Working Group 10C
Architecture-Centric Evolution (ACE) of Software-Intensive Systems

Chairs
Dr. Sergio Alvarado
Sheri Benator
Dr. Phillip Schmidt
The Aerospace Corporation

ACE Working Group Goals

- **Sixth of a GSAW series**
  - ❖ Promote the central role of software architectures during the acquisition & development of software-intensive systems
- **Forum for software-intensive system experts, users, developers & researchers**
  - ❖ Collaborate and elucidate high-level recommendations for improving software architectures representation, development, & analysis
- **Presentations & panel discussion**
  - ❖ Software architecture techniques, tools, and practices for more responsive ground systems that better adapt to new capabilities and missions

ACE Invited Panelists

- **Acquisition and Oversight Perspective**
  - Bill Macaulay, The Aerospace Corporation
  - Dr. Peter Hantos, The Aerospace Corporation
- **Development Perspective**
  - Jeff Garland, Crystal Clear Software, Inc.
  - George K Auyeung , Lockheed Martin, IS&GS
  - Jeff Estefan, Jet Propulsion Laboratory
- **Research and Tools Perspective**
  - Dr. Peter Capell, Software Engineering Institute
  - Dr. Hadar Ziv, University of California Irvine
  - Paula Obeid, EmbeddedPlus
- **Moderators**
  - Dr. Sergio Alvarado, The Aerospace Corporation
  - Sheri Benator, The Aerospace Corporation

ACE Discussion Questions - 1

- **Challenges in Developing Software Architectures that Better Adapt to New Capabilities and Missions**
  - Where do you see some of the major architecture challenges today?
  - What are you doing to address some of those challenges?

- **Principles and Guidelines**
  - Are there certain architecture principles that are key to defining a software architecture that can adapt to new capabilities, missions, and technologies?
  - What is being done in terms of establishing and applying standards and principles across groups or organizations?
  - What guidelines would you give people in developing software architectures that result in adaptive software?
  - What team practices have proved useful?

ACE Discussion Questions - 2

- **Use of processes, techniques, and tools**
  - What types of processes, techniques, and tools have been useful for defining a software architecture that better adapts to new capabilities and missions?
  - How and when have you used these practices, techniques and tools?
  - How do you deal with changing methodologies, representations, and tools?

- **Architecture Evaluation and Analysis**
  - What types of static software architecture evaluation approaches have you found useful? How have you applied them?
  - Talk about experiences in using dynamic modeling to evaluate software architecture.
  - Discuss experience in using operational scenarios in defining and analyzing architectures.

- **Architecture standards**
  - Which standards are impacting you in the development of software architectures, how are they impacting you, and where do you see them evolving?

ACE Discussion Questions - 3

- **Dealing with Changing Technology**
  - What do you do in your architecture to deal with changing technology?
  - What recommendations do you have in incorporating commercial software?
  - What impact is SOA having on software architecture development and evaluation?

- **System architecture and software architecture integration**
  - What is being done to improve integration across these disciplines? Where do you see the major challenges?
  - How is software architecture development, representation, and evaluation being integrated with system architecture frameworks such as DODAF?
  - How do you see the integration between system and software architecture evolving?

- **Future of Software Architecture**
  - How do you see the future of software architecture?
  - What changes do you envision in the near-term and long-term?