



# **Web Enabled Modeling & Simulation (WebSim) Workshop and Partnership**

**13 October 2004**

**A Joint Activity of:**





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# WebSim Vision

- **M&S components as part of a horizontally integrated system of systems architecture**
- **M&S components as autonomous systems capable of interfacing in real-time with:**
  - Other operational systems
  - Data feeds
- **Decision makers able to task M&S systems as part of their set of normal operational tools**
- **M&S systems able to**
  - Integrate components of the operational system with simulated components and data
  - perform rapid and relevant what-if analysis for decision makers



# **Web Enabled Modeling and Simulation (WebSim) Partnership**



# Mission

## The Web Enabled Modeling and Simulation (WebSim) Partnership

- Is **a loosely coupled union of standards organizations** in the Modeling and Simulation (M&S) domain who have common interest in the advancement of standards addressing business processes and technical issues that support the migration of M&S capabilities to a World Wide Web (WWW or W3) based environment
- Represents the desire of these organizations to collaborate in the development and conduct of coordination, outreach and education program activities to encourage advancement of standards-based, interoperable, web-enabled M&S, thereby advancing the objectives of each organization's membership, while **retaining the independent identity, processes, and functions of each**.



# Objectives

- Develop and implement an ***Annual Workshop*** on Web Enabled Modeling and Simulation.
- Develop and implement ***co-located workshops*** with other events conducted by WebSim Partnership member organizations to increase synergy between the organizations and their activities in the future.
- Develop and coordinate the production and dissemination by WebSim Partnership member organizations of appropriate ***joint outreach and marketing*** materials to raise awareness and interest in web-enabled modeling and simulation objectives, and to encourage membership and participation in the activities of the participating organizations. Outreach and marketing may include (but not be limited to) management and hosting of a WebSim website, development of print brochures and fact sheets, development of articles for submission to popular journals and other publications, etc.
- Encourage the ***emergence of an integrated Web Enabled Modeling and Simulation community*** by facilitating collaboration between the membership of the WebSim Partnership member organizations.
- ***Coordinate work programs*** among WebSim Partnership member organizations to ensure that the talents and capabilities of each are employed to the best advantage of the WebSim community.



# Initial Member Organizations

- **Object Management Group (OMG):** OMG is an open membership not-for-profit consortium founded in 1989, dedicated to computer industry specifications for interoperable enterprise applications.
- **Open GIS Consortium, Inc. (OGC):** OGC is a not-for-profit organization founded in 1994, and comprised of industry, government and academic members dedicated to advancing interoperability among IT systems that process geo-referenced information.
- **Simulation Interoperability Standards Organization (SISO):** SISO is a not for profit organization that focuses on facilitating simulation interoperability and component reuse across the DoD, other government, and non-government applications and seeks to serve the broad Modeling and Simulation (M&S) community.
- **Web3D consortium (Web3D):** provides a forum for the creation of open standards for Web3D specifications, and to accelerate the worldwide demand for products based on these standards through the sponsorship of market and user education programs.

Other open standards organizations that wish to join the partnership should present a request to the Coordinating Committee

Acceptance into the partnership requires that the petitioning organization accept the WebSim Partnership Memorandum Of Understanding (MOU) and that all partners at that time approve the petition





# Mechanics

- **Management the WebSim Partnership is provided through a Coordinating Committee consisting of one voting representative from each of the WebSim Partnership members**
- **Ex-officio members may be added by mutual agreement of the voting members of the WebSim Coordinating Committee at any time from the general community in order to provide expertise and guidance, but with no voting authority.**





# **First Web Enabled Modeling and Simulation (WebSim) Workshop**



# Background

- **First Workshop on Web Enabled Modeling and Simulation**
  - 27-30 October 2003
  - Hyatt-Regency, Reston, Virginia
  - Sponsored by General Dynamics
- **Proceedings can be found through [www.websim.net](http://www.websim.net)**  
**or go to**  
**[www.vmasc.odu.edu/wsc/wsc.html](http://www.vmasc.odu.edu/wsc/wsc.html)**



# Review

- **One day of tutorials**
- **Three days of panels and sessions**
  - **Opening Session**
    - Introduction and orientation to the subject of web enabled simulation, the hosting organizations and their relationships, and the workshop sponsors
  - **Four Panels Focusing on:**
    - Current capabilities
    - Leveraging Modeling & Simulation for Engineering the GIG Enterprise Services
    - Policy
    - Business drivers
  - **Closing Session**
    - Panel discussion on “take-away” from the workshop.

A rather broad focus, covering a lot of territory



# Tutorials

- **Introduction to Modeling and Simulation**  
Dr. Mikel Petty, Virginia Modeling and Simulation Center (VMASC), Old Dominion University
- **Web Services, Business Process and Enterprise Simulation with MDA**  
Cory Casanave, Data Access Technologies
- **Model Driven Architecture and eXecutable UML**  
Allan Kennedy, Kennedy Carter Ltd
- **Extensible Interoperability Framework (X3D and XMSF)**  
Dr. Don Brutzman, Virtual Environments and Simulation (MOVES) Institute, Naval Postgraduate School



# Opening Session

- **Keynote: Priorities for FY 2004 and Beyond: Building and Managing E-Government**  
Dan Chenok, Branch Chief for Information Policy and Technology, E-Government, Office of Management and Budget (OMB)
- **Web-based Modeling and Simulation and the OGC**  
David Schell, President, OGC
- **WebSim 2003 and Beyond: Working Together**  
Dr. Richard Soley, Chairman & CEO, OMG
- **Web-based Modeling and Simulation and the SISO**  
Warren Katz, Executive Committee Chairman, SISO
- **Web-based Modeling and Simulation and the Web3D Consortium**  
Alan Hudson, Vice President, Web3D Consortium
- **Standards, Comments by Carl Cargill, Director of Standards, Sun Microsystems**
- **Multi-Consortia cooperation efforts for WEBSIM**  
Johnny Garcia, ETS Technologist General Dynamics Advanced Information Systems
- **Sponsor Keynote**  
Dan Dick, General Dynamics



## Panel: Current Capabilities

- Chair: Dr. Don Brutzman, Naval Postgraduate School
- Keynote: *Importance of Web-Enabled Modeling & Simulation Applications Within the Global Information Grid with Current and Future Capabilities*  
Johnny Garcia, General Dynamics Advanced Information Systems
- *Leveraging Full Fidelity Simulations in a Web Enabled Environment, the CAE Experience*  
Christopher Cull, CAE USA
- *Current and Future Capabilities for Massively Multi-Player Games on the Internet*  
Emmet Beeker, AT&T Government Solutions
- *XML Modeling and Simulation Framework (XMSF), Enterprise and Visualization Perspectives (Part One) (Part Two)*  
Dr. Andreas Tolk, VMASC, Old Dominion University
- *Advanced Application Needs: All of the Above*  
David Colleen, Planet 9 Studios, Inc.



# **Panel: Leveraging Modeling & Simulation for Engineering the GIG Enterprise Services**

- **Chair: Charles Heazel, Lockheed Martin**
- **Keynote: Shaping Evolution of the Global Information Grid (GIG)  
Dawn Meyerriecks, Chief Technology Officer, Defense  
Information Systems Agency**
- **An Introduction to the GES Problem  
Rob Vietmeyer, DISA**
- **Application of Modeling and Simulation to Enterprise Architecture  
Development  
Dr. Glenda Hayes, MITRE**
- **Modeling and Testing of the GES Framework Architecture Using  
Agent Based Techniques  
John Scott, Icosystem Corporation**



## Panel: Policy

- Chair: Dr. Andreas Tolk, Old Dominion University
- Keynote: *Building a Policy to Address a Paradigm Shift*  
S.K. Numrich, Deputy Director, Technology, Defense Modeling and Simulation Office (DMSO)
- *Joint Command and Control*  
John Daly, Booz Allen & Hamilton
- *System of Systems Engineering Education*  
Dr. Charles Keating, Old Dominion University, College of Engineering and Technology
- *MDA Use in in the Single Integrated Air Picture (SIAP)*  
Dr. Judith Dahmann, MITRE, & Capt. Jeffery W. Wilson (USN), Single Integrated Air Picture System Engineering Task Force
- *Modeling & Simulation from an OMB Perspective*  
Frances Arey, MITRE





# Business Drivers

- Chair: Charles Heazel, Lockheed Martin
- Keynote: *The Business Case for Modeling and Simulation: From the Back Room to Daily Operations*  
Charles Heazel, Lockheed Martin
- *Water brings life to Web Enabled M&S: Overcoming XML & Programming Platform Deficiencies*  
Christopher Fry & Jay Conne, Clear Methods
- *Sensor Web and M&S Integration*  
Tom McCarty, SAIC
- *Modeling & Simulation in the Homeland Security Environment*  
Shel Sutton, MITRE



# Wrap-up Session

- **Chair: Charles Heazel, Lockheed Martin**
- **Panel discussion consisting of the program committee on the topic of “take-away” from the workshop:**
  - What has been learned?
  - What each of the host organizations is going to do about it and how?
  - How will the hosting organizations coordinate to make sure that it happens?
- **Moderated discussion from the floor**



# Conclusions

- **The First WebSim Workshop will not be the last**
- **The four hosting organizations agreed to create a committee to draft a charter and Memorandum of Understanding for a “Meta-Consortium” to focus on issues related to modeling and simulation in a web environment.**
- **General Dynamics committed to sponsoring the Second WebSim Workshop**

***A detailed discussion of this session and what has happened since then will take place on Friday afternoon.***



# **Second Web Enabled Modeling and Simulation (WebSim) Workshop**



# Overview

- **One day of tutorials**
- **Three days of panels and sessions**
  - **Opening Session**
    - **Introduction and orientation to the subject of web enabled simulation, the hosting organizations and their relationships, and the workshop sponsors**
  - **Four Sessions**
    - **Three topic areas:**
      - **Modeling Methodology**
      - **Composability**
      - **Application of Web Enabled M&S**
    - **Demo Day (Thursday Morning)**
      - **Provides implementers of Web Enabled M&S products to present their capabilities**
      - **Provides an opportunity for vendors and potential customers to meet**
  - **Closing Session**
    - **Panel discussion lead by the program committee on the topic of “take-away” from the workshop. What has been learned, what each of the host organizations is going to do about it and how, and how will the hosting organizations coordinate to make sure that it happens?**



# Tutorials

## **Model Driven Architecture**

Cory Casanave, President, Data Access Technologies

## **Agent Based Modeling and Simulation**

John Scott, Icosystem Corporation

## **Extensible Interoperability Framework (X3D and XMSF)**

Dr. Don Brutzman, Associate Professor, Modeling, Virtual Environments and Simulation (MOVES) Institute, Naval Postgraduate School

## **Open Geospatial Consortium (OGC) Web Services**

Charles M. Heazel, Chief Technologist, Lockheed Martin



# Opening Session

- **Keynote – Second Star to the Left and Straight on to...**  
**Dr. Susan K. Numrich, Deputy Director for Technology**  
**Defense Modeling & Simulation Office (DMSO)**
- **Web-based Modeling and Simulation and the OMG**  
**Fred Waskiewicz, Director of Standards, OMG**
- **Web-based Modeling and Simulation and the SISO**  
**Dr. Andreas Tolk, Executive Committee, SISO**
- **Web-based Modeling and Simulation and the Web3D Consortium**  
**Dr. Don Brutzman, Web3D Consortium**
- **Web-based Modeling and Simulation and the OGC**  
**Jeff Burnett, Vice President Officer, OGC**



# Session: Modeling Methodology

The Modeling Methodology panel builds on the tutorials and Current Capabilities discussed in the first WebSIM Workshop

- **Keynote: Model Driven Architecture Technology Update**  
Larry L. Johnson, TethersEnd Consulting
- **Metamodels and Mappings – Ending the Interoperability War**  
Dr. Andreas Tolk, Senior Research Scientist, VMASC
- **System Engineering and System Dynamics Models**  
Dr. Warren W. Tignor, SAIC
- **Being Proactive in the Healthcare World**  
Varun Panchapakesan, Operations Research Analyst, Lead, CACI
- **Panel Discussion - UML and M&S**

***Reception in the Demonstration Area***





## Session: Demo Day

The Modeling Methodology panel builds on the tutorials and Current Capabilities discussed in the first WebSIM Workshop

- **Stateware and StateWeb: A Stateful Approach to Building and Binding Shared Internet Application Spaces**  
George Maney, CTO, StateWare Systems
- **Simulation Based Platforms for Scenario Planning and Management Training**  
Imrana Umar, President and CEO, Powersim Solutions Inc.

***Please Visit the Demo Room Across the Hall***



# Session: Composability

The Composability panel presents a new theme, how do we build and manage large scale Web Enabled M&S environments?

- **Keynote: Overview of a Theory of Composability**  
Dr. Mikel Petty, Chief Scientist, Virginia Modeling Analysis & Simulation Center (VMASC), Old Dominion University
- **Developing a Set of Ontologies to Automate Model Composition in an Agent Based Architecture**  
Shon D. Vick, John Hopkins University Applied Physics Laboratory
- **Reusable Simulation Objects (RSOs): A Strategy for Web-Deployed Simulation**  
William Andrews, Marcia Williams, DiSTI
- **Semantic Composability Concerns for Distributed Web-Based Simulation**  
Eric Weisel, President, WernerAnderson Inc.
- **Panel Discussion - Economics of Composable Web Services**  
Moderator: Steve Swenson

*Workshop Reception on 16th Floor*



# Session: Applications of Web Enabled M&S

This panel expands on the business case discussion from the first WebSim Workshop

- **Keynote: Joint National Training Capability Use of WEBSIM Technologies**  
Warren W. Bizub, JNTC Advanced Training Technology (ATT) Director  
USJFCOM Joint Warfighting Center
- **Sensor Web**  
Harry Niedzwiadek, Image Matters LLC
- **Modeling and Testing of the GES Framework Architecture using Agent based Techniques**  
John Scott, Icosystem Corporation
- **Layered Web Services for M&S**  
Dr. Katherine L. Morse, Chief Scientist, SAIC
- **Lessons Learned on a Service-Oriented Architecture Employed in Implementing a Web Enabled C2I Visualization Tool for Joint Forces Command (JFCOM)**  
Charles Turnitsa, Project Scientist, VMASC



# Wrap-up Session

- **Sponsor Presentation**
- **Panel discussion consisting of the program committee on the topic of “What next?” from the workshop:**
  - What has and has not been accomplished since the last workshop
  - What has been learned?
  - What each of the host organizations is going to do about it and how?
  - How will the hosting organizations coordinate to make sure that it happens?
- **Moderated discussion from the floor**
  - Bring 1-2 slides if you wish



# Program Committee

- Program Chair: Katherine L. Morse, SAIC, [morsek@saic.com](mailto:morsek@saic.com)
- Don Brutzman, NPS MOVES Institute, [brutzman@nps.edu](mailto:brutzman@nps.edu)
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