



Esri International User Conference | San Diego, CA
Technical Workshops | July 12, 2011

Managing Distributed Data with Geodatabase Replication

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Premjit Singh

Synchronizing Data

- What is Replication?



Work off-line or in the field

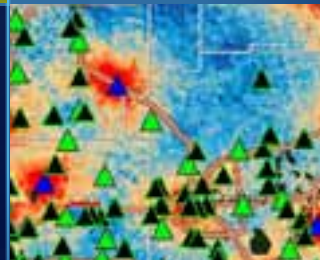
- **To work off-line**
 - Replicate a subset (Check-out) from enterprise GDB
 - Make edits
 - Check in
- **Intermittently connected**
- **Supports**
 - Full geodatabase model
 - desktop add ins



DeKalb County Board

Fulton County Dept. of Health and Wellness/District 3, Unit 2, 04/11/11

DEMO 1: Working off-line



Synchronize copies of a Geodatabase

- Make edits and synchronize multiple times
- Configurations
 - Changes are sent in one direction to a read-only copy



- Changes are sent in both directions



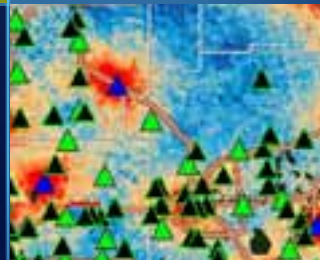
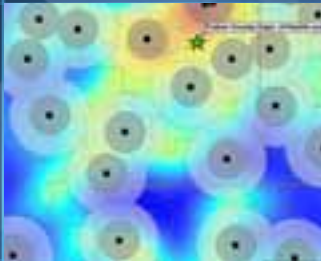
Synchronize copies of a Geodatabase

- **Local**
 - Replica geodatabases within the office
- **Internet**
 - **WAN**
 - Replica geodatabases in different offices
 - **Cloud (Amazon AMI)**
 - Replica geodatabase is on the cloud machine

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DEMO 2: Synchronizing to a read-only Geodatabase



DEMO 2: Synchronizing to a read-only GDB

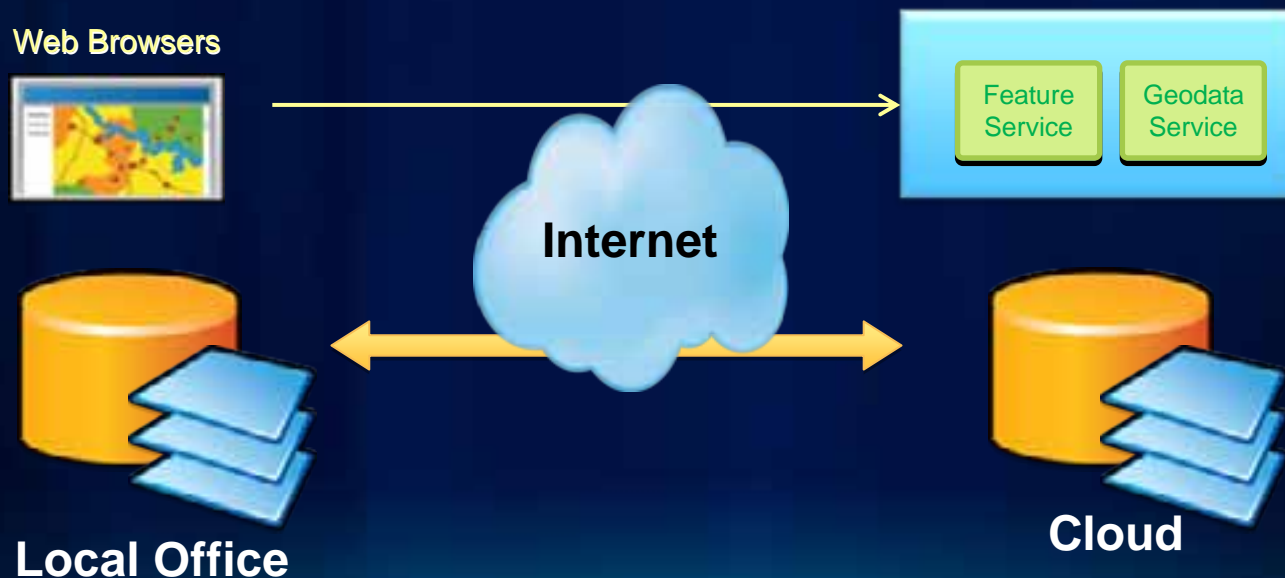
- **Build maps to define the data to copy**
- **Use simple model when possible**
- **Copy to an enterprise geodatabase**

Synchronizing and the cloud

- The cloud described in this session refers to...
 - Machine images preconfigured with ArcGIS Server 10
 - Hosted on Amazon cloud
- Why go to the cloud?
 - High Availability
 - Scalable
 - Saves on hardware and resources

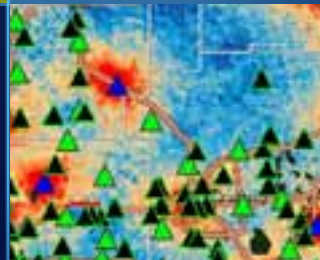
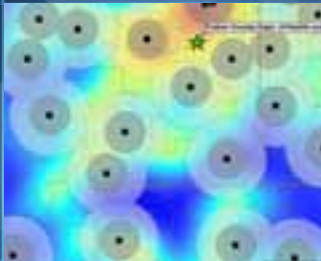
Synchronizing and the cloud

- Copy Geodatabase data to the cloud
- Publish services
- Synchronize between Local Office and Cloud



DEMO 3: Replicate read-write Geodatabases

Replicating to the cloud



Replicating to the cloud

- Things to know:
 - IIS data size limits
 - <http://support.esri.com/en/knowledgebase/techarticles/detail/35971>
 - Add in
 - <http://resources.arcgis.com/gallery/file/geodatabase>

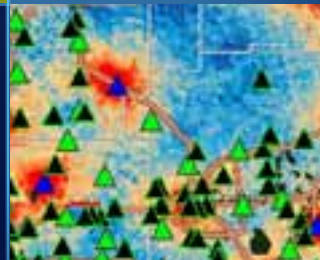
Scheduling Synchronization

- **Use scheduling to keep the data up to date**
 - Create a geoprocessing model to synchronize
 - Export to python
 - Add to windows scheduler in the office
- **Scheduling tasks on the cloud**
 - **Schedule GDB maintenance routines**
 - Compress versions, rebuild statistics, rebuild indexes
 - Run after Synchronizing copies
 - See: Administering GDBs with python session

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DEMO 4: Scheduling Synchronizations



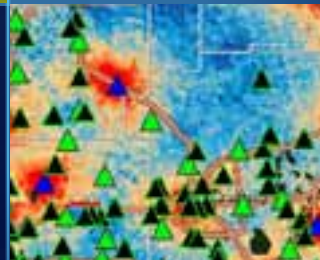
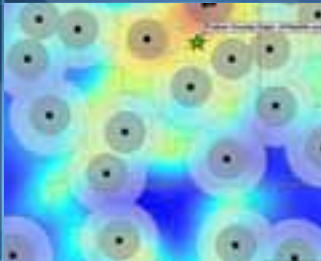
Schema Changes

- Tools are provided to apply schema changes across the copies
- Subset of schema changes supported
- Can add to python script to automate
 - Requires exclusive schema locks
 - Applies defaults when making schema changes
 - Synchronize schema before synchronizing data
- http://help.arcgis.com/en/arcgisserver/10.0/help/arcgis_server_dotnet_help/index.html#/Service_configuration_files/0093000000mr000000/

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DEMO 5: Synchronizing Schema changes



Register only

- Registers the geodatabase copies without copying the data
- Requires the data to be pre-copied
- Data should match on the copies before registering
- Useful when...
 - Making schema changes (e.g. adding data)
 - Troubleshooting

Notes

- **Disconnected synchronization**
 - No network required
- **Fault tolerant**
 - Rolls back on failure
- **Conflicts**
 - Automatic - favor one geodatabase or the other
 - Manual

Notes

- **Supports data types but...**
 - **Network datasets, Cadastral fabrics (coming in 10.1), Rasters**
- **API's**
 - **ArcObjects, Geoprocessing/Python**
- **Uses Versioning**
- **Not DBMS replication**
 - **Synchronize geodatabases running on different DBMS's**

New in 10.1

- **Better trouble shooting tools**
- **Used in other workflows**
 - **Local editing commands**
 - **Feature service disconnected editing REST APIs**
 - **Publishing to the cloud**

Questions

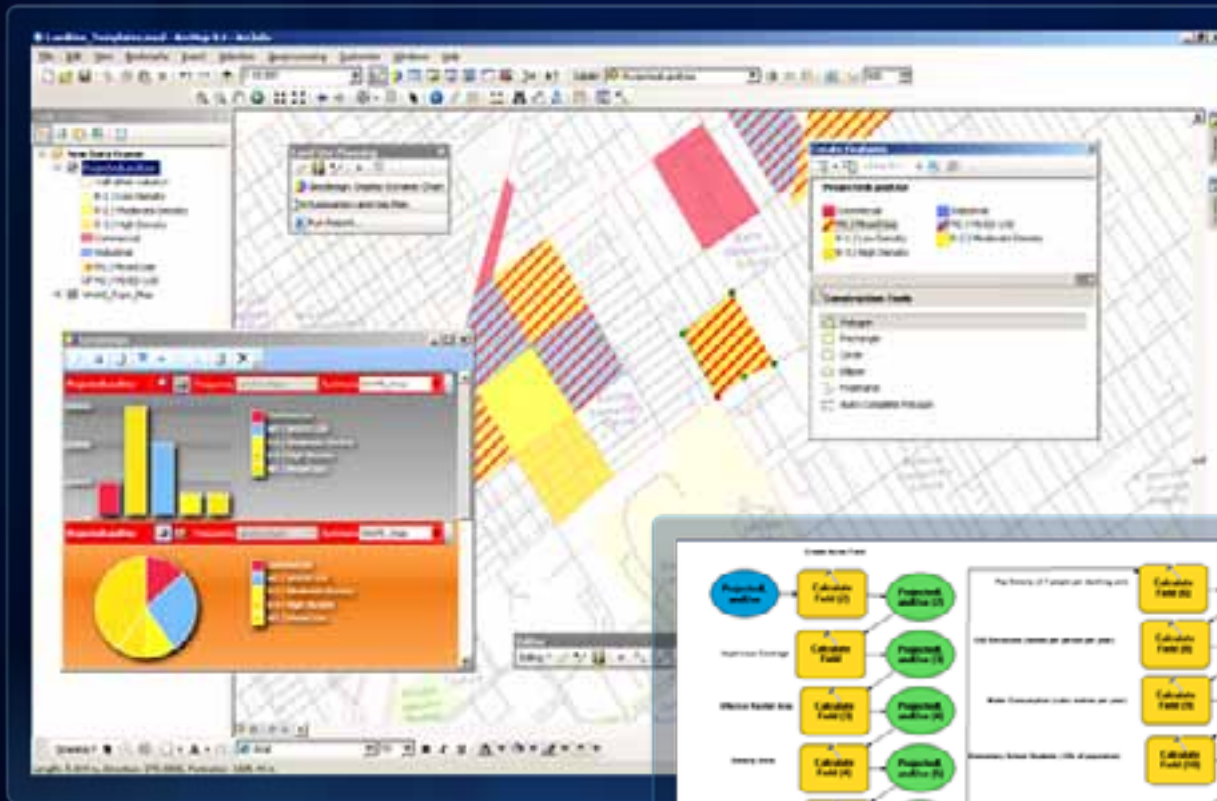


esri

Sample Maps

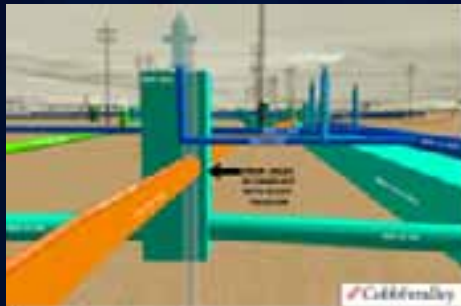


Sample Screenshots Layout *(preferred)*



Sample Screenshots Layout

Underground Utilities



Texas

Utility Network



Germany

University



Pennsylvania

Building/Room



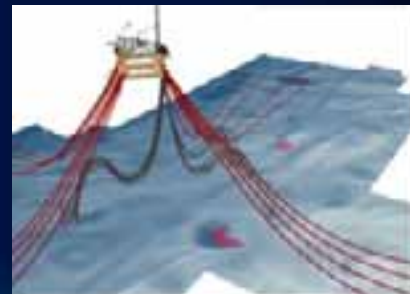
Panama

Railroads



Switzerland

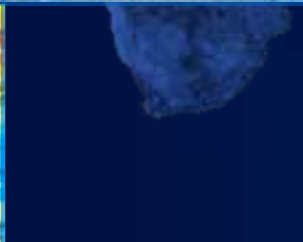
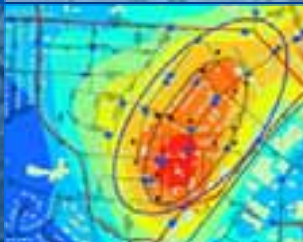
Oil Platform



Norway

Grids for Images/Screenshots (may ask designer for assistance)

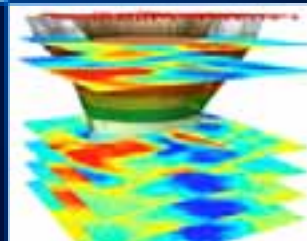
environmental
conservation



disaster
response



demographic
analysis

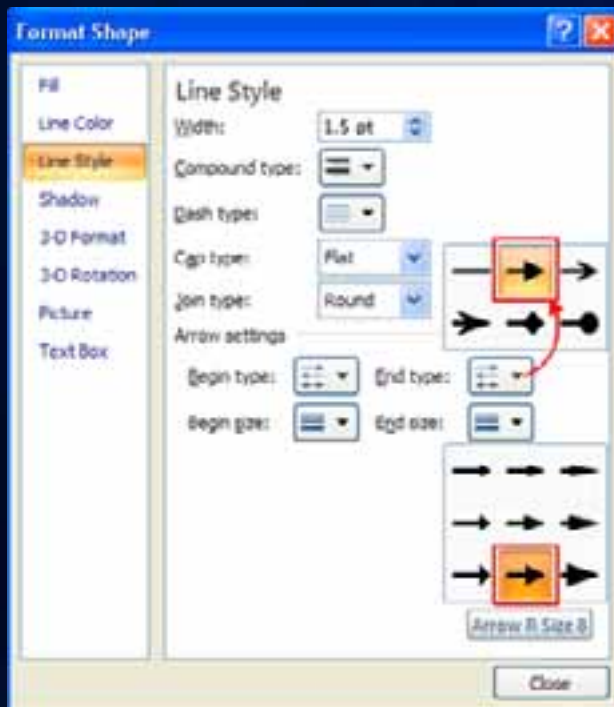


Diagrams/Icons

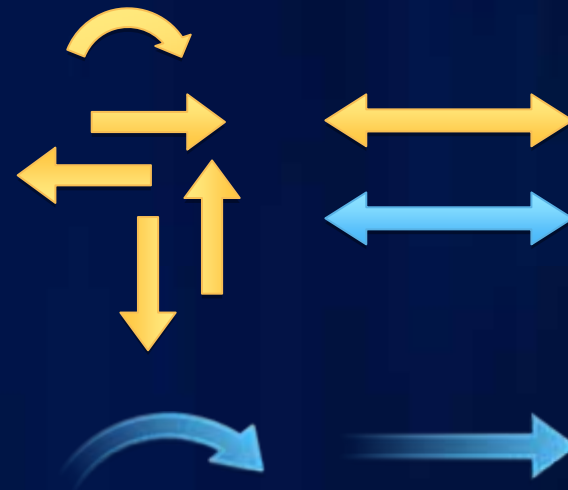


Arrows

Arrows for Connecting Items



Arrows for Connecting Large Concepts



Shapes for Diagrams

Quick Style:
Subtle Effect

ArcGIS

ArcGIS

ArcGIS

ArcGIS

ArcGIS

ArcGIS

Quick Style:
Moderate Effect

ArcGIS

ArcGIS

ArcGIS

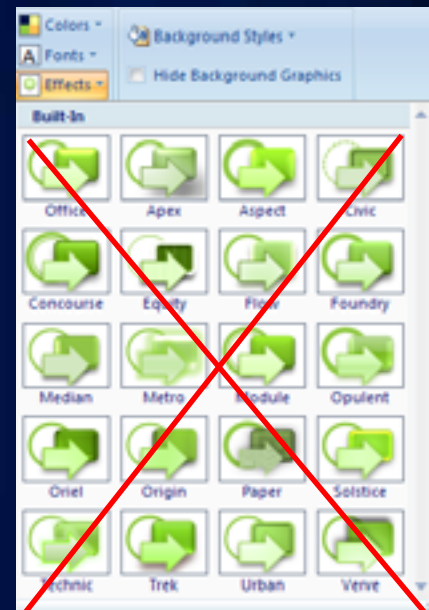
ArcGIS

ArcGIS

ArcGIS



DON'T APPLY EFFECTS
from the Design tab



Shapes for Diagrams *(continued)*

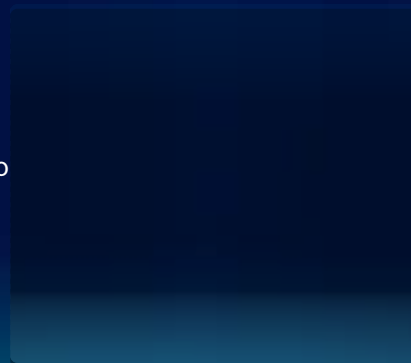


← Cloud for general diagram

↑ Cloud optimized for use behind diagrams



← Circle behind a group of objects



← Content box for each tier
(see sample diagrams)

← Optional: Use as a frame
around showcased
screenshots

Sample Diagrams



ArcGIS Implementations

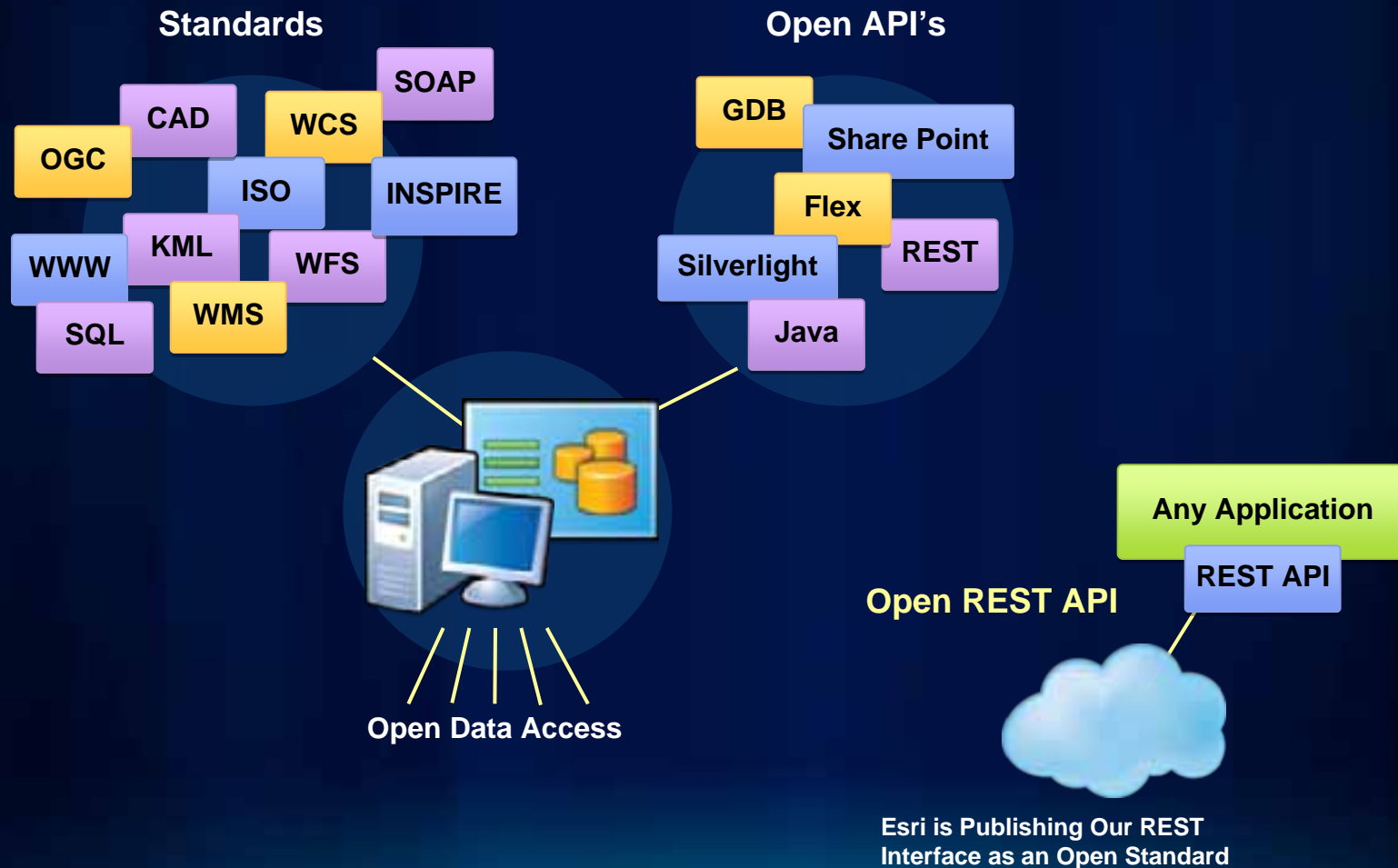


ArcGIS 10 — A Complete System

**Easier
More Powerful
and Everywhere**



Quick Style — Moderate Effect



Access the Entire Icon Library

Over 160 items added in 2010

- 430 total icons available for Esri use
- Browse and search from any Microsoft Office application
- Accessible when you're connected to the Esri Network
- Also available offline as directories of PNG files
- See the presenter notes below for details



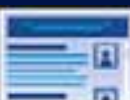
A Selection of Frequently Used Icons



ArcGIS Desktop



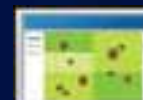
ArcGIS Online



Web Blog



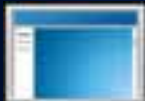
Web Blog



Mashups



Mashups



Browser



Open Standards



ArcGIS Desktop
Authors



Web Map



Web Map



Map



Web Map



Map



Web Map



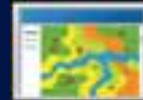
Map



Raster Files



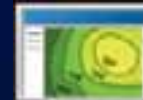
Raster Files



Web Map



Map



Web Map



Map



Web Map



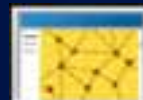
Map



Web Map



Map



Web Map



Map



Explorer



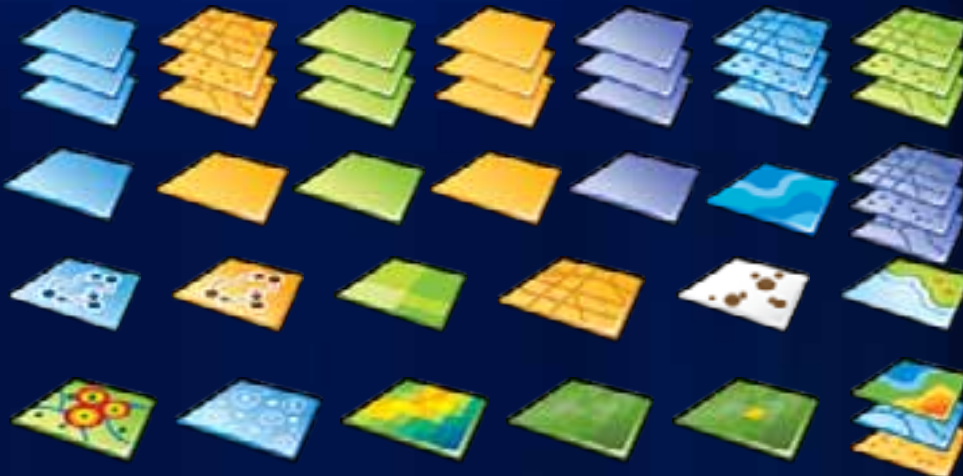
Web Map



Globes



Databases



Layers



Files



Table



Files



CD/DVD



Internet/Cloud



Legend



Network



Models



Designing
& Planning



Situational Awareness



Professional Services



Professional
Services



Education



Education



Business
Partner



Mobile GIS User



GIS User





Data Server



Data Appliance



GIS Users



Geodatabase



Web GIS



Mashups