Testbed Application: GeoWorlds

Geo-spatial Information Management System

- Large component-based system, in experimental use at PACOM & JFCOM
  - Supports crisis ops planning and execution
  - PACOM and JFCOM Joint Futures Laboratory serves as outside evaluators

GeoWorlds is a “significant capability... that helps us to rapidly find, filter and organize information specific to locales and topics of concern to us.”
-- Jens Jensen, Chief, Operation Planning Team, USPACOM

Custom Analyses e.g., News Topics

- Combines Geographic Information Systems and Web processing services
- Architected from the ground up as a component-based framework
- Presents key common software challenges
  - Assembling custom analyses from components
  - Restructuring new version releases
  - Integrating new functionality
  - Adapting for local environments
  - Detecting and resolving service failures, bottlenecks, and network congestions

IntelliGauge TIE: DASADA Applied to Internet Information Systems

Goal: Improve Internet Information Systems Throughout the Software Lifecycle

- Adapt System to Overcome Failures and Bottlenecks
  - ISI: Dynamically Modify Scripts for Service Substitutions
  - ISI: Transform Architecture while Preserving Script Semantics (Redeployment, Alternate Connectors, etc.)
  - CMU: Reconfigure Architecture (Tailor)
- Automate Checking of Component Interoperability to Reduce Time to Build Information Management Applications
  - CMU: Model Component Behavior and Data Using Acme Language
  - ISI: Generate Semantically-based Application Scripts
- Monitor & Detect Architectural Misbehaviors and Failures
  - ISI: Monitor Application’s Current Behavior
  - OBJS: Determine Application’s Normative Behavior
  - CMU: Verify Structural Constraints (Armani)
  - Columbia: Verify Dynamic Behavior (XUES)
- Automate System Adjustments Based on Current Conditions
  - BBN: Adapt Workflows for Service Deployments and Migration