

MBSE Enhances System Architecture Design and Evaluation with AGI Software Products

AGI and Serco Combine to create Unique Application

THE NEED: Serco Inc. works to replace existing communications technologies that make up the ground network and tracking systems of the Air Force Satellite Control Network (AFSCN) with improved components and antenna systems, providing new capabilities to ensure the system is operational 24 hours a day. Until recently, the benefits derived from Model Based Systems Engineering (MBSE) and 3D visualization were stovepiped rather than integrated.

THE MISSION: AGI and Serco have developed a unique capability that integrates these disciplines without compromising their individual capabilities. Using the MBSE Animator application, Serco developed a Concept of Operations (CONOPS) model that uses AGI software for greater analytic fidelity and process/mission assuredness. The resulting visualization contains all of the STK performance characteristics for each system. The MBSE Animator combines operational man-in-the-loop decision processes from existing or future CONOPS with STK's detailed system performance characteristics.

According to Serco, using STK software from AGI for the MBSE Animation application has reduced overall software development efforts, improved 3D wire models, enhanced textures, and afforded a better physics implementation.



Until recently, the benefits derived from Model Based Systems Engineering (MBSE) and 3D visualization were more stovepiped than integrated. Through a joint venture, AGI and Serco have developed a unique capability that integrates these two disciplines without compromising their individual capabilities. The result combines operational man-in-the-loop decision processes from existing or future CONOPS with STK's detailed system performance characteristics. Using STK reduced development and improved 3D models.

THE RESULTS: The powerful integration of Serco's architecture model and STK allows users to view the various operational stakeholders and system of systems integration throughout the scenario. This feature enables a "macro view" down to a "micro view" that focuses on individual systems as they interact together in the scenario. The unique MBSE application can be used for visual CONOPS development, refinement, and validation—as well as preliminary, system, and critical-design review for new system development.