SOA Strategy

Hard Problems in SOA Workshop
January 30, 2008
Pittsburgh, PA

Participants

- Terry Balven, USAF
- Don Beynon, SEI
- Charise Bittner, IBM
- Michael Bridge, UPMC
- Glen Colby, USN
- Kevin Cooly, US Navy
- Alan Danziger, MITRE
- Brian Dahl, UVA
- Sudha Durairaj, CMU
- Michael Hogan, Boeing
- Terrill Frantz, CMU
- Rick Kotermanski, Summa
- Ken Kunkel, IBM
- Steve Lambourne, IRS
- Grace Lewis, SEI
- Dan Makanoff, CSC
- Sugandh Mehta, IBM
- Eric Meredith, PNC
- Austin Montgomery, SEI
- Tricia Oberndorf, SEI
- Mark Olson, IBM
- Steve Palmquist, SEI
- Robert Petty, Northrop Grumman
- Hans Polzer, Lockheed Martin
- Kimberly Rabe, IRS
- Bob Rosenstein, SEI
- John Sautter, Northrop Grumman
- David Scherb, SEI
- Paul Schoen, Boeing
- Jeannine Sivy, SEI
- Ken Trzaska, USSOCOM
- Ananth Vasishta, Boeing
- Brian Weston, DDFI
- Carol Woody, SEI
- Joanne Wright, UPMC
Issues Selected for Discussion

- SOA strategy definition
  - Strategy definition—business, technical, organizational, communication changes
  - Scope of services—specialized vs. generic, granularity, consumer community
  - Incremental organizational transformation
- Applicability of SOA
  - When does it reach its limits? e.g. scalability.
- Operational effectiveness
  - ROI on SOA adoption
  - Metrics—how to define and how to share metrics
  - VOI

Other Important Issues Identified

- More guidance for acquisition of services and service–oriented systems
  - Better acquisition and requirements language
  - How to translate business language into DoD and government language
- Incentive models for SOA adoption
  - Build vs. buy—How do you fund shared services?
- Lessons learned from the service industry
  - Reuse of service industry patterns, e.g. industrial engineering practices
- Open strategies
  - How to solve the “unanticipated user” problem?
  - How do you measure openness?
  - How to avoid vendor lock–in?
SOA Strategy Definitions – Rationale

- SOA covers so many areas that it is impossible to take a “big bang approach”
  - Business changes
  - Organizational changes
  - Scope of services; granularity
  - Communication changes
  - SOA representation
  - Technical changes
- Requires an incremental organizational transformation that should be reflected in the strategy
  - All aspects will not be in place at once
  - The whole premise of SOA is incremental deployment and agility
  - Risk mitigation
  - It cannot take 20 years to deploy systems

SOA Strategy Definitions – Rationale

- There is not one strategy
  - Will depend on drivers for adoption
- There are lots of efforts relying on SOA
  - From a DoD perspective we can lose the next war
  - From an industry perspective we can go out of business
- We need to do it right!
SOA Strategy Definitions – Current Efforts

- Practical Guide to Federal SOA
- AFEI effort to provide acquisition guidance for services
- The next evolution of HL7 will be looking at Web Services
- NCOIC is defining framework for describing the operational extent, degree of accessibility over a network and feasibility for services
- Unified Battle Command is looking at how SOA gets addressed across the Army
- Open Architecture initiative in Navy is addressing SOA
- CANES is another initiative in the Navy to deal with consolidation of float networks
- Organizations basing strategies on use of Google services
- Federal CIO Council is defining a services and component based architecture
- Department of Education—Office of Student Financial Assistance
- Collaborative Warfare Environment
- NCES
- NCIDS

SOA Strategy Definitions – Challenges and Gaps

- Hard to find real cases with real numbers on ROI
  - How do you measure agility, flexibility and reliability?
  - How do you compare against data that you do not have?
  - How do you balance against other tradeoffs?
  - How do you validate?
- Now we buy systems one at a time, not with a capability or enterprise perspective
- Funding models are incompatible with the SOA paradigm
  - "Tight systems" are preferred
  - Initial ROI is low because there is a lot of investment in architecture and design
  - No mechanism for incentivizing or enforcing cross-organizational agreements
  - Funding is allocated top-down
SOA Strategy Definitions – Challenges and Gaps

- Resistance to giving up control
  - Organizations do not want to be dependent on others
  - Too much risk
  - Localization
- Resistance to having control
  - Organizations do not want to take responsibility for being on someone else’s critical path
  - No incentive for being a service owner
- Different agendas for a service
  - Stakeholder priorities—not everyone is interested in optimization, for example
- Organizations do not bring in the right expertise

SOA Strategy Definitions – Ideas to Address Challenges and Gaps

- Education for sponsors and management
  - Done in business terms and not technology terms
- Define models to express ROI in terms that decision makers can understand
- Specific lessons learned and case studies—both the good and the bad
SOA Applicability – Rationale

- SOA is not “one size fits all”
  - Result could be failure
  - Tight coupling has benefits
- If the organization is not willing to change, it is going to be a “force fit”
- There need to be ways to express cases in which SOA is applicable and cases in which it is not
  - Patterns and anti-patterns
  - Probably involves domain, organization, environment and size
- There should also be guidance on where to start
  - For what areas of your organization is SOA most applicable—to drive incremental strategy

SOA Applicability – Current Efforts

- CMU is putting together a solution outline assessment for applicability of SOA for their student information system
- Navy is working on scalability limitations
- The Kuali student system is an effort to develop services for student systems
- Evaluating SOA report from the SEI—looks at quality attribute tradeoffs
- AFEI is working on characterization of services from a business model perspective—service attributes
SOA Applicability – Challenges and Gaps 1

- Hype around SOA—everybody wants to be “on the bandwagon”
- Lack of agreement on what SOA is
- Decision makers not educated on the business implications of SOA
- Awareness of commonality
  - Goal is not breaking up stovepipes—it is making stovepipes aware of each other
- Not many demonstrated successes that show where it is applicable
- Business model for services is not well defined or understood

SOA Applicability – Challenges and Gaps 2

- People have a hard time understanding how distributed development and deployment is
- Technologies and best practices are still not mature
- Lack of industry patterns and templates for SOA-based systems and elements
SOA Applicability – Ideas to Address Challenges and Gaps

- More studies
- Define attributes of the problem space that tell you where SOA is applicable

Operational Effectiveness–Rationale

- Core motivation for any organization to invest in SOA
- Creates the justification for investment in the future
- Shows alignment between business objectives and technology
- Better decision making and communication of rationale for decisions
- “You can’t manage what you don’t measure”
- Provides accountability and transparency
Operational Effectiveness – Current Efforts

- Capability-based planning and analysis efforts—not specific to SOA
- Multiple case studies: HP, IBM, banks, etc.
- Effect-based operations
- Michael Mann (USC) research on technology value using asset management terms
- TMAP (from University of Cambridge)—Technology Management Assessment Procedure

Operational Effectiveness – Challenges and Gaps

- Hard to define cost for things that are outside of organizational boundaries, such as shared services
- In case studies, it is difficult to separate what is BPR vs. SOA adoption
- Difficult to define non-financial value, e.g. value of agility
- Changing the environment
- Quantifying value is difficult in DoD environments
- How do you use metrics to influence decisions—cycle times are long in current acquisition models
Operational Effectiveness – Ideas to Address Challenges and Gaps

- Engage business leadership in the definition of SOA strategy
  - Focus measurement on what matters to them
- Get technology input upfront to increase operational effectiveness, e.g. feasibility or maturity of technology to accomplish X
- Get service providers in contact with service consumers—not common in current acquisition models
- Make scope assumptions explicit in services
- Create a baseline of what you really have and what you are really doing to do real analyses
  - Make role of business process analyst more visible
- Outreach to Ops analysts and MBA types