

Raster Serving Solutions

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ESRI

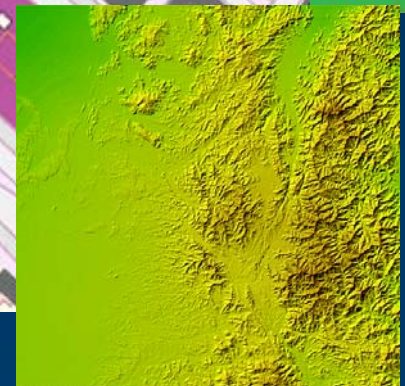
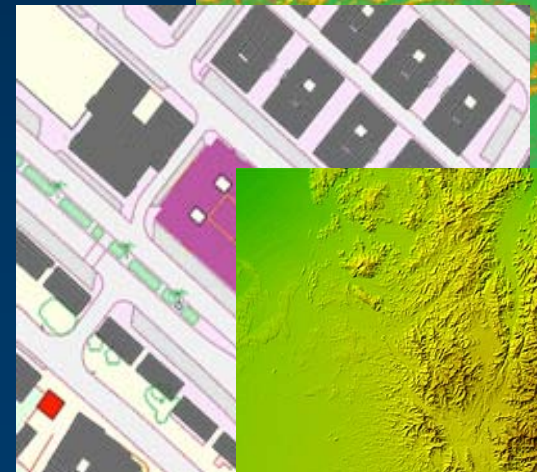
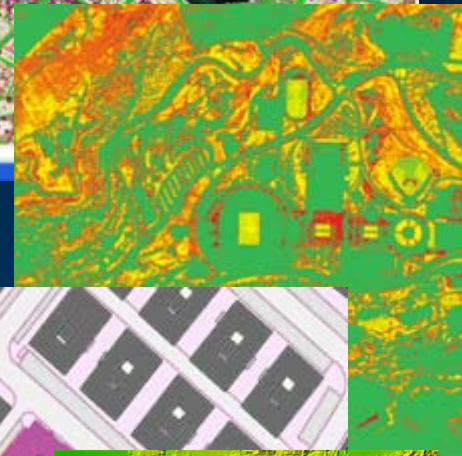
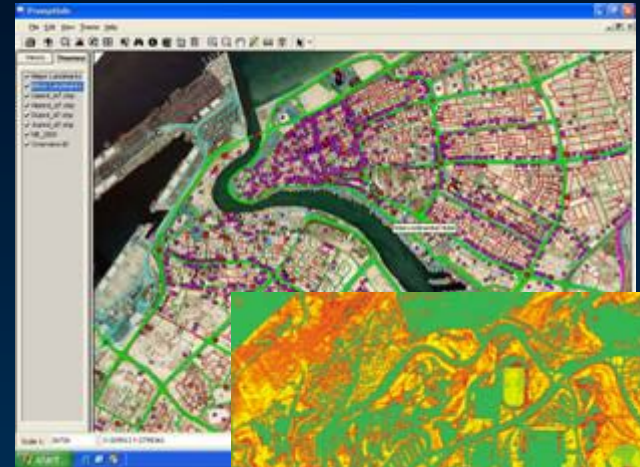


Agenda

- **Many Needs; Many Solutions**
- **Products & Technologies**
- **Situations & Techniques**
- **Resources**

What Does “Raster Serving” Mean to Your Organization?

- Serving to the Internet
- Serving on a LAN
- Serving to ESRI clients
- Serving to non-ESRI clients
- Serving “static” data products
- Serving “dynamic” data products
- Serving at large and/or small scales
- Serving exact pixel values
- Serving for optimal performance
- Serving rasters as attributes

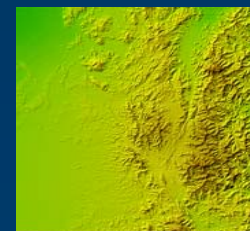
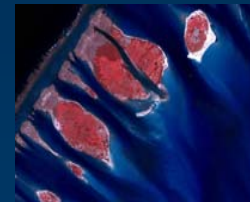


Many Products; Many Ways to Use Them

ESRI Technology

- Comprehensive range of raster serving capabilities for GIS and other applications.
- Able to meet many different needs.
- Many scalable and high-performance solutions.

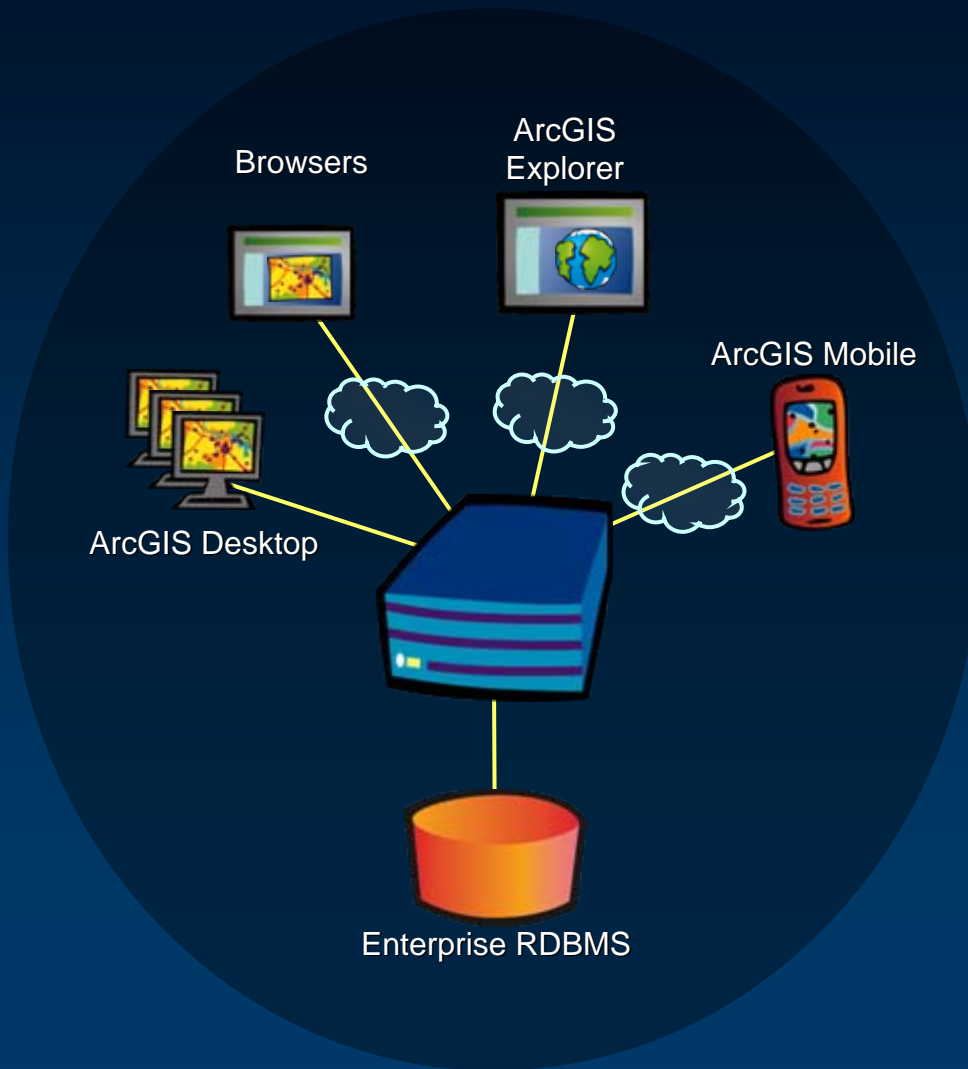
... all you need.



Agenda

- **Many Needs; Many Solutions**
- **Products & Technologies**
 - **ArcGIS Server (Standard / Advanced)**
 - **ArcGIS Server Basic (ArcSDE)**
 - **ArcGIS Image Server**
 - **File Server**
- **Situations & Techniques**
- **Resources**

ArcGIS Server

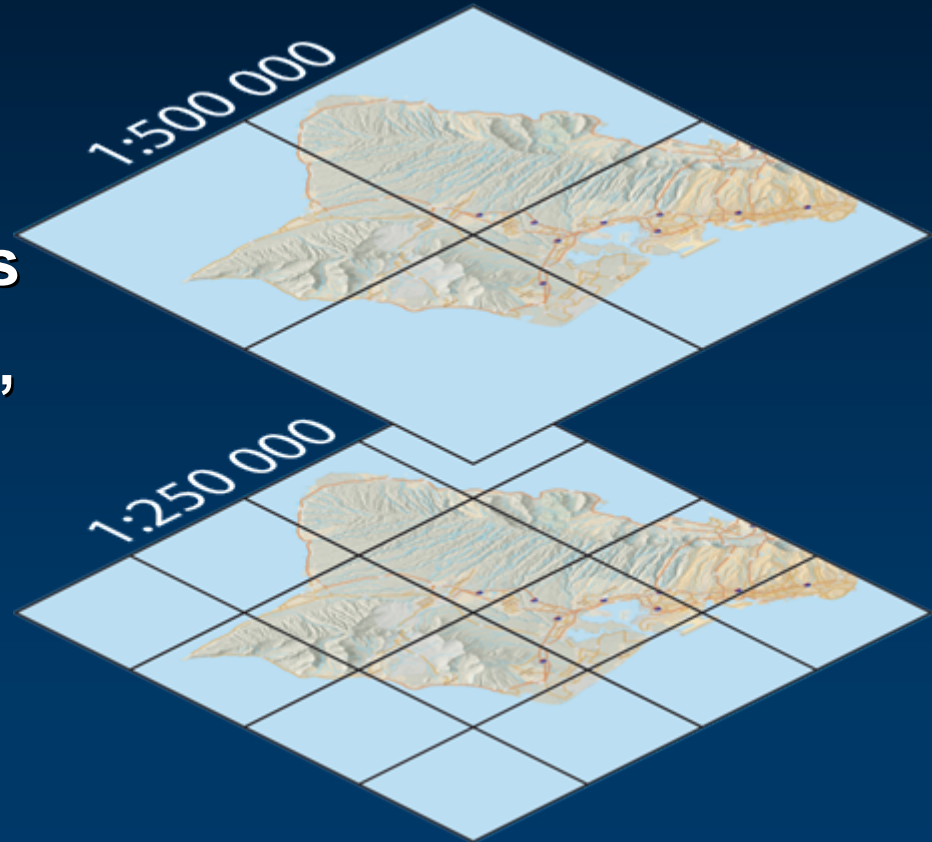


ArcGIS Server

- **Complete server-based GIS**
- **Out-of-the-box applications and services**
- **Rich developer opportunities**

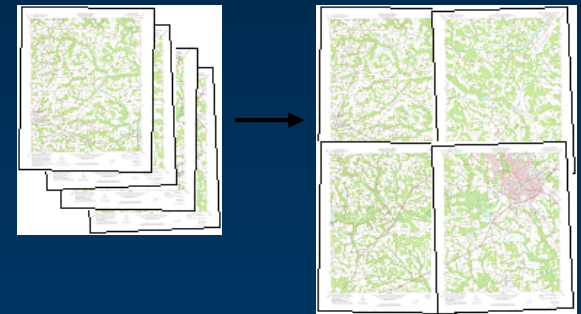
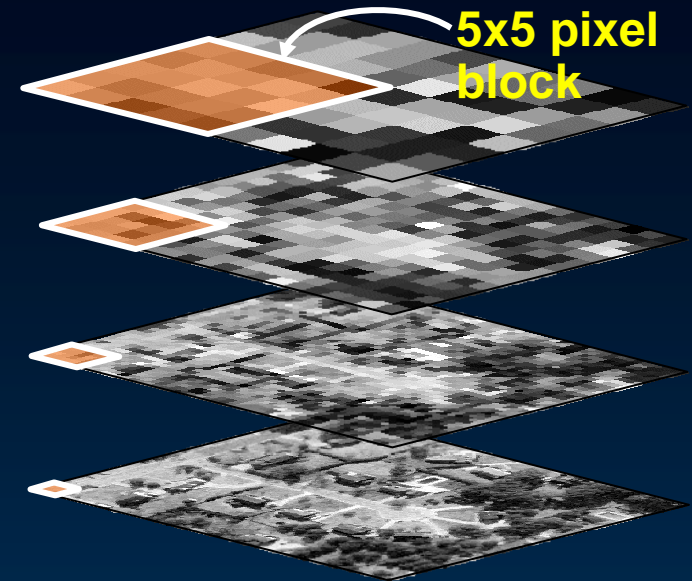
Some Characteristics

- **Internet** Server
- Maps & GIS functionality
- Dynamic & **Cached** content
- **Integrate** rasters and vectors
- Desktop, browser, AutoCAD, and mobile **clients**



Some Characteristics

- **LAN/WAN RDBMS Gateway**
- **Data server** (vector and raster)
- **Mosaics, Catalogs, Raster Attributes**
- **Desktop and Internet Servers**



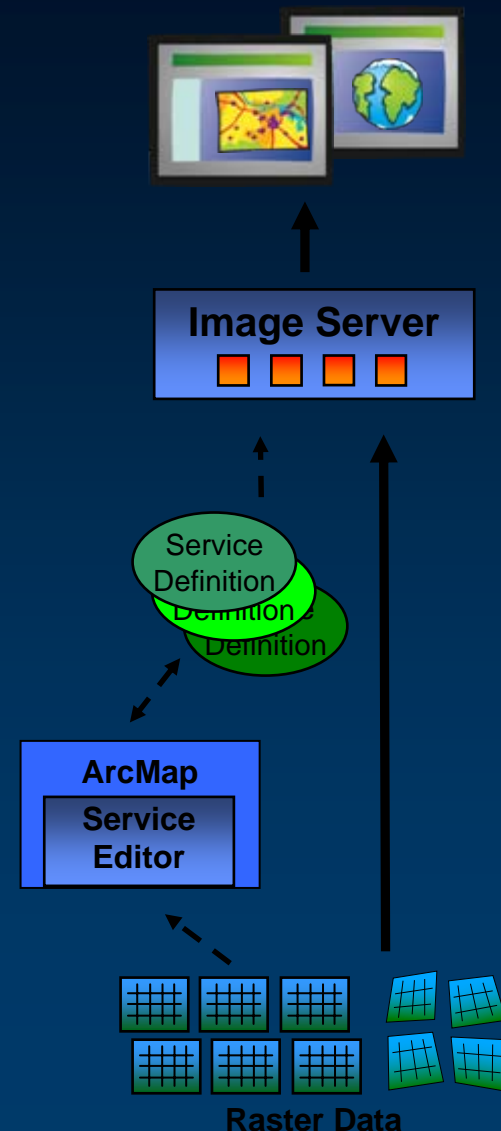
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2			2	<Raster>
3			1	<Raster>
4			1	<Raster>



ArcGIS Image Server

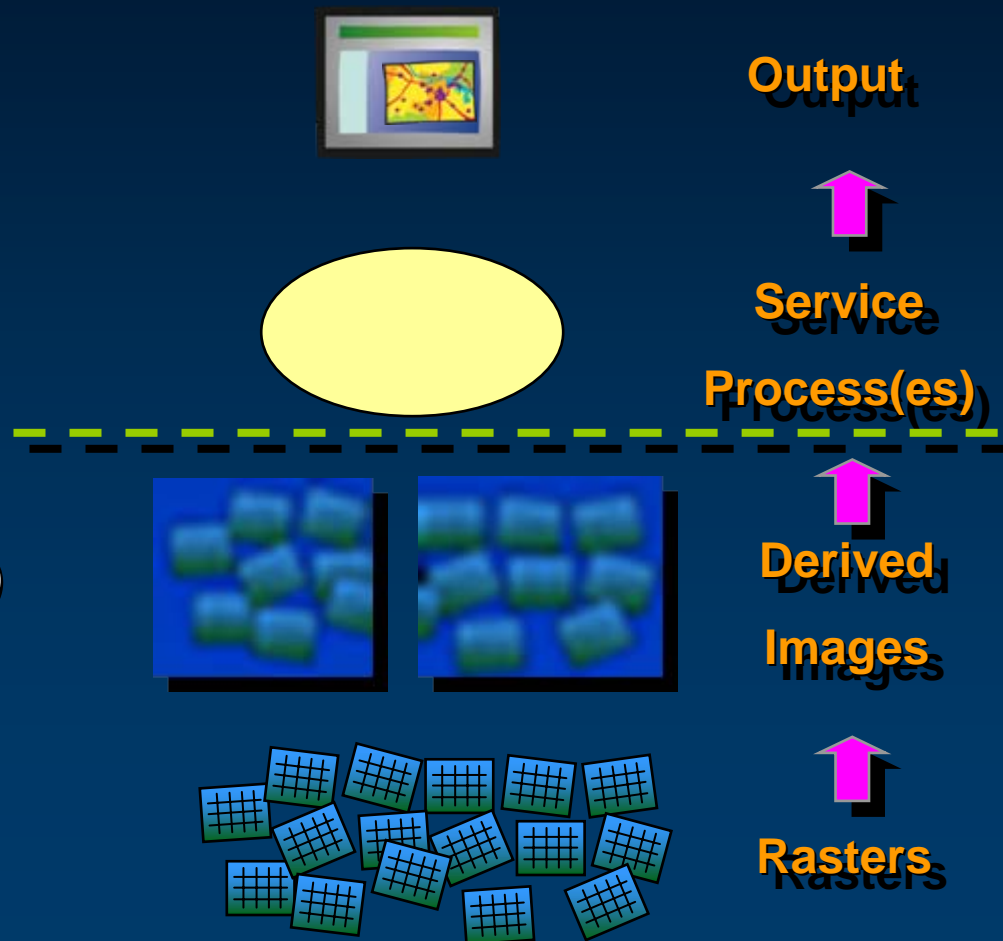
ArcGIS Image Server

- A robust platform focused on image management
 - Distribution
 - Processing



Some Characteristics

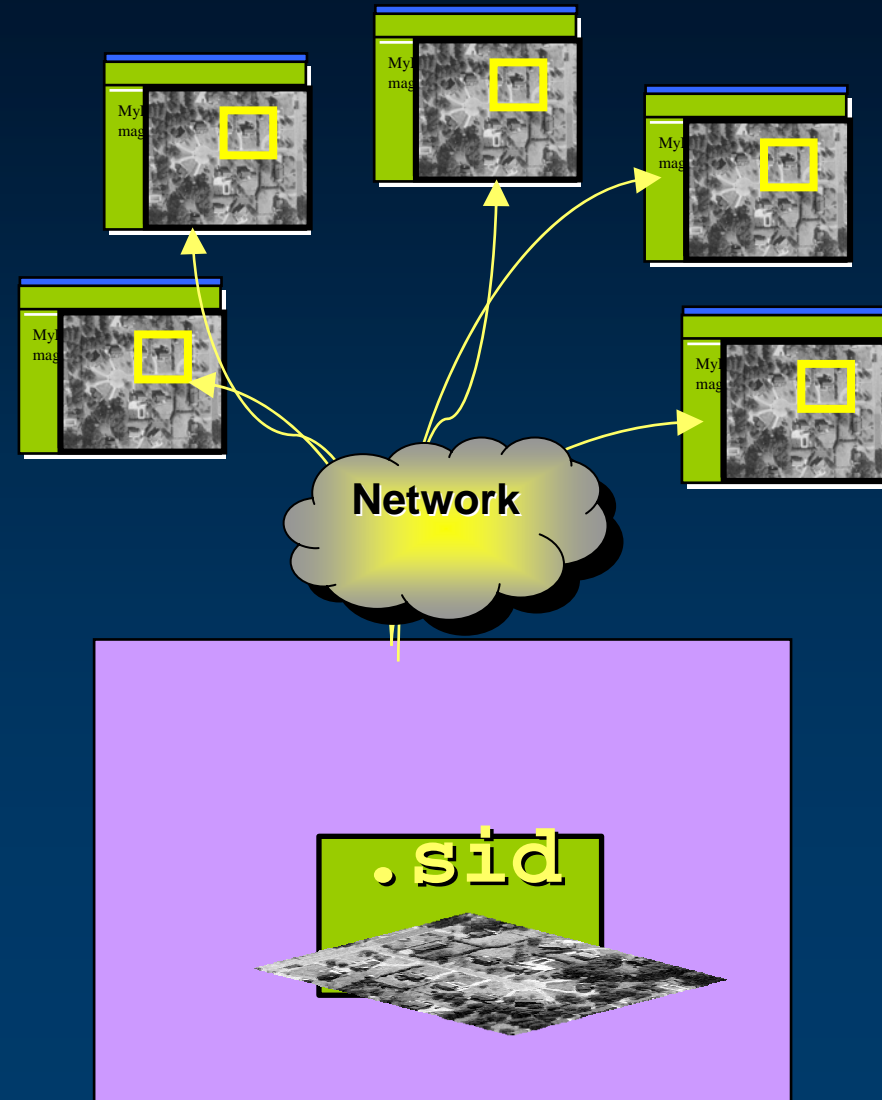
- LAN/WAN raster server
- Serve and process raster data
- Serve unprocessed rasters, or create multiple “virtual” processed raster products
- Desktop (ESRI & 3rd party) and Internet Servers



File Server

File Server

- Highly compressed data (.sid, .ecw, etc.)
- Raster catalogs



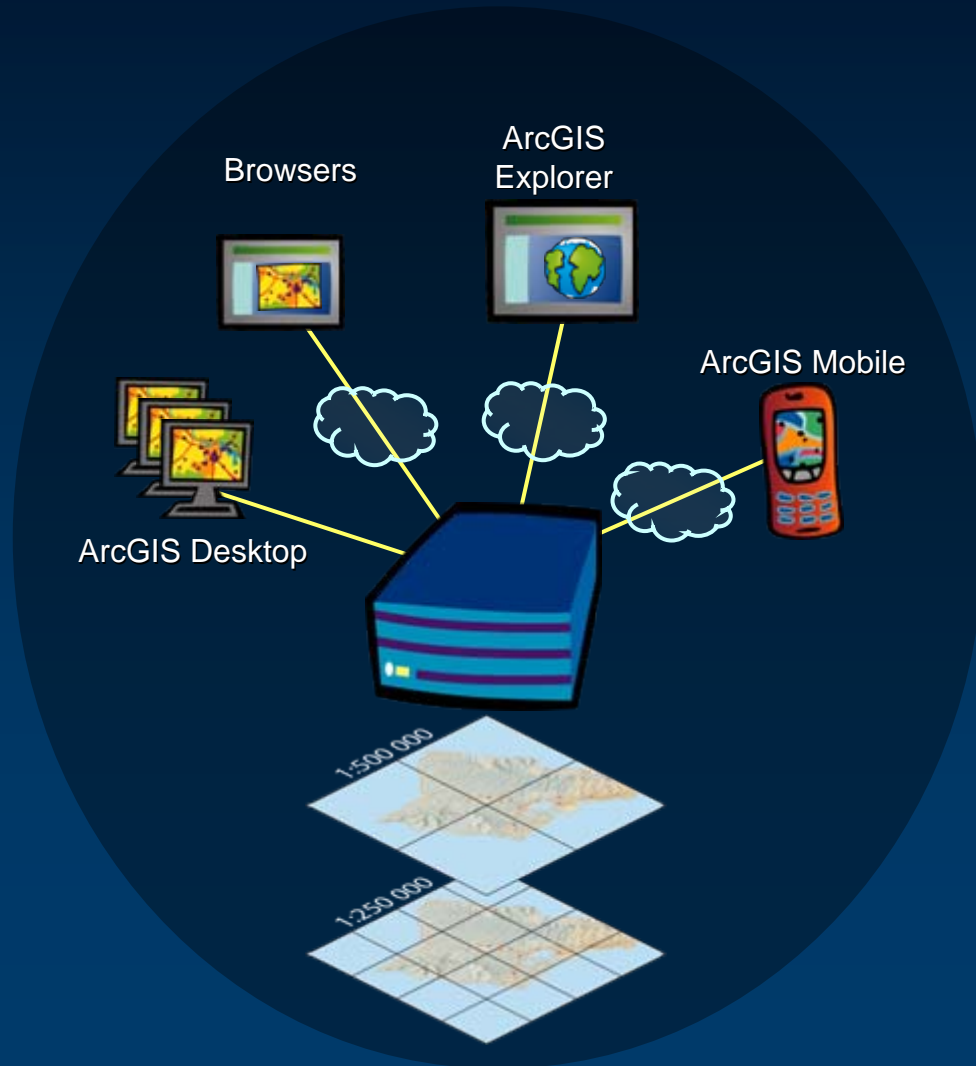
Some Characteristics

- **LAN/WAN server**
- **Serve tiled or highly compressed data**
- **Desktop (ESRI & 3rd party)**
- **Wide range of format choices**
- **Limited small scale viewing options**

Agenda

- **Many Needs; Many Solutions**
- **Products & Technologies**
- **Situations & Techniques**
 - **Fast Access Via Internet**
 - **LAN Access, Finished Data Products (I & II)**
 - **LAN Access, Virtual Data Products**
- **Resources**

Fast Access Via Internet



- **ArcGIS Server**
cached service
 - **Best performance**
 - **Many clients**

Considerations

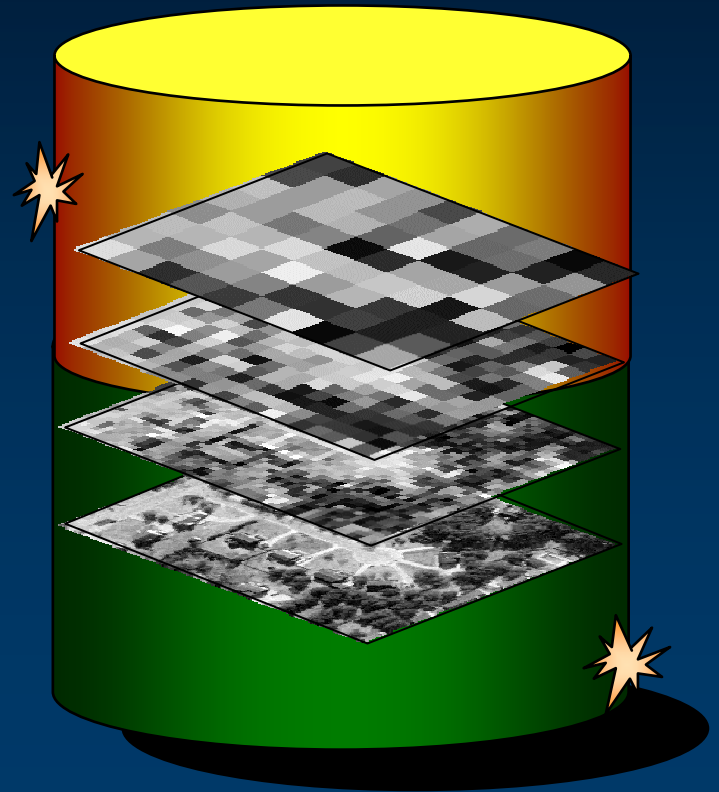
- **Good for relatively stable raster products**
- **Requires up-front processing time**
- **Processing can be parallelized**
- **Requires disk space for cache**
- **Can serve LAN/WAN and desktop clients at the same time.**

Tips

- **Build cache where you'll serve it**
- **Cache a sample (10-20%) to estimate total processing time (and space)**
- **Choose jpg compression with high compression ratio**
- **Manage tile size (smaller tiles) for improved performance**

LAN Access, Pre-processed Data I

- ***ArcGIS Server Basic***
 - Pre-processed data, with one product, multiple scales
 - Already using ArcSDE technology
 - Central repository / access control
 - Large or small scale access



Considerations

- **Proven performance across all ESRI clients**
- **Requires up-front processing time**
- **Requires disk space data in RDBMS**
- **Compresses data for network transmission**
- **Client-server release dependencies**

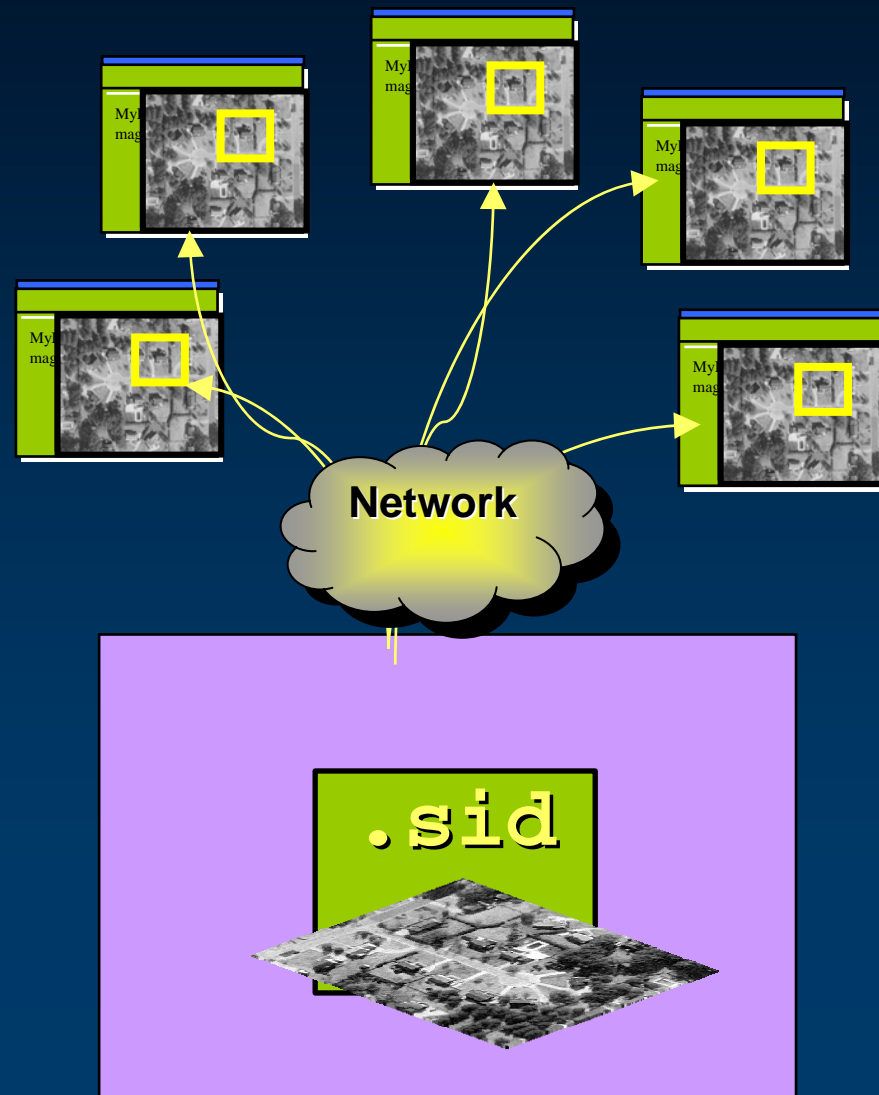
Tips

- **Start with uncompressed rasters**
- **Load a sample (10-20%) to estimate total processing time (and space)**
- **Select the appropriate compression settings**
- **You can load on a separate machine and transport your “tablespace” or “database”**
- **Tune your RDBMS for loading**
- **New tools in ArcToolbox at 9.2**

LAN Access, Pre-processed Data II

- ***File Server***

- Pre-processed data, with one product
- Large scale viewing
- ESRI & 3rd party clients



Considerations

- **Choose the file format that works with your applications (ESRI and 3rd party)**
- **Works well for large-scale viewing**
- **Minimal administration**

Tips

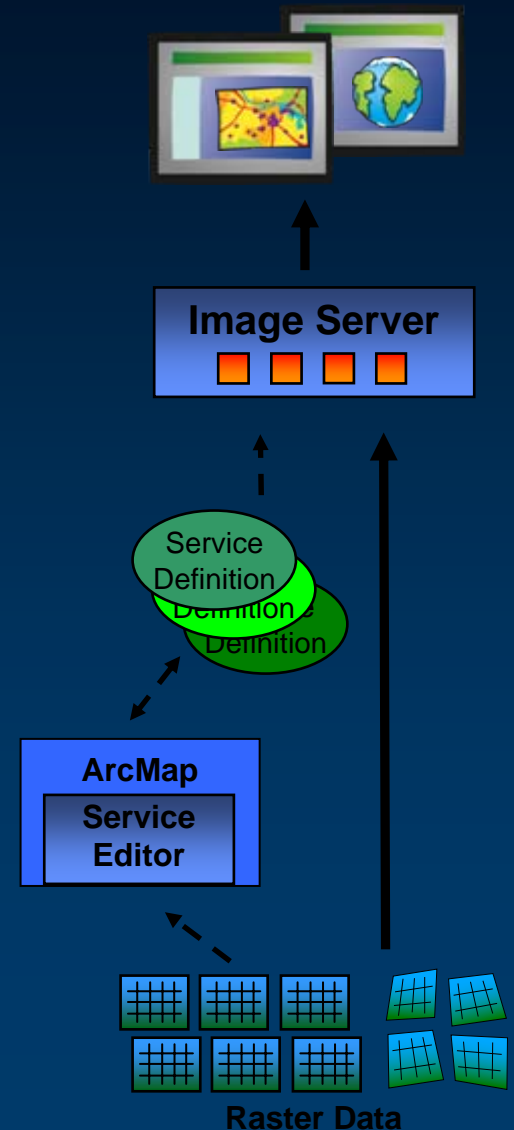
- **Highly compressed file formats let you scale to the largest amounts of data.**
- **Use an unmanaged raster catalog to ease navigation issues**
- **Make reduced resolution copies for small-scale viewing.**

LAN Access, Virtual Data Products

- **ArcGIS Image Server**

- **Frequently updated data, multiple series**

- **Different data series require different processing**
- **Multiple products to be built from a single series**
- **Primarily large-scale access**



Considerations

- **ArcGIS Image Server has client plug-ins for:**
 - AutoCAD
 - Microstation
 - 3rd party GIS clients at 9.3
- **Size your hardware with your on-the-fly processing in mind**
- **Can also use to serve a single, stable raster product**

Tips

- **Serve uncompressed rasters**
- **Build service overviews for general-purpose access**
- **Build derived rasters for processing you don't want to do on the fly**
- **Select appropriate transmission compression**

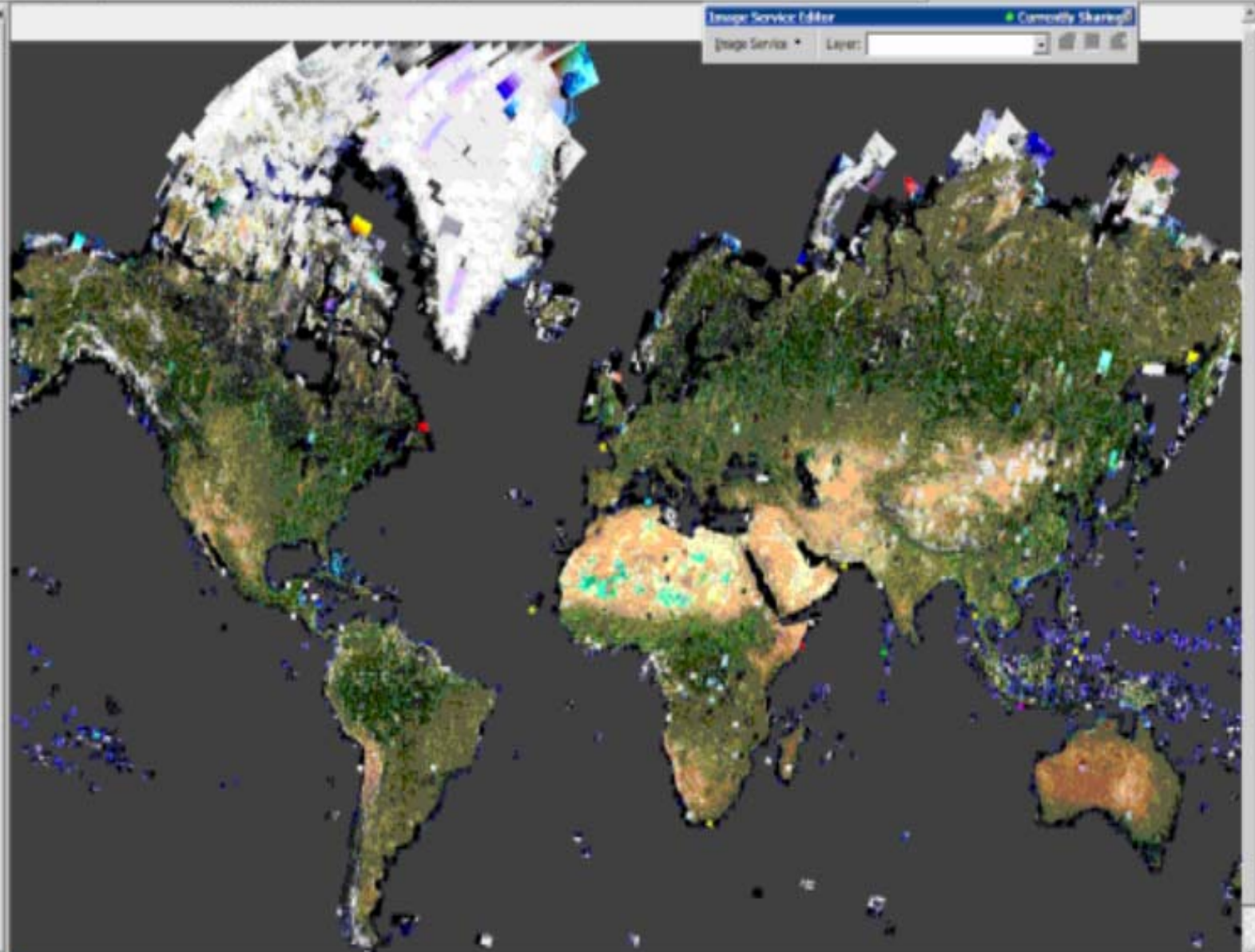
Demo-lettes



- **Image Server (virtual demo)**
- **Mosaics and attributes**
- **Super-fast raster**

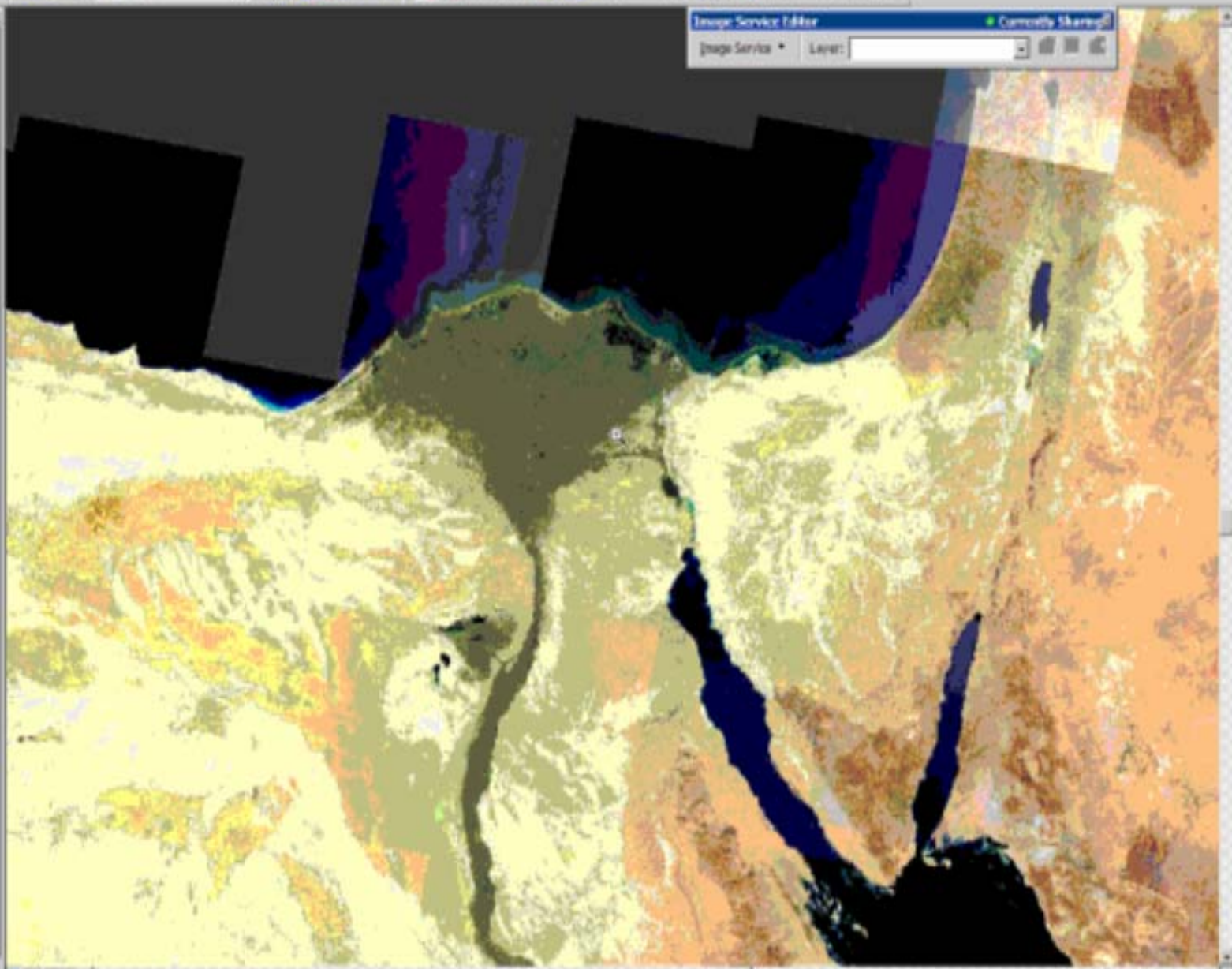
Layers

- Seattle
- SoCal
- Full
- WORLD LAN 321 BN
- Amberg/Amberg_viewpoint



Layers

- Seattle
- SoCal
- Pub
- WOND_LAN_201_01
- Amberg/Amberg_Venuepoint



Layers

- Seattle
- SoCal
- Full
- WORLD_LIN_321_01
- AnbergAnberg_Vispoint

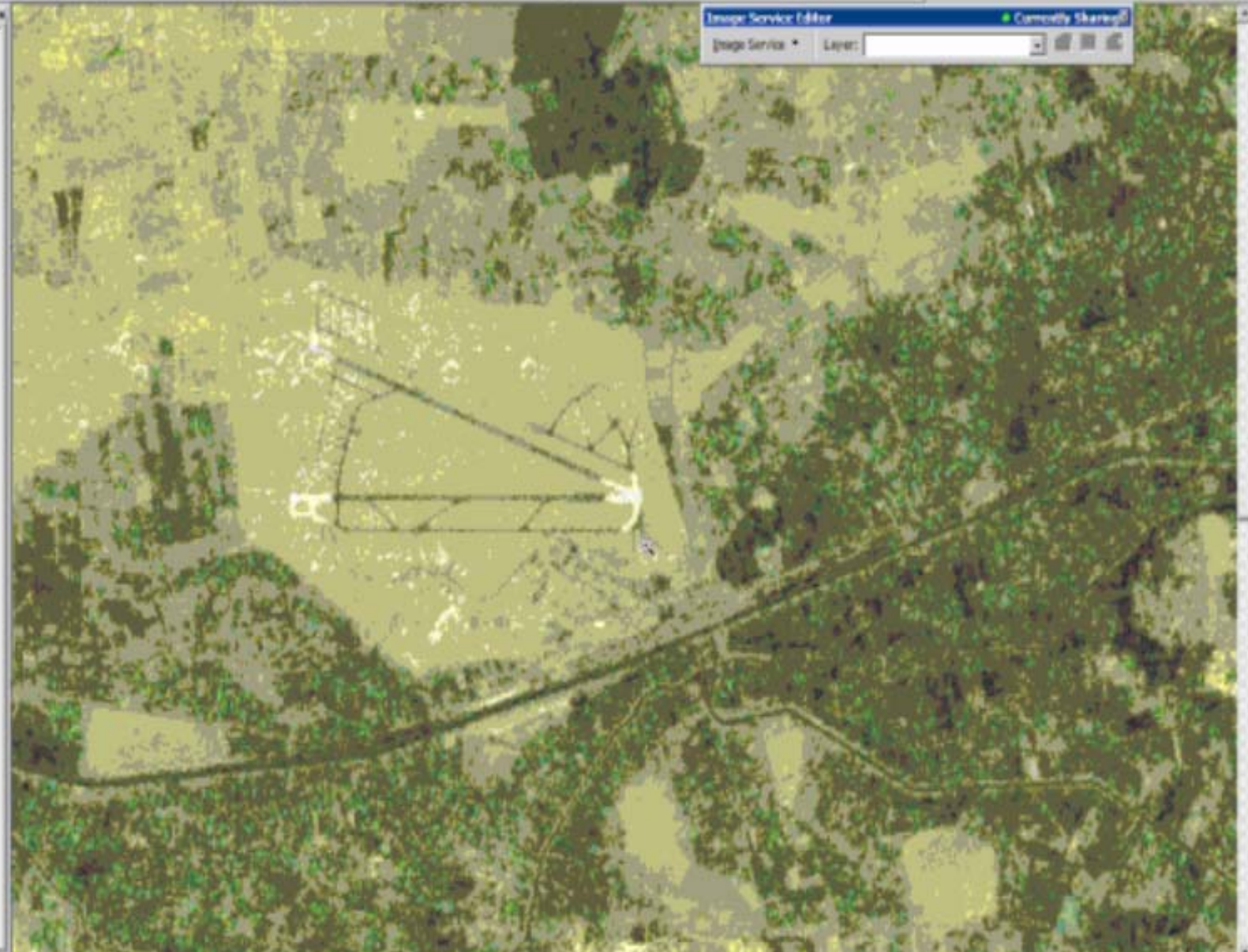
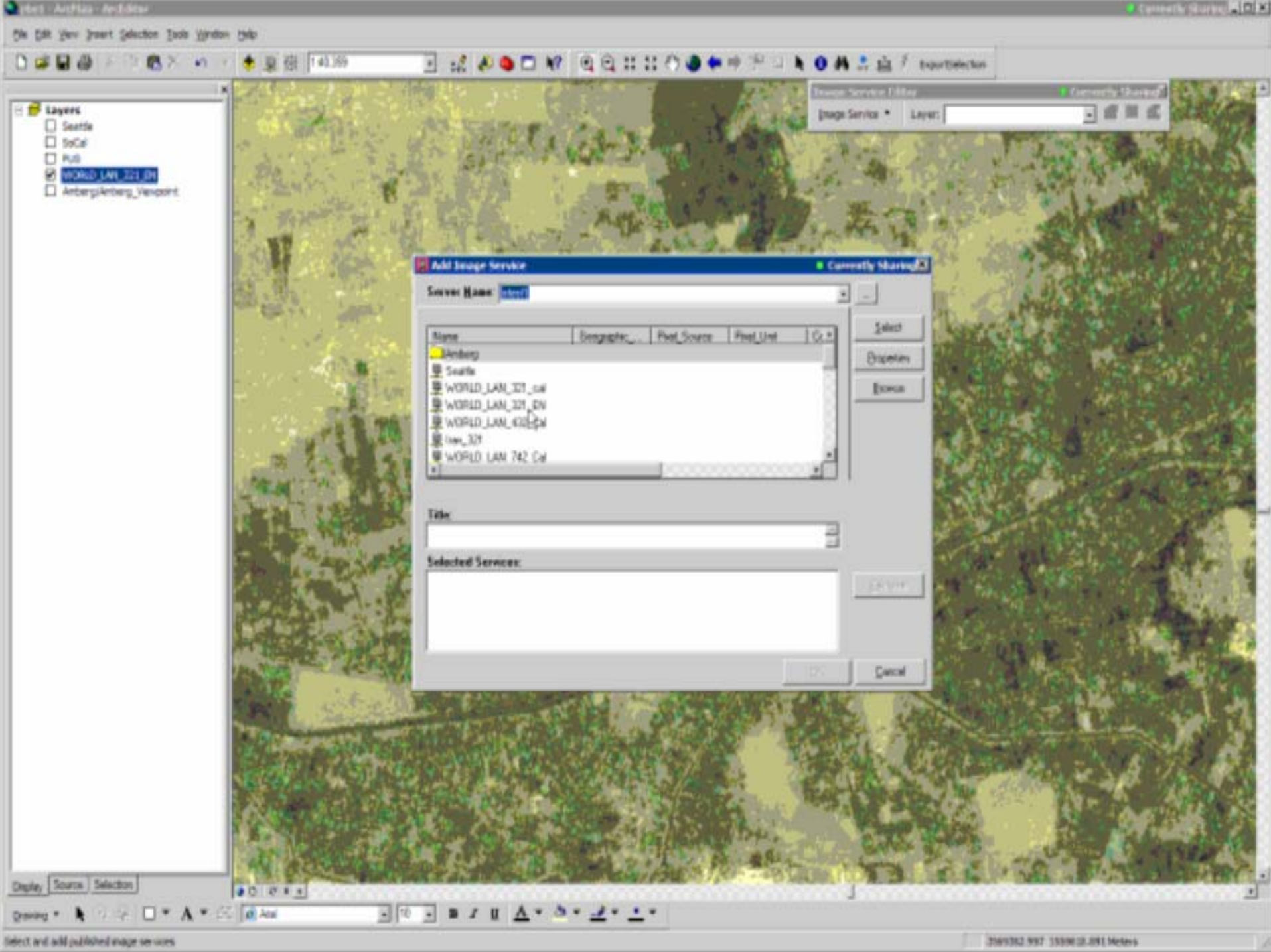


Image Service Editor

Image Service: Layer: [dropdown]



Layers

- Seattle
- SoCal
- PuS
- WORLD_LAN_321_0H
- Anberg/Anberg_Vendort
- WORLD_LAN_410_0H

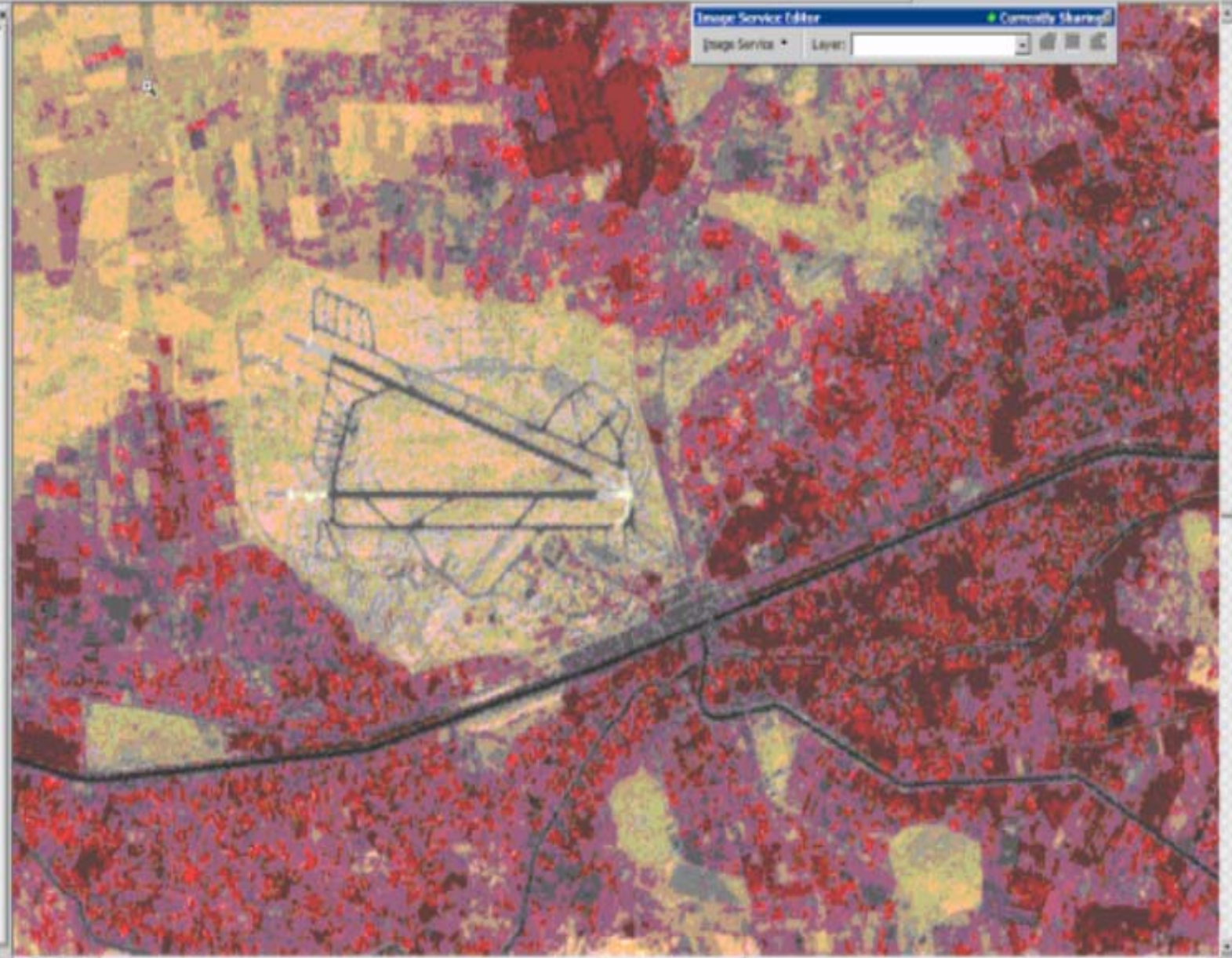


Image Service Editor

Image Service: [Dropdown]
Layer: [Dropdown]

Demo-lettes



- Image Server (virtual demo)
- **Mosaics and attributes**
- Super-fast raster

Demo-lettes



- Image Server (virtual demo)
- Mosaics and attributes
- Super-fast raster

Remarkable Customer Solutions!

- **Served terabytes of raster data with 0 load time and 0 pre-processing**
- **Served raster data with ArcSDE without worrying about the software releases of clients**
- **Eliminating ArcSDE/RDBMS loading and pyramiding time by outsourcing**
- **Rasters served to AutoCAD directly from ArcSDE**

Closing Thoughts

- **Raster serving is likely the most resource-intensive thing you'll do all year.**
 - **Get good advice.**
 - **There's no such thing as a free lunch.**
 - **Plan thoroughly.**
 - **Test. Test. Test.**
 - **Consider consulting / outsourcing.**
 - **Test. Test. Test.**

Agenda

- **Many Needs; Many Solutions**
- **Products & Technologies**
- **Situations & Techniques**
- **Resources**

Resources

- **Project Center Website**
 - support.esri.com
- **ESRI Enterprise Advantage Program**
 - <http://www.esri.com/eeap/index.html>
- **ESRI Professional Services**
 - <http://www.esri.com/consulting/index.html>

ESRI Training

- **Virtual Campus**

- <http://campus.esri.com>

- Storing Raster Data in an ArcSDE Geodatabase
- Working with Rasters in ArcGIS 9
- Introduction to Image Server

- Free and low-cost training

- **Instructor-led classes**

- <http://training.esri.com>

- Training sites in:

- California: Redlands, Oakland, Sacramento
- Hawaii: Honolulu
- Nevada: Henderson

Instructor-Led Classes

- **Working with ArcGIS Spatial Analyst**

Fundamental raster concepts, Display and query, create raster datasets and catalogs, use map algebra, interpolate surfaces, use ModelBuilder to create suitability models.

- **Data Management in the Multiuser Geodatabase**

Create connections to ArcSDE, Design/ load/ and manage vector and raster data, architecture and workflow of multiuser editing.

- **ArcGIS Server Enterprise Configuration and Tuning (for SQL Server or for Oracle)**

Install and Configure ArcSDE, Customize storage, Configure/ Create/ and Monitor Connections, Data management for Vector and Raster data, Optimize ArcSDE, Maintaining performance of Enterprise Geodatabase.

Thank You

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