



Faculty of Engineering, University of Indonesia

Web-based Geographical Information System

Summary

Client: Engineering Center - Faculty of Engineering, University of Indonesia

Subject: Web-based Geographical Information System

On the Web: www.engineering-center.net www.engineering.ui.ac.id

By Technology: Geographical Information System

By Industry: Education

Bening worked with Engineering Center - Faculty of Engineering, University of Indonesia (EC FTUI) to develop Web Geographical Information System. The application will provide relevant information from EC FTUI geographically to provide a comprehensive understanding of every information provided by each division of EC FTUI.

Business Challenge

EC FTUI needed to team with a lead resource that had deep web based development capabilities, solid large-scale integration experience and the ability to deliver an ambitious solution within a short time frame. EC FTUI desire to create a business tools to provide such a comprehensive geographical - statistically data services that address all of these below dimension:

- **Web Based Geographical Information System (GIS)**
Focusing on more satisfiable geographical information services. It is focusing on delivering the highly geographical information services and provide certain geographical spatial data services easily at minimal efforts.
- **Spatial Geographical Data Management**
GIS System can ease GIS content management by providing flexible data management tools. It focused on security issue too. This result in fast data updating and flexible user authentication.
- **Highly Customisable Application (Flexible across Business and Time Changing)**
Each EC Department produces their own geographical data those changing relative on time changing. Changing not only on its data content (volume), but also its configuration. Takes additional effort to accomodate multi EC Departments configuration types to have global visibility. GIS System gives global flexibility across all departments configuration.
- **Fast Response High Computational GIS System**
No doubt, in common GIS Application, speed is the most unavoidable issues. It tends to involve high computational image processing system. GIS System can accelerate the computational time by more efficiently managing more accurate material resource algorithms. User can reduce uneffective time waiting response on process certain GIS spatial data, this result in accelerated web response speed.
- **Analyst Productivity**
With GIS System, the department productivity on providing certain valuable spatial information was challenged. The whole system productivity also could be easily analyzed based on certain period of time.
- **Quality Dimension**
GIS System exposes geographical information services quality by user, spatial data types, and EC Departments services itself.
- **Web Accessor Tracking**
GIS System can be used as an automatic tools for monitoring web visitor location accurately

based on its network information. It absolutely generate valuable information in which user which data should given better treatment.

- Foundation for Further Data Operation
GIS System is a foundation for further data operation, such as Building Business Intelligence based on raw data spatial provide, data simulation based on statistics, data pattern animation, etc.

How We Helped

Working closely with OpenMap framework, Bening initiated a professional team to quickly and efficiently build and launch the new GIS System. This team was charged with:

- Building an entirely new, flexible Web Based GIS Application. Bening split the development system components into two main two systems. It is based on highly computational GIS Server and thin GIS Client development. Other performance key strategy includes best communication strategy between client (GIS Client) and server (GIS Server), which made the system workload so thin and fast.
- Developing a simple stand alone compact disk (cd) based application. Bening develop the Web Based GIS System on cd peripheral format. The result was an offline Web Based GIS system and a more comprehensive speed of GIS System processing.
- Introducing a host of new better simpler data management operational processes. Bening leveraged mainly on data spatial management runs well, fast, and flexible. In includes the spatial content and its dimension update. Through GIS, each department can monitor and update their spatial datas based on their privileged areas. This greatly improves the management and delivery of information, while ensuring the delivery of consistent information to the GIS users. It also easily makes the Web Based GIS dynamically updated.
- Defining best algorithm for image dan spatial data processing. The main issue is in high computational image and huge spatial data included in single system modules. It includes multi variate data source handling and flexible GIS map layer and legend management.

The project involved significant flexible data spatial (content) design and management, as well as a creative combination of technologies. The GIS System is designed to help deliver these value-added benefits:

- Maximizes accessibility to GIS system for data and information services.
- Maximizes service fulfillment efficiency and effectiveness.
- Maximizes impact of service delivery.
- Optimizes Spatial Data administrative burden.
- Maximizes GIS system easiness and its usage.

Technology Involved

Bening used a set of technology to accomplish the project.

Software:

OS Independent Spread Sheet Processor, Java 1.5, Open Map Server 4.6, DBF Map File Reader Engine, Virtual RMI Database Access Engine, My SQL 5, HSQL Engine, PostGIS Engine, Java Enterprise, Apache Tomcat 5.5 Web Server, FreeBSD 6.2

Hardware:

Quad Core Intel® Xeon® 5300, 1.86GHz.