



2008
ESRI
Health GIS
Conference
Washington, D.C. • Sept. 28–Oct. 1, 2008

ArcGIS Technology Update

Katie Clift

Lauren Rosenshein

GIS Creates More Sustainable Action





Ensuring Access



Reducing Disease Transmission



**Safeguarding
Health**

Managing Distribution



GIS

Spatial Analysis

- Spatial Statistics
 - Predicting Morbidity & Mortality
 - Intervention Planning
- Density Analysis
 - Disease Surveillance
- Proximity & Network Analysis
 - Modeling Accessibility
- Demographics
 - Understanding Population Vulnerabilities
 - Strategic Planning

Data Management

- Mobile Applications
 - Regulatory Inspections
 - Rapid Needs Assessment
- Geocoding
 - Locate Patients
 - Locate Physicians
 - Locate Clinics
 - Locate Incidents
 - Maintaining Vital Statistics

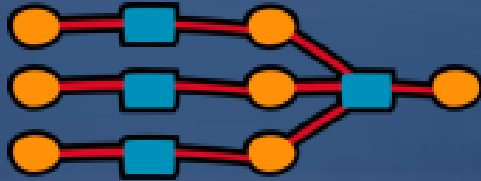
Visualization

- Hardcopy Maps
 - Reports
 - Grant Proposals
 - Defining Research Study Areas

Dissemination

- Web Mapping
 - Resource Locators
 - Situational Awareness
 - Vulnerability Mapping

Spatial Analysis

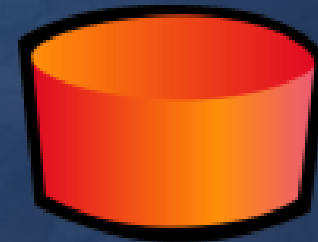


Visualization

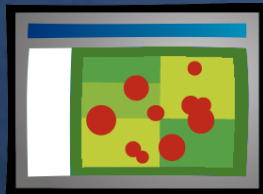


GIS

Data Management



Dissemination



Progressive Health and Human Services Organizations are
MOVING FORWARD WITH GIS

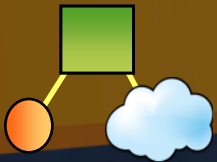
Health GIS is Evolving

...Beyond Mapping and Visualization

Desktop

Professional

- Ad Hoc Projects
- Analysis/Modeling
- Mapping



Server

Workgroups

- Shared Database
- Fixed Applications
- Transactions



Federated

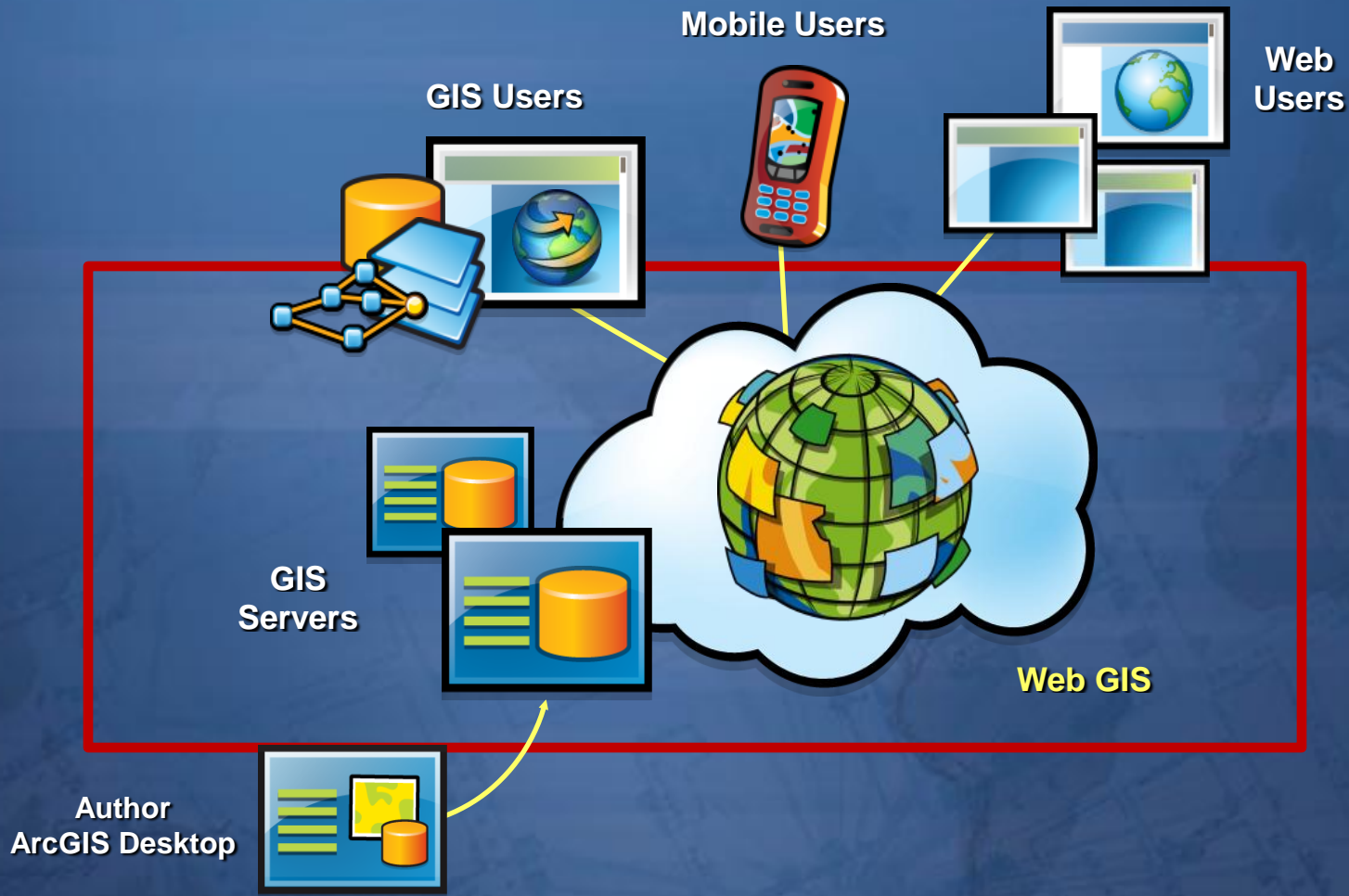
Organizations

- Shared Services
- Integration
- Collaboration



... These Are the Foundation for an Emerging Pattern

Web GIS – The Emerging Pattern

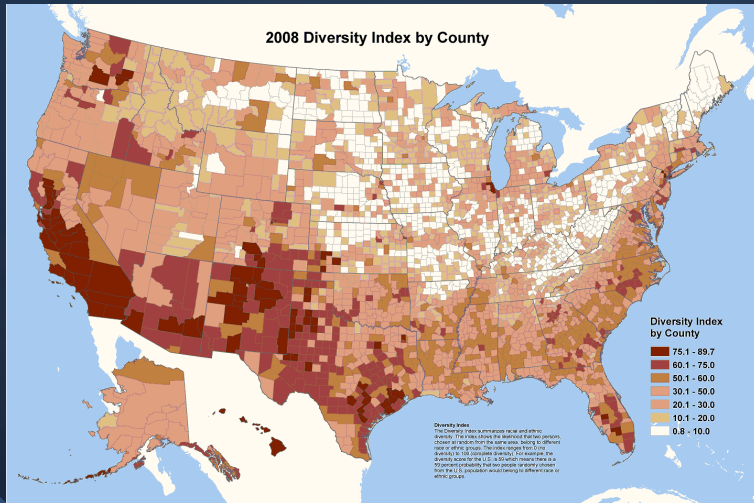


... Solving Health Problems in New Distributed Ways

Capabilities of GIS

Visualization

Demographic Mapping



Service Area Coverage

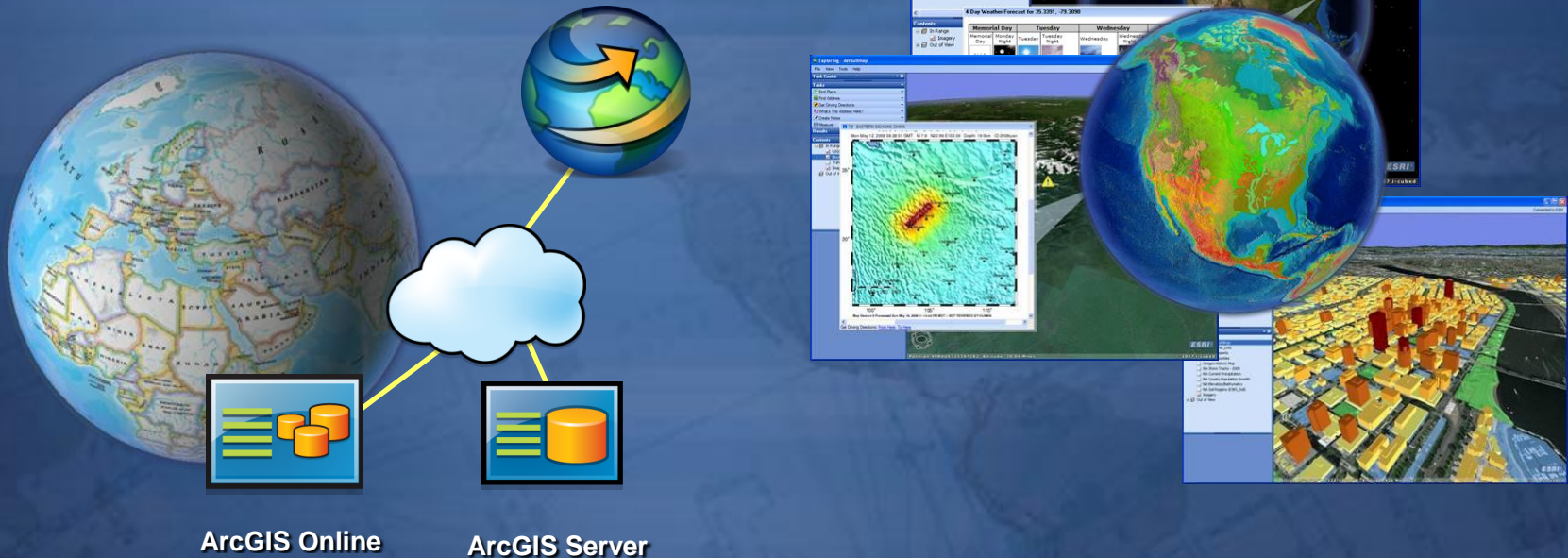


ArcGIS Explorer Is Expanding GIS for Everyone

Integrating, Visualizing & Analyzing Geographic Information

- Fast
- Intuitive
- Web Centric

Accessing Maps,
Models & Globe Services



... Creating a New Community of Users

Thematic Mapping

DEMONSTRATION

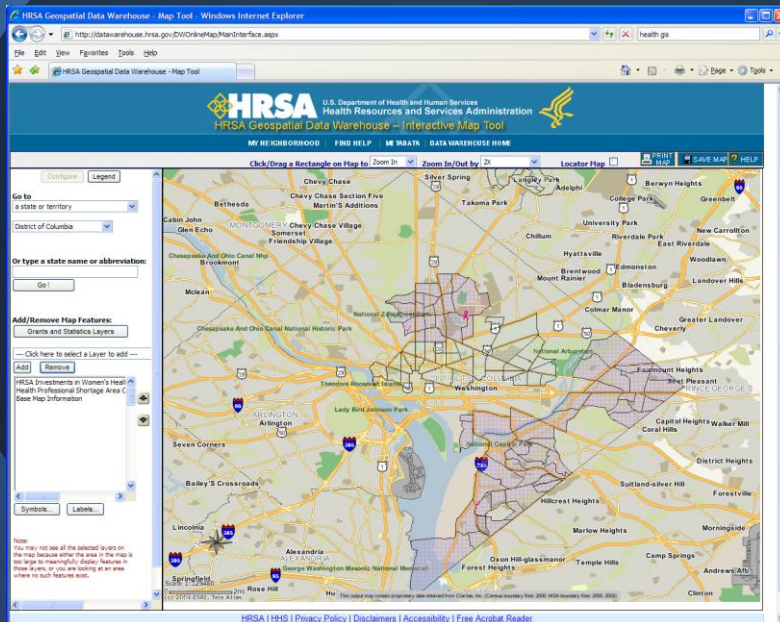
**ArcGIS Server
Standard**

- Mapping
- 3D Visualization
- Data Management

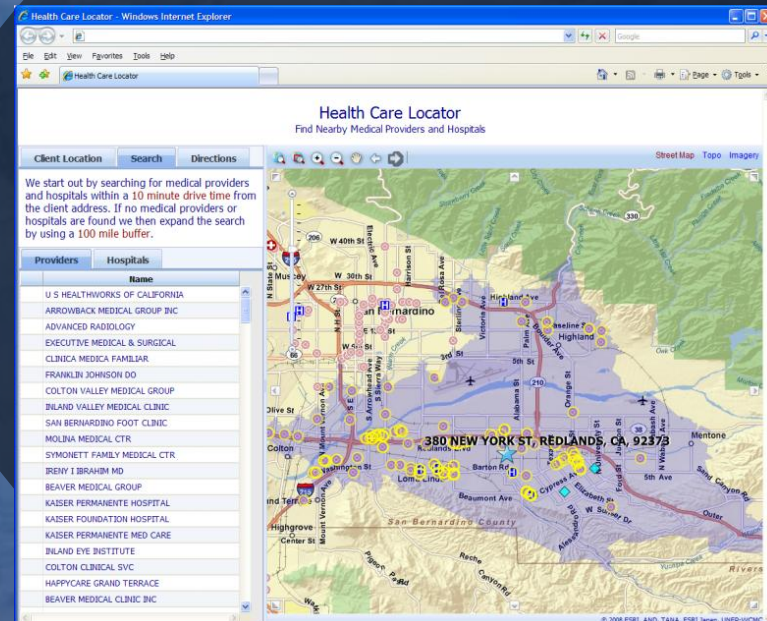
Capabilities of GIS

Dissemination

Spatial Data Warehousing



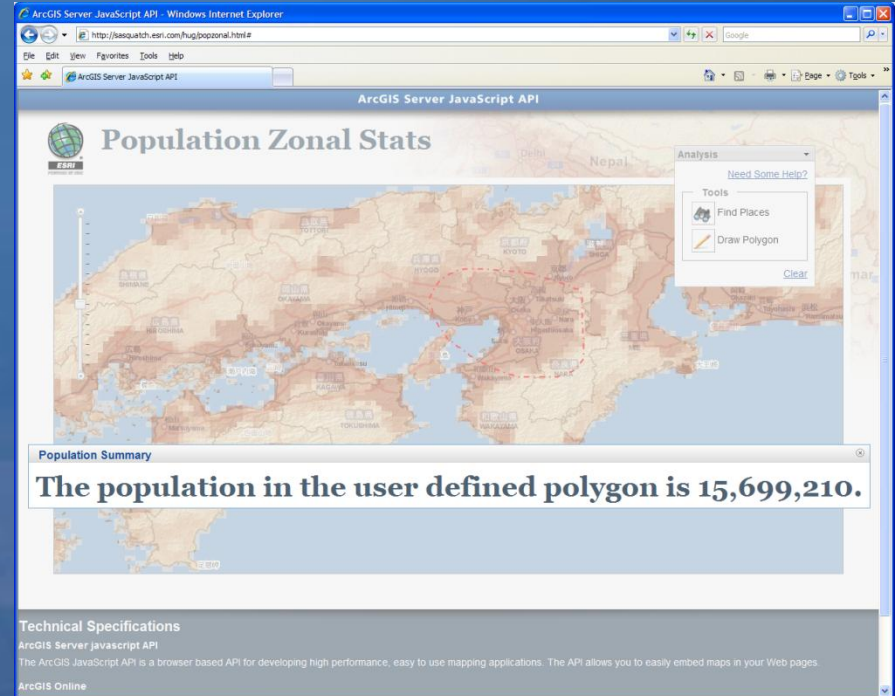
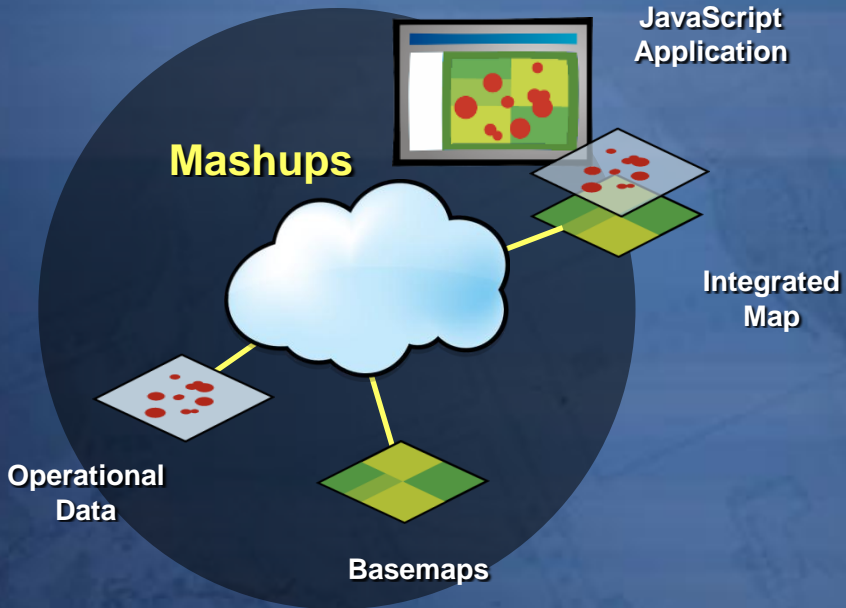
Resource Locators



Mashups

Integrating Multiple Web Services

- Easy
- Fast
- Agile/Flexible



```
var baseMap = new esri.layers.ArcGISTiledMapServiceLayer
("http://server.arcgisonline.com/ArcGIS/rest/services/ESRI
StreetMap_World_2D/MapServer");
myMap.addLayer(baseMap);

// ADD OPERATIONAL DATA
var opData = new esri.layers.ArcGISTiledMapServiceLayer
("http://sampleserver1.arcgisonline.com/ArcGIS/rest/servic
es/Portland/Portland_ESRI_LandBase_AGO/MapServer");
myMap.addLayer(opData);
```

*Creating New Ways to Share, Integrate & Collaborate . . .
. . . Leveraging Web 2.0 Patterns*

Mashups

DEMONSTRATION

**ArcGIS Server
Advanced**

- Analysis
- Mobile
- Mapping
- 3D Visualization
- Data Management

Capabilities of GIS

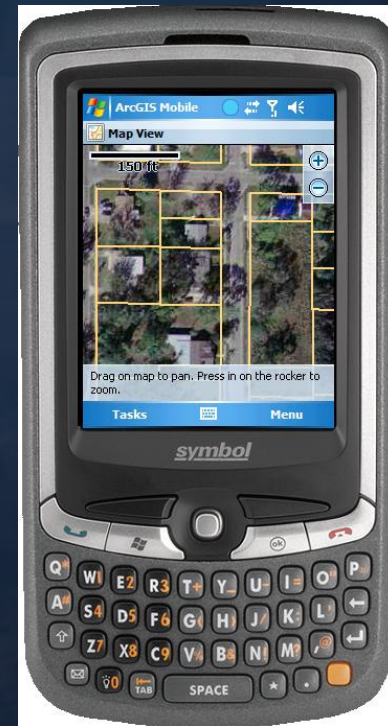
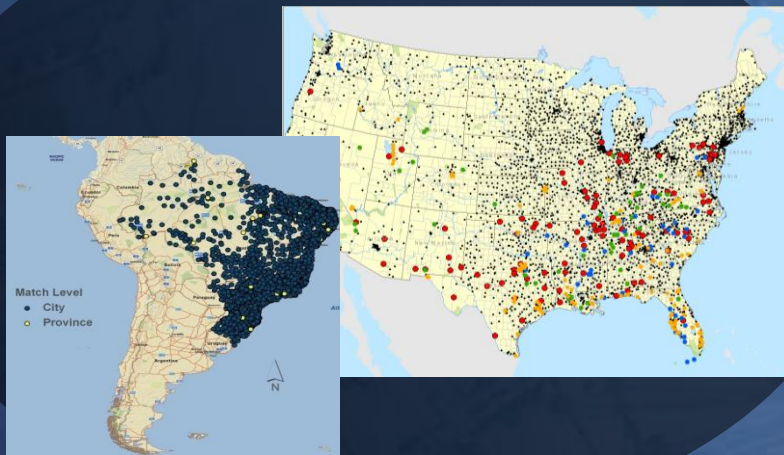
Data Management

Regulatory Inspections

Facility Mapping



Geocoding



Multiple Solutions for Field Work

- Mapping
- Editing
- Query
- GPS

ArcGIS Desktop & Engine



Full Feature

ArcPad



General Purpose

ArcGIS Mobile



Server Based

Synchronized with Geodatabase



... Connecting & Integrating the Mobile Work Force

ArcGIS Mobile

DEMONSTRATION

**ArcGIS Server
Advanced**

- Analysis
- Mobile
- Mapping
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Web GIS Starts with ArcGIS Desktop



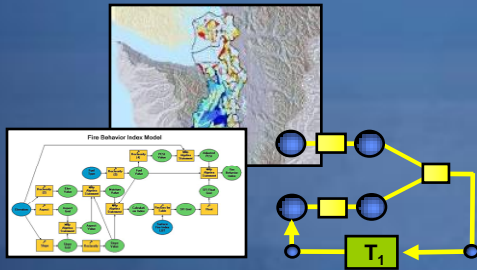
ArcGIS Desktop Leverages the Web



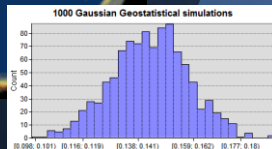
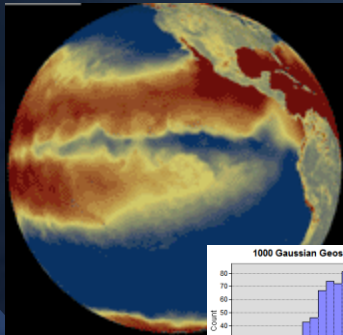
Powerful Spatial Analysis Capabilities

...Supporting Robust Scientific Research

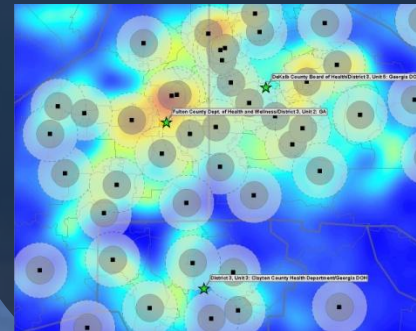
Iterative Modeling



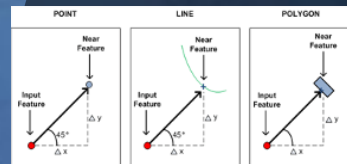
Space and Time



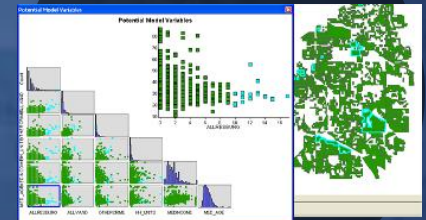
Density and Overlays



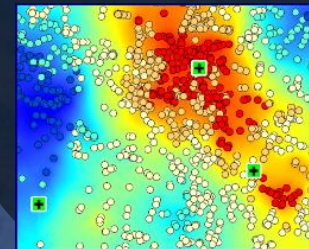
Improved Proximity Analysis



Scatter Plot Graphics



Geographically Weighted Regression



Vehicle Routing with Time Windows



Spatial Regression

Predict Unknown Values



Understand Key Factors



Test Hypotheses



- [-] Spatial Statistics Tools
 - [+] Analyzing Patterns
 - [+] Mapping Clusters
 - [+] Measuring Geographic Distributions
 - [-] Modeling Spatial Relationships
 - Generate Network Spatial Weights
 - Generate Spatial Weights Matrix
 - Geographically Weighted Regression**
 - Ordinary Least Squares
 - [+] Rendering
 - [+] Utilities

Spatial Regression

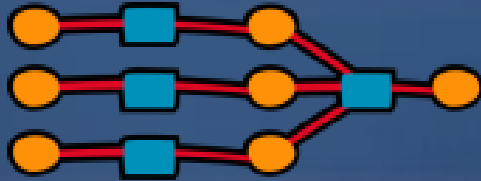
DEMONSTRATION

**ArcView
Spatial Analyst**

- Mapping
- Using



Spatial Analysis

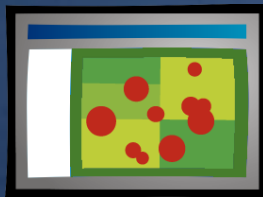


Visualization

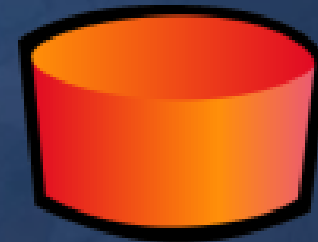


Web GIS

Dissemination



Data Management



Health GIS is Evolving

...Web GIS is the Emerging Pattern

ArcGIS Online Resource Center

A New Portal for Online Resources



ESRI Resource Centers

ArcGIS

ArcGIS Desktop

- ArcInfo
- ArcEditor
- ArcView

ArcGIS Server

- Geoprocessing
- Mapping & Visualization
- Geodatabases & ArcSDE
- Image & Raster Processing

ArcGIS Mobile

ArcGIS Explorer

ArcGIS Engine

ArcIMS

Click the text in the diagram to get started using ArcGIS's online resources.

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Online Maps & Globe Services



ESRI Resource Center for ArcGIS Server

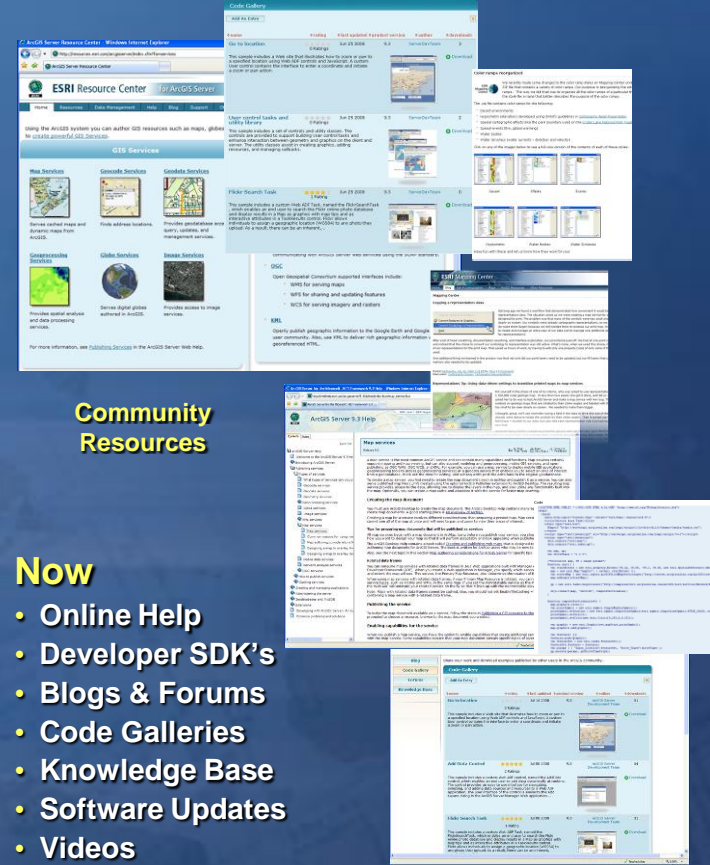
Using the ArcGIS system you can author GIS resources such as maps, globes, and various geospatial Web services.

Map Services: Server hosted maps and dynamic maps.

Geodata Services: Provide spatial analysis and data processing services.

Globe Services: Server hosted globes and globe services.

Image Services: Provide access to image services.



Code Gallery

ESRI Resource Center for ArcGIS Server

GIS Services

Community Resources

Now

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

Future

Metadata Catalog of GIS Services

... Supporting & Building the ArcGIS Community

Global Public Health - Situational Awareness

Alarms: 0 Current Tool: Pan

Map Content

Map Layers:

- Human Cases
- Avian Cases
- Migratory Flyways
- CDC Quarantine Stations
- CDC Quarantine Jurisdictions
- 2010 Human Population Count

Locator

Overview

-35.71 -48.29 150.81 81.12

Africa

-22.09 -45.78 105.11 45.39

Europe

-24.21 12.45 95.73 88.12

Indonesia

102.83 -9.59 112.60 -1.24

Human Cases

Tangerang

DATE_REPORTED: 6/19/2008 12:00:00 AM

Jakarta

DATE_REPORTED: 6/19/2008 12:00:00 AM

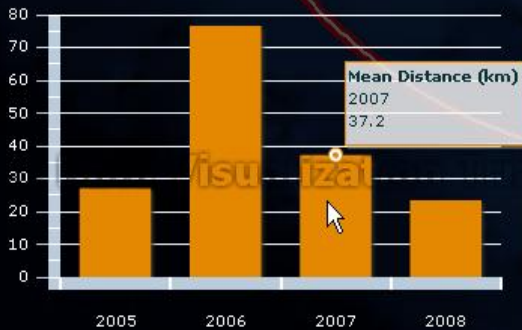
Tangerang

DATE_REPORTED: 9/10/2008 12:00:00 AM

Tangerang

DATE_REPORTED: 9/10/2008 12:00:00 AM

Spider Lines



Web GIS

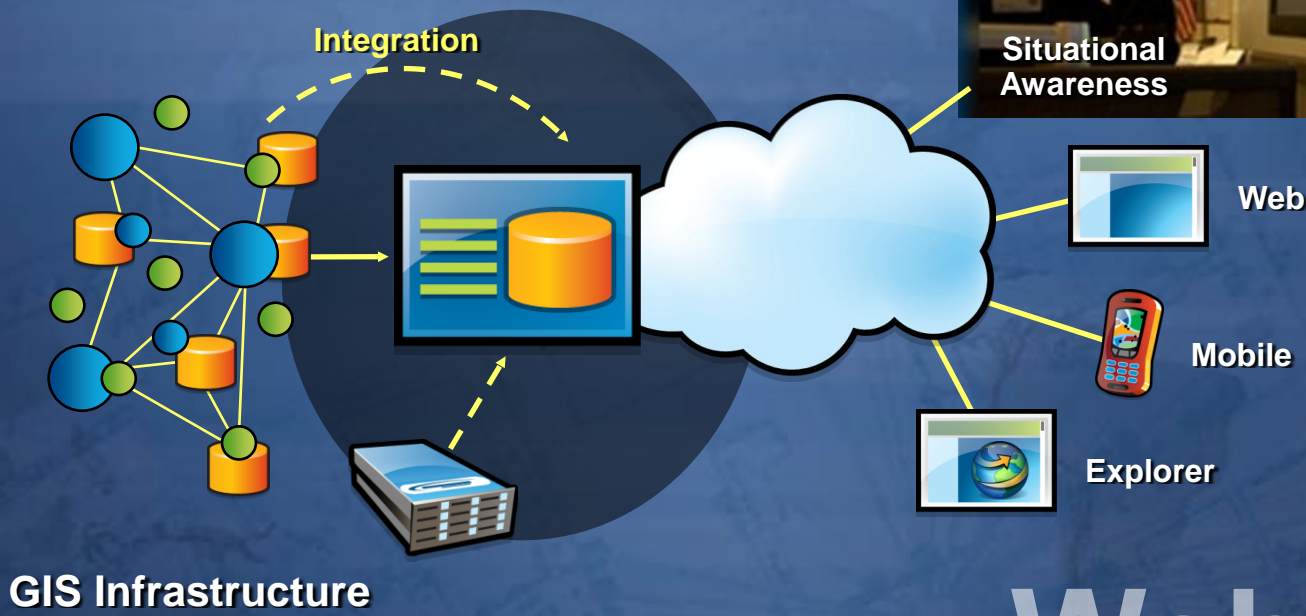
Supports an Integrated View

...Providing Situational Awareness in Routine and Emergency Operations

- Pandemic Response
- Community Awareness
- Homeland Security
- Emergency Operations (EOC)



Situational Awareness



Web GIS

Situational Awareness

DEMONSTRATION

**ArcGIS Server
Advanced**

- Analysis
- Mobile
- Mapping
- 3D Visualization
- Data Management

ArcGIS Server

Spatial Analysis

Spatial Statistics

Predicting Morbidity & Mortality

Intervention Planning

Density Analysis

Disease Surveillance

Proximity & Network Analysis

Modeling Accessibility

Demographics

Understanding Population Vulnerabilities

Strategic Planning

Data Management

Mobile Applications

Regulatory Inspections

Rapid Needs Assessment

Geocoding

Locate Patients

Locate Physicians

Locate Clinics

Locate Incidents

Maintaining Vital Statistics

Visualization

Hardcopy Maps

Reports

Grant Proposals

Defining Research Study Areas

Dissemination

Web Mapping

Resource Locators

Situational Awareness

Vulnerability Mapping

Conference Resources

A photograph of a busy conference hallway. Numerous people are seen from various angles, some looking at posters on display boards, others in conversation. The room has a patterned carpet and large windows in the background. The overall atmosphere is professional and active.

EXPO and ESRI Booth

Monday 4pm – 7pm

Tuesday 8am – Noon

Conference Resources

A photograph of two men sitting at a computer workstation in a conference booth. Both men are wearing white headsets and are focused on their computer monitors. The man in the foreground is wearing a light-colored, short-sleeved shirt with a floral pattern. The man behind him is wearing a dark blue shirt with a white floral pattern. The booth has a blue backdrop with the text 'Making Community Connections' and 'The Crisis Family Foundation Community Mapping Program and Council 4, Inc.' visible. There are several computer monitors on the desk, and the overall setting appears to be a professional conference or trade show.

Hands On Learning Center

Tuesday 8am – Noon

Conference Resources



Networking Lunch
Renaissance Ballroom
NOW!! 12 – 1:30pm

A faint world map is visible in the background, centered on the Atlantic Ocean, with the continents of North and South America on the left and Europe and Africa on the right. The map is rendered in a light blue color against a darker blue gradient background.

THANK YOU!