

Costs and Benefits of Service Oriented Architecture

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Agenda

- **Service Oriented Architecture (SOA) Research Project Overview**
- **Introduction to SOA**
- **SOA Research Findings**
- **Cost / Value Analysis for SOA Projects**

SOA Research Overview

- **Research Project focused on affordability and process issues associated with SOA – working with Army CERDEC**
- **Study SOA projects with focus on cost and value drivers**
- **Identify where existing cost estimating technologies work for SOA**
- **Develop methodology for extending existing technologies where necessary**
- **Develop methodology for assessing value and performing business case analysis for SOA projects**

Introduction to SOA

- **SOA uses networking capabilities to integrate applications in a way that is independent of:**
 - Architecture
 - Programming language
 - Development platform
 - Vendor

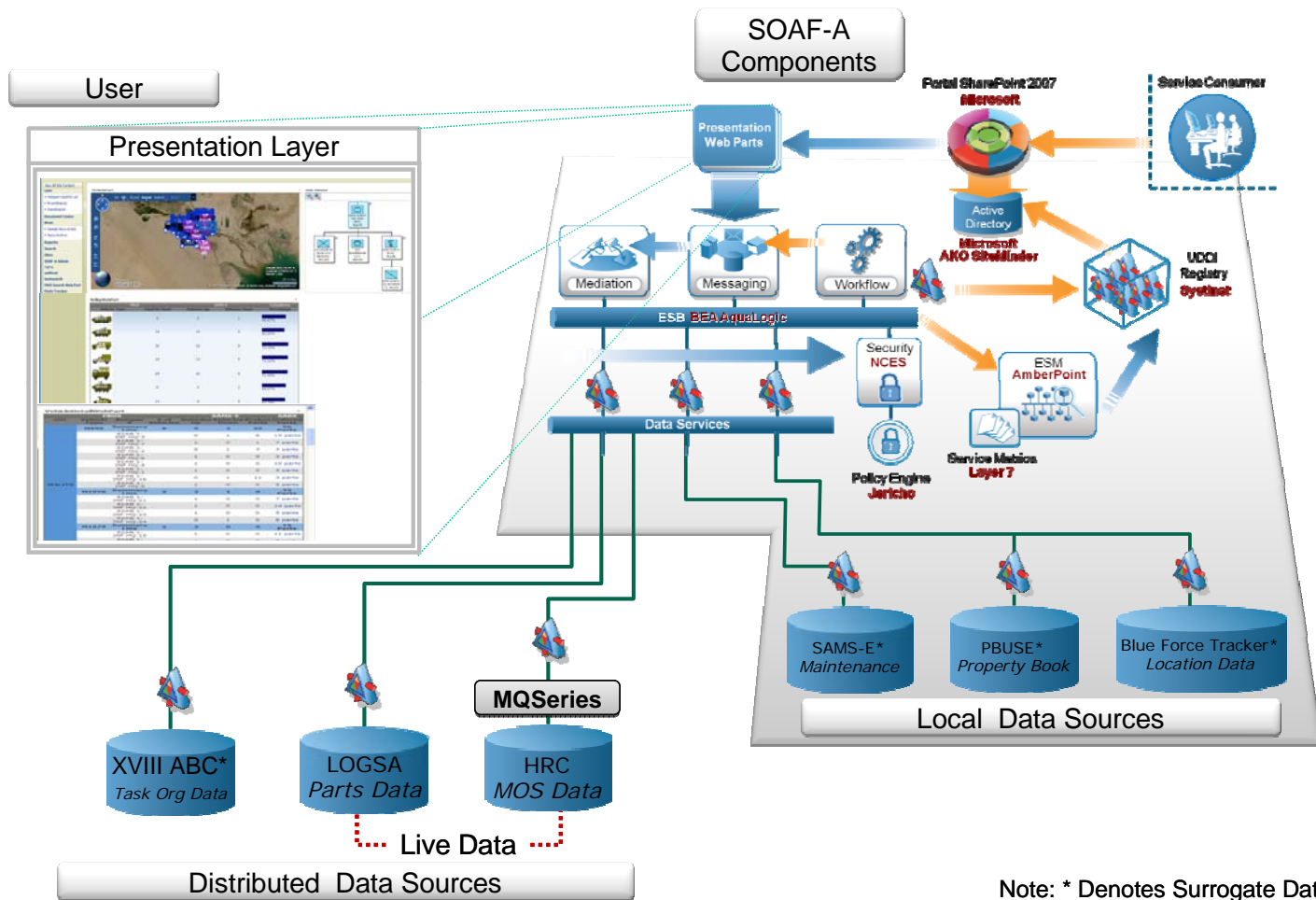
- **Service Orientation can be thought of as the next generation of object orientation**
 - New degree of abstraction
 - More sophisticated tools available to deploy

Service Orientation from the Software Perspective

Division Maintenance Status Portal



Division Maintenance Status Portal



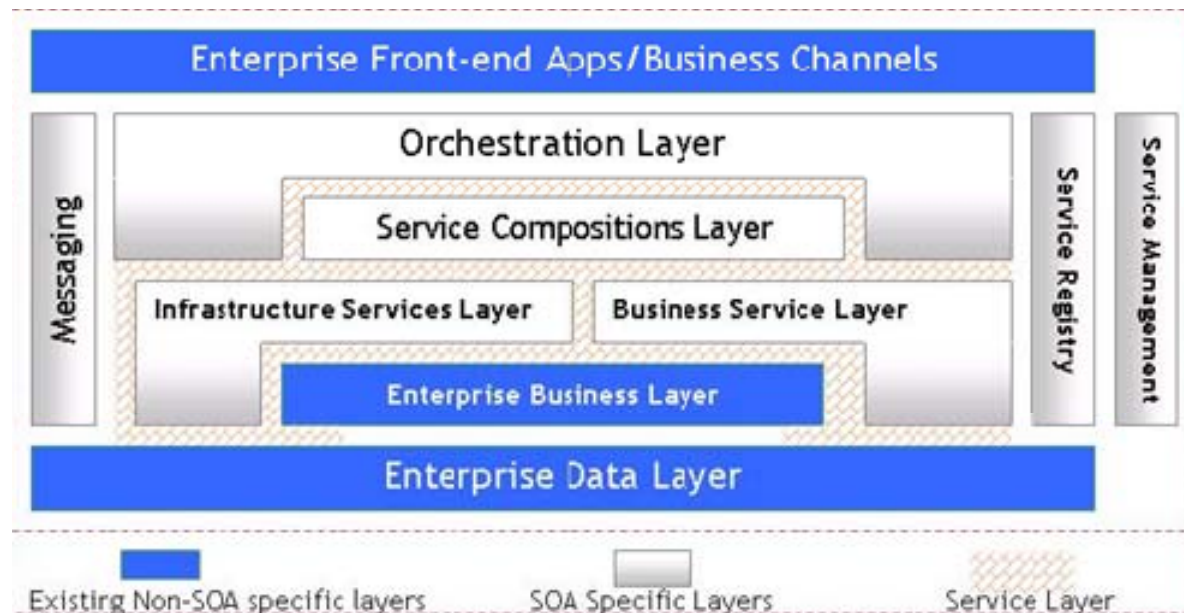
Why SOA? The Value Proposition

- **Value to the business**
 - Agility
 - Visibility of business processes
 - Business/IT alignments
 - Better, faster decision making

- **Value to IT**
 - Reduced redundancy
 - Development efficiency increase (as services are reused)
 - Loose coupling reduce impact of changed processes

SOA – a more Technical Perspective

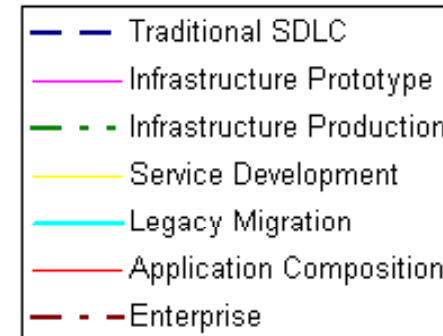
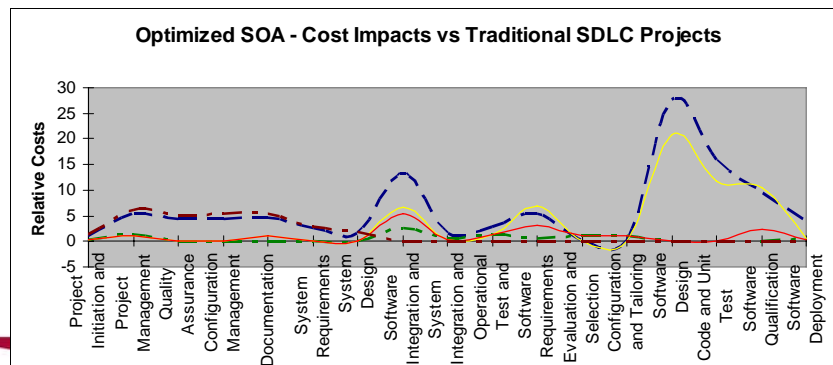
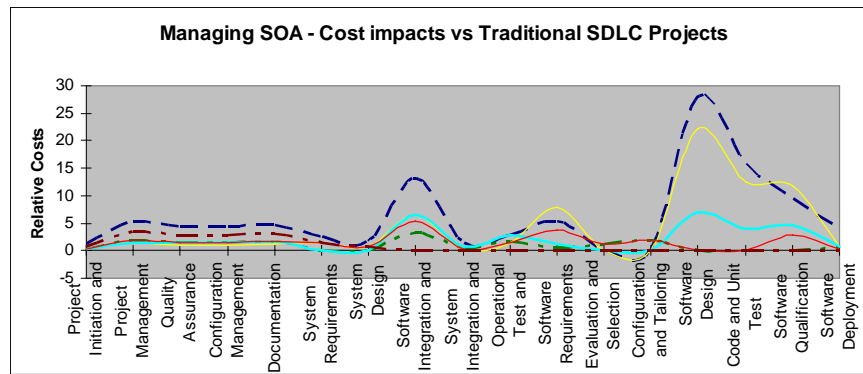
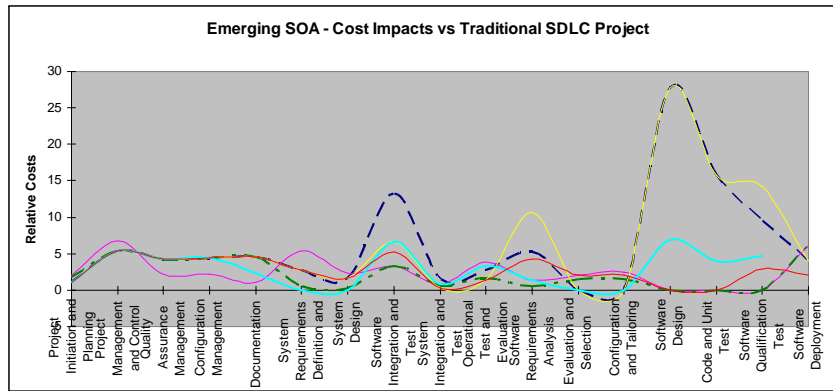
- Infrastructure provides services multiple apps need
- Business services implement rules specific to business or organization
- Business processes are composed through orchestration layer



SOA Research Findings – where are Costs Generated?

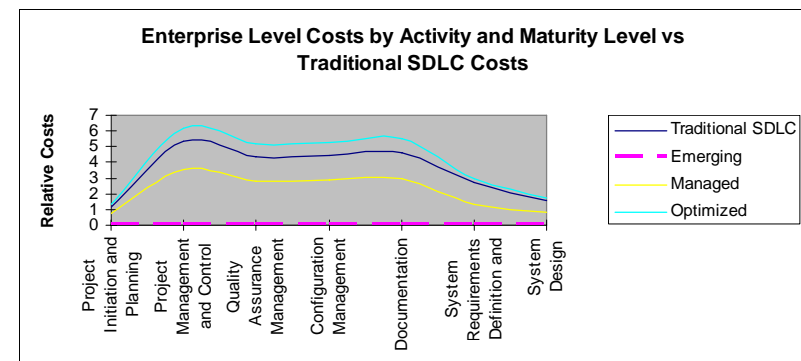
- **Three levels of SOA Maturity studied**
 - Emerging
 - Managed
 - Optimized
- **Five distinct areas are being studied**
 - Deploying infrastructure prototype
 - Deploying instances of infrastructure ('production')
 - Developing Services
 - Migrating legacy capabilities to Services
 - Application Composition

SOA Research Findings – Maturity and project type(s)



SOA Research Findings – Enterprise Vs Project Level Cost

- **Emerging Projects**
 - Each a new adventure
 - IT Staff is learning about SOA technologies
 - Driven by a few SOA literate individuals
- **Managed Projects**
 - Organizational Commitment
 - SPA Stakeholder board
 - More decisions made at an enterprise level
- **Optimized Projects**
 - SOA Entrenched
 - SOA Center of Excellence
 - Virtually all planning, management and decisions at enterprise level



SOA Research Findings - Organizational Influences

- **Organizational Cost Drivers**

- At all maturity levels
 - Number of stakeholders
 - Amount and granularity of data
- When SOA is emerging and managed (sometimes)
 - Existing governance policy
 - Extent of existing Enterprise Architecture
 - Clearly defined ownership
 - Organizational agility
 - Organizational commitment

SOA Research Findings - Infrastructure

■ Prototype

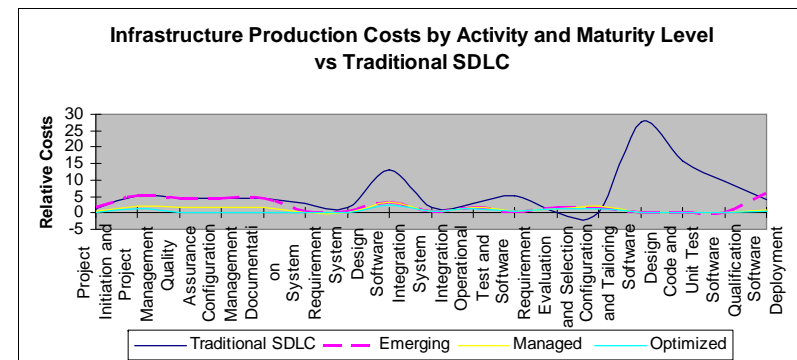
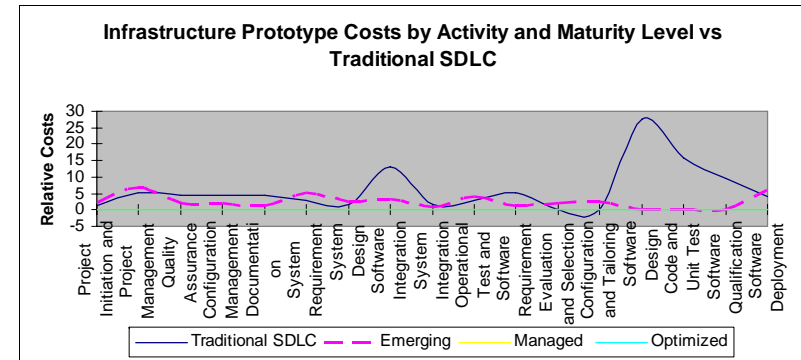
- Only relevant for emerging SOA
- R&D Effort
- Evaluation, Selection, Tailoring
- Significant drivers:

- Skill set of staff, Existence of Enterprise Architecture

■ Production

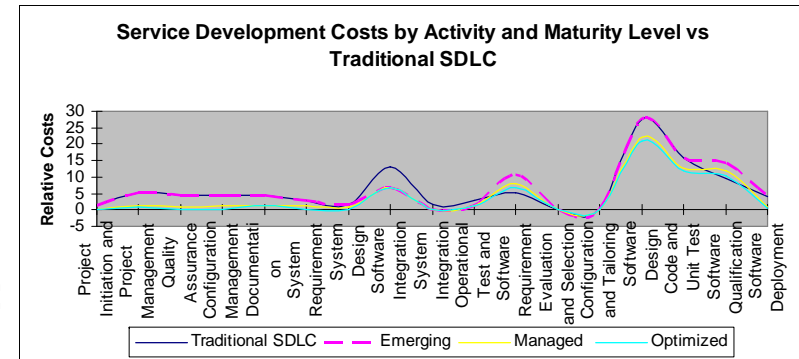
- Deploying instances of stack for scalability, redundancy, etc.
- No two completely alike but learning assumed
- Drivers include:

- Degree of invention
- Legacy technology
- Communication among deployment teams



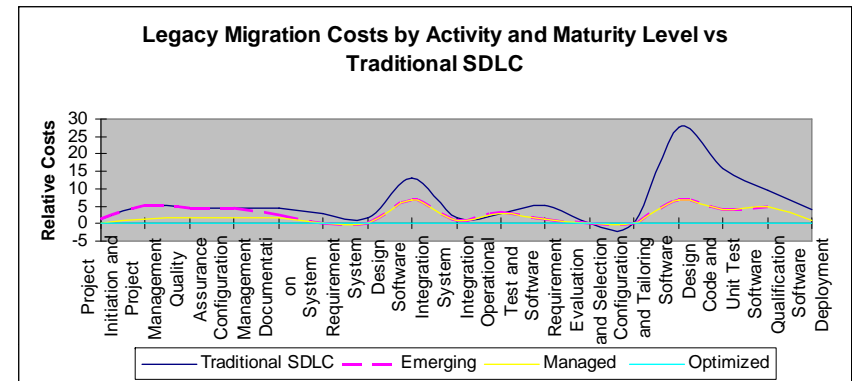
SOA Research Findings – Service Development

- **Service Development**
 - ‘Design for Reuse’ on steroids
 - Emphasis on requirements
 - Drivers at all levels of maturity:
 - Amount of data
 - Degrees of data granularity
 - Drivers in early stages
 - Skill set of developers
 - Familiarity with SOA
 - Business process understanding



SOA Research Findings – Legacy Migration

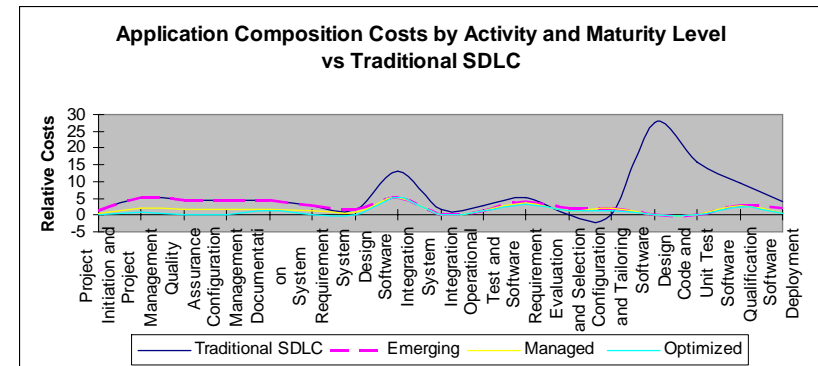
- **Software Reuse Project**
- **Not relevant for optimized SOA**
- **Significant Drivers**
 - Technology Maturity of legacy application
 - Type of migration/migration requirements
 - Data issues
 - Skills of developer
 - Familiarity with SOA and SOA Migrations
 - Familiarity with Legacy Application
 - Familiarity with SOA Infrastructure Technology



SOA Research Findings – Application Composition

■ Application Composition

- Service identification – requirements and evaluation type activities
- Integration and deployment activity
- As SOA emerges – infrastructure changes likely
- Significant drivers
 - Data reconciliation
 - Skill and Knowledge of IT Staff
 - Number of services available



SOA Business Case Analysis Framework

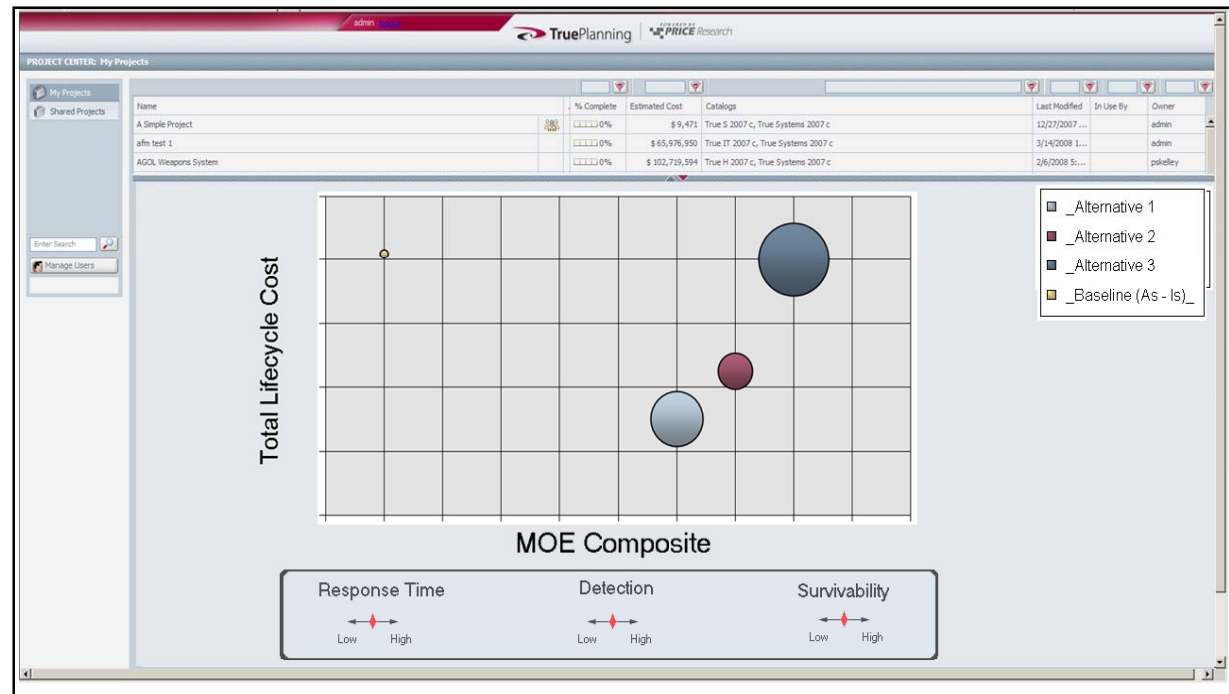


- **Modified Business Value Index**
 - Uses Intel's Business Value Index as base
- **Includes elements of OMB e300 to include Performance Reference Model**
 - Measurement Areas: General Areas of Interest
 - Measurement Categories: Performance Criteria
 - Measurement Indicators: Specific methods of measure
- **Includes elements of Gartner's ITFM concepts**

Recommended SOA Business Case / Analysis of Alternatives Framework

■ Measurement Areas:

- Risk
- Business Value/
Mission Effectiveness
- Cost



Value - Measures of Performance / Measures of Effectiveness

Business Value

- Business Alignment
- Agility
- Adaptability
- Flexibility
- Delivery
- Service Re-Use
- Productivity

Cost

- Cost Avoidance
- Retrospective ROI

Status and steps forward

- **Data collection on SOA cost drivers on going within and outside of the Army**
- **Identification of cost drivers for SOA at various levels of maturity**
- **Developing methodology to estimate SOA costs using TruePlanning for Products**
- **Alignment of Measures of Effectiveness and Measures of Performance with KPPs to support Analysis of Alternatives for SOA projects**
- **Next steps will incorporate the methodologies provided in phase I into commercial solution (prototype) customized specifically for Army requirements focused on Analysis of Alternatives**