

NGS for Decision Support Technology

Background

GIS tools that are easy to use – they're here and available. GIS has traditionally been an analytic “heavy” process where the process relies on subject matter experts utilizing a single point of entry data flow pathway. This methodology has been successful for three main reasons: data requirements, functionality and utilization. Geospatial data has traditionally been difficult to deal with in terms of data size, data complexity and availability, geospatial tools have focused primarily on analytic functionality and less on end user functionality, and finally, most GIS output were utilized for official or semi-official purposes and the single point data flow pathway lends itself well to official document release protocol. The drawback to such systems is that there is typically a choke point in the data flow. While good for official public release data, this can be stifling to the collaborative planning, engineering or design processes.

Recently, however, there has been a dramatic increase in the development and usage of Web 2.0 geospatial tools or GIS “Lite”. These tools are characterized by simple queries for viewing and searching, universal access using cloud computing architecture, a focus on end user data access rather than analytic functionality, and the rise of collaborative tools for parallel data development. The implication of these changes on the geospatial community has been tremendous. Since the introduction of Google Earth in 2005, a fundamental shift in the geospatial industry has take place. Now with the Non-Classified Internet Protocol Router Network (NIPRNet), Global Services (NGS) data can be viewed and analyzed with little or no experience. NGS is a generic toolbox that allows the customer to tailor their Decision Support technology with applications for their specific needs. NGS technology allows the user to custom

build decision support applications to meet the special needs of the Army and other U.S. Army Engineer Research and Development Center (ERDC) customers, whether the project be coastal problems, threat assessment, or erosion control. There are four capabilities that encompass the toolbox for NGS Technology: NIPRNet Globe Services (NGS), NIPRNet Globe Services Web (NGS Web), Portable Globe, and SMART Phone.

NGS

NGS is an operational decision-support system based on Google Earth™ technology. NGS looks and operates like the commercial Google Earth™ except all data are served from behind the .MIL firewall and protected from non-authenticated viewers. The system has multiple data layers that allow the user to create custom overlays, and with 400 terabytes of disk storage and licensing to accommodate 7000 users, NGS is one of the largest Google Earth™ enterprises installations within the DoD.

NGSWeb

NGSWeb is a portal development system for common operating pictures made specifically for a customer's application. The NGSWeb combines user software with the NGS globe to create a visually rich web application that can be shared worldwide. Typically, customers come to ERDC with existing software and are looking for both an easier and better way to incorporate mapping into their software. NGSWeb is able to enhance customer software by blending their custom analytics and engineering with the user friendliness of Google Earth™.

Portable Globes

The Portable Globe kit allows NGS applications to run without internet connectivity. These kits are built at ERDC using commercial off-the-shelf components and create a command center environment with both hard line and wireless connections. Each kit supports up to 200 users in a 200-foot radius with up to 50,000 square miles of imagery.

Smart Phone Development

Currently, paper forms used within the DoD are the norm for collecting data in the field. This process is both time-consuming and cumbersome. By using smart phone technology like iPhones or Androids the users can collect the same information in a real-time digital format.

NGS software developers convert paper forms to iPhone and Android applications to create great user-friendly digital data collection systems. The smart phone applications are downloaded from the Army Apps store and allow a variety of government forms to be filled out electronically and converted into a real-time data flow document. The first project utilizing smart phone development is the Blue Roof Digital Data Collection. This project is conducted through the Federal Emergency Management Agency (FEMA) and is executed by the Corps of Engineers. For example, once an incident such as a hurricane or other natural disaster occurs, iPhones instead of clipboards, are given to personnel in the field who are gathering information, eliminating the reams of paper forms normally gathered by field personnel. Now, that same information is gathered on the smart phone device. Homeowner applications and inspections are tracked with the smart phone, streamlining the process and allowing commanders and decision makers to immediately view the status of the mission.

Summary

The NGS toolbox has revolutionized the way information is collected, stored and shared with decision makers within the DoD. In the future, NGS will continue to meet the needs of users and their requirements, and finally bring GIS into reach for their applications. NGS applications have won numerous awards including the 2010 Government Computer News Agency Award and was the first to receive Authority to Operate (ATO) by Army a Google Earth™ Enterprise NIPR accredited system.