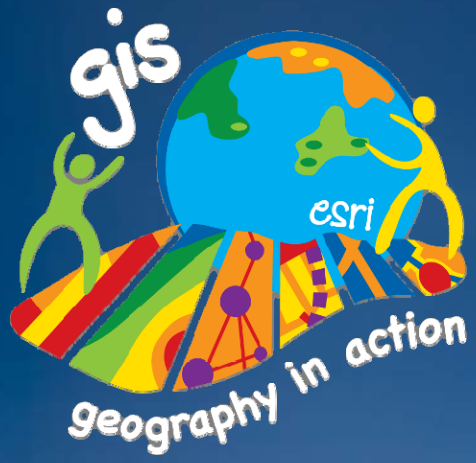


ArcGIS Software Status and Plans

Plus Remarks About Implementing GIS on the Web

Clint Brown

Director of Software Engineering, ESRI

ESRI Focus

Supporting Our Users

Our Purpose

- **Serve Users**
- **Work closely with Partners**
- **Advance GIS**
- **Develop Professional GIS Workforce**
- **Support Employees**

Jack's Key Points

1. Web GIS
2. Mobile GIS
3. Arc Logistics
4. Web Services Mash Ups
5. GIS within the Enterprise (Leveraging geographic knowledge)
6. Real-time, Sensor Information (GIS provides a framework)
7. GIS information use within SCADA ("Wall-to-wall System")
8. Integrated Imagery within GIS

Your Are Part of a Global GIS Community

- 1.5 M GIS Professionals
- 400,000 Organizations
- All Nations
- Many Disciplines & Interests

. . . Improving How We Organize & Manage Critical Facilities

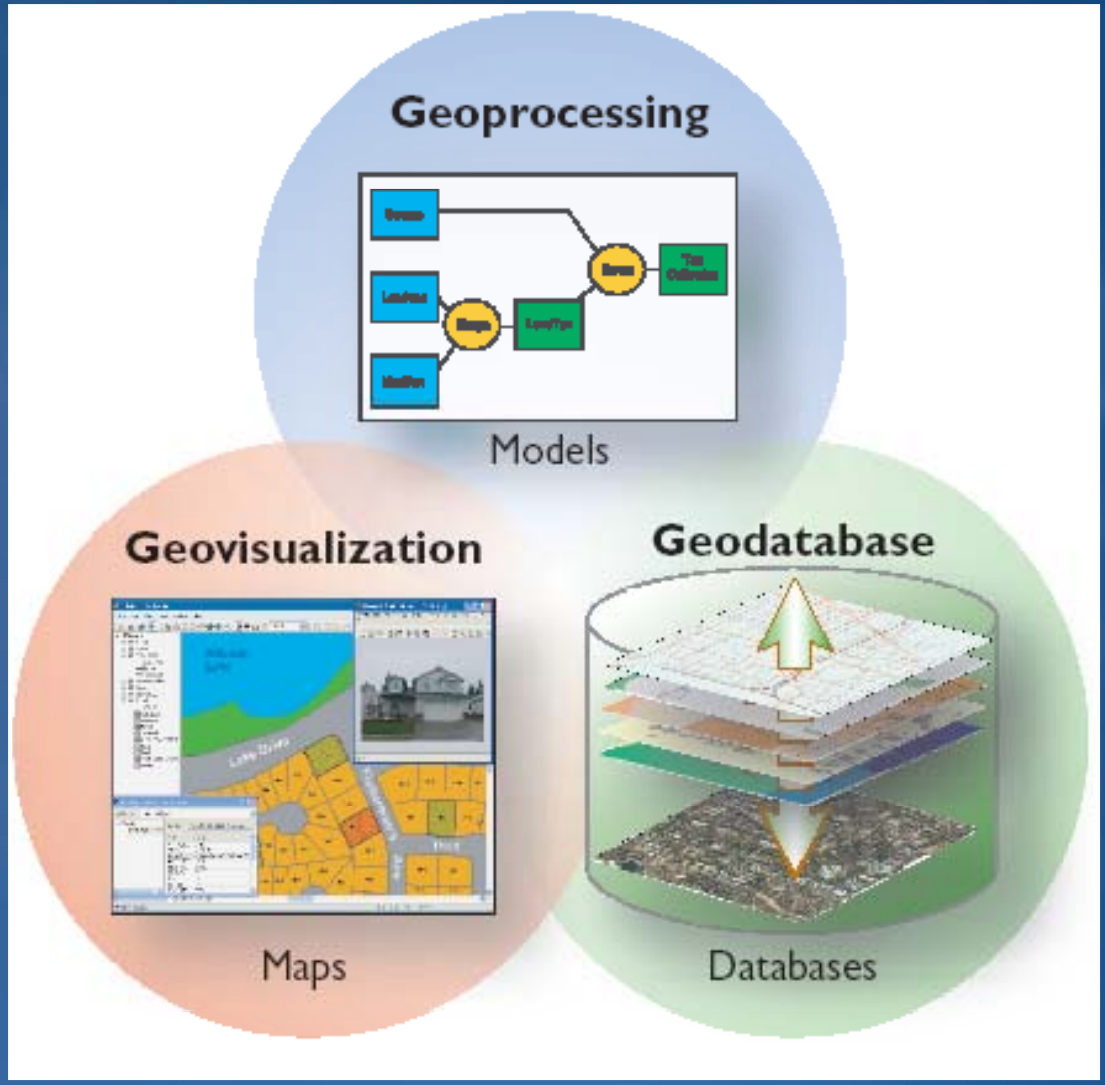
Key GIS applications in Utilities Management

1. **Asset management**
   - Facilities networks
   - Resource accounting
2. **Situational awareness**
   - Role-base dashboard
   - Status review
   - Visualization
   - More sensors on the network
3. **Outage and Disaster Management**
   - Deployment and staging
4. **Mobile Workforce Management**
5. **Facilities Planning**

By characterizing and representing the earth's physical and human's cultural patterns and processes

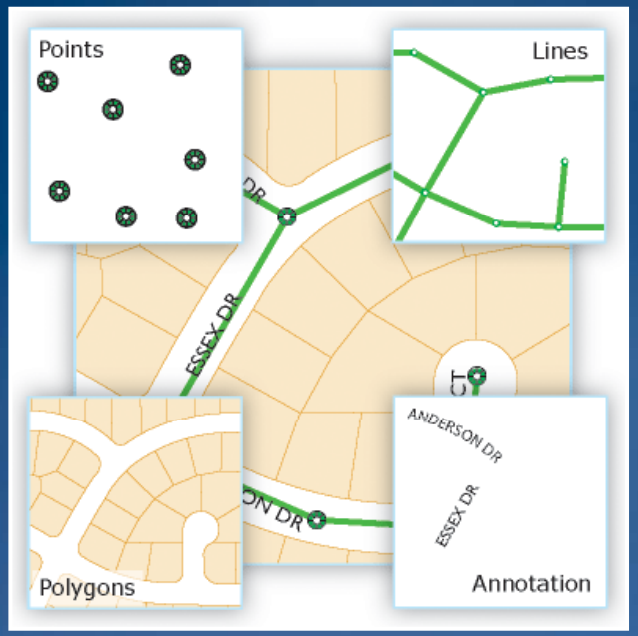
GIS is Strategic Information Technology

Three parts

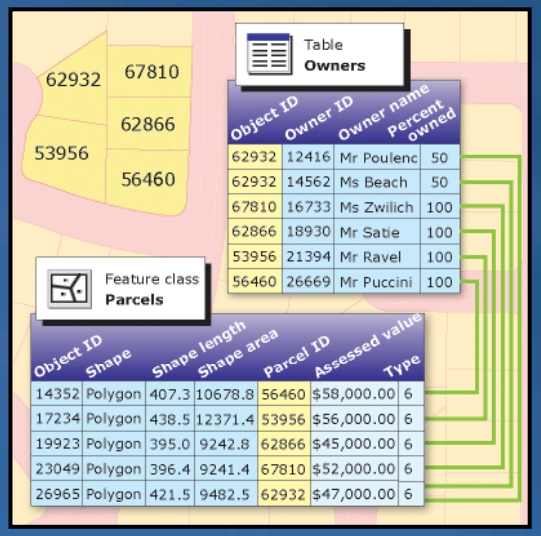


Based on geography

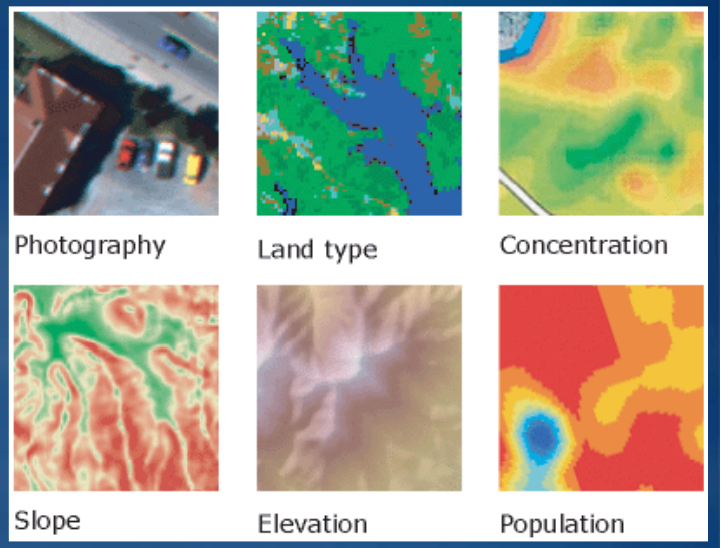
Common GIS Dataset Types



Feature collections



Attributes

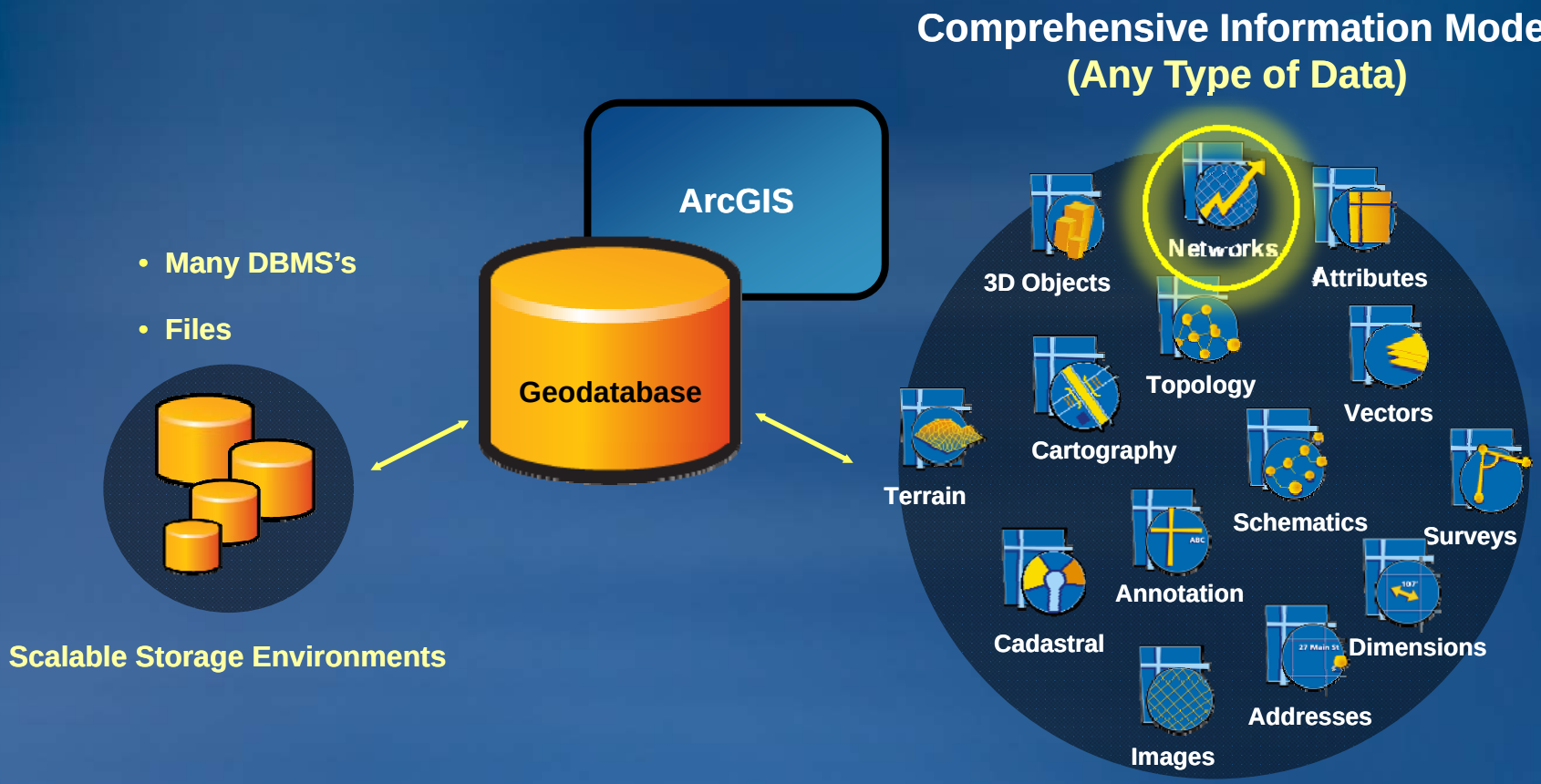


Rasters

GIS Data Strategy -- Simple geometry storage plus rich spatial relationships

The Foundation of ArcGIS Is the Geodatabase

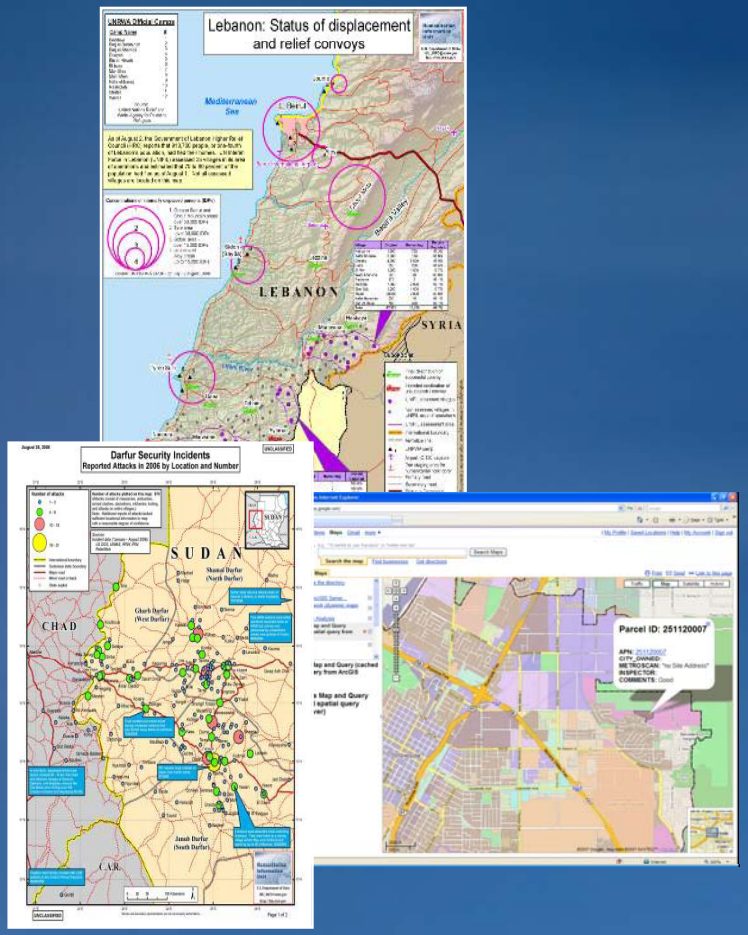
Organizing & Managing Geospatial Data



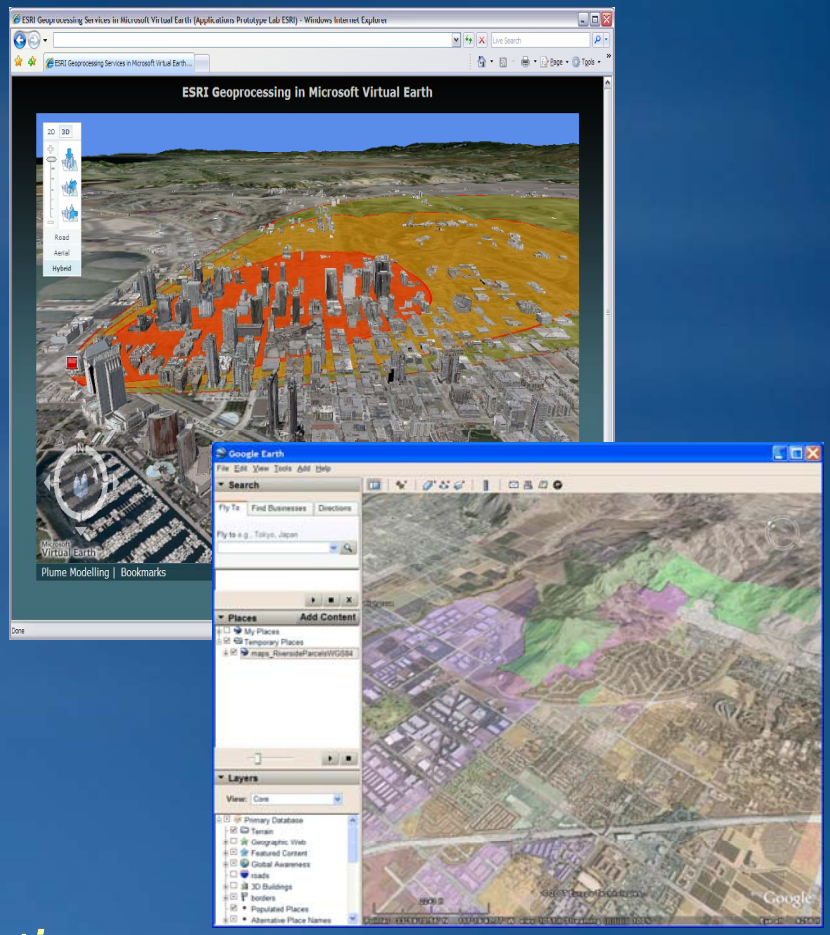
. . . Essential for Leveraging the Full Capabilities of ArcGIS

Geographic information is viewed in Maps and 3D Views
Windows into the geodatabase. Access to Tasks and Tools.

2D Maps

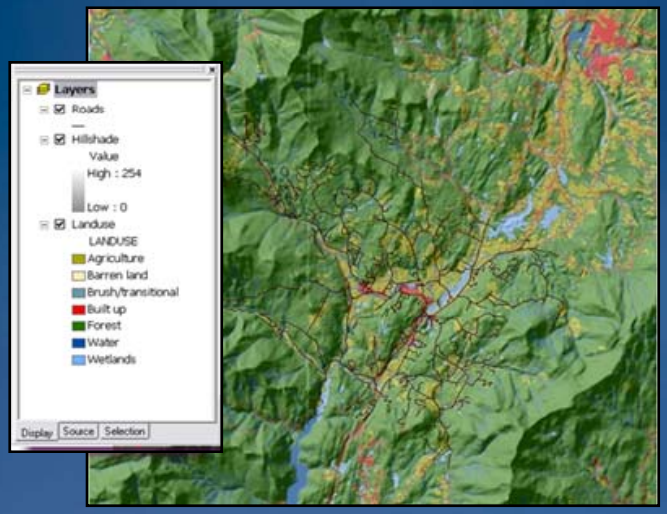


3D Maps



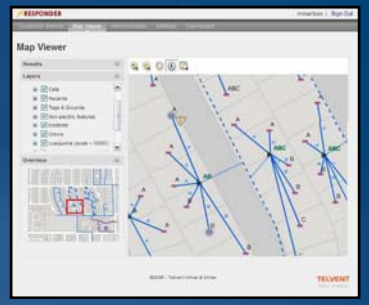
Visualization

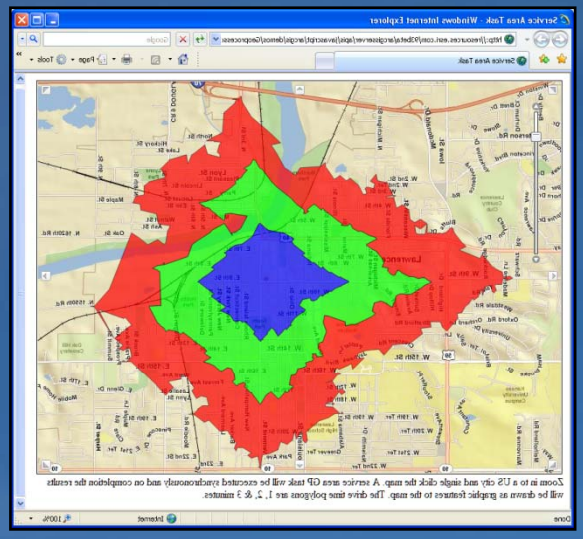
Geoprocessing and Analysis
Example: Facilities Management



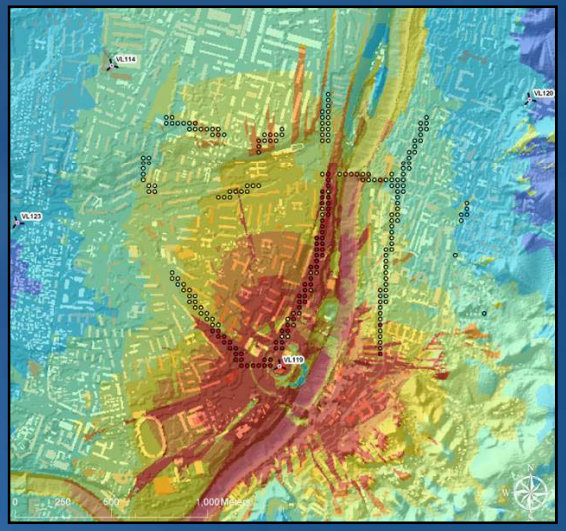
Watershed
California

Electrical Outage Analysis
Colorado





Drive Time Analysis
Kansas



Wireless Network Planning
Lithuania

The fundamental nature of our users' work remains constant

- Resource and landscape inventory
- Facility management
- Planning
- Government operations
- Science
- Land information and management
- Public access to information
- . . .

Changes in technology bring opportunities for new approaches and *competition . . .*

The nature of the computing landscape continues to change

Mainframe computing

Departmental and scientific computing

Workstations and networks

Personal computers

Database and enterprise servers

The web connecting individual systems

Devices and networks

The Web is the system

. . .

ESRI Focus: Serving our users with real systems

Working together to build –

***Real* things for**

***Real* people doing**

***Real* work**

What works?

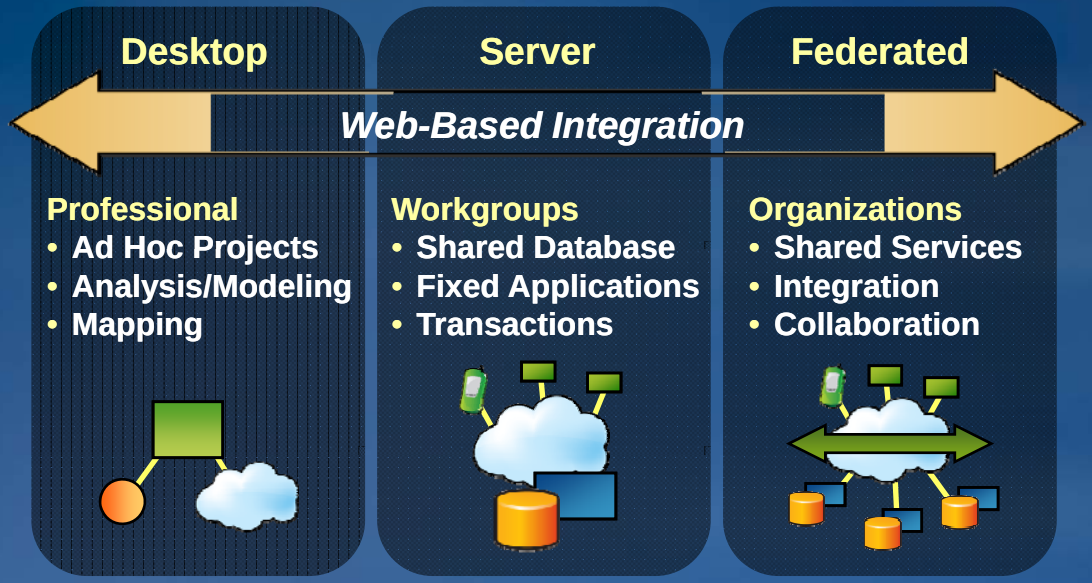
Simple things scale. Complex things fail.

<u>Understanding geographic content and how it is presented is critical</u> –

“It’s what’s in the groove that counts.”

GIS users are in a unique position to leverage this.

Today GIS Implementations Follow Three Common Patterns



. . . These Are the Foundation for an New Pattern

Web GIS

. . . Providing New Opportunities for Leveraging Your Work

The web will be at the center of everything we do

- The Web means:
  - Federated network architecture
  - Simple and fast user experience
  - Content is key
    - Rich
    - Authoritative
  - Web programming models
  - Participation in a larger “ecosystem”
  - Power to aggregators
  - “Cloud computing” paradigm

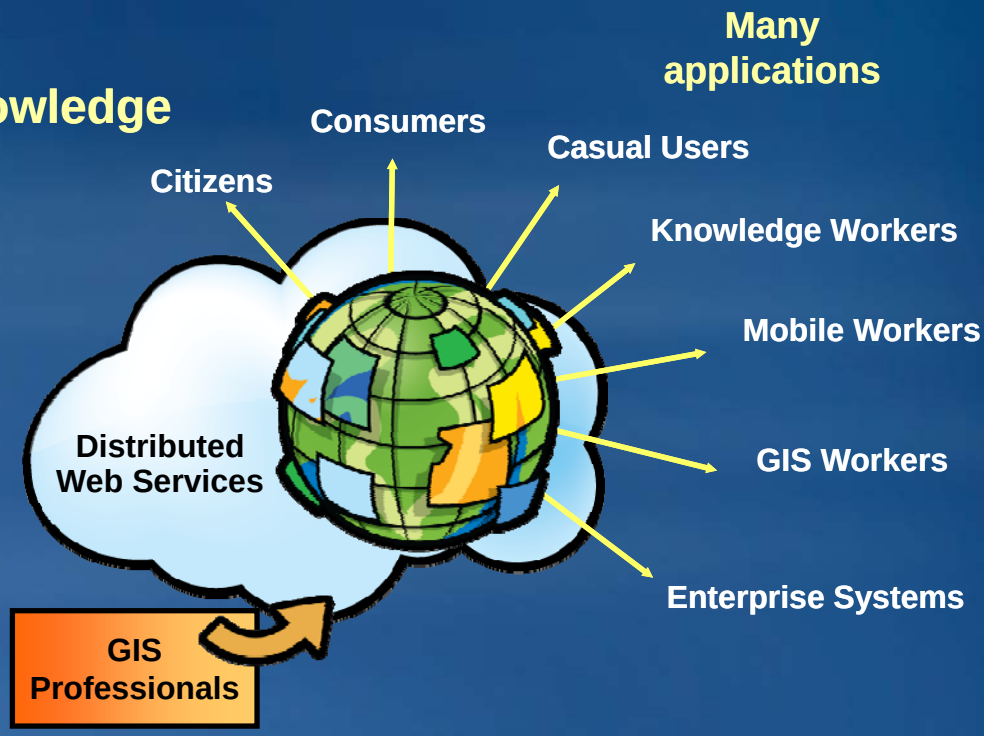
We will continue to integrate the web into ArcGIS

GIS Professionals Will Implement Web GIS

Deliver geographic information to a wide range of users

Author & Serve Geographic Knowledge

- High Quality Maps
- 3D Visualizations
- Analysis & Models
- Data Management Workflows
- Authoritative Content
- Rich Web Applications



. . . Shared GIS Services

Reaching New Communities of Users . . .

. . . Dramatically Leveraging Our Collective Knowledge

Google and Microsoft provide good implementation examples

- Easy, out-of-the box applications
- Ready-to-use, multi-scale basemaps (Streets, Imagery)
- Easy to add layers (e.g., via KML)
- Helps to address a focused set of questions
  - What's around here? "Exploration"
  - Where is it? (Find locations)
  - How do I get there? (Routing)
  - What does my information look like in this context? (Mashups via KML, etc.)

As GIS users, we can learn a lot from these web sites

We must demonstrate what else is possible

The ArcGIS Roadmap
What is 9.3?

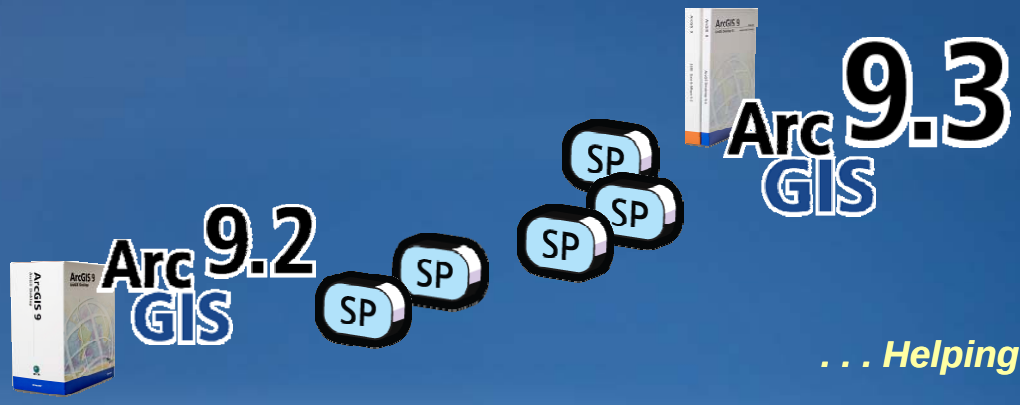
. . . For Authoring, Serving & Using Geographic Knowledge

9.3 Makes ArcGIS Better

Improving Quality & Extending Functionality

Enhancements

- **Mapping**
- **Spatial Analysis**
- **Data Management**
- **Mobile Use**
- **Interoperability**
- **Enterprise Integration**
- **Web Services**
- **Online Resources & Content**

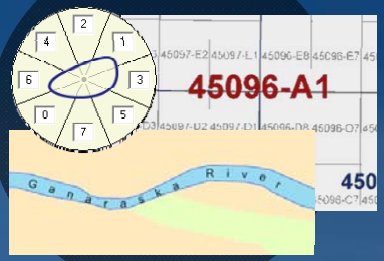


. . . Helping Users Be More Successful

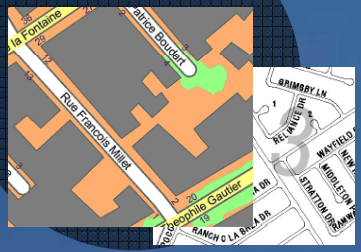
Mapping & Labeling in 9.3

Improving the Quality & Functionality of ArcMap

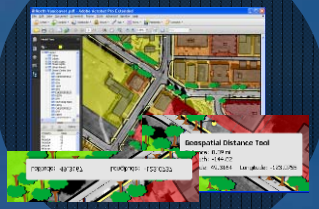
Polygon Labels



Street Numbering Placement



Improved PDF Support



"WYSIWYG Editing"

Multiple Views

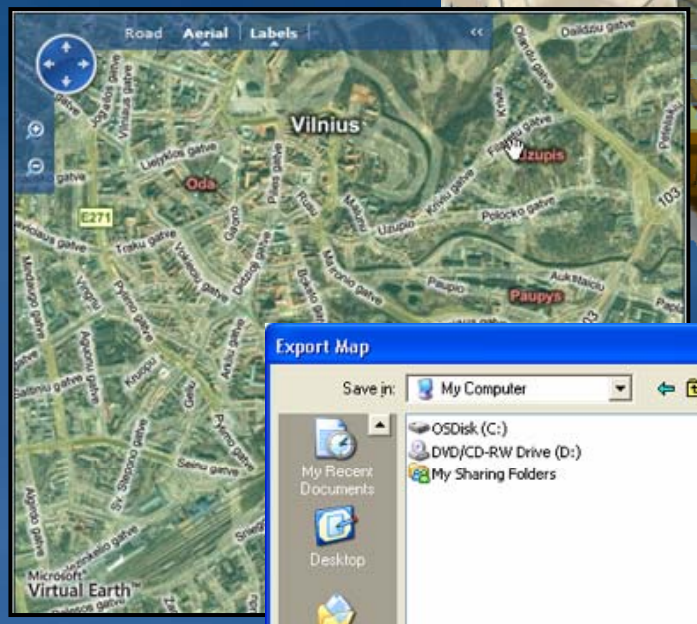
. . . A Complete System for Data Driven Mapping

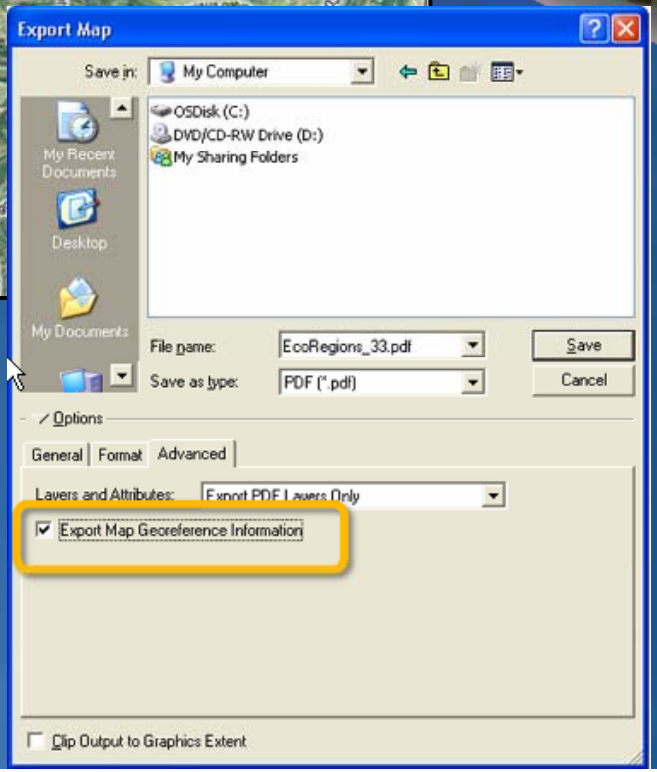
KML Tools in 9.3

Using & Sharing Data on the Web

KML / KMZ

Virtual Earth in ArcGIS



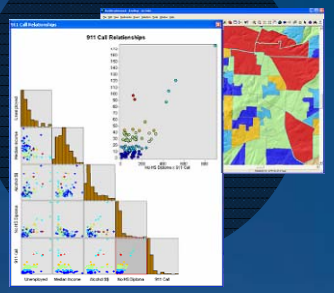


Geo PDF Support with Adobe

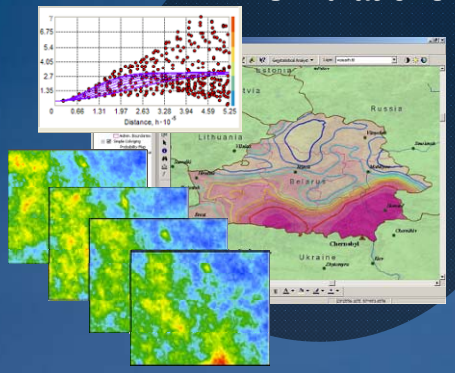
Improving Geographic Modeling in 9.3

Providing Answers to Difficult Questions

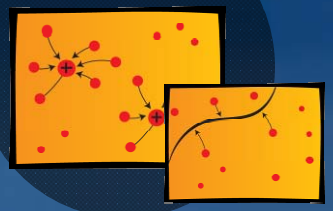
Scatter Plot Graphics



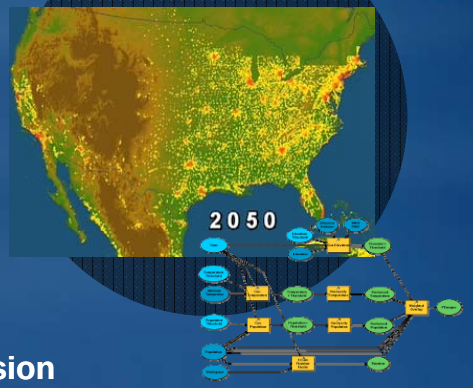
Gaussian Geostatistical Simulations



Improved Proximity Analysis

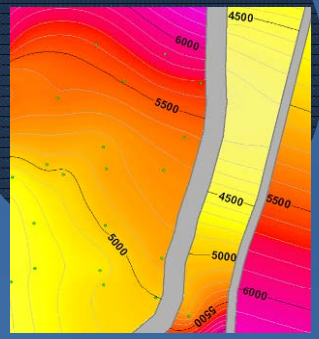


Analysis & Modeling

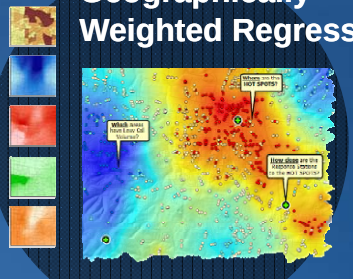


Vehicle Routing with Time Windows

Contouring with Barriers



Geographically Weighted Regression



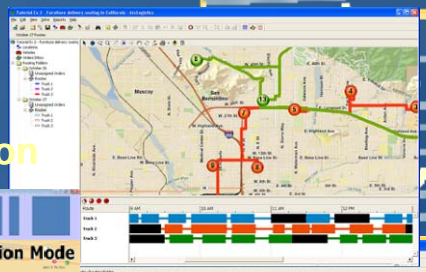
. . . Improves Scripting, Performance & Quality

ArcLogistics 9.3

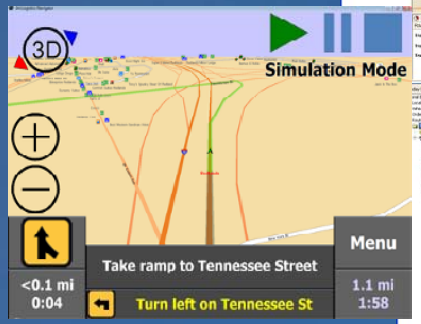
Easy to use your own networks

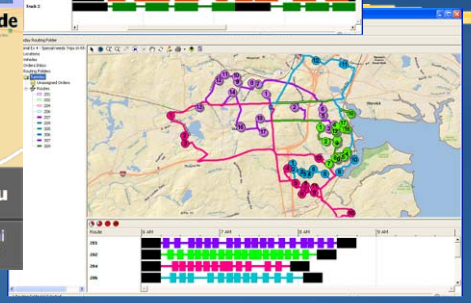
Navigator

Optimizes Routes



Provides Navigation





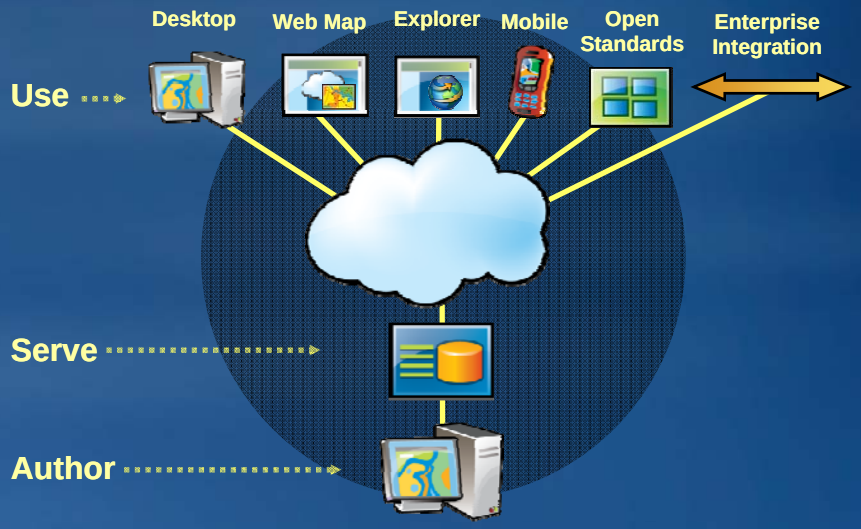
Schedules Vehicles

Fast return on investment . . .

. . . Reduces Fuel Consumption, Saves 15-30% of Costs, & Improves Services

ArcGIS 9.3 SERVER

Basic	Standard	Advanced
Open & Scalable GIS Server		
• Data Management	• Mapping • 3D Visualization • Data Management	• Analysis • Mobile • Mapping • 3D Visualization • Data Management



. . . Making GIS Knowledge Available to Anyone

ArcGIS Server allows you to publish GIS services and tasks

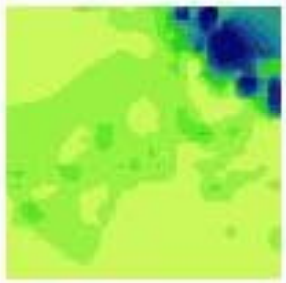
Map Services

Globe Services

Image Services

New at 9.3

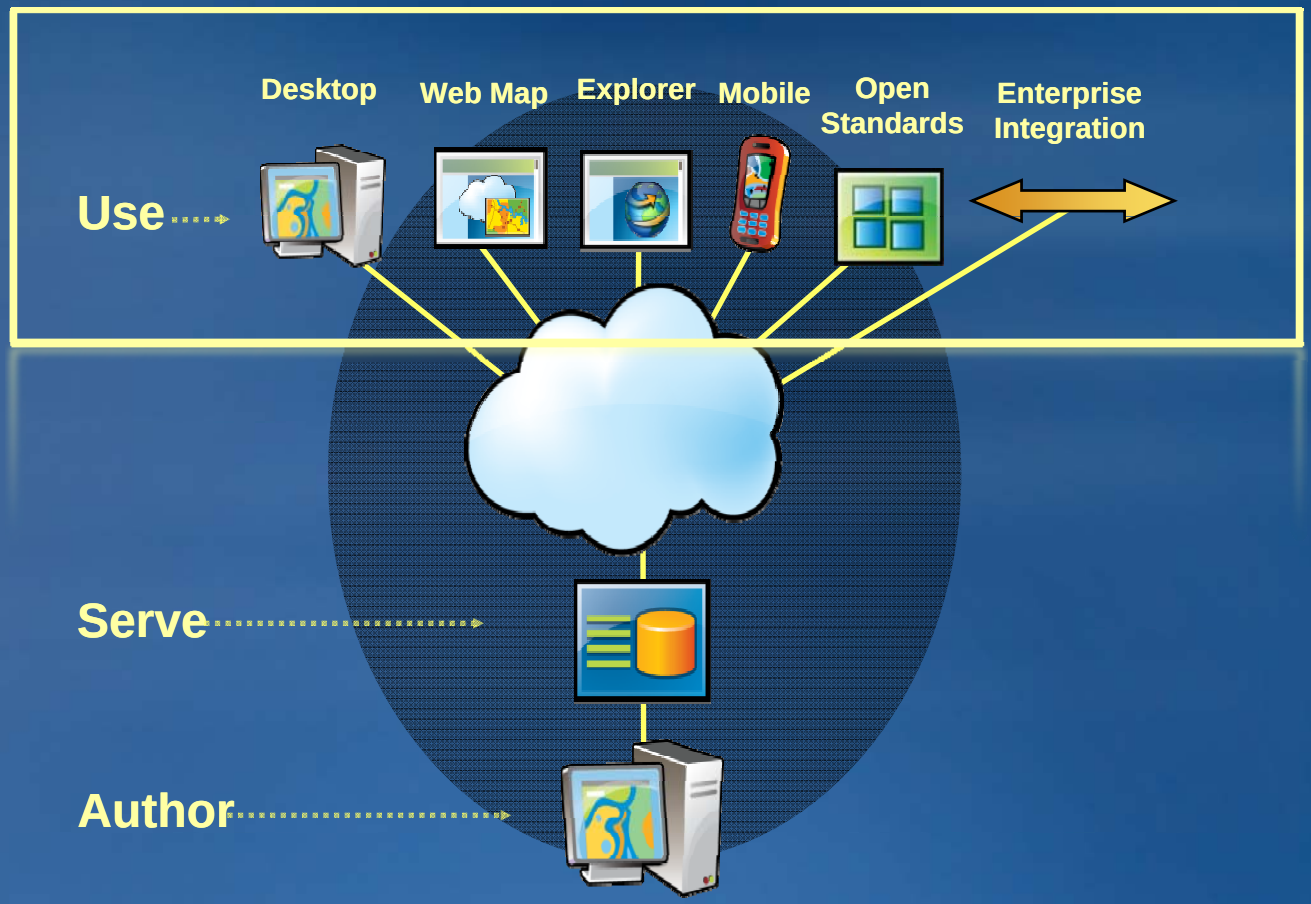
Geoprocessing Services



Geodata Services

Geocode Services

ArcGIS Server supports many applications

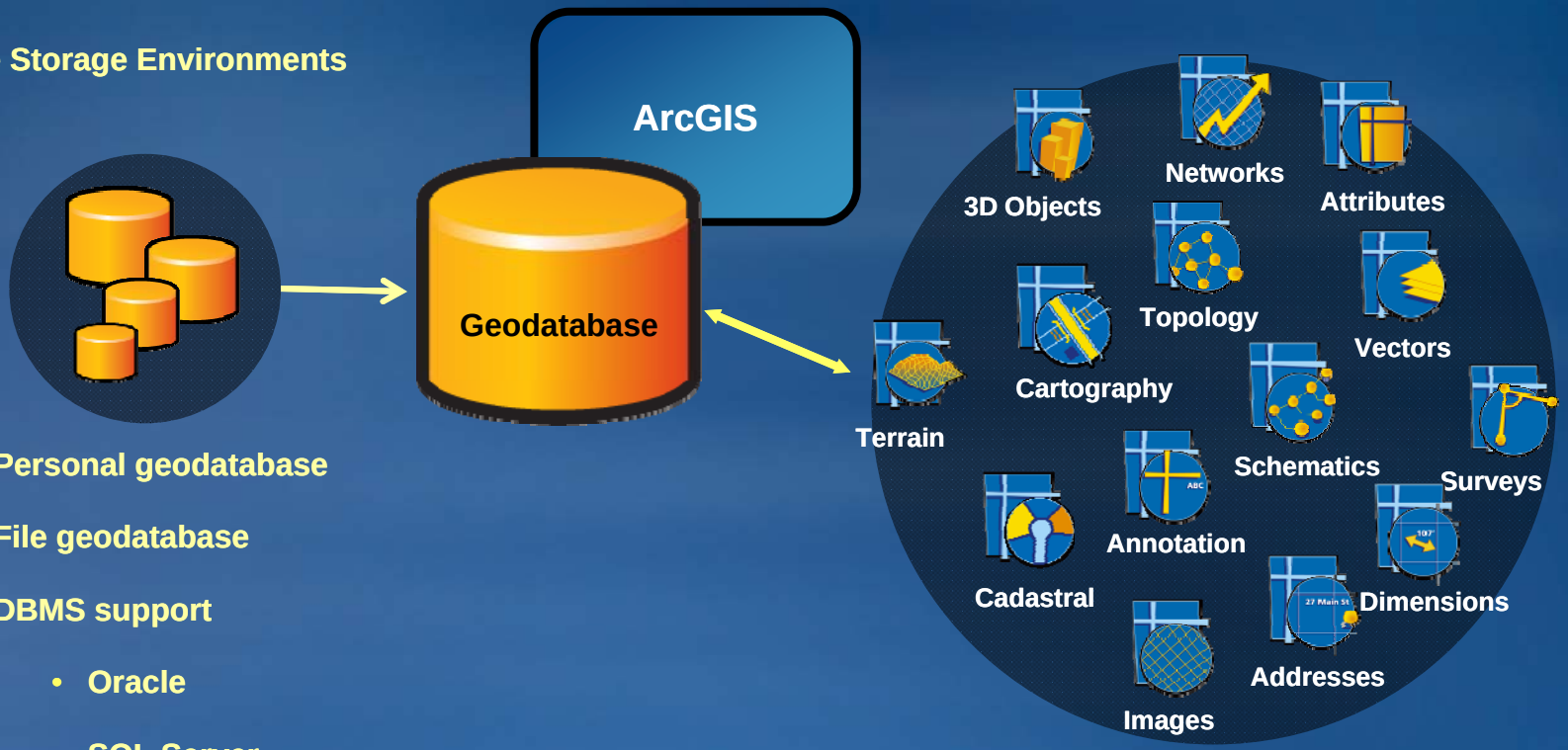


ArcGIS Server supports enterprise geodatabase management

Transactions and web services

Open: SQL, XML, WCS, WFS, SOAP, REST, . . .

Scalable Storage Environments



- Personal geodatabase
- File geodatabase
- DBMS support
  - Oracle
  - SQL Server
  - PostGreSQL
  - IBM DB 2
  - Informix

. . . Essential for Leveraging the Full Capabilities of ArcGIS

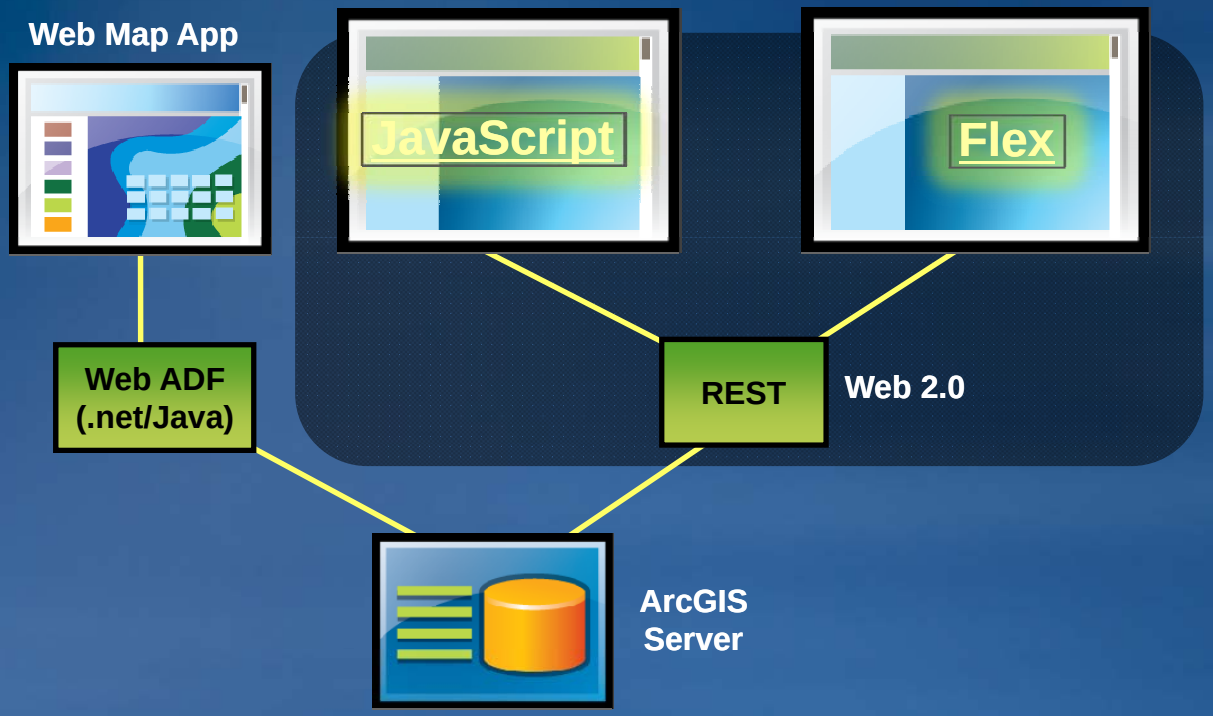
ArcGIS Server Advancements in 9.3

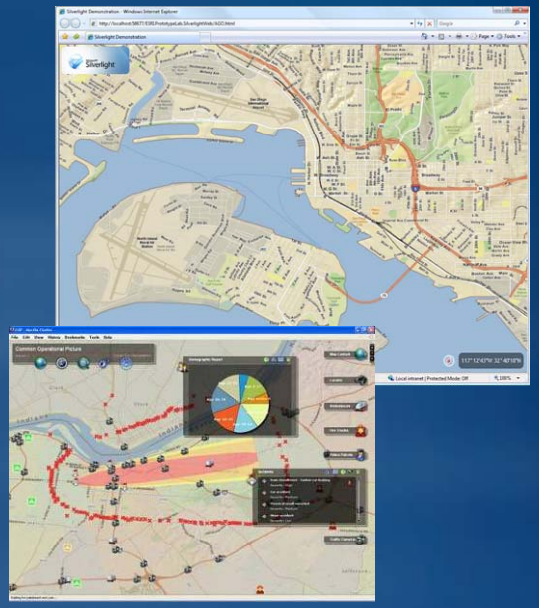
Improving Quality, Performance & Scalability

. . . Strengthening Enterprise Readiness

ArcGIS Server 9.3 Supports New Web Clients

Rich Internet Applications. New at 9.3.

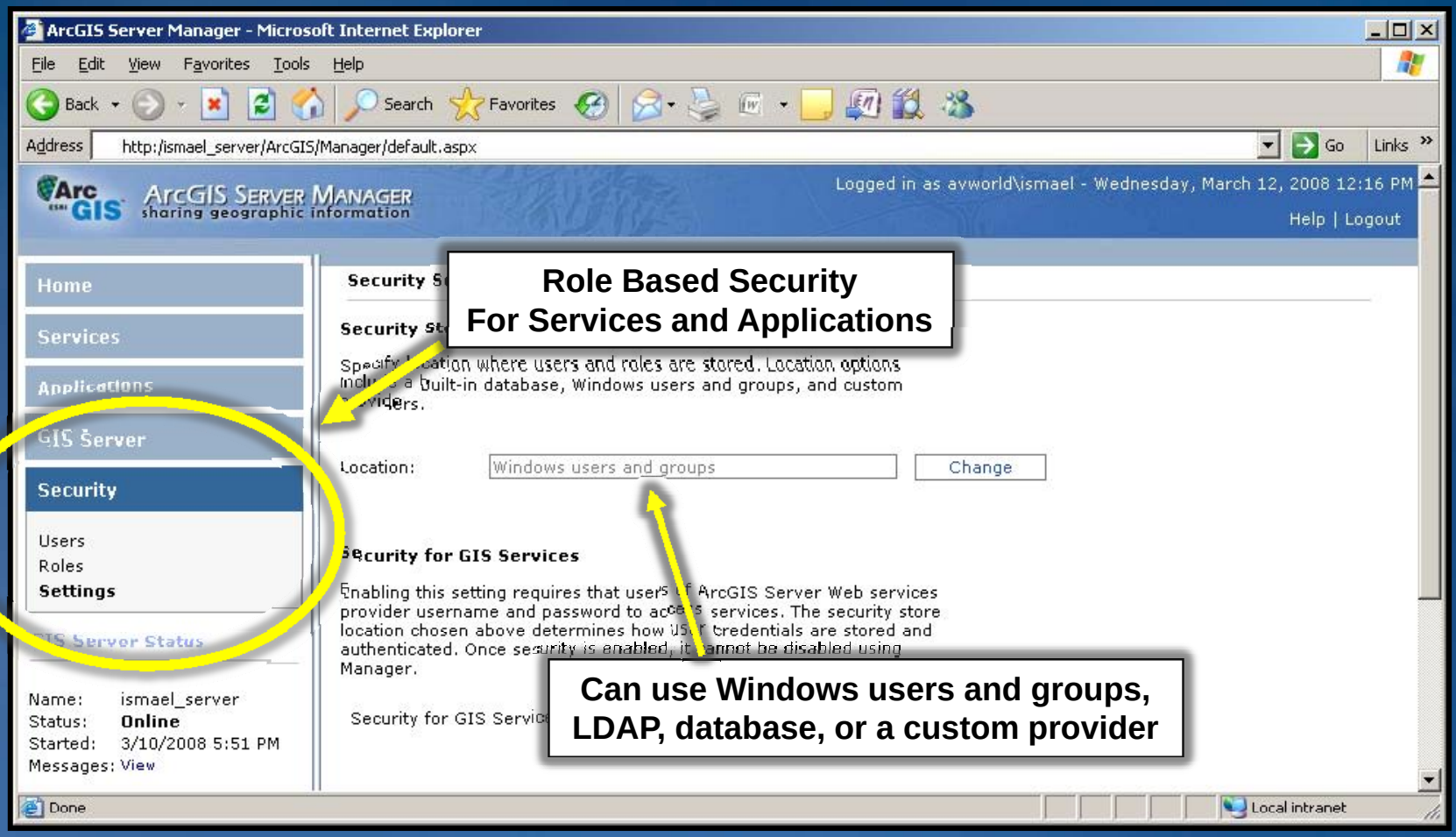




. . . Fast, Flexible, & Agile

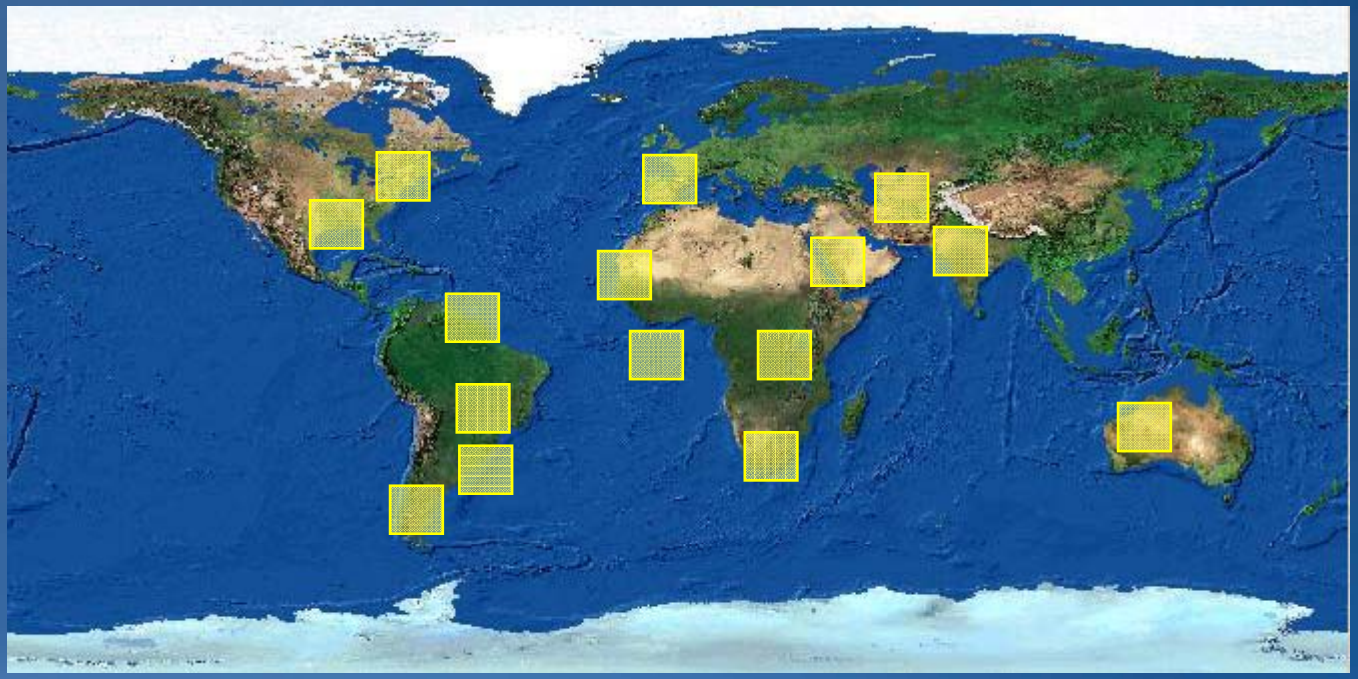
ArcGIS 9.3 Security for Web GIS

Secure individual services and web applications



Better performance in 9.3

- Improved caching workflows
  - Partial Cache
  - On Demand Caching
  - Updating Cached Maps



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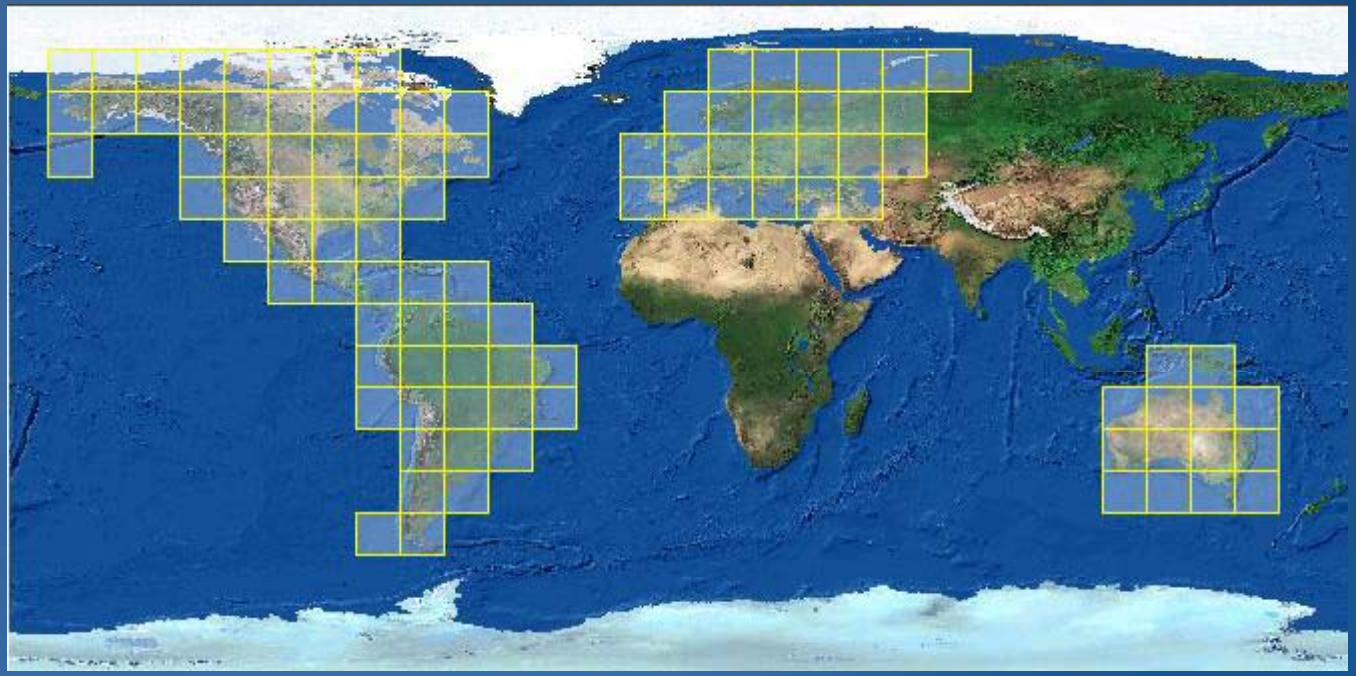

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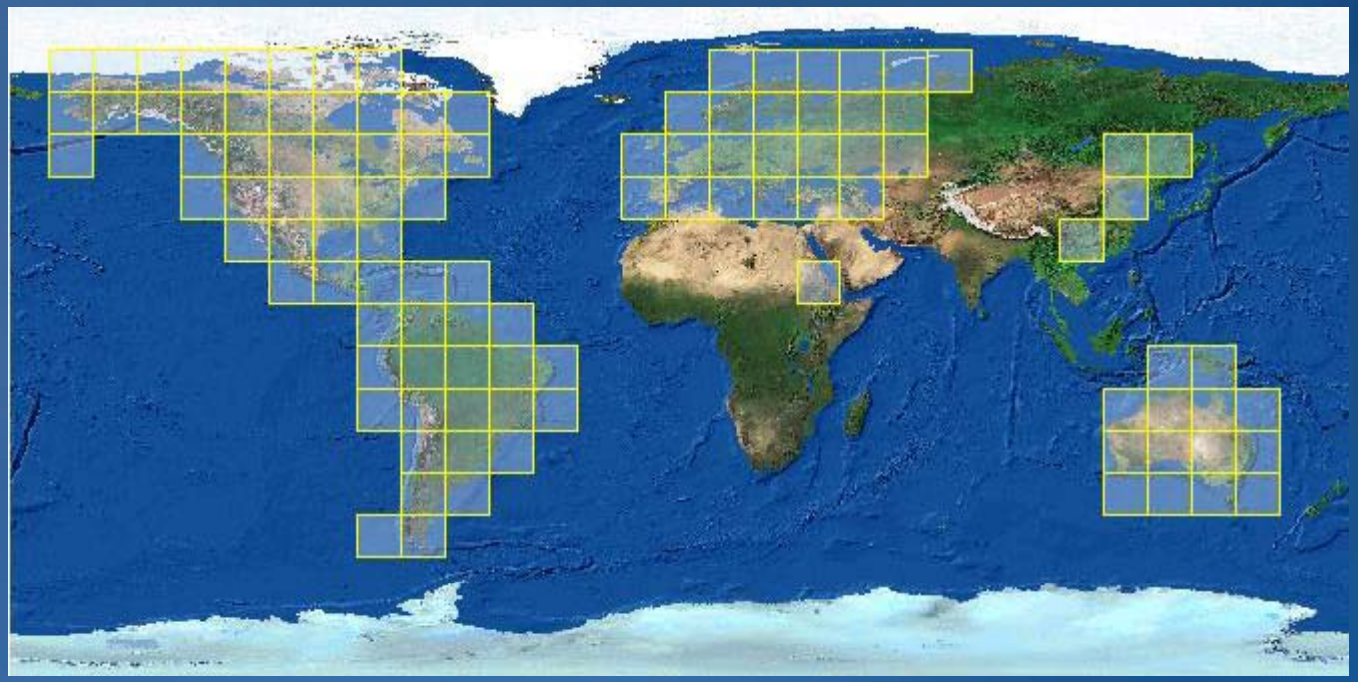

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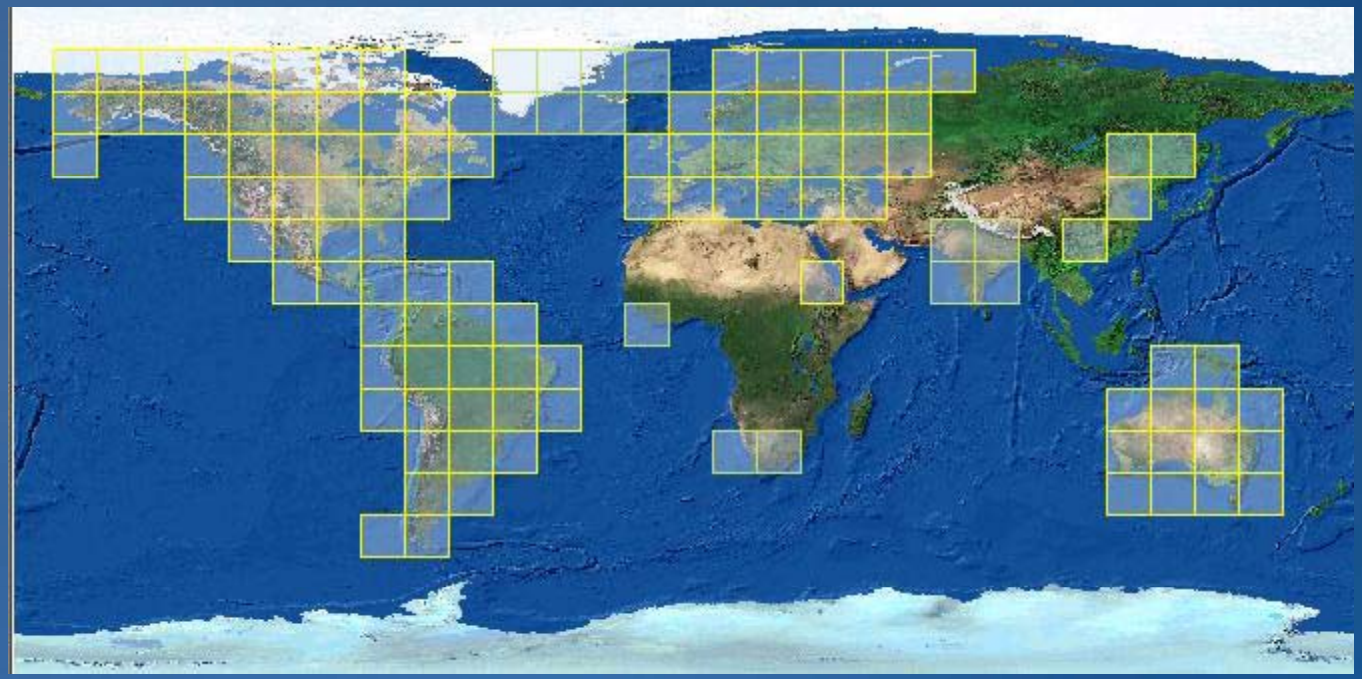

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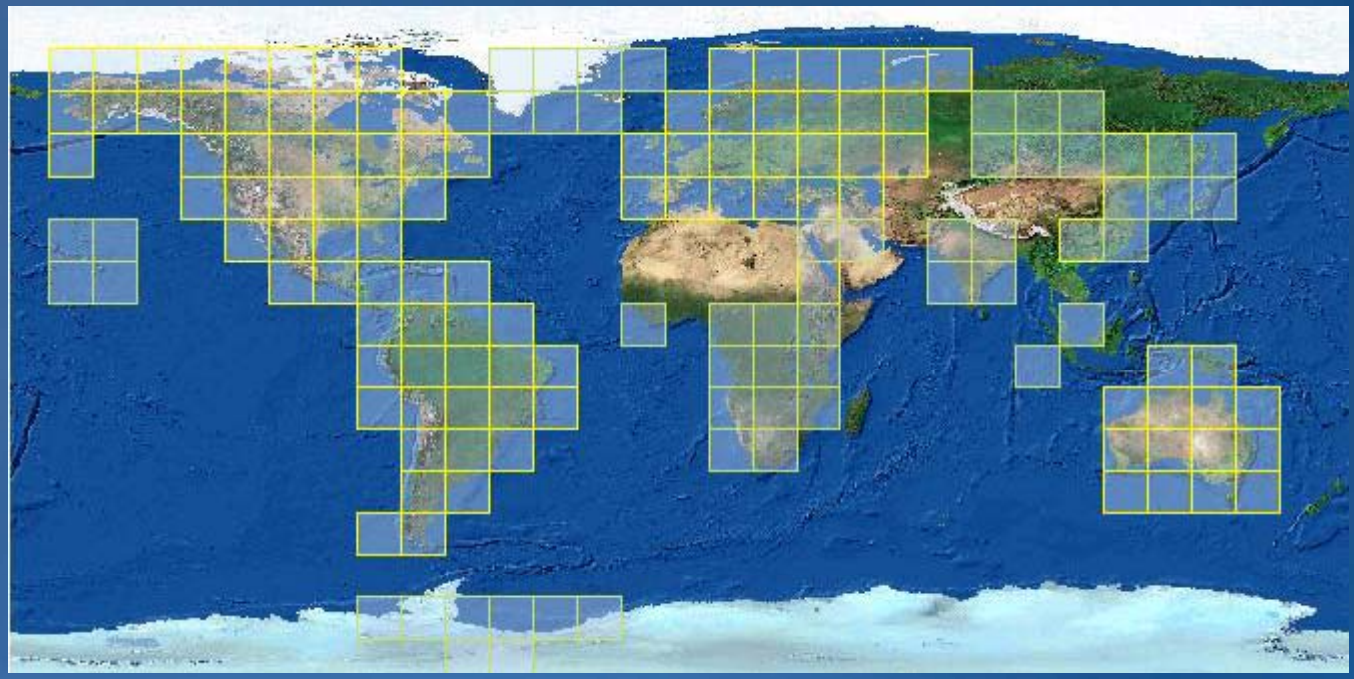

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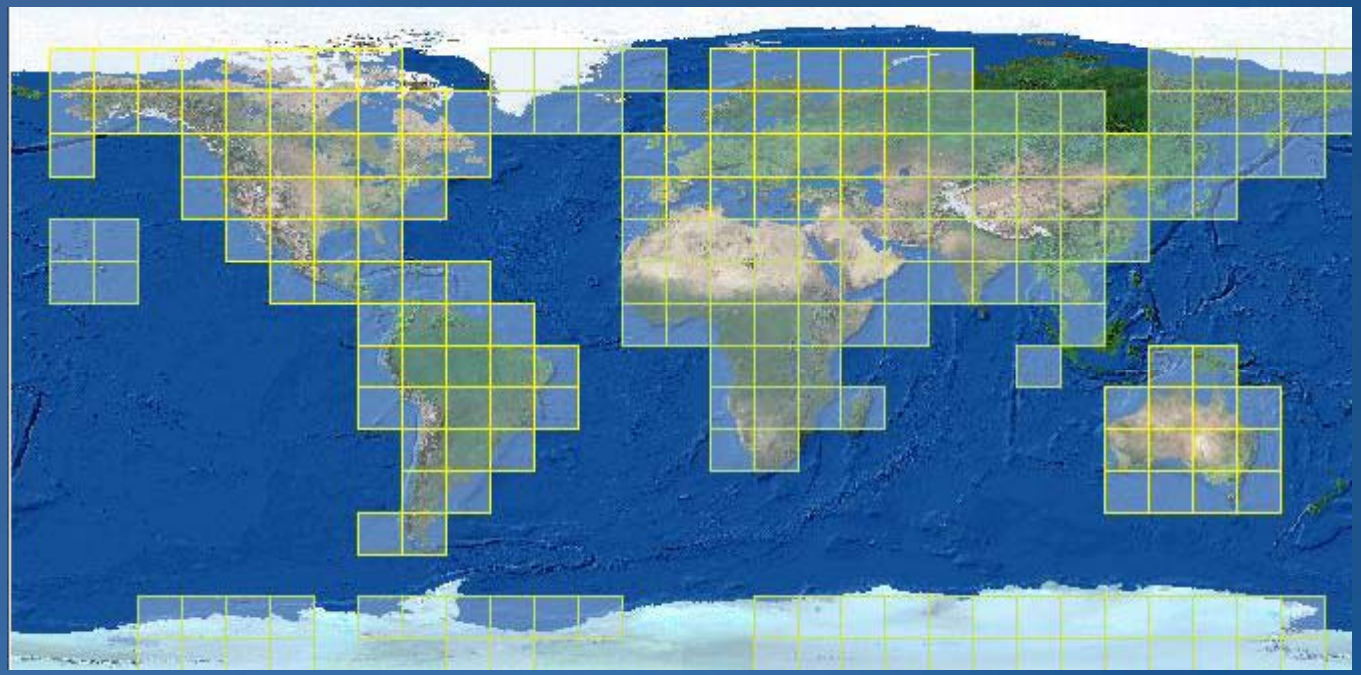

Better Performance in 9.3

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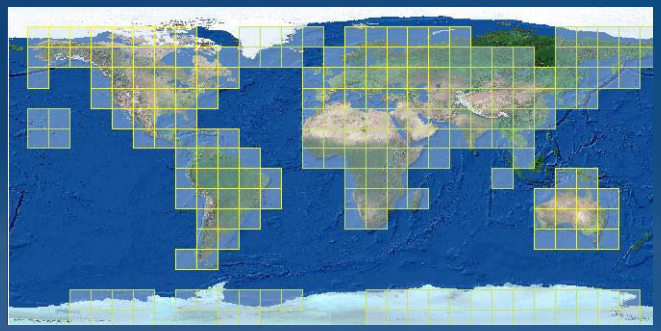
  - **On Demand Caching**
  - **Updating Cached Maps**



An overview of the Caching toolset

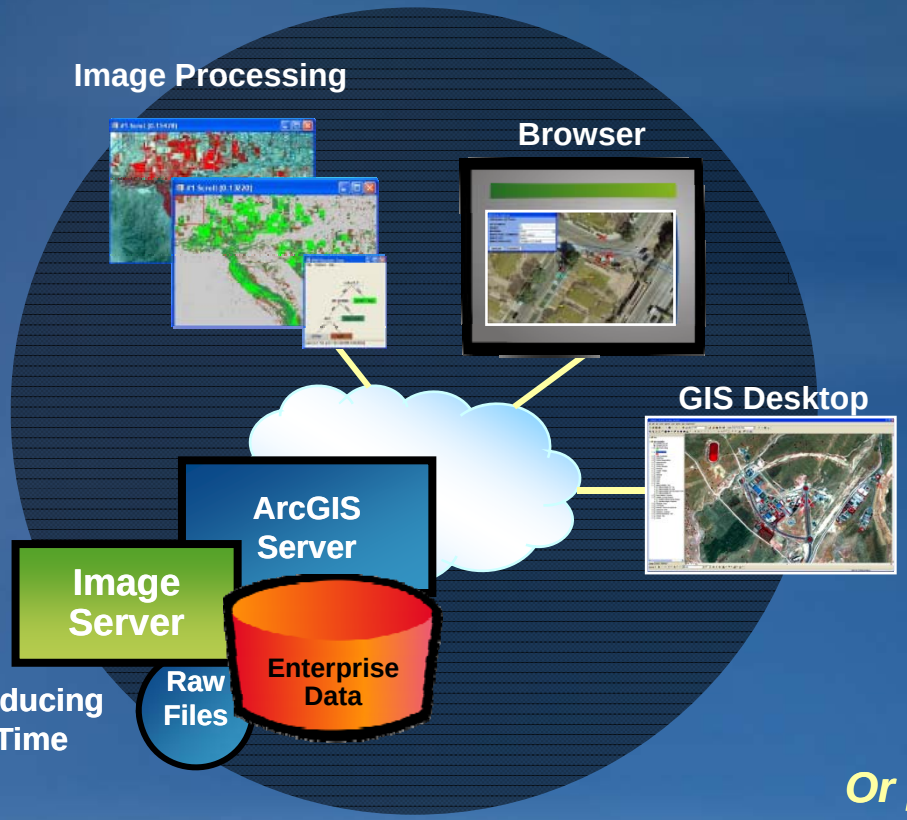
Release 9.3

Last modified June 5, 2008

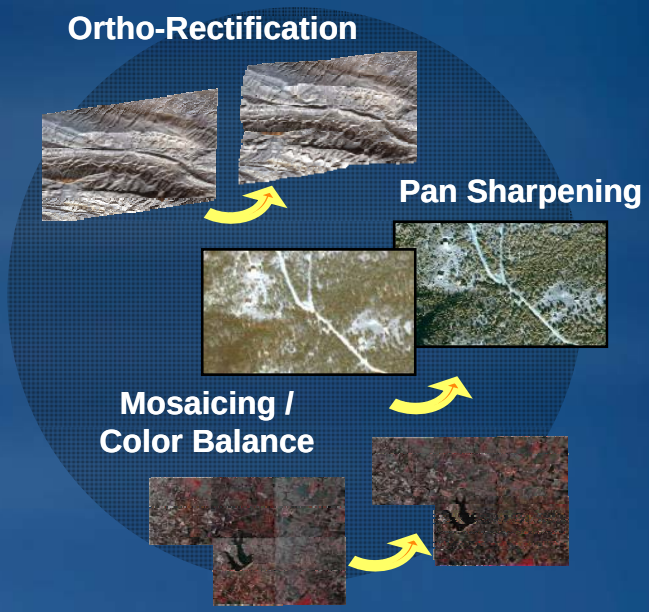
Tool	Description
Delete Globe Server Cache	Deletes a Globe Service cache. This tool requires the 3D Analyst extension.
Delete Map Server Cache	Deletes a Map Service cache.
Manage Globe Server Cache Tiles	Manages cache for a Globe Service. This tool requires the 3D Analyst extension.
Manage Map Server Cache Tiles	Manages cache for a Map Service.
Generate Map Server Cache Tiling Scheme	Generates a tiling scheme for use with Generate Map Server Cache.
Manage Map Server Cache Scales	Adds and removes scales to an existing map cache.
Create Map Server Cache	Creates the cache tiling scheme.

ArcGIS 9.3 Server Manages Imagery

Provides a System for Managing, Analyzing, and Visualizing Imagery



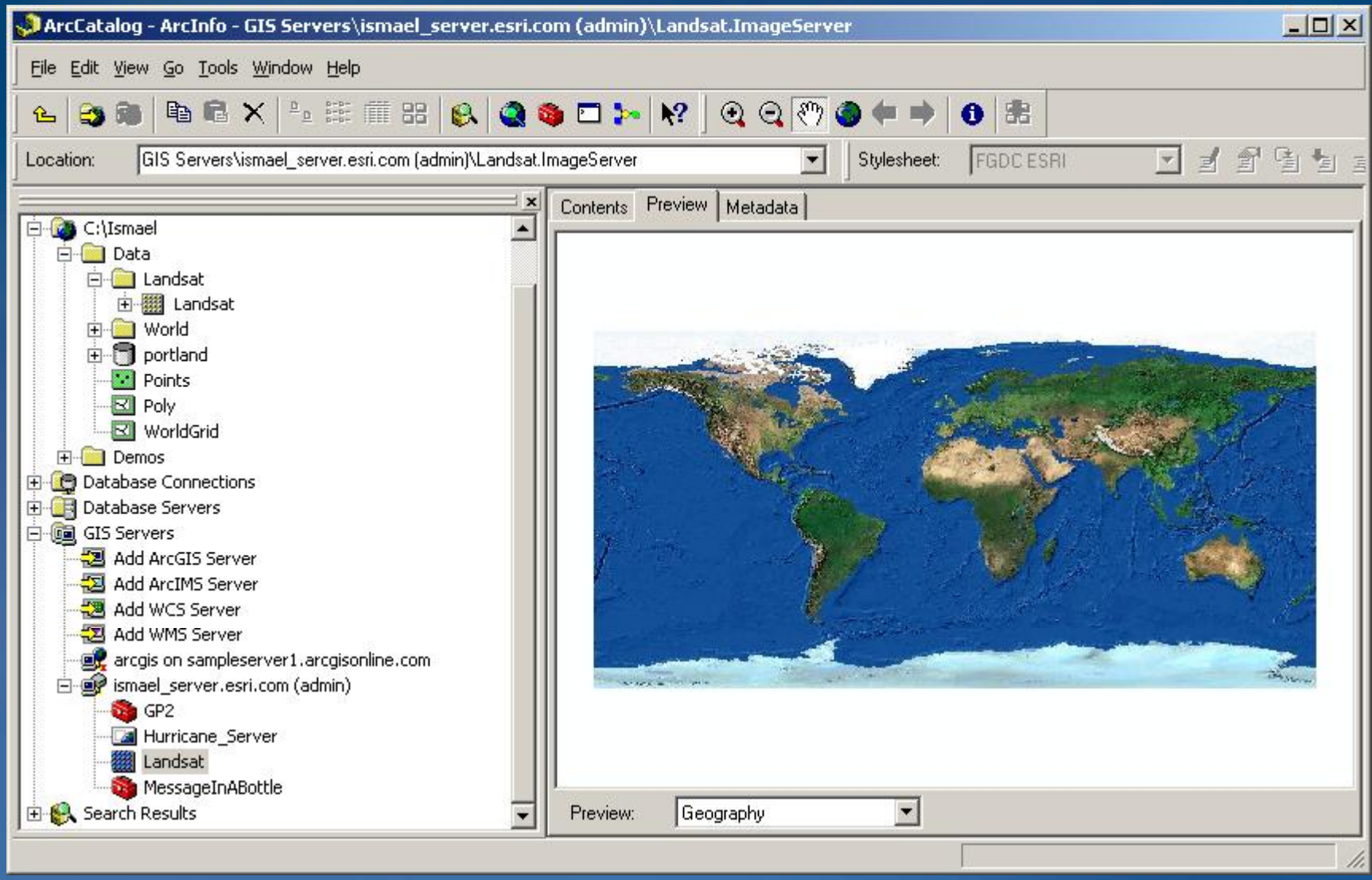
On Display Processing



Serve Imagery as a basemap

Or perform advanced image processing

New Image Service at 9.3

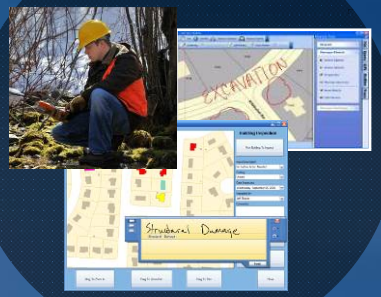


ArcGIS Supports Mobile Applications

Multiple Solutions for Working in the Field

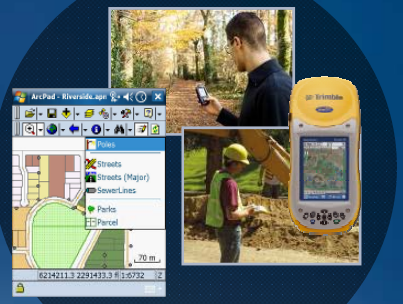
- Mapping
- Editing
- Query
- GPS

ArcGIS Desktop & Engine



Full Feature

ArcPad



General Purpose

Synchronized with Geodatabase

ArcGIS Mobile

Server Based

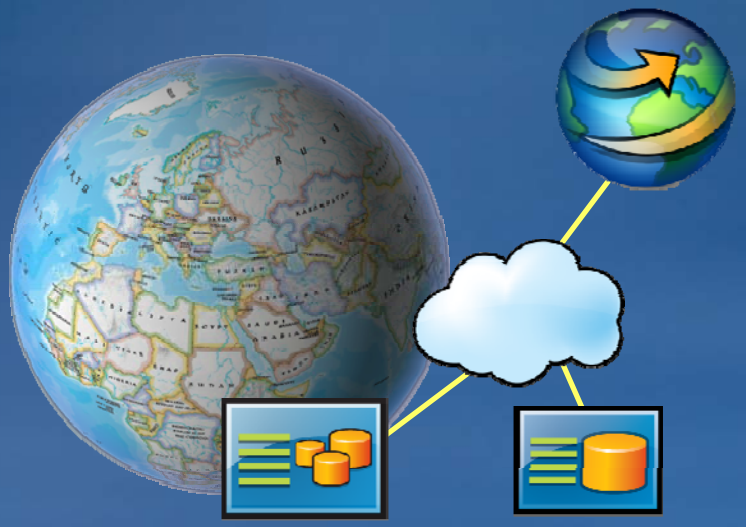
. . . Connecting & Integrating the Mobile Work Force

ArcGIS Explorer Is Expanding GIS for Everyone

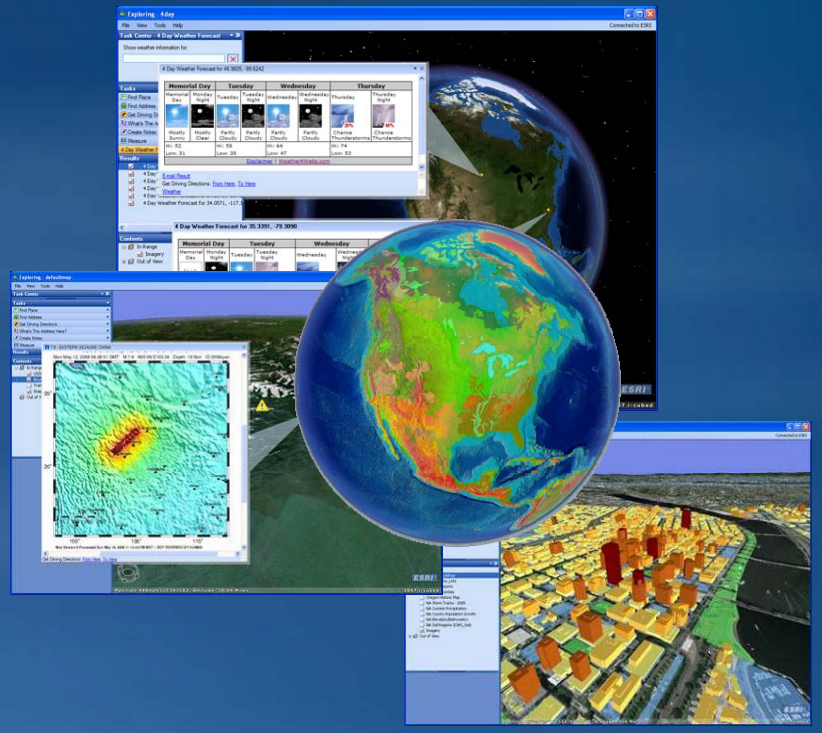
Integrating, Visualizing & Analyzing Geographic Information

- **Fast**
- **Intuitive**
- **Web Centric**

Accessing Maps, Models & Globe Services



ArcGIS Online **ArcGIS Server**



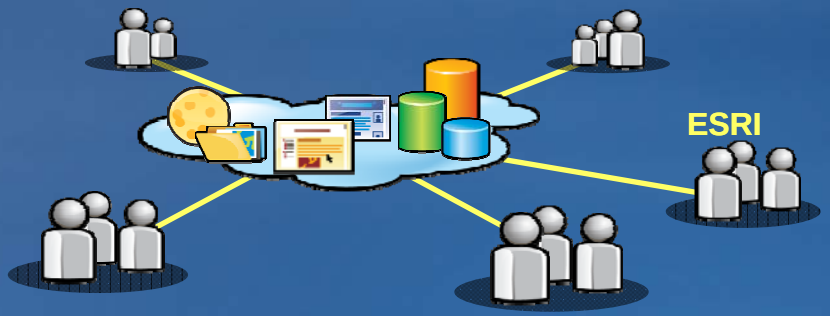
. . . Creating a New Community of Users

ArcGIS Online Resource Center

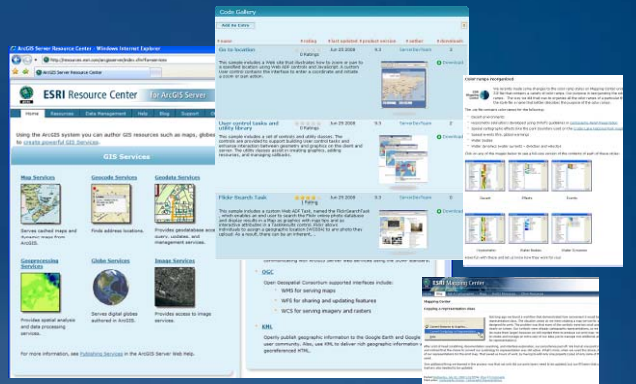
A New Portal for Online Resources

Online Maps & Globe Services

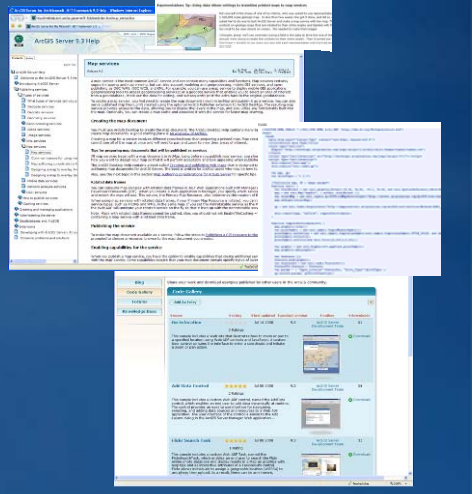
. . . Supporting & Building the ArcGIS Community



Code samples



Community Resources



Now

- Online Help
- Developer SDK's
- Blogs & Forums
- Code Galleries
- Knowledge Base
- Software Updates
- Videos

Future

- Metadata Catalog of GIS Services

http://resources.esri.com

GIS Content Is an Integral Part of ArcGIS

Now Delivered as Online Services

Providing Consistent & Accurate Basemaps, Imagery & Data . . .

. . . Helping GIS Professionals be Immediately Productive

Thinking about patterns for deploying Web GIS

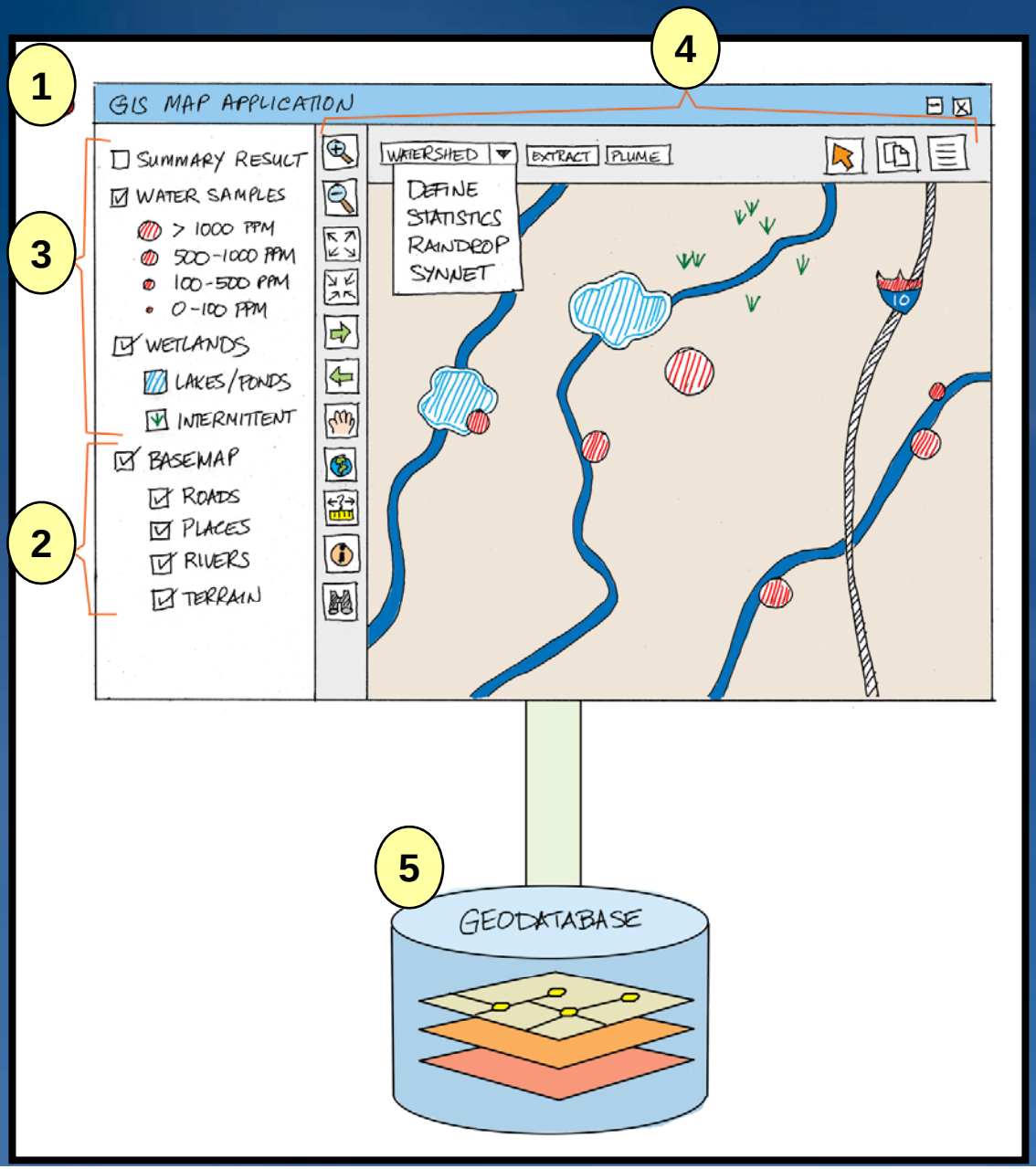
GIS Practitioner's Role
Build and share authoritative geographic information

- **Make it useable**
- As GIS users, you build and maintain comprehensive data about your facilities operations and territories
  - Integrated “spatial fabrics” of spatially related datasets
    - Land Base
    - Utilities
    - Business units
    - Customers and demographics
    - Incidents, Disaster Response,
    - Etc.
- We are learning how to make this information consumable and easy to use
- Use a simple pattern for deploying geographic information using Web GIS

How can you use Web GIS to deploy this?

A framework for Web GIS applications

Making your geographic information consumable on the web



1. GIS map application
2. GIS base map
3. Operational layers and results
4. Tasks and tools (“Workflows” for applying the information)
5. GIS database(s)

Your Actions are Contributing

- Raising Awareness
- Saving Resources
- Increasing Efficiency
- Supporting Economic Development
- Improving Human Health
- Mitigating Conflicts
- Planning and Design

. . . Improving How We Manage Our Businesses