

Validating Successful Interoperable Geospatial Solutions

Enterprise Architecture and OCCAM Lab



All levels of government have recognized the need to achieve greater integration of data across organizations through the implementation of enterprise-wide information architectures. Geospatial information technology is a powerful aid when analyzing information from many different sources. A baseline of specifications and standards are now maturing through the work of consensus standards organizations such as the International Standards Organization (ISO), American National Standards Institute (ANSI), International Committee for Information Technology Standards (INCITS), the Open Geospatial Consortium (OGC)¹, and others, that will enable interoperable geospatial processing and data sharing across distributed multi-vendor computing platforms. Furthermore, an increasing number of agencies have defined their expectations for future geospatial systems to be interoperable, standards conformant and integrated with enterprise-wide technology architectures.

Our Approach to Enterprise Architecture

Northrop Grumman Information Technology (IT) TASC's Geospatial Interoperability Program team has developed a Geospatial Enterprise Architecture approach which highlights best practices for developing integrated solutions by leveraging the large body of geospatial standards, specifications, architectures, and services matured by ISO, INCITS, OGC, and others into an interoperable enterprise architecture. Our architecture offering is a common web-services architecture based on geospatial industry standards, which promotes system and data interoperability. This approach underlines our expertise in integrating data assets and resources with corresponding business processes.

Our Enterprise Architecture approach to developing integrated solutions includes four key processes:

- Information and Data Management - Identifies critical success factors used to transform enterprise operations/business processes and develops enterprise data models.
- Geospatial Computing Services - Identifies the services required to access and process enterprise data.

- Enterprise Engineering - Identifies integration points between services and assesses how the user will interface with geospatial enterprise data and services.
- Technology Platform Integration - Determines the platforms and technologies to deploy the integrated enterprise solutions.

Measuring Our Solutions

The cornerstone of the Geospatial Interoperability Program is the Open Compliance Configuration and Management (OCCAM) Lab². The Lab's high-end infrastructure supports prototyping and interoperability evaluation of the best-of-breed geospatial technologies. TASC's Geospatial Interoperability Program team utilizes the OCCAM Lab for research and development of a geospatial architecture approach that is vendor neutral, information centric, and standards-based. This approach allows for data sharing (regardless of implementation platforms) and for data fusion across networks and product lines.

Beyond our expertise with the most difficult geospatial integration issues, and our ability to ensure vendor neutrality, this Lab has two key differentiators:

- The OCCAM Lab technical team validates interoperability of various platforms and diverse geospatial data warehouses by implementing multiple vendor products and diverse spatial data sets, which are accessible through many client interfaces.
- The team leads the development of compliance testing tools for geospatial standards. The OCCAM Lab hosts web-based standards compliance testing tools currently in use by the OGC.

Lasting Benefits

Northrop Grumman IT TASC offers a standards-based enterprise architecture approach, including strategic planning, requirements analysis, engineering process development, system design and integration. Our architecture approach is based on a foundation of interoperability, proven through extensive compliance validation in our OCCAM lab. The effects of our approach are immediate and wide ranging. Our open architecture:

- Increases mission success (e.g., bridging the gap within and across agencies)
- Reduces costs and risks (e.g., direct interoperability with other systems avoids certain integration expenses/conflict)
- Enables data sharing (e.g., via web-enabled data products)
- Consolidates and aligns legacy systems to maximize efficiency, minimize redundancy, and increase maintainability (e.g., utilizing business rules of interoperability to legacy defense systems)

The OCCAM Lab develops the web services and sets the standards that are universally accepted and implemented in large-scale operational assignments. Customers are therefore assured that quality and accuracy are held paramount.

For More Information

Contact Northrop Grumman IT TASC at (703) 818-7400 or by email at TASC-info@ngc.com.

¹ The Open Geospatial Consortium, Inc (OGC) is an international industry consortium of companies, government agencies and universities participating in a consensus process to develop publicly available interface specifications.

² The Northrop Grumman IT TASC OCCAM (www.occamlab.com) is an established conformance and interoperability portal framework providing tools, methodologies and testing resources. The OCCAM Lab's Geospatial Interoperability Program Team will work to ensure the web implementation is vendor neutral, information centric, and standards-based.



www.it.northropgrumman.com/ITSolutions

TASC, 4801 Stonecroft Boulevard, Chantilly, VA 20151-3822 703-818-7400
 Headquarters: Northrop Grumman Information Technology, 7575 Colshire Drive, McLean, VA 22102 703-713-4000