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

Chairs
Dr. Sergio Alvarado
Sheri Benator
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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?