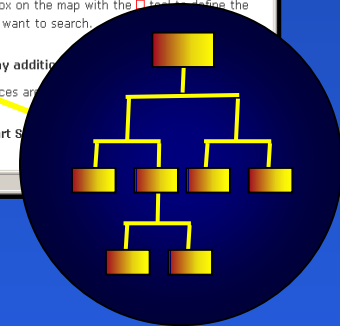
**Workflow
Models**



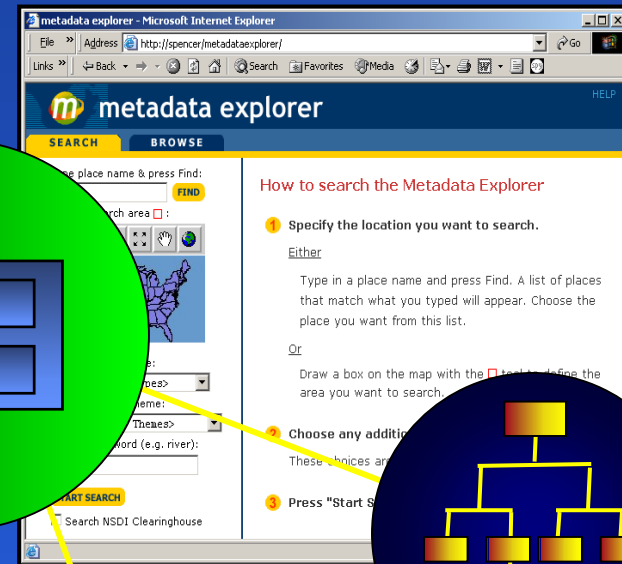
**Maps
(Services)**



Data Sets



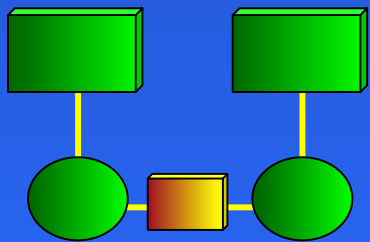
**Data
Models**



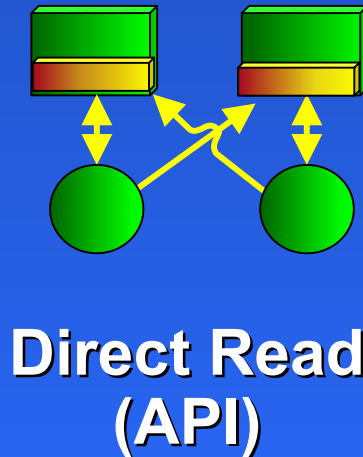
... Geographic Knowledge

Interoperability is Important

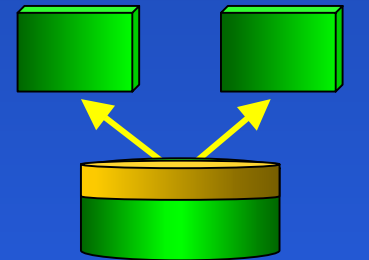
Many Standards . . .



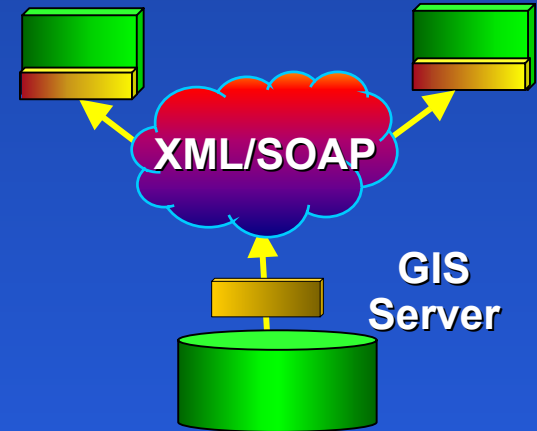
Conversion



Direct Read
(API)



DBMS
Integration



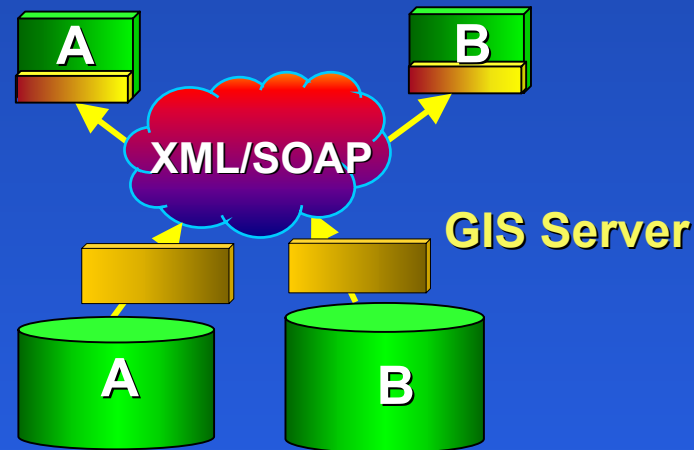
Web
Services

XML/SOAP
GIS
Server

... Focus Is On Simple and
Practical Approaches That Work

Web Services Interoperability

Web Services nTier Architecture



“ Support Open
Web Services”

...For Integrating Many Systems
... Based on Open Industry Standards

Conclusions

- Many significant national problems require the integration of GIS from multiple sources
- SDI's are essential for developing national GIS strategies
- Current technology is becoming more 'intelligent'
 - Integration
 - Modeling
 - Analysis
 - Mapping

