BIOS – Migrating A Complex Viewer from ArcIMS to ArcGIS Server

Biogeographic Information and Observation System

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About the CA Department of Fish and Game

DFG’s Mission:
“To manage California’s diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.”

Much more than just hunting and fishing:
More than 50% of our funding goes towards biodiversity conservation, through Habitat Conservation, Species Inventorying and Monitoring, Environmental Review and Permitting, etc.
What is BIOS?

• BIOS is a map catalog of biological data for California
• Contains hundreds of datasets accessed and searchable via a Data Catalog Tool
• Highly customized ArcIMS viewer, built with ASP
• 2003 ESRI UC Internet Mapping 1st Place Award Winner
Technology Upgrade Decisions

• Is it time for ArcGIS Server?

• Do we redevelop the full complexity of the current BIOS ($$$$) or simplify ($)?
**Web App Design**

- Atypical Web App
  - No fixed layers in Table of Contents on startup
  - No single targeted use case
  - User chooses from 500+ datasets to bring into map
  - Robust data and location search tools
Application Requirements

- Handle 1000+ datasets in single app
- Data Catalog dataset search and add tool
- Highly customized Table of Contents
- Rich toolset, including robust feature queries
- Public and Secure modes to restrict dataset access
ArcIMS to ArcGIS Server Migration

- A single map service vs. many smaller map services
- AXL file vs. MXD/MSD
- ASP/CFML/Java vs. ASP.NET/Java/Flex/JavaScript
Key Customization Issues

- Unique identifier needed for each dataset
- Load datasets on the fly as needed, instead of all at once
- Coordination between the Catalog, the TOC, and the Map
Design of Data Catalog

• ArcSDE feature classes as source data
• Secondary database used for dataset-level security
• Prioritizing results based on weighting of searched fields
Design of Map Services

• Too many datasets for a single map service (1000 +)
• Group datasets by Feature Type (point, line, poly, raster) to aid in presentation order
• Then break by numeric groupings (1-299, 300-599, etc) to further reduce datasets per service
• This results in a handful of map services with about 100 datasets per service, which ArcGIS Server seems to handle well
Design of Client-side Application

• Data querying is required – robust tools needed
• Metadata is critical for the user to assess the data
• Dataset legends are needed, as there are unlimited combinations of datasets possible
BIOS
BIOGEOGRAPHIC INFORMATION & OBSERVATION SYSTEM

BIOS is a system designed to enable the management, visualization, and analysis of biogeographic data collected by the Department of Fish and Game and its Partner Organizations. In addition, BIOS facilitates the sharing of those data within the BIOS community. BIOS integrates GIS, relational database management, and ESRI’s ArcIMS technology to create a statewide, integrated information management tool that can be used on any computer with access to the Internet.

Public BIOS Data Viewer
Open to the public. Only non-sensitive data are included.

Secure BIOS Data Viewer
Password required, for DFG Personnel and Authorized Partners only.

CNDDB/Spotted Owl Viewer
Password required, for DFG Personnel and CNDDB Subscribers: for current CNDDB password, please call (916) 324-3812

*** DESERT RENEWABLE ENERGY CONSERVATION PLAN ***

BIOS Renewable Energy Viewer
Open to the public.

BIOS Renewable Energy Viewer
Password required, additional secured

Password Management:
If you're getting warnings about your password expiring, and need to change it, go to NRM Password Management for changes.

Non-DFG user accounts expire every year, and need to be manually refreshed. If you think your account has expired, please contact the DFG Staff.
Questions?

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