

Make a Point with LIDAR: Management, Delivery and Analysis



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Your Hosts for Today's Webinar



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Our Enterprise Concept



Author

Using powerful applications to build geospatial content from raw sources of data.



Manage

Involves publishing and cataloging geospatial data so it is readily accessible.



Connect

Using standard connectivity protocols that allow the easy exchange of information across a network

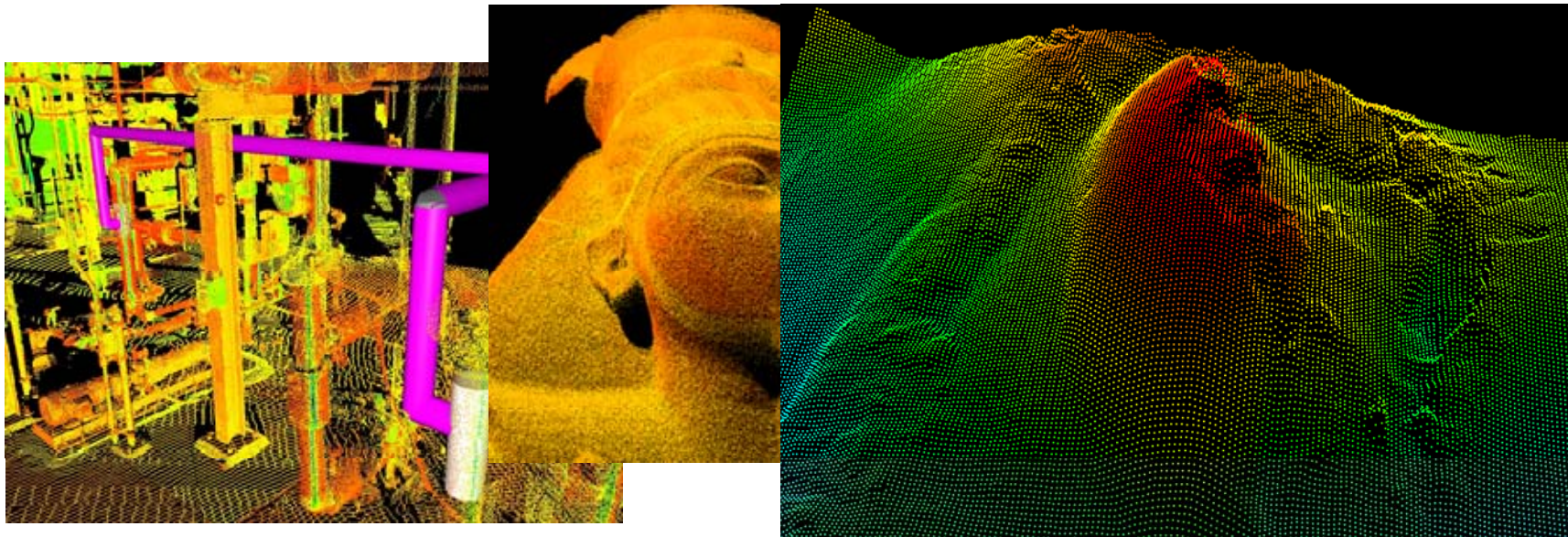


Deliver

Provides the "service" functionality to serve up information using OGC conventions

LIDAR is the “Third” Type of Data

- Vector – Representation of spatial features as collections of geometries. Points, Lines, Polygons, plus Topology, etc.
- Raster – Representation of spatial features as collections of regularly spaced samples. Imagery, Thematic Data, DEMs, etc.
- Point Clouds – Representations of spatial features as collections of irregular but densely spaced points.

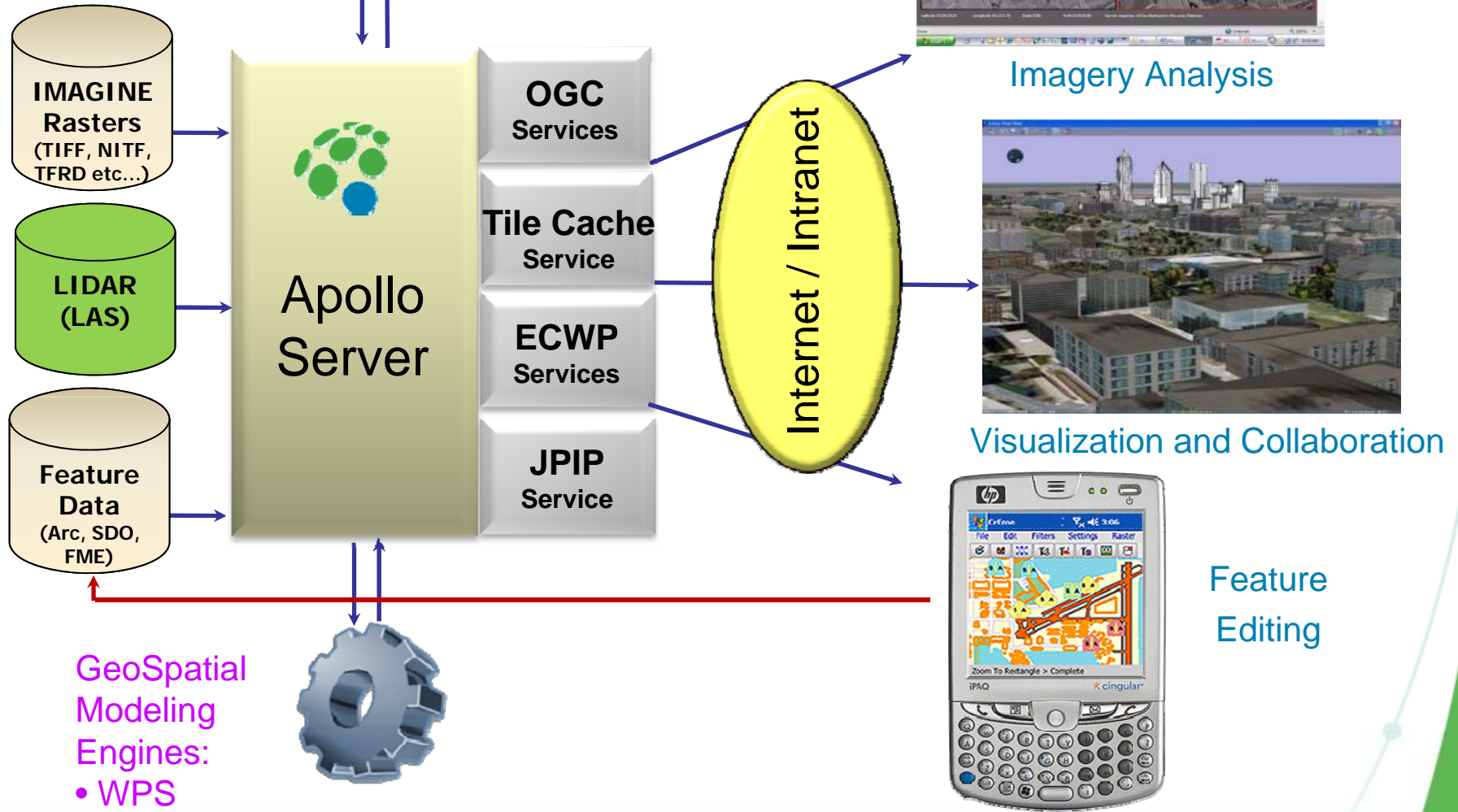


Airborne LIDAR is used for Terrain Representation

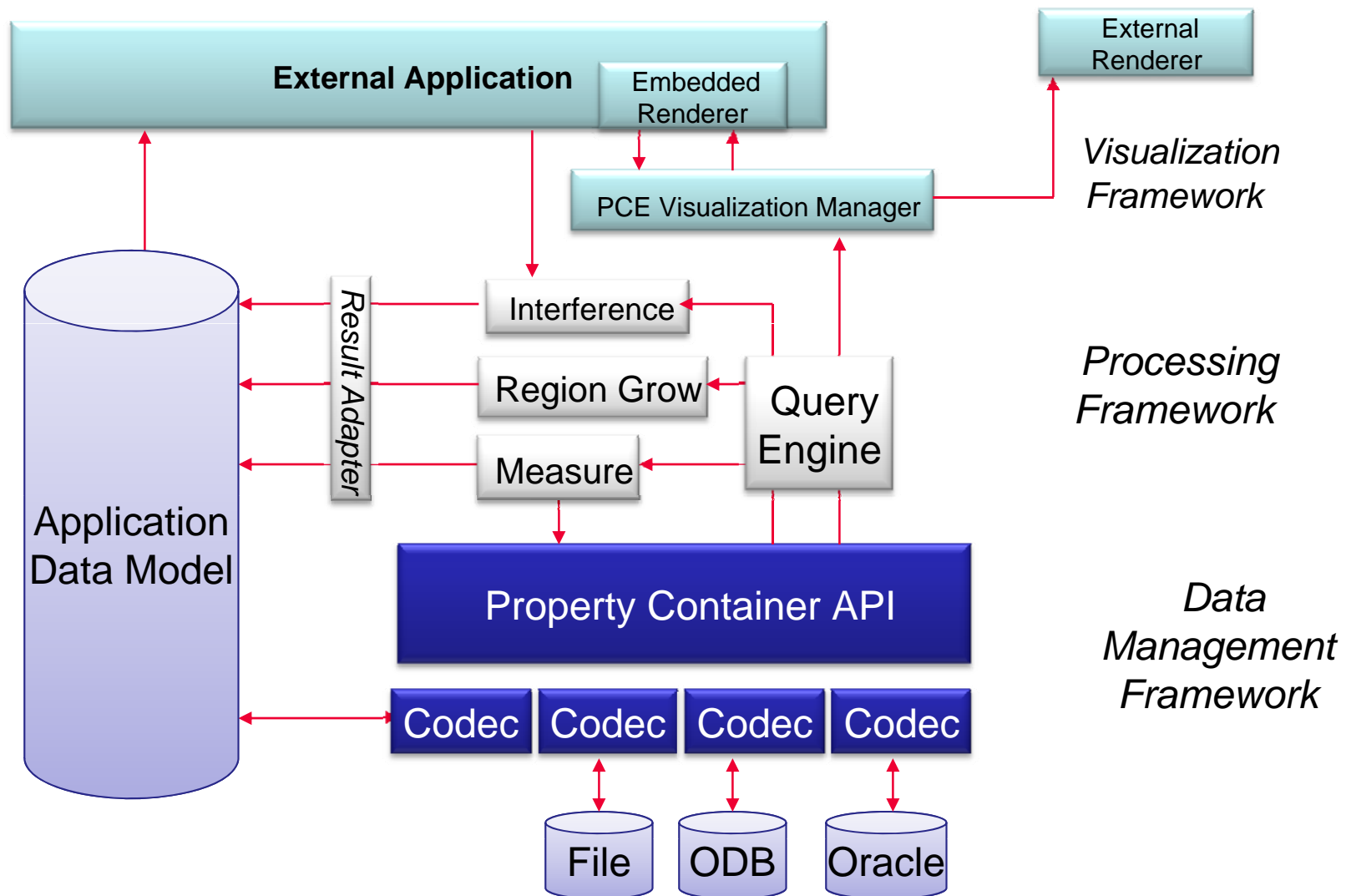
- **Discrete Samples**
 - Elevation Measures as X, Y, Z triples, optionally with attribution
 - Either direct measures or results from correlators
 - Thought of as collections of points
 - Most Common Format: LAS (for LIDAR collection) other examples are PCE or Oracle Storage.
- **Gridded Samples**
 - Elevation Measures on a regular GRID
 - Typically derived from some form of discrete samples (TIN, etc)
 - Can be treated as a raster
 - Common Formats: DTED, DEM, .img, etc.

Apollo Work Flow

Image Management:
• Discovery
• Harvesting

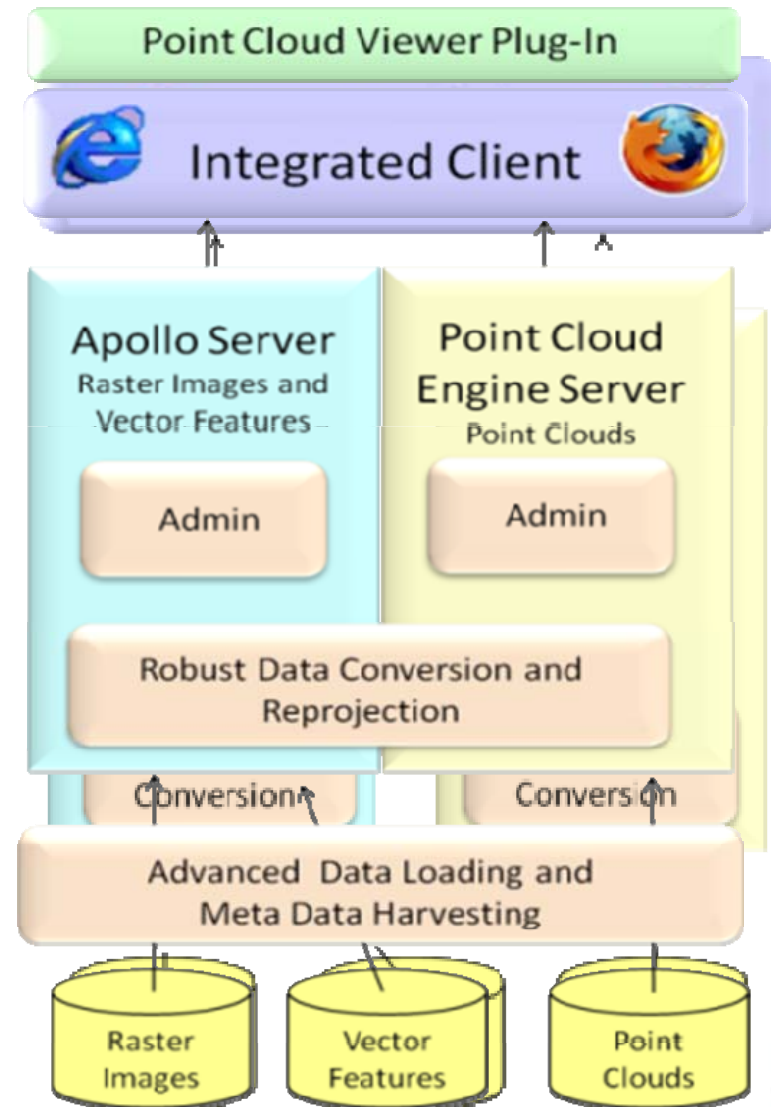


The Leica Point Cloud Engine (PCE)



Integrating PCE with APOLLO

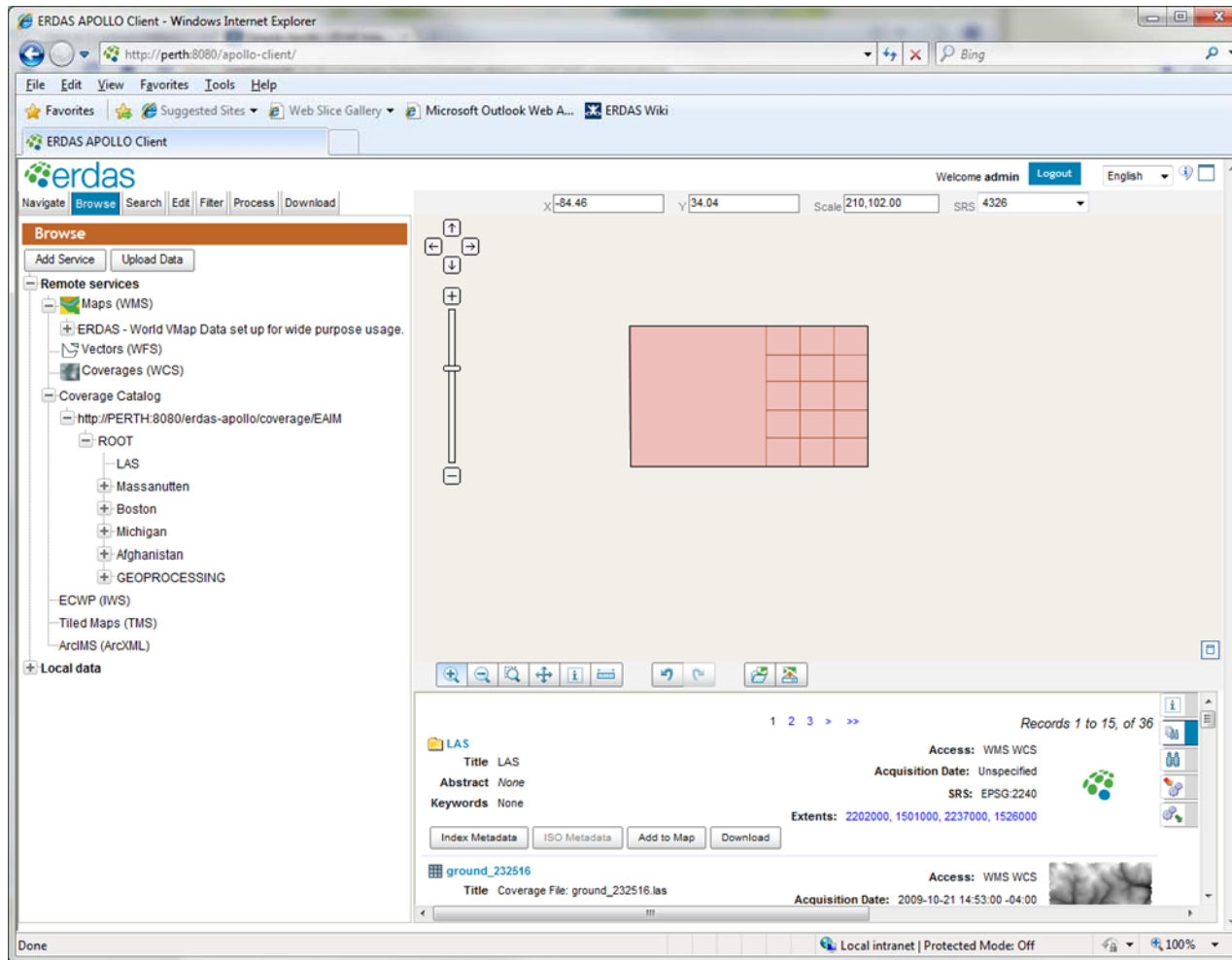
- Loose Integration
 - Cataloging of Datasets
 - Separate Delivery
- Tight Integration
 - Cataloging of Datasets
 - Delivery to Common Client
 - Common Coordinate Systems



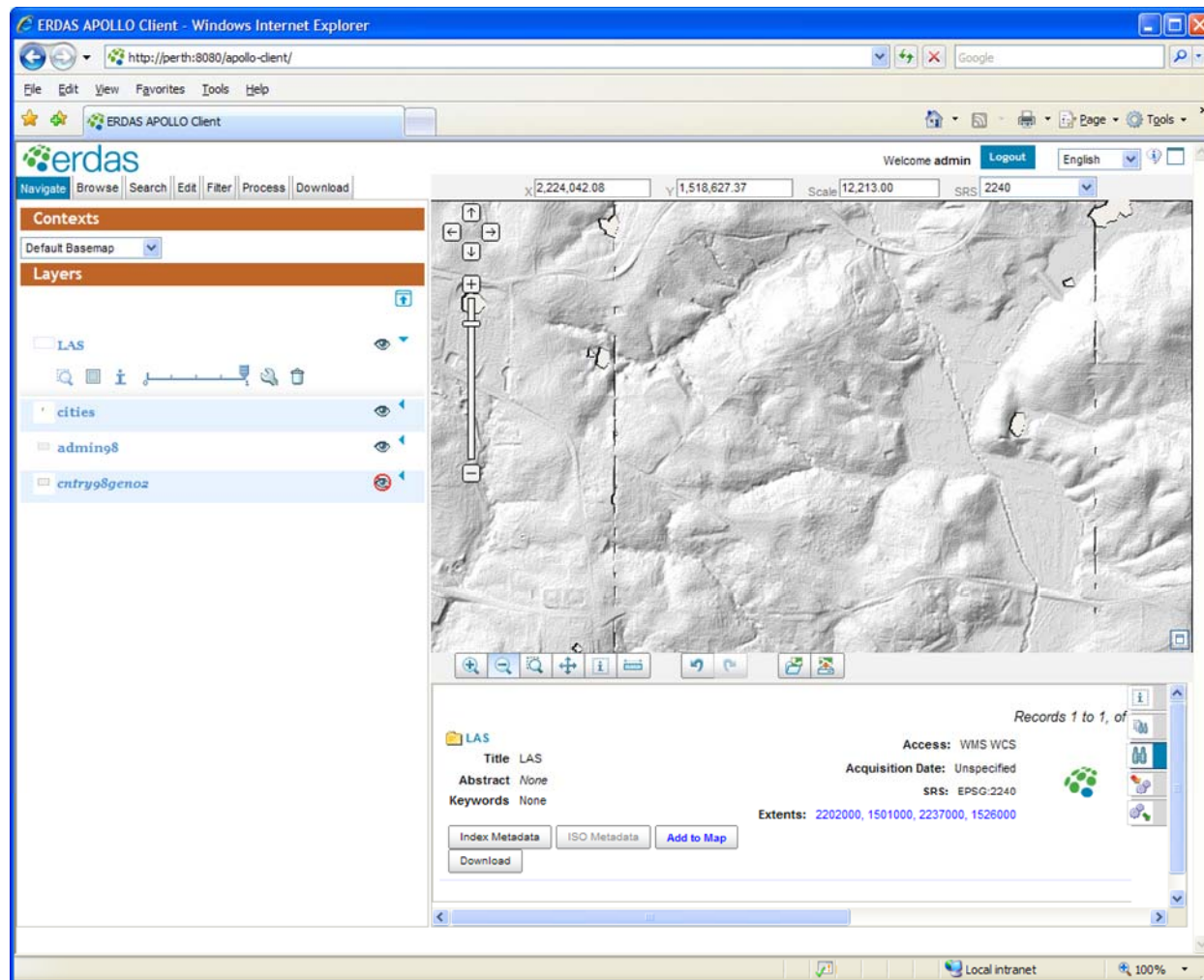
Recent Project to Integrate LIDAR as DEM within APOLLO

- Requirements
 - Client has large numbers of LAS files to manage.
 - Did not want to manually convert to DEM
 - End user wants raster DEMs delivered to existing desktop and Web Clients.
- Integration Approach
 - Create a raster plug-in for LAS data.
 - APOLLO then discovers and catalogs .LAS data
 - Gridded form is created automatically in the background
 - WMS, WCS and WPS Services are immediately available.
 - Clip-Zip-and-Ship can deliver DEMs to end user

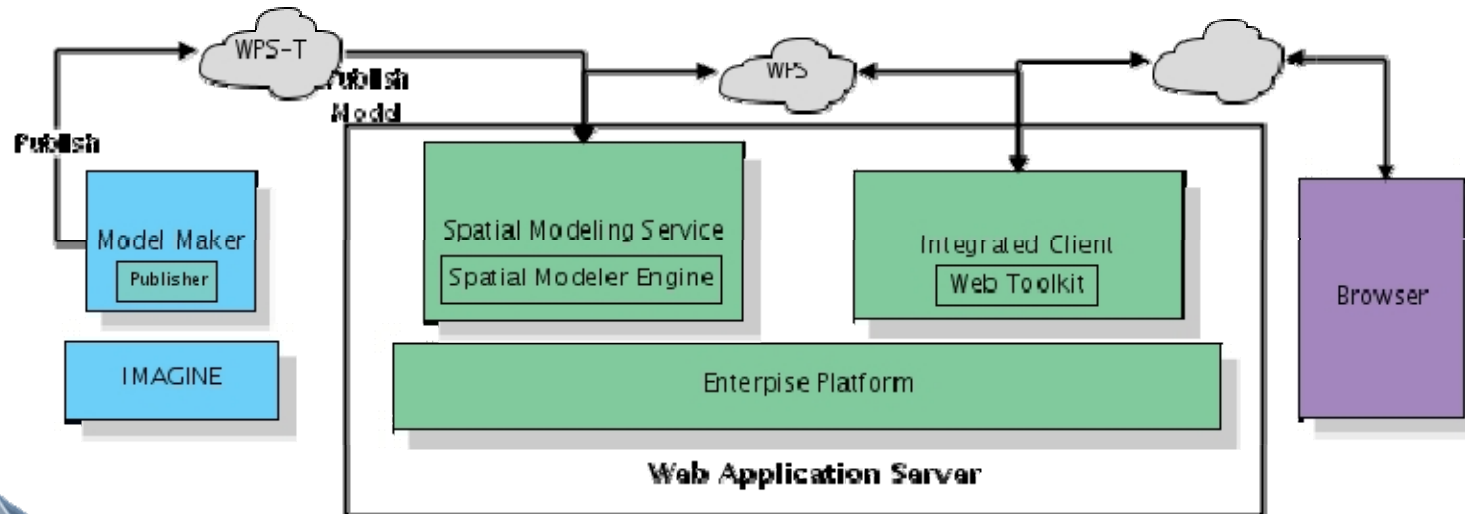
LIDAR Data Set as Aggregate



Visualize LAS DEM as Shaded Relief



OGC Web Processing Service (WPS)

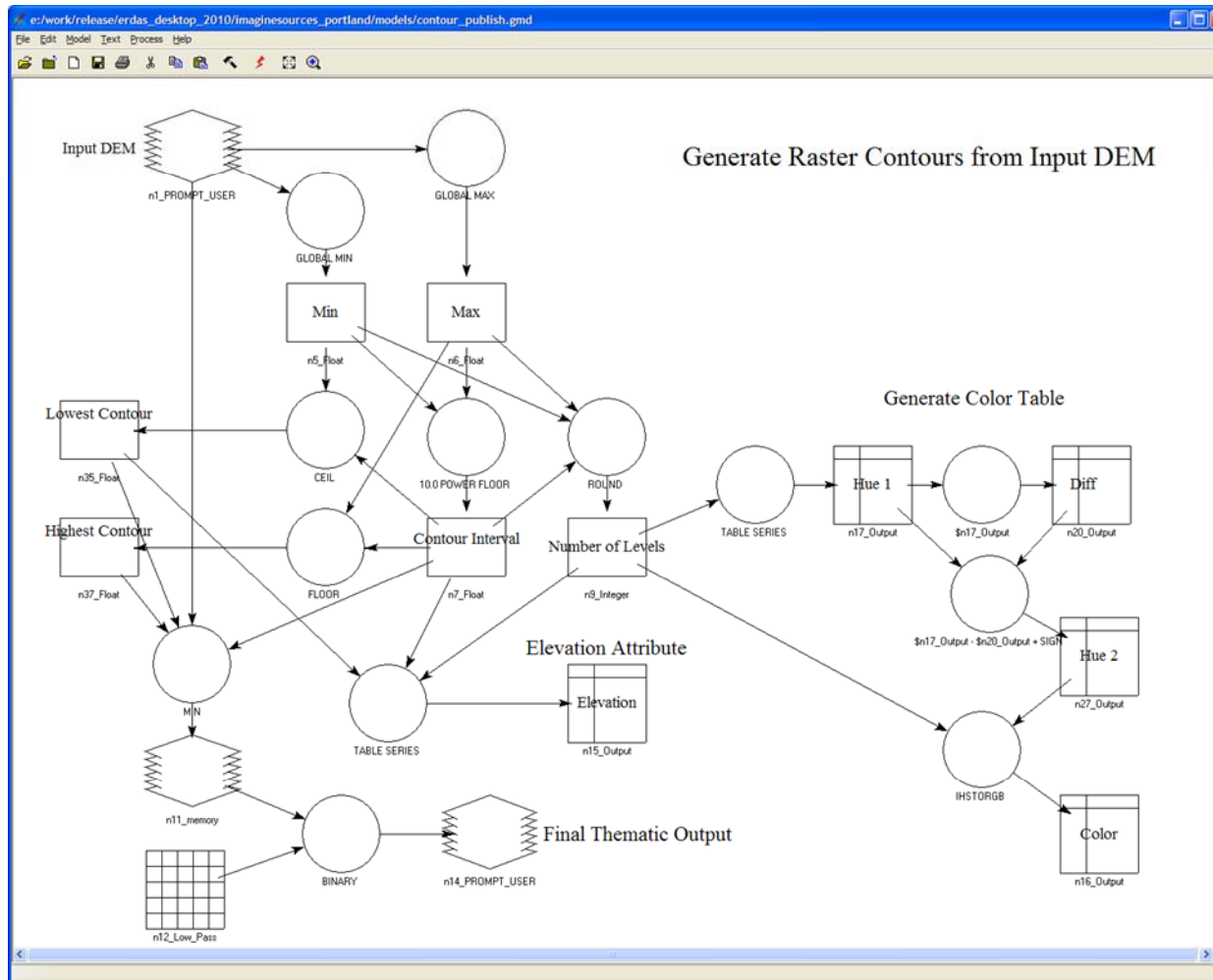


Apollo 2010 has a powerful Web Processing Service

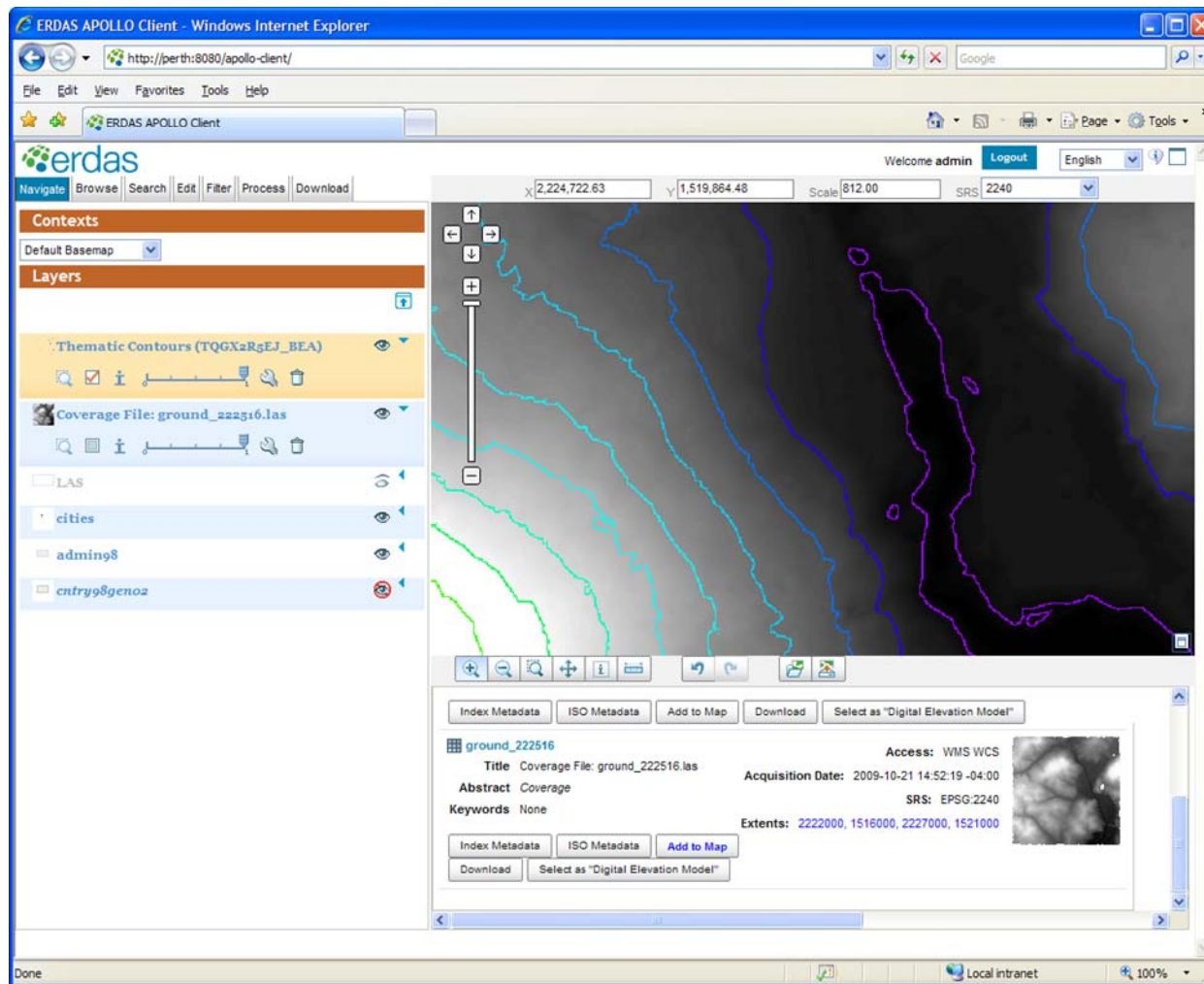
- Full OGC Compliance
 - Get Description
 - Get Inputs & Outputs
 - Execute Process
- Notion of WPS-T a fully transactional WPS
- Multithreaded for Server Operations (Scalability)

Foundation for an Open Services Oriented Architecture (SOA)

Model To Generate Contours



High Light Contours by Changing Style of DEM



DEMONSTRATION