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

Paper Presented at the
Fall Meeting of the New Mexico Geographic Information Council
September 30, 2005
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
EPHT
AMIS

Client Interface

HTML (HTTP)

Apache HTTP Server

MapScript - MapServer CGI (PHP)

PostGIS Storage

GDAL Tindex

File-based DOQQs
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