

EDAC's Web-based Geospatial Applications and the Open Source Technologies Behind Them

Karl Benedict, Kurt Menke, Bill Hudspeth, Jeff Cavner
Earth Data Analysis Center
University of New Mexico

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Overview

- Review of relevant standards and technologies
- Description of EDAC's implementations for three projects
 - Public Health Applications in Remote Sensing
 - Environmental Public Health Tracking Prototype
 - Antelope Management Information System



Relevant Standards

- World Wide Web Consortium (W3C)
 - Hypertext Transfer Protocol - HTTP
 - Universal Resource Identifier - URI/URL
 - Extensible Markup Language - XML
 - Hypertext Markup Language - HTML/XHTML
 - Document Object Model - DOM
 - Cascading Style Sheets - CSS
 - Simple Objects Access Protocol - SOAP



Relevant Standards

- Open Geospatial Consortium
 - Geography Markup Language - GML
 - Web Map Services - WMS
 - Web Feature Services - WFS
 - Web Coverage Services - WCS
 - Simple Features Specification for SQL - SFS



Employed Technologies

- GNU/Linux
- Apache Web Server
- Minnesota MapServer
- PostgreSQL/PostGIS
- GRASS
- R Statistical Programming Language
- Python, PHP, Perl
- Supporting libraries: GDAL, OGR, Proj



Applications

- Three web-based geospatial applications
 - Public Health Applications in Remote Sensing (NASA) - PHAIRS
 - Environmental Public Health Tracking Prototype (NM DOH/ CDC) - EPHT
 - Antelope Management Information System (NM DGF) - AMIS



PHAIRS

PHAIRS Mapping Client

PHAIRS Mapping Client

 **Public Health Applications
in Remote Sensing**



Map Legend / Layer Selector

SELECT

Vector Layers

- DD Graticle
- Wilderness Areas
- Urban Areas
- Waterbodies

Background Raster Layers

MODIS-AQUA Daily Global Mosaic (JL)



Northing 22.24 degrees N Easting 72.81 degrees W Map Size

Select a Raster Layer for Analysis

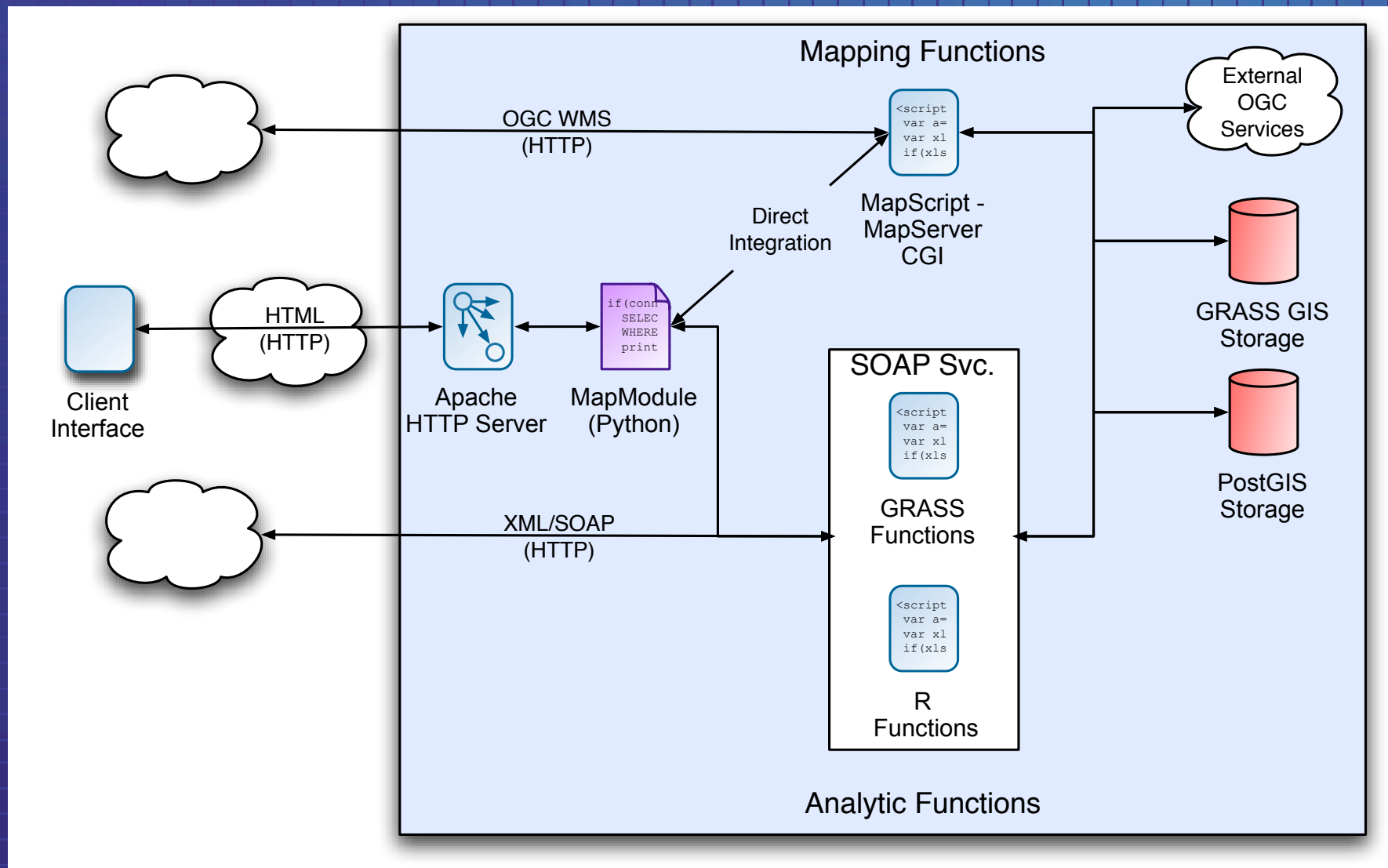
GOTOPO 30 Meter DEM



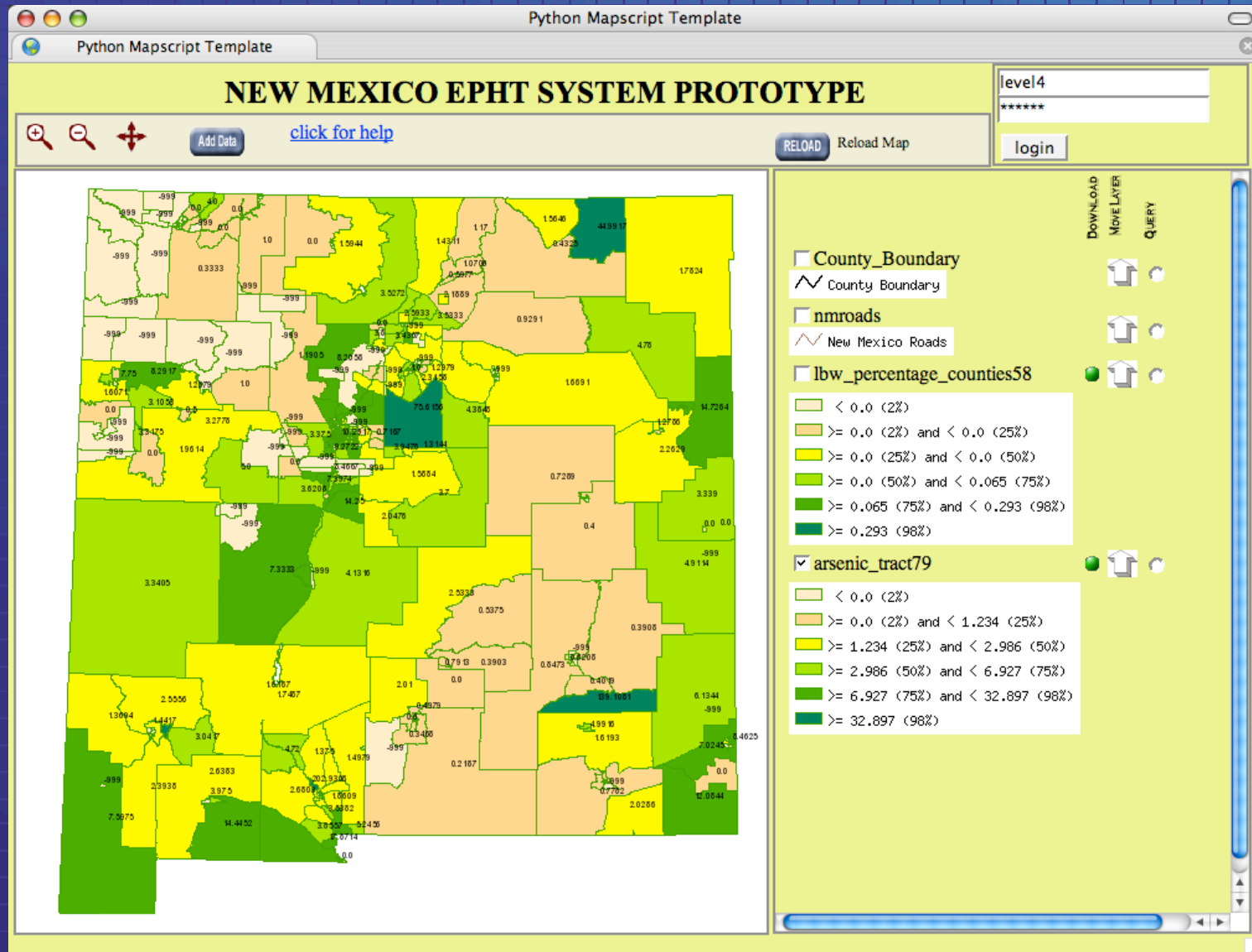
Powered by



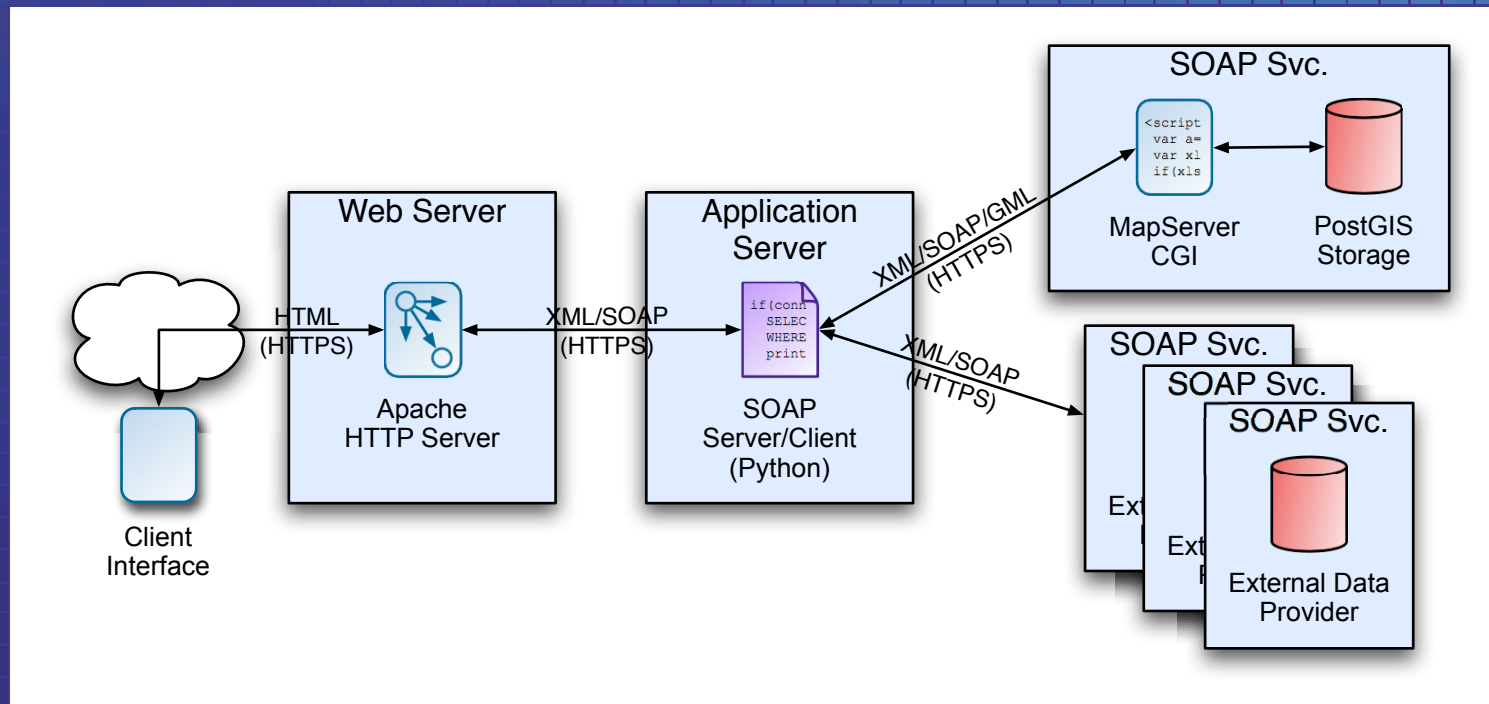
PHAIRS



EPHT



EPHT



AMIS

Mozilla Firefox
http://amis.unm.../amis/amis.php

Antelope Management Information System

Hover over the zoom buttons to get instructions

Extents **Zoom**

Pan

Map Legend / Legend Selector

Refresh Map

SELECT

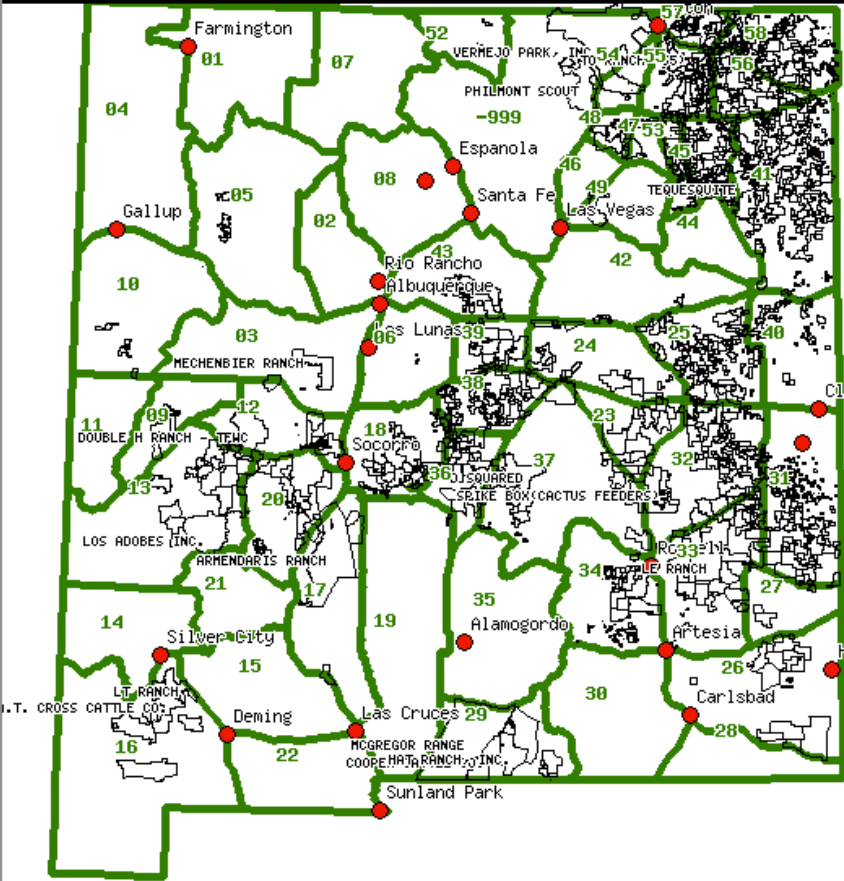
- Towns by Population
- Cities
- Ranch Boundaries
- Highway Labels
- Highways
- Local Roads
- Township and Range
- 7.5' Quads
- Antelope Management Units
- UTM Grid
- Sections
- Ranches filled
- Land Ownership
- DOQQ
- Topo Map

0 62 124 186 248 310 372 mi

AMU Choose AMU
None

Zoom to Ranch

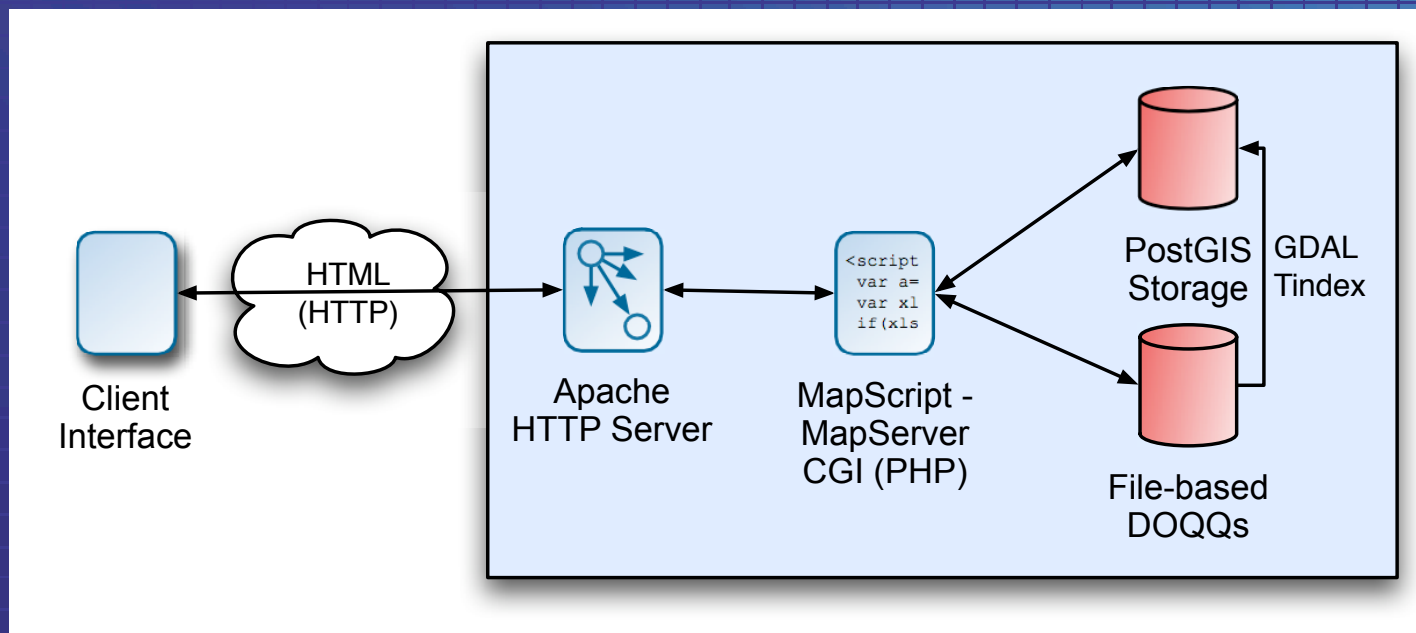
Powered by Map Server



The map displays various Antelope Management Units (AMUs) across New Mexico, each labeled with a number (e.g., 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60). Major cities and towns are marked with red dots and labeled, including Farmington, Gallup, Albuquerque, Las Vegas, Santa Fe, Espanola, Rio Rancho, Las Lunas, Socorro, Alamogordo, Silver City, Denning, Las Cruces, Artesia, Carlsbad, and Hobbs. Ranch boundaries are shown as green lines, and various ranch names are visible, such as Verrejo Park, Philmont Scout, Tequesquite, Mechenbier Ranch, Double H Ranch, Los Adobes Inc., Armendaris Ranch, and Sunland Park. A scale bar at the bottom indicates distances up to 372 miles.



AMIS



Benefits of Open Source and Standards in these Projects

- Flexible development and deployment
- Strong support for interoperability standards
- Platform independence
- Stability



Summary

- Over the past three years EDAC has had great success in deploying Open Source-based Internet mapping applications based upon a suite of Internet and GIS standards
- These have ranged from interactive mapping applications to applications that expose sophisticated analytic and data management capabilities
- For more information contact
 - Karl Benedict - kbene@edac.unm.edu

