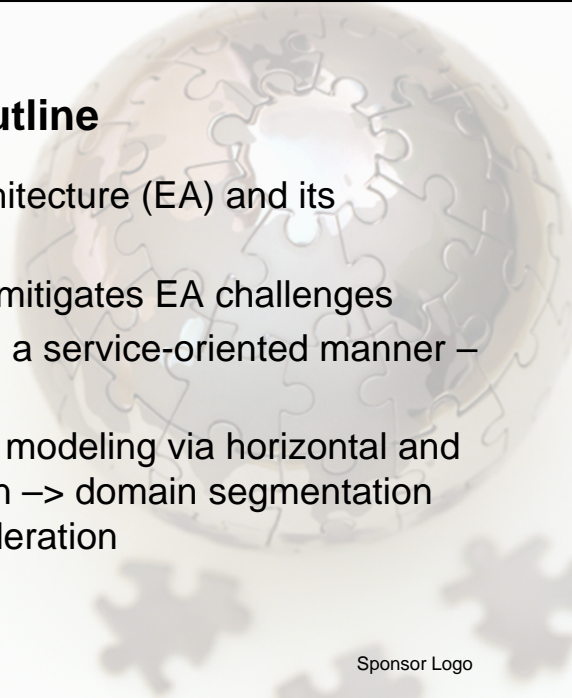





IT Architect Regional Conference 2007

Service Oriented Enterprise Architecture


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CGI Federal



Presentation Outline

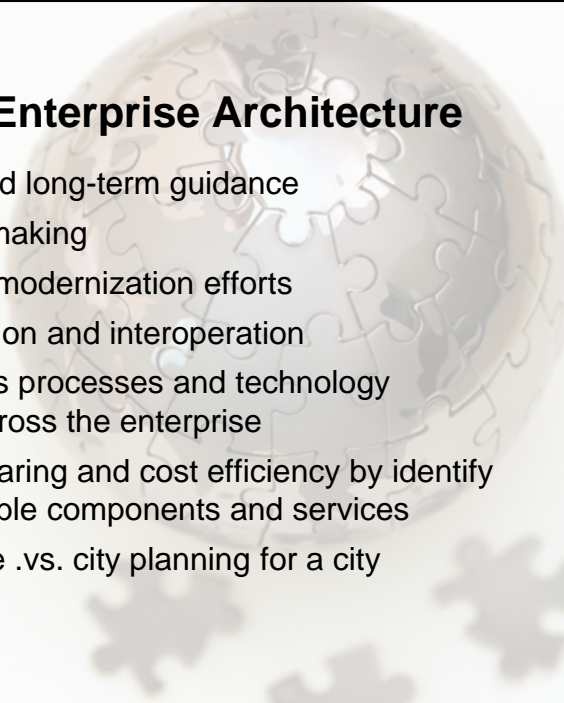

1. Enterprise Architecture (EA) and its challenges
2. How SOA can mitigate EA challenges
3. Modeling EA in a service-oriented manner – SOEA
4. Simplify ESOA modeling via horizontal and vertical partition → domain segmentation and service federation

Sponsor Logo



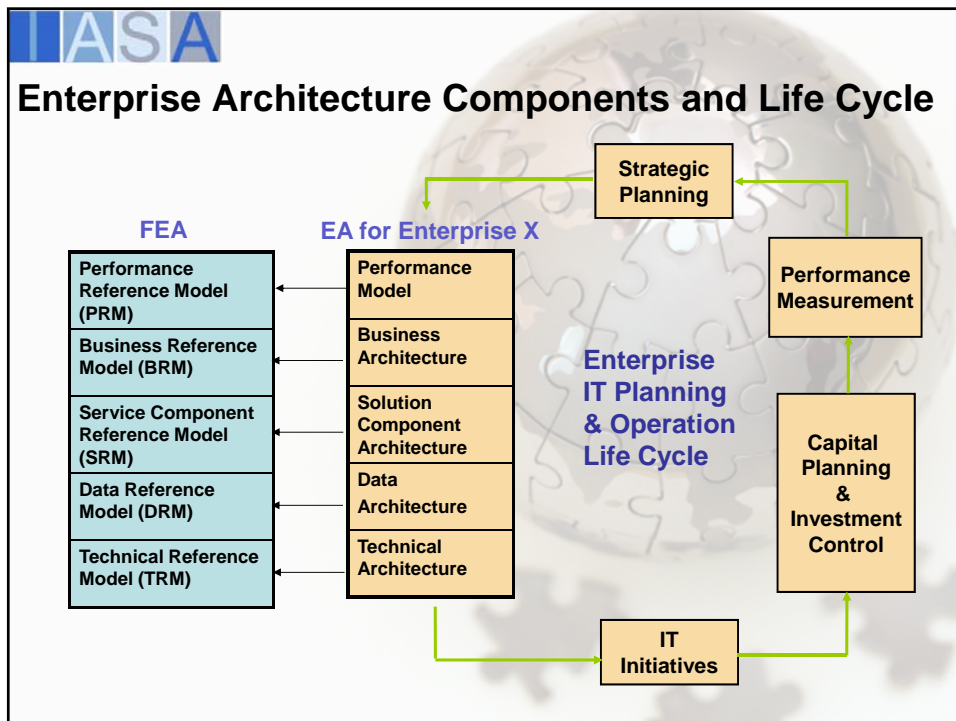
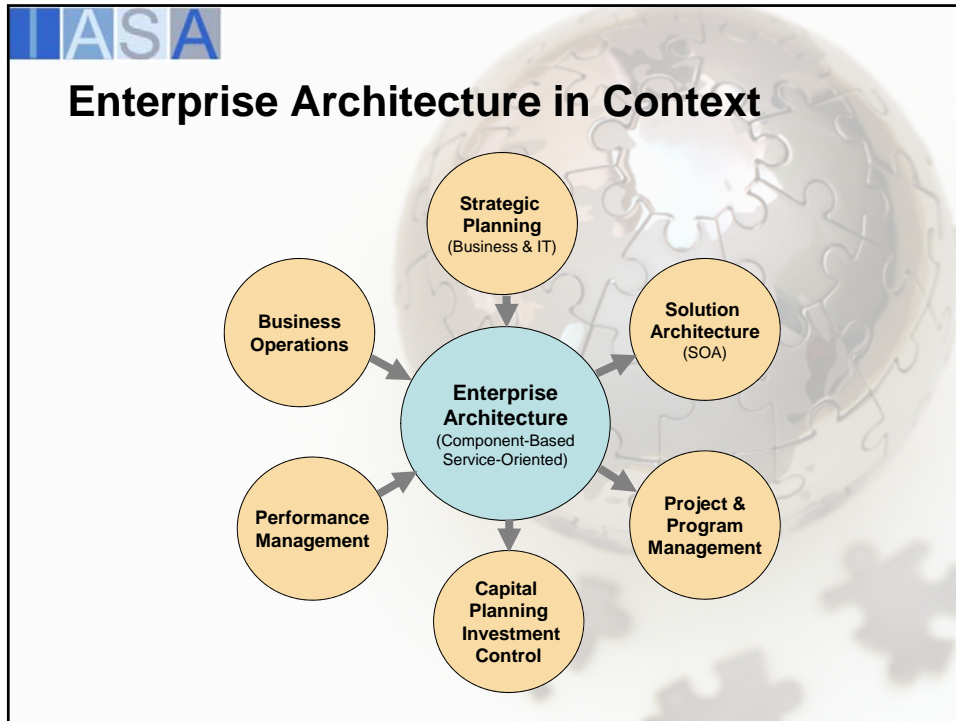
Current Trend



- Internet Era
 - ♦ Businesses are more agile, geographical limitations are diminishing
 - ♦ Increasing needs in collaboration and information sharing
 - ♦ Old systems with stove-piped design need to be modernized
- Information Revolution
 - ♦ Comparing to Industry Revolution age, we are in an Information Revolution age now
 - ♦ Need more organized and efficient ways for information processing and utilization
- SOA is the current state of art, is leading a new paradigm shift
 - ♦ Promotes collaboration, info sharing, business agility, and IT flexibility



The Purpose of Enterprise Architecture



- Have a blueprint and long-term guidance
- Facilitate decision making
- Support enterprise modernization efforts
- Enhance collaboration and interoperation
- Streamline business processes and technology implementations across the enterprise
- Enable resource sharing and cost efficiency by identify common and sharable components and services
- EA for an enterprise .vs. city planning for a city





What is SOA – a layman description

- **Service:** each day we provide services and we are served, the same for a business organization and its sub-organization
- **Service Orientation:** Describe businesses and systems in terms of services they provide
- **Service-Oriented Architecture:** A architecture style that describe businesses and systems in a service-oriented way.



SOA Background

- SOA concept is not new, it's an evolution
- CORBA
 - ◆ Component-based architecture
 - ◆ Service Components
 - ◆ Service Broker (ORB)
- Web, Java, J2EE, .Net
- EAI

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Relationships: EA, SOA & Web Service

- **Enterprise Architecture:** It's a **subject domain** that is independent of approaches and methodologies for its development and presentation.
- **Service-Oriented Architecture:** It's a **architecture style** that describe businesses and systems with service-orientation.
- **Web Services:** It's a **technology** that enables us to implement applications in a service-oriented way.

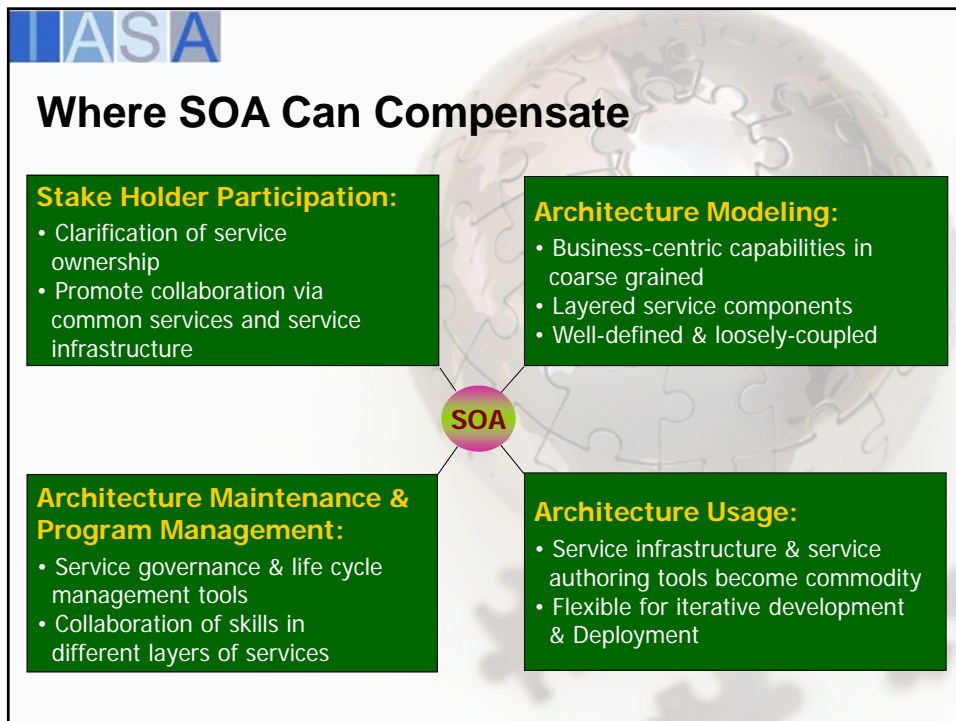
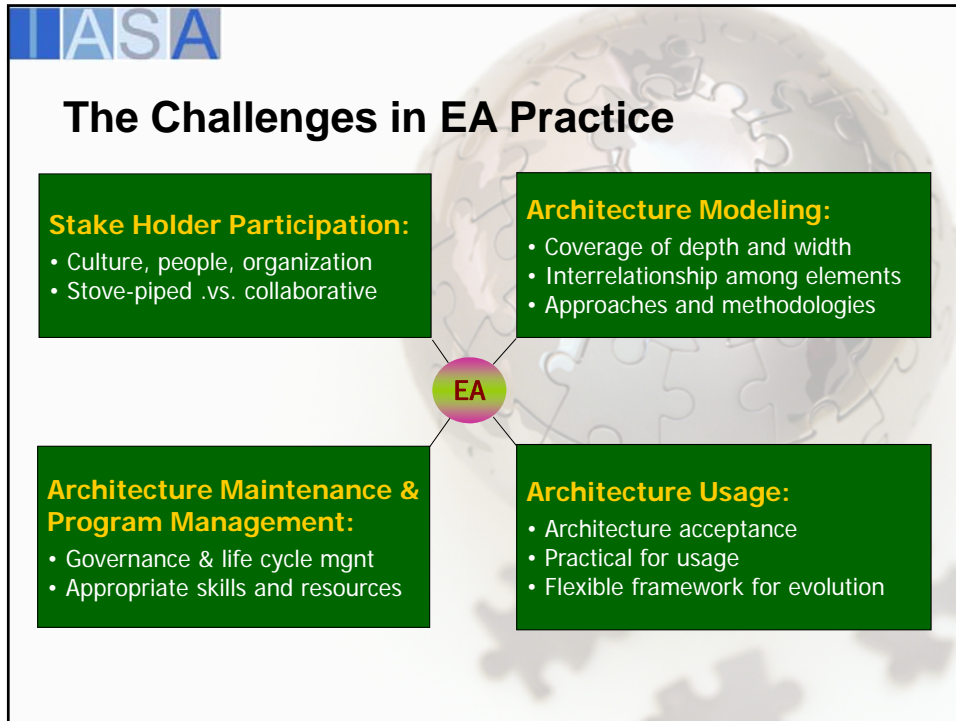
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SOA and EA

•SOA is a practical modeling approach for EA
•SOA bridge EA with solution architectures

SOA is an ..
Architecture Approach.

You can apply the principles of SOA to architecture at **all** levels.



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Stakeholder participation

Enterprise Architecture	SOA
<ul style="list-style-type: none"> ▪ Lack of Stakeholder Participation, due to <ul style="list-style-type: none"> ♦ Traditional culture ♦ Background of people ♦ Organization structure ♦ Competing priorities ♦ Value proposition ▪ Lack of clear guidance for collaboration in <ul style="list-style-type: none"> ♦ Target picture ♦ Work direction ♦ Roles and responsibilities ♦ Effective approach and methods 	<ul style="list-style-type: none"> ▪ Increase Stakeholder participation <ul style="list-style-type: none"> ♦ Easier communication through service-oriented concept ♦ Break organization boundaries via common services ♦ Reduce cost via shareable and reusable services ▪ Paint a Clear Picture for Collaboration by <ul style="list-style-type: none"> ♦ Common service infrastructure ♦ Common functional services ♦ Clarification of roles and responsibilities regarding to services ♦ Self-sufficient service components with manageable scope in organizational level

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Architecture Modeling

Enterprise Architecture	SOA
<ul style="list-style-type: none"> ▪ How to Model big picture <ul style="list-style-type: none"> ♦ Depth and breadth of architecture scope ♦ Model matches audience ♦ Not to jump into details too quickly and lost big picture ▪ Produce meaningful models and conceptual abstraction <ul style="list-style-type: none"> ♦ EA .vs. engineering process ♦ EA approaches and methodologies .vs. EA framework ♦ EA uniqueness for each enterprise ♦ Insight and vision ♦ Skilled architect for conceptual models 	<ul style="list-style-type: none"> ▪ SOA can simplify big picture description <ul style="list-style-type: none"> ♦ Atomic service components ♦ Loosely coupled, not hard-wired ♦ Depth and breadth are covered by flexible layered components ▪ SOA makes EA envisioning, planning, and modeling easier via <ul style="list-style-type: none"> ♦ Componentized and layered services ♦ Loosely coupling ♦ Iterative development ♦ Matching different skills to different Services in different layers



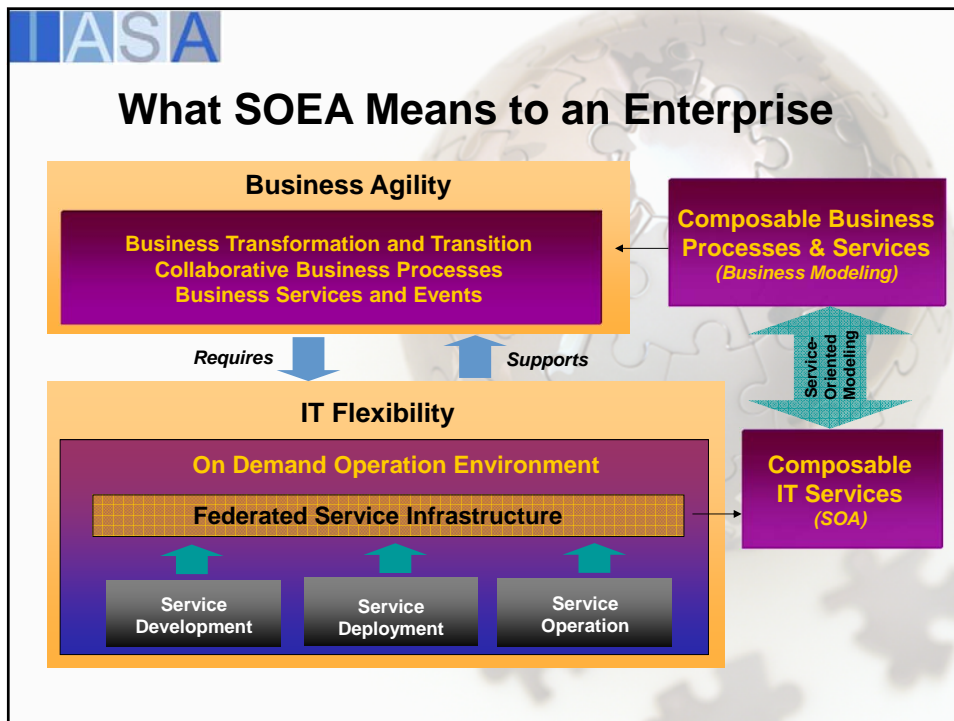
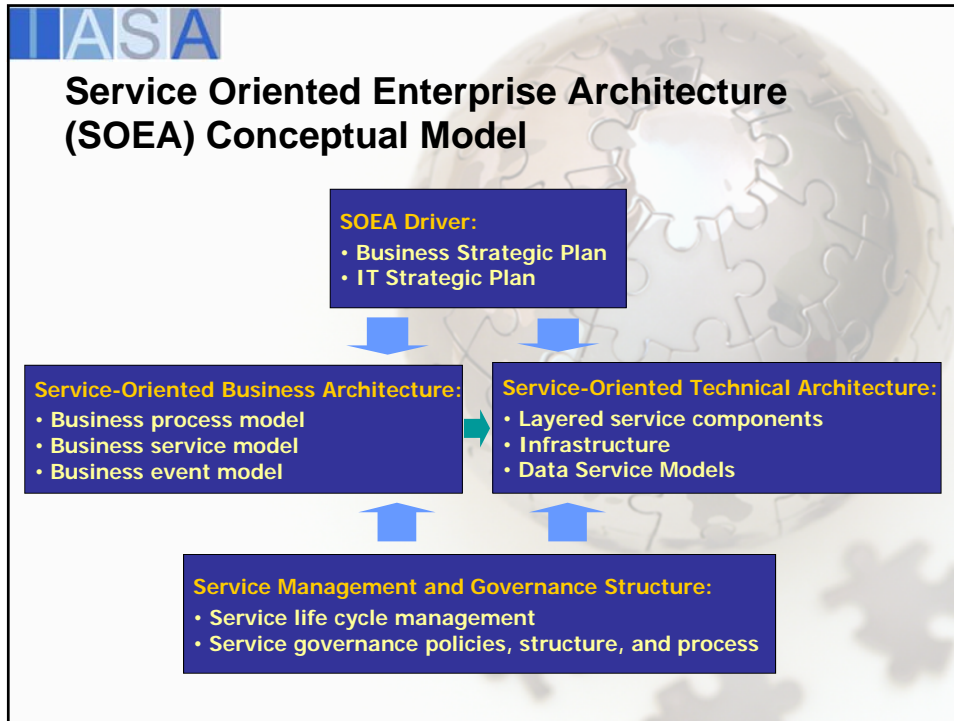
Architecture Usage

Enterprise Architecture	SOA
<ul style="list-style-type: none"> ▪ Lack of EA product acceptance due to lack of <ul style="list-style-type: none"> ♦ Stakeholder participation ♦ Value proposition ♦ The relevance of EA to specific projects ♦ Gap analysis ▪ Need flexible EA framework that can <ul style="list-style-type: none"> ♦ Connect the EA products and components together ♦ Incorporate changes along the way ♦ Be flexible 	<ul style="list-style-type: none"> ▪ SOA increase EA products acceptance by <ul style="list-style-type: none"> ♦ Better facilitate stakeholders' participation ♦ Enable better ROI estimate across full spectrum of SOA benefits in a composite way ♦ Help to fill the gaps between EA products and individual project by layered services ▪ SOA enables a flexible framework by <ul style="list-style-type: none"> ♦ Componentized services ♦ Components loosely coupling ♦ Dynamic service plug-in and update



Architecture Maintenance, Program Management

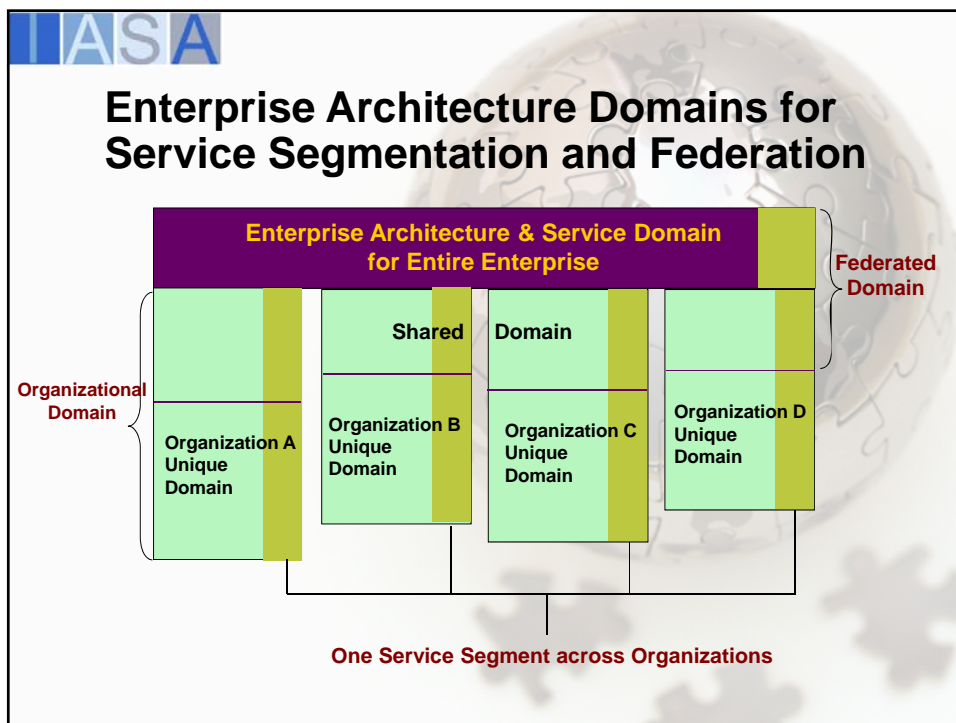
Enterprise Architecture	SOA
<ul style="list-style-type: none"> ▪ Challenge in EA lifecycle management and governance <ul style="list-style-type: none"> ♦ Uniqueness for each organization ♦ Time and resource constraints ♦ Effective tools ▪ Challenge in Resources <ul style="list-style-type: none"> ♦ EA needs very special skill set ♦ The bias from either technical or business perspectives ♦ Need artistic ability with vision and insight to present reality via representational models ♦ Lack of EA curricula in Universities 	<ul style="list-style-type: none"> ▪ SOA based lifecycle management and service governance are easier by <ul style="list-style-type: none"> ♦ Incorporating architecture maintenance into service lifecycle ♦ Tools are developed rapidly for service lifecycle management and governance ▪ SOA can ease the EA resource pain by <ul style="list-style-type: none"> ♦ Matching skills to manageable service scopes and layers ♦ Ease the increasing demands for breadth in architecture competencies

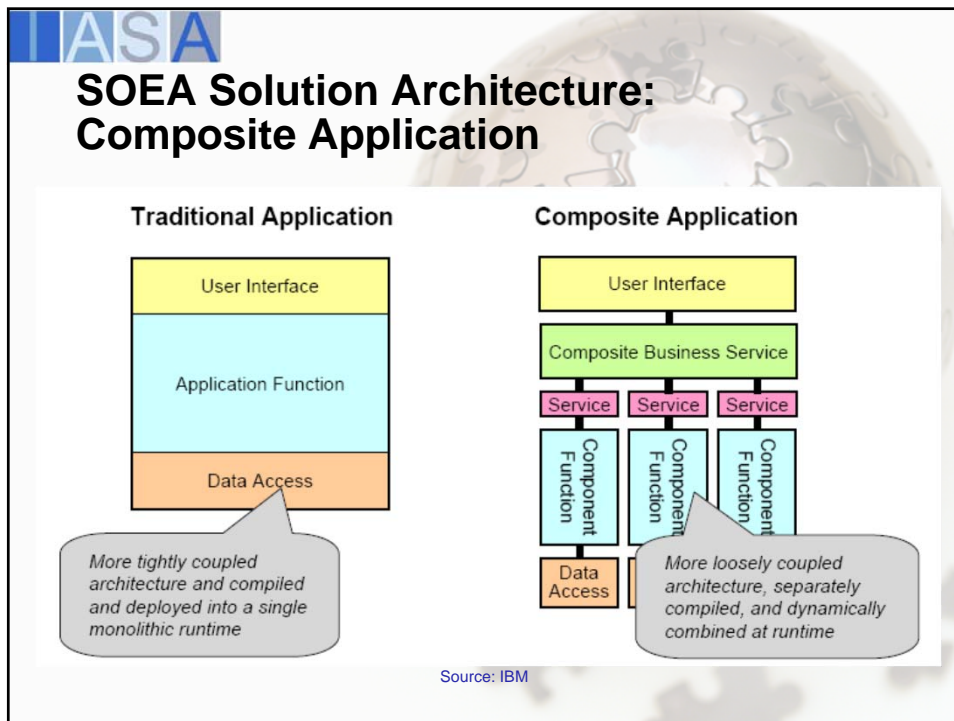
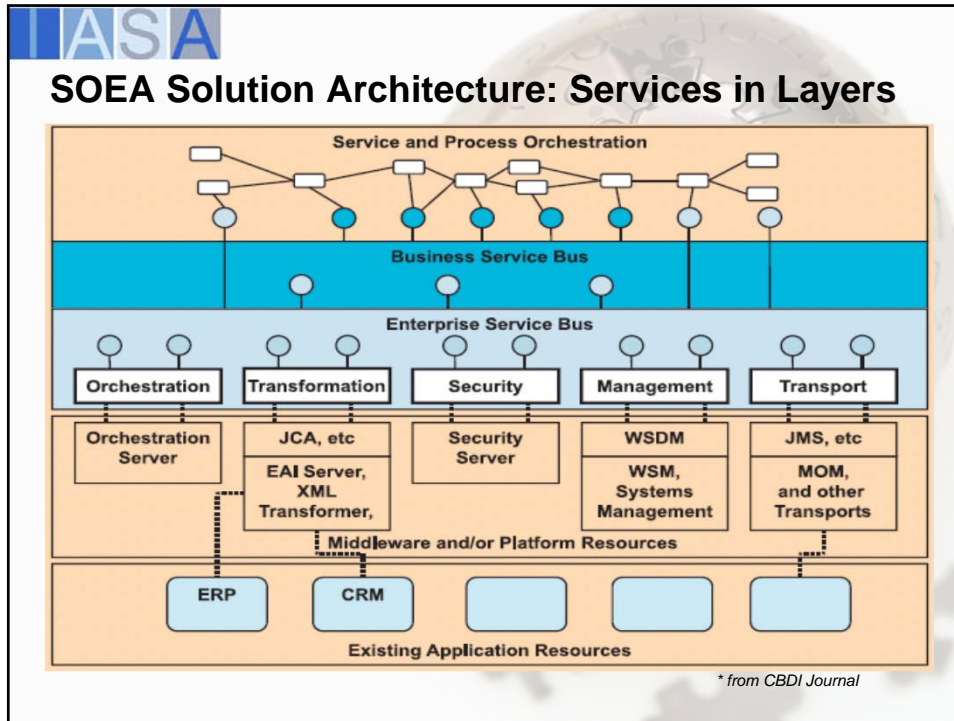


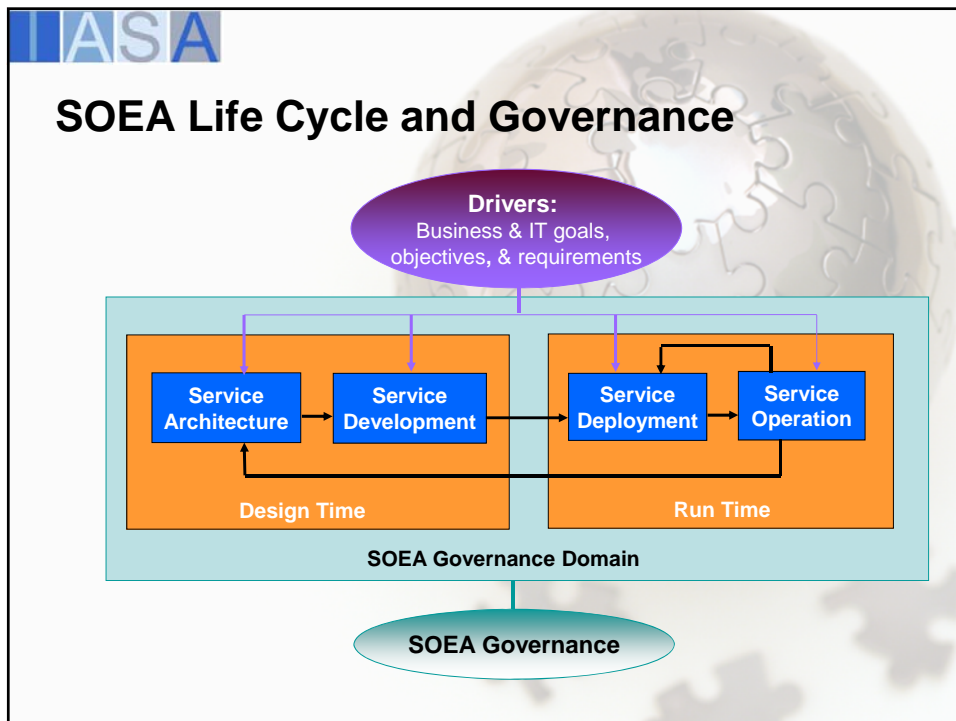
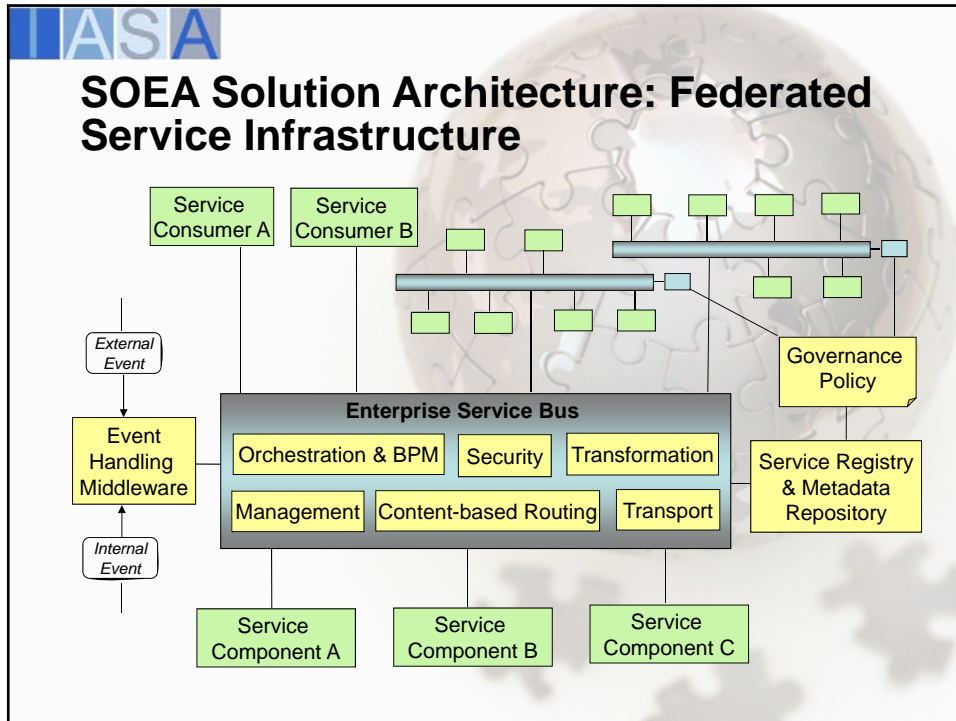
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Approaches and Methodologies

- **SOA Planning with Enterprise View**
 - ♦ Take advantage from Enterprise Architecture exercise
 - ♦ Create SOEA framework include: service categorization, service infrastructure, service owners, and stake holders
- **Segmentation: service domain vertical partition based on (LOB)**
 - ♦ Separate entire enterprise service domain into segments based on the line of business services
 - ♦ Identify services for each LoB
- **Federation: service domain horizontal partition for service provision**
 - ♦ Implement federated service infrastructure to enable federated enterprise architecture implementation
 - ♦ Implement and host the services based on organization autonomy
- **Service Componentization**
 - ♦ Service component: self-contained with well-defined service interfaces
 - ♦ Service components are layered, and associated between business, application, & data
- **Iterative and Incremental: top-down meets bottom-up and middle-out**
 - ♦ Adopt SOA for newly modernized environment and applications
 - ♦ Provide services based on legacy applications
 - ♦ Evolve legacy applications towards SOA in layers



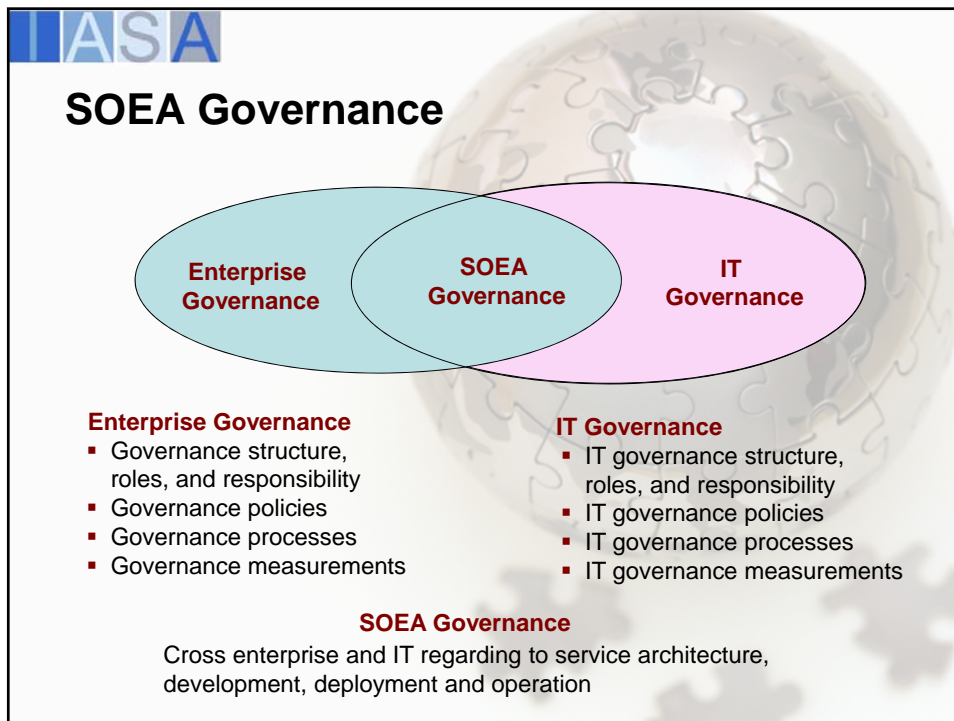


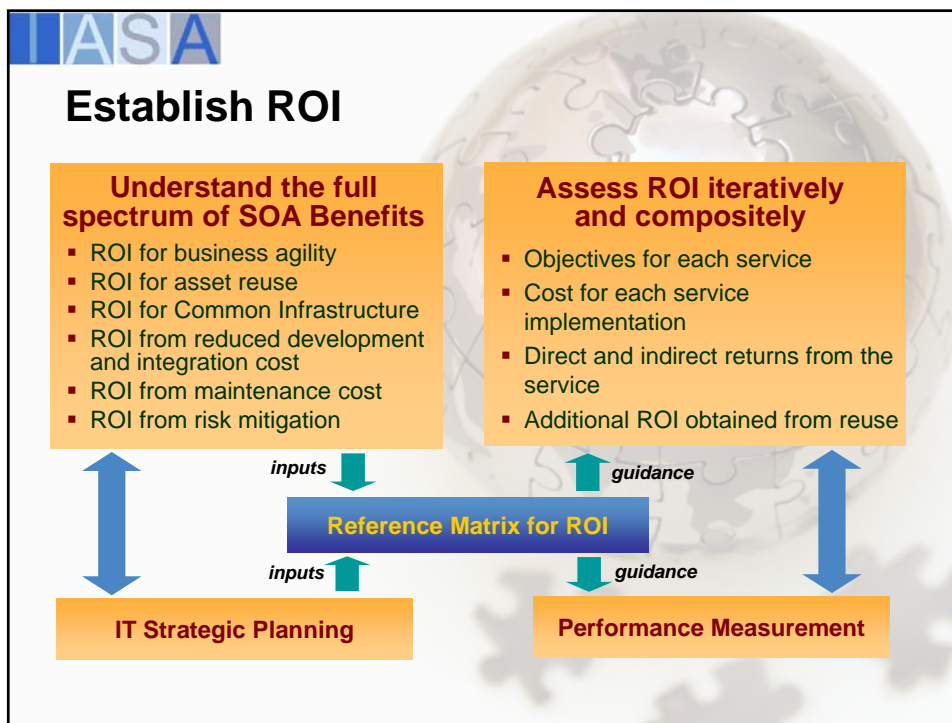
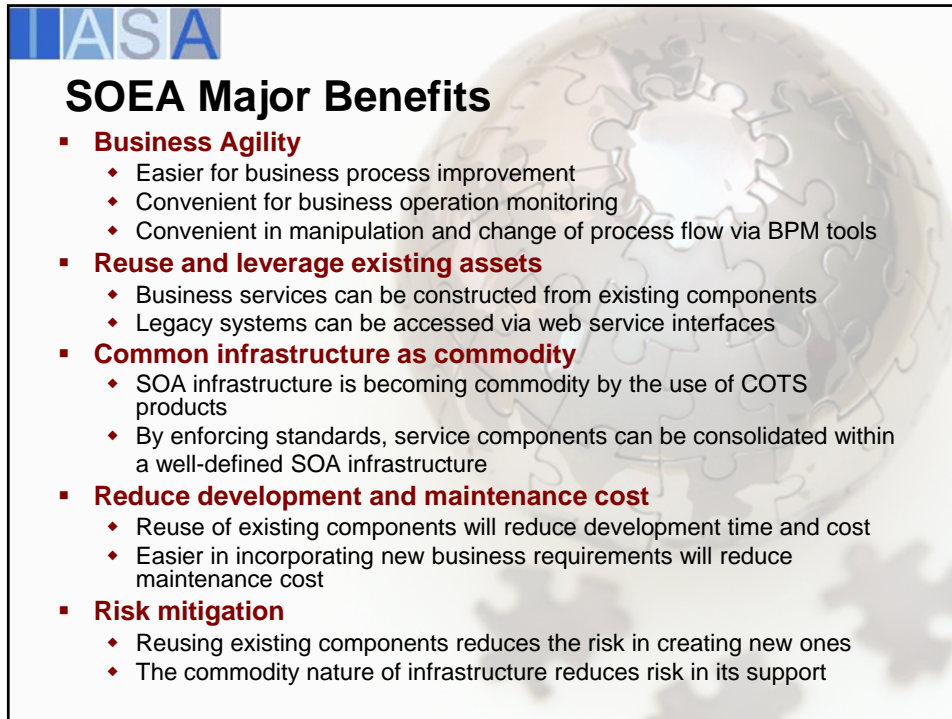


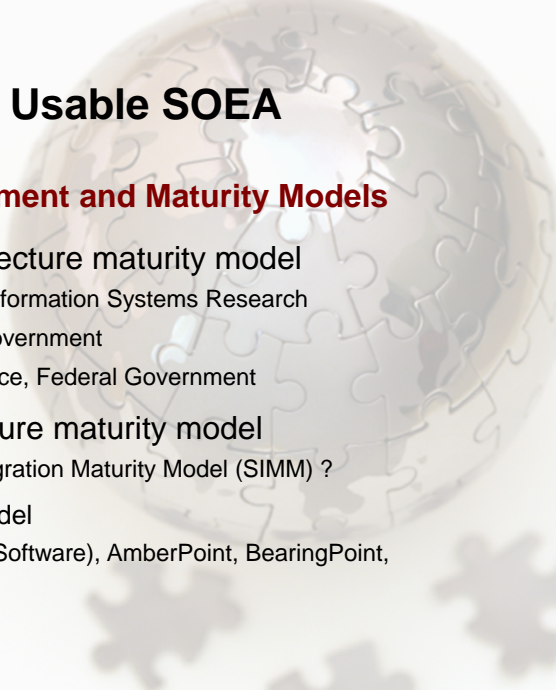

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SOEA Service Life Cycle Components

Service Architecture	Service Development	Service Deployment	Service Operation
<ul style="list-style-type: none"> • Business process modeling • Business service modeling • Business event modeling • Layered technical service components modeling • Service infrastructure modeling • Data service modeling 	<ul style="list-style-type: none"> • Infrastructure implementation • Policy and control-points implementation • Services and workflow implementation • User interface implementation 	<ul style="list-style-type: none"> • Service packaging • Service change management • Services configuration • Service provision and orchestration • Identity and security management • Data integration 	<ul style="list-style-type: none"> • Event correlation • Service monitoring • Operation analysis and improvement • Business process management • Workload and policy management








Successful and Usable SOEA

EA and SOA Assessment and Maturity Models

- Enterprise architecture maturity model
 - ♦ MIT, Center for Information Systems Research
 - ♦ OMB, Federal Government
 - ♦ Dept. of Commerce, Federal Government
- Service architecture maturity model
 - ♦ IBM Service Integration Maturity Model (SIMM) ?
- Service maturity model
 - ♦ Sonic (Progress Software), AmberPoint, BearingPoint, Systinet
 - ♦ HP, Oracle, EDS



SOEA Maturity Model Standardization

Models Integration, Evolution, and Standardization

- Maturity Domains
- Maturity Assessment Aspects and Success Measures
- Maturity Levels/Stages



Conclusion

Following topics are discussed, which provides a reference for EA and SOA integration via SOEA:

- EA and SOA background
- EA Benefits and Challenges
- Where SOA can compensate – SOEA model
- SOEA conceptual model
- What SOEA means to an enterprise
- SOEA major benefits and ROI
- Approach and methodologies for SOEA practice
- Assessment for a successful and usable SOEA - maturity models