Service Incentive
Towards an SOA Friendly Acquisition Process

James Hennig: U.S. Army RDECOM CERDEC Command and Control Directorate
Arlene Minkiewicz: PRICE Systems
## Report Documentation Page

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Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18
• Introduction and Motivation
• What is a Service Oriented Architecture
• The SOA Acquisition Challenge
• Towards Better Acquisition Practices
• Conclusions
Introduction and Motivation

• Research Project focused on affordability and process issues associated with SOA
  – Conducted in conjunction with efforts at CERDEC to develop standards for SOA implementations throughout the Army

• Research included study of SOA with focus on cost drivers and methodologies for cost estimation

• Discussions with contractors motivated thoughts beyond the costs to deploy…….
  – Thoughts focused on cultural changes necessary for SOA projects to thrive in the current acquisition environment

As DOD moves forward with its vision of highly distributed net-centric capabilities they will need the benefits that SOA brings to the table.

Current acquisition practices could significantly thwart SOA based deployments
• SOA uses networking capabilities to integrate applications in a way that is independent of:
  – Architecture
  – Programming language
  – Development platform
  – Vendor

• **Service Orientation** can be thought of as the next generation of object orientation
  – New degree of abstraction
  – More sophisticated tools available to deploy
Service Orientation - Not a New Concept

Service Consumer

Service Provider

Interface
SOA from a Software Perspective

Service Consumer

Interface

Service Providers

Distributed Data Sources

Live Data

Local Data Sources
Why SOA – The Value Proposition

• **Operational value**
  – Agility
  – Visibility of business processes
  – Better support of the mission
  – Better, faster decision making

• **Value to application development**
  – Reduced redundancy
  – Development efficiency increase (as services are reused)
  – Loose coupling reduce impact of changed processes
Good SOA Projects.....

- Have enterprise level governance
- Are developed with an enterprise wide view of the problem space
- Seek reuse opportunities externally and internally
- Develop services that take into account the bigger picture beyond the current need
- Know that SOA is more than a toolset
• Hypothetical situation to consider:
  – Contract awarded to develop capability to store allergy data for all active duty soldiers and disseminate to locations where soldiers are fed.
  – Software engineering team realizes that it would be efficient and offer more value to the DoD if all types of allergies were handled in the same service.
  – More useful service would take more time and effort to develop.
  – Contractor team abandons good SOA practices to solve the specific problem.

Developing stovepipe solutions using SOA technology is a bad SOA practice yet contracts are focused on delivering specific requirements.
Within the DoD programs have …

- Specific capabilities they know they need
- Specific time frame and budget to meet those needs

Contracts are issued to meet those need but the contractor often has….  

- No incentive to think beyond those specific needs for a broader solution to the program
- No incentive to think of a solution that would benefit the entire service or DoD
- Limited or no incentive to find ways to reuse existing services rather than developing new capability
• Contractors and customer sponsors need to be incentivized to
  – Think beyond the current problem
  – Develop services that will address issues not yet on the table
  – Develop services that will address issues not relevant to the current issue or agency but with significant impact on another agency

There needs to be a streamlined process that encourages contractors to think outside the box while developing SOA solutions!
Notional Process to Encourage Good SOA Practices

1. Contractor ID Enhance SOA Solution
2. DoD Sponsor Validates New Solution
3. FCB Approves New Solution
4. Contractor Incentive Fee and Sponsor Budget Increased

Notes:
1. Contractor presents idea with cost savings as part of assessment
2. Functional Capabilities Board (FCB) responsible for assessing capabilities, priorities, and tradeoffs across the range of functional areas

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TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.
Process to encourage good SOA Practices

• Contractor identifies enhanced SOA solution to contracting agency
  – Outline of additional costs
  – Outline added value (to contracting agency or other agency)
  – Outline cost savings of including this capability in this effort

• DoD Sponsor validated new solution

• Functional Capabilities Board (FCB) approves or denies
  – Ideally suggestions could be made to contracting agency and other branches of DOD that would benefit

• Upon validation of value added, a portion of the cost savings could be passed on as an award fee incentive to the contractor and a budget increase to the sponsor
• Incentives should also exist to encourage contractors to include reuse of existing services
  – Working with contracting agencies and FCB – contractors should seek out existing services in the DoD and public domain
  – Contract awards should include a provision for finder’s fee based on anticipated savings to the contracting agency.
  – Awards should recognize
    • Cost savings to the current program
    • Value of non-duplication of services
Good SOA Practices require Enterprise Wide thinking

- Clearly there is no simple solution.
- Thought needs to be given to ways to encourage good SOA practices.
- Oversight needs to be applied at the highest levels possible to ensure solutions make the best overall sense for the DoD.
- At the same time it’s important not to bog down the process so nothing gets done.
Conclusions

• SOA technologies offer a great opportunity for the Services and the entire DoD to develop forward thinking synergistic solutions that transcend current operational requirements

• Contractors and DoD sponsors need to be encouraged to embrace SOA beyond the ‘letter of the law’

• This encouragement requires enterprise level oversight and expansion of current acquisition practices

• DOD would benefit by getting optimum value for their contract dollars

• Contractor would benefit as they become a vital part of the DODs SOA Planning process

Acquisition culture needs to shift to enable collaborative behavior to provide solution synergy