What is Different for COTS-Based Systems?

For GSAW Breakout Session –
Process Mismatch with COTS-Based Systems:
Problems and Solutions

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Breakout Outline

Mismatches in processes for developing and negotiating requirements
  • What’s different about COTS-based systems?
  • Discuss a sample commercial approach
  • Discuss a traditional DoD approach
  • Form recommendations for new and changed DoD processes
  • (*discuss mismatches in tracking and managing requirements)

(break)

Mismatches in processes for creating and validating architectures
  • What’s different about COTS-based systems?
  • Discuss a sample commercial approach
  • Discuss a traditional DoD approach
  • Form recommendations for new and changed DoD processes
  • (*discuss mismatches in maintaining and evolving architectures)

* as time allows
What is a COTS-Based System?

A COTS product is one that is …

- Sold, leased, or licensed to the general public
- Offered by a vendor trying to profit from it
- Is supported and evolved by the vendor, who retains intellectual property rights
- Available in multiple, identical copies
- Used without modification of its internals

A COTS-based system is one that …

- Uses one or more off-the-shelf components from one or more suppliers plus any needed custom components
- Is integrated to achieve new or expanded system functionality
What Makes COTS Challenging?

Mismatch is likely
- COTS products designed to be used “as is” to meet general operational processes; not a specific organization’s
- Each COTS product presumes an architecture

Product visibility is limited
- Technical behavior often must be discovered indirectly

Marketplace is volatile
- Commercial market place drives COTS product definition and evolution
Fundamental Change in Approach

Traditional Engineering Approach
- Requirements
- Architecture & Design
- Implementation

Requirements-driven

Required COTS Approach
- Stakeholder Needs/Business Processes
- Architecture Design
- Programmatics/Risk
- Marketplace

Simultaneous Definition and Tradeoffs

Negotiation-driven
Requirements Process Challenges

- How do you specify requirements so they are flexible enough to leverage available and projected COTS products?
- How do you get the right set of stakeholders identify and agree upon the critical set of requirements and their priorities?
- How does knowledge of COTS product behavior and its implications on user processes affect definition of requirements?
- How are requirements renegotiated as COTS products and the marketplace continue to change?
Architecture Process Challenges

- How is knowledge of behavior and linkage among COTS products and other system components understood and described?
- How will the architectural implications of each COTS product release affect any incorporation decision?
- How will alternative architectures considered in definition of requirements?
- How are potential drivers of change identified and accommodated in architecture definition?
- How is the architecture defined and maintained so that it evolves as the marketplace evolves until the system is retired?