Acquisition Perspective on Software Architecture

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Wednesday March 2, 2005
Elaboration

🌟 Minimal Set of Architecture Representations
- Key features: middleware, data standards, information security
- Key UML Views
- Government architecture does not design system or bind contractor
- Integrate with overall system architecture
- Example – Joint Simulation Integration and Modeling System (J SIMS)

🌟 Abstract away specific implementations: Appropriate level of detail
Evolution (1)

◆ Architecture evolves through break and rebuild cycle

◆ Maintainability
  ● Appropriate Tools
  ● Agility

◆ Extensibility
  ● Program office estimate
  ● Software experts a high level in program office
  ● Vendor implementation/neutral
  ● Standards based
  ● Mature middleware
Evolution (2)

◆ Executability
  ● Software performance modeling and simulation
  ● Reliability a driver

◆ Challenges
  ● Easily ignored or discarded
  ● Difficult to measure
  ● Changes far downstream
Evaluation

- Automated architecture evaluation tool (Real-time Embedded Architecture-Centric Testbed (REACT))
  - Look for traceability and consistency
  - Incomplete but valuable

- In-Process Reviews
  - Is architecture guiding development?
  - Are changes reflected back to the architecture?

- COTS reference model (Remedies)

- Accessible to the Government for Evaluation
  - Periodic architecture releases shared by government and contractor