



US Army Corps
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Engineer Research and
Development Center

Joint Geospatial Enterprise Services (J-GES)

Background

The Joint Geospatial Enterprise Services (J-GES) program was created to better enable horizontal integration while providing a test bed for research supporting our Soldiers. Profound changes in science and technology better equip them with tools to accomplish their missions, yet in the constantly evolving world of geospatial services operating within a net-centric environment, the volume of programs, platforms, and formats are endless. To better enable the warfighter to navigate this complex environment, the U.S. Army Engineer Research and Development Center's, Topographic Engineering Center (ERDC-TEC) developed a test bed with a Joint Geospatial Enterprise Services capability to build a bridge between the warfighter and the command center at the national level of the National Geospatial-Intelligence Agency.



The J-GES concept was developed to partner with other DoD agencies, federal agencies, private industries and academia to develop and influence geospatial standards, policies and procedures, promoting the use of geospatial technologies to allow data management, collection, exploitation, visualization and dissemination of geospatial data/information from any available national or tactical source. It provides a dynamic, customizable common operational picture and tactical decision aids to allow rapid analysis and situational awareness based upon the best available information across the network, especially from Soldiers on the ground.

Capabilities

The initial technology focus areas for the J-GES program in Spiral One included: Soldier as sensor using mobile GIS technology; discovery services using metadata portal concepts; high-resolution sensor exploitation; geo-database synchronization; spatially and temporally explicit link analysis; terrain reasoning services; and 3-D terrain visualization. It leveraged commercial and government off-the-shelf technology. Through the use of five operational vignettes, Spiral One demonstrated the need of net-centric geospatial services for current and future battle command systems to many high-level military decision-makers.



Spiral Two, built upon lessons learned and building blocks in Spiral One, includes: integration of the Stryker Brigade database stored in ArcSDE and populated through an ArcGIS Server application; enhanced data discovery, custom-developed synchronization software, interest management and alerts services; hosting a Defense Geospatial Intelligence Network (DGINet) site serving TEC-generated data to include Urban Tactical Planner, additional terrain reasoning services, predictive analysis and URBAN services, various live feeds into the user-defined operational picture, enhanced data entry, data synchronization and interest management on handhelds, and the use of Buckeye imagery as a valuable resource during mission planning.

Spiral Three will focus on:

- Experimentation of ArcGIS 9.2 functionality in support of enterprise GIS at different echelons. Specific functionality will include synchronization, mobile application developer

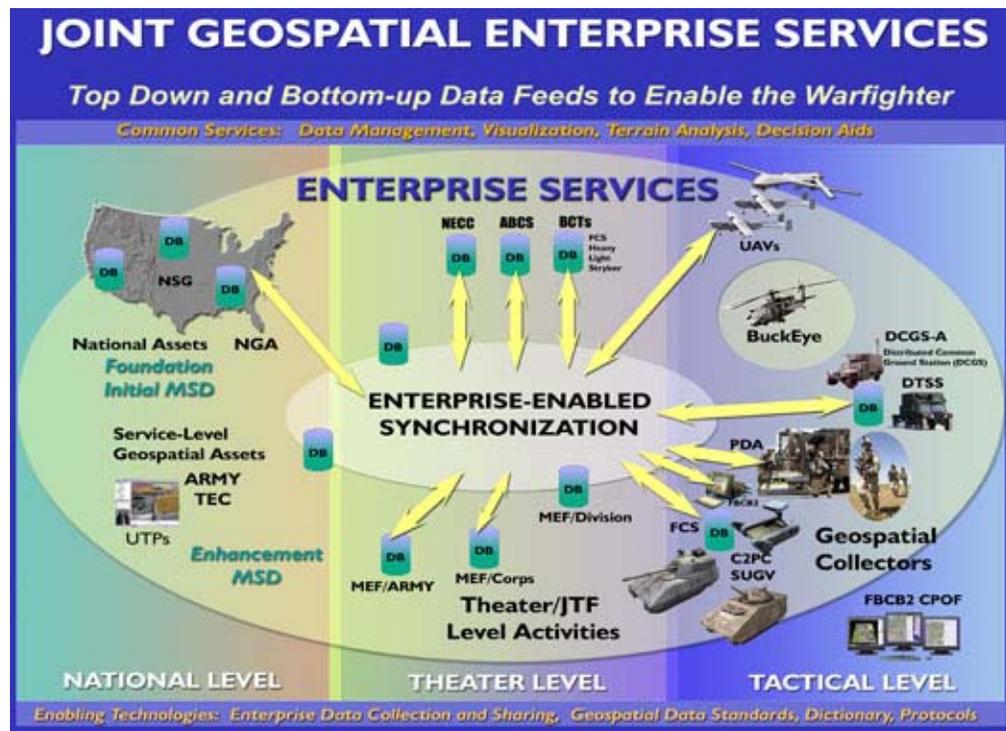
framework, ArcGIS Explorer, file format deployment (file-based Geodatabase, personal ArcSDE), Image Server, Network Analyst, and Tracking Server

- Quantify the value of imagery and geo-information within Battle Command and across the Military Decision Making Process (MDMP)
- Quantify the architectural and network requirements based on concepts validated in: MDMP experiment(s), J-GES Spirals 1 and 2, and operating metrics from BTRA-BC, URBAN, Buckeye and UTP, and other ERDC technologies

Future Developments

The J-GES program will continue to evolve and provide an environment and open architecture:

- In which geospatial technologies can be integrated while supporting research and development efforts
- Identify GES gaps and focus future research efforts to address these gaps
- Supporting transition of GES technologies to Programs of Record (POR) and continuing support for POR and others on a reimbursable basis
- To integrate, experiment, analyze, evaluate, and demonstrate with various DoD research centers, industry and academia GES technologies
- Develop, prototype and evaluate new geospatial concepts and services
- To understand the “goodness” of geospatial information and how it affects the commander’s decision making process
- Greatly improve data/information access
- Avoid costs associated with redundant databases
- Foster data reuse



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