



SOA / Web Services

Implementation and Lessons Learned

An Evolutionary Computing Platform

APHSA ISM Conference, Boston, August 6th-8th, 2007

Think. Commit. Do.
Audit. Tax. Consulting. Financial Advisory.



Agenda

Part I – SOA & Web Services Overview (8:30 am – 9 am)

Historical Perspective

Web Services and SOA

SOA Adoption

Planning Your SOA Initiative

Implementations in Human Services

Key Facts & Benefits

Part II – MA EOHHS Case Study (9 am – 9:30 am)

Business Drivers

SOA Vision for EOHHS

SOA Service Roadmap

Incremental Renewal

Lessons Learned and Recommendations

Question and Answer (9:30 am – 9:45 am)

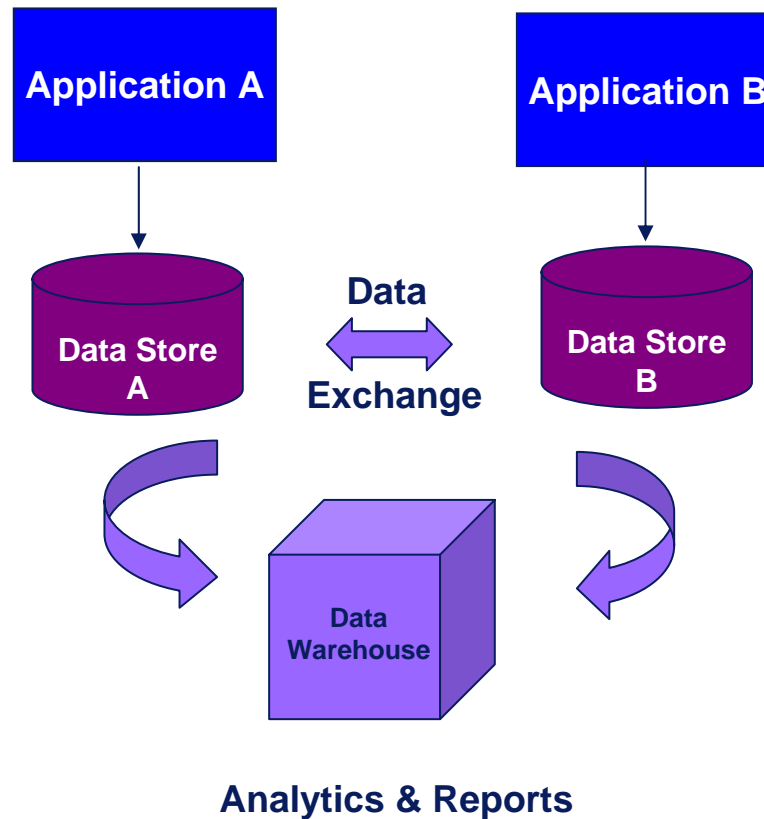
Historical Perspective



Application Integration Challenges

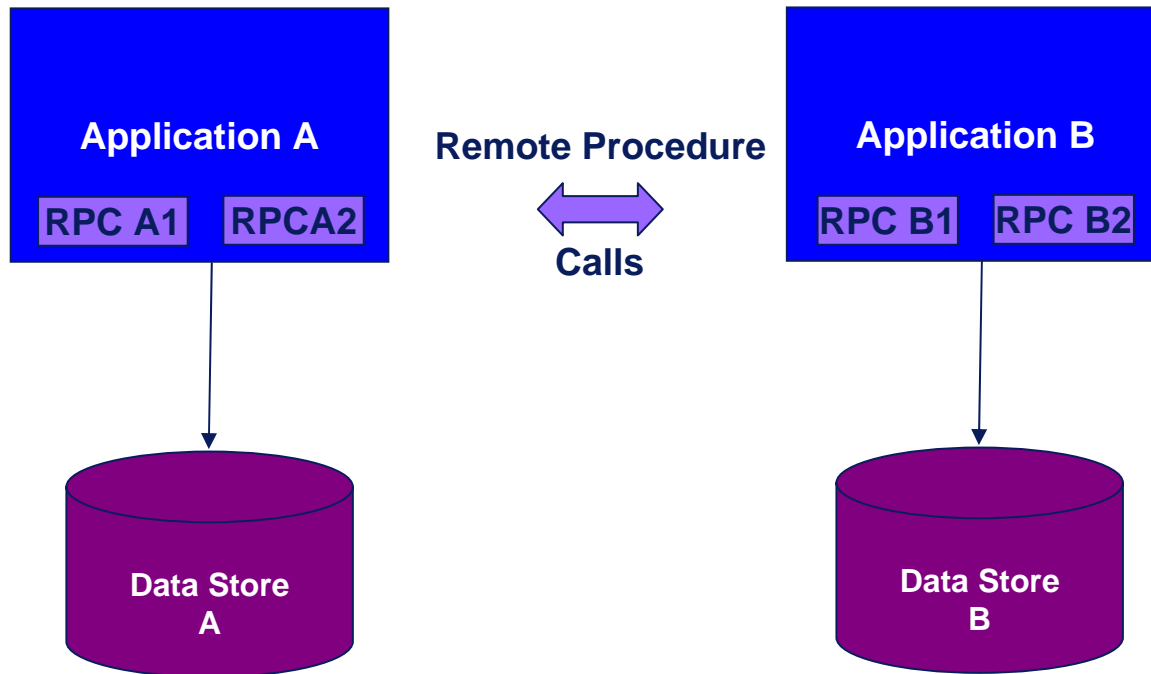
- Application Integration forms the foundation for business process automation and workflow management
- Nearly every IT Project involves integration
- Most organizations have heterogeneous IT environments
- Most application systems are not designed to communicate
- Older packaged application software rarely supports external integration

Integration Approaches (Data-Level)



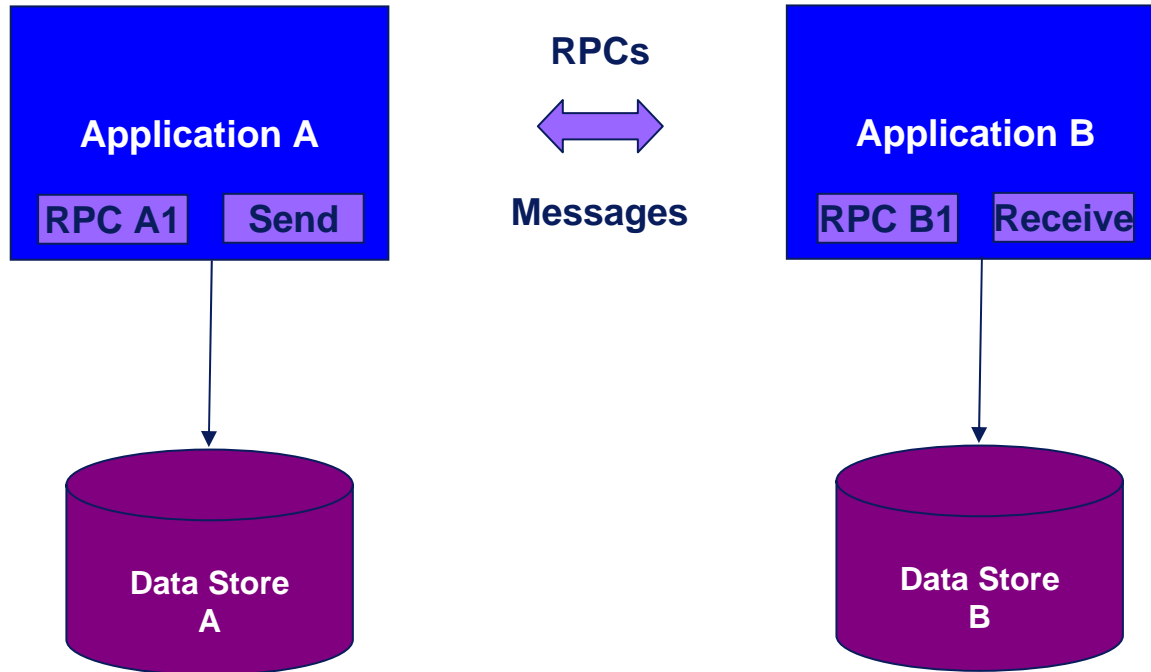
- Suited for read-only aggregation (E.g. Reports, DW)
- Risky for transactional or update applications

Integration Approaches (Application-Level)



- Enables Communication via APIs
- APIs have proprietary formats
- Not suited for external integration

Integration Approaches (Middleware-based)



- Hides complexity of the network
- Message Oriented Middleware (MOM)
- RPC style Middleware

Middleware Integration Challenges

- It is hard to find a middleware package that support all your languages and platforms
- Middleware licensing and administrative costs are high
- Development and maintenance costs are much more than the middleware itself
- Tightly coupled connections limit flexibility and usability
- MOM, although loosely coupled, is harder to use than RPCs, which are developer friendly

Web Services solve these problems

- Web Services Communicate using the World Wide Web – WWW is pervasive
- Platform and language independent
- Support loosely coupled features of MOM and the ease of use of the RPCs
- Use Internet as the Integration Platform
- Provides strategic value
 - Greater opportunity for reuse
 - Flexibility to support changing business needs
 - Reduced Total Cost of Ownership

Web Services and SOA



What is a Web Service?

- A technology – not a business model
- A Web resource – you access it using platform-independent and language-neutral protocols such as HTTP
- Provides an interface – Web API – that can be called from another program
- Typically registered and located through a web service registry
- Web Services communicate by passing XML messages to each other via a Web API

When do I use Web Services?

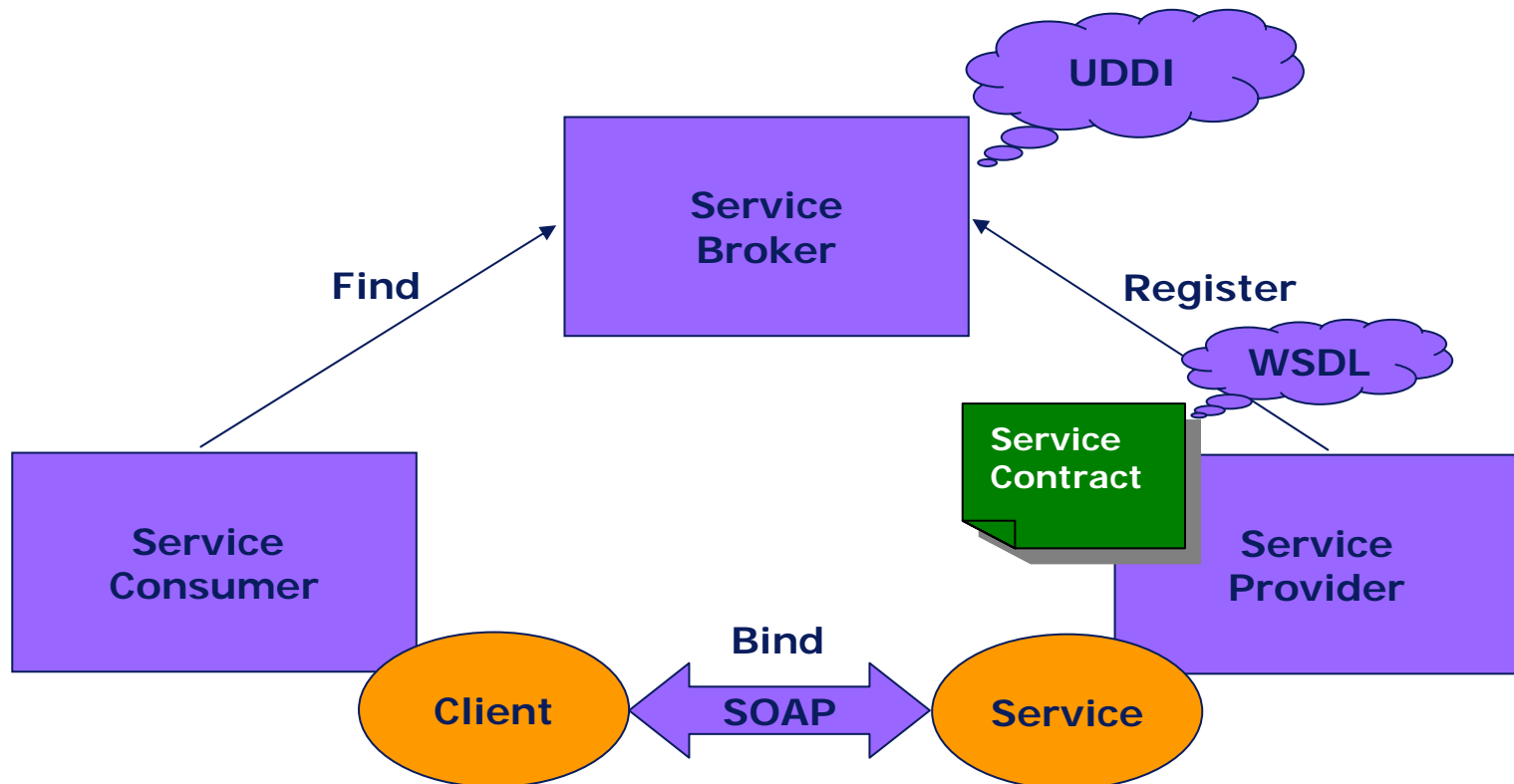
- Support for multi channel client formats using XML (Browser, desktop, wireless devices, IVR)
- Creating consolidated view of information (E.g. Portals)
- Reducing duplicative applications
- Managing legacy assets
- Connecting to email or CRM applications
- Building trading partner networks
- Dealing with dynamic business conditions

When NOT to use Web Services?

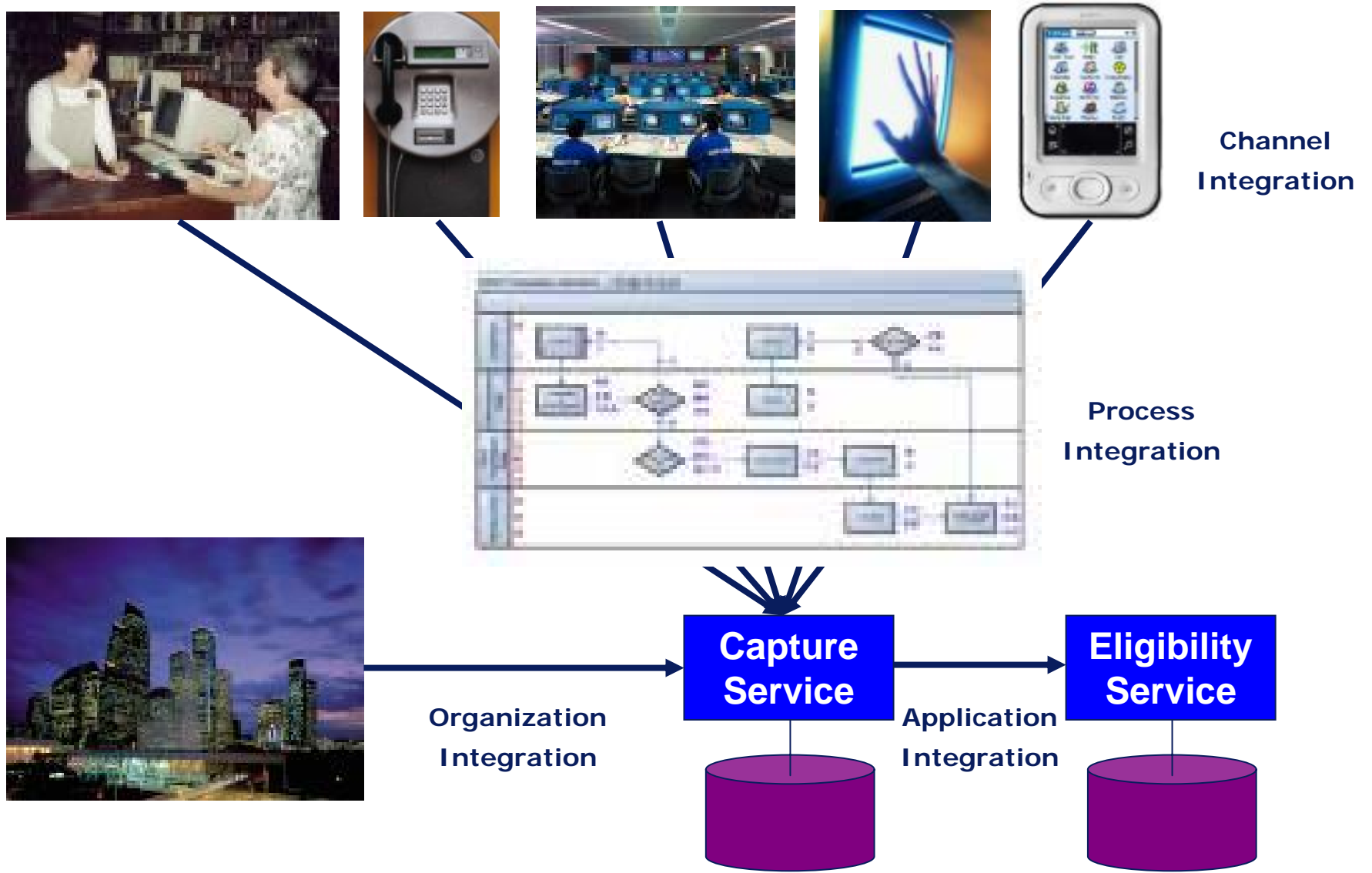
- Transferring very large volumes of data
- Where efficiencies can be obtained from traditional middleware in homogeneous environments
- Building individual applications
- Where Proprietary Software is more reliable to perform point-to-point integration
- Not a replacement for EAI

What is SOA?

The Service Oriented Architecture describes a set of well established patterns that help a client application connect to a service.



SOA Integration Layers



SOA Component Landscape

Enterprise Service Bus (Broker)

- Reliable Messaging
- Correlate Related Messages
- Transform Message Format and Semantics
- Enforce Policy and Security
- Expose Services Externally (Internet)

Orchestration/Choreography (Process)

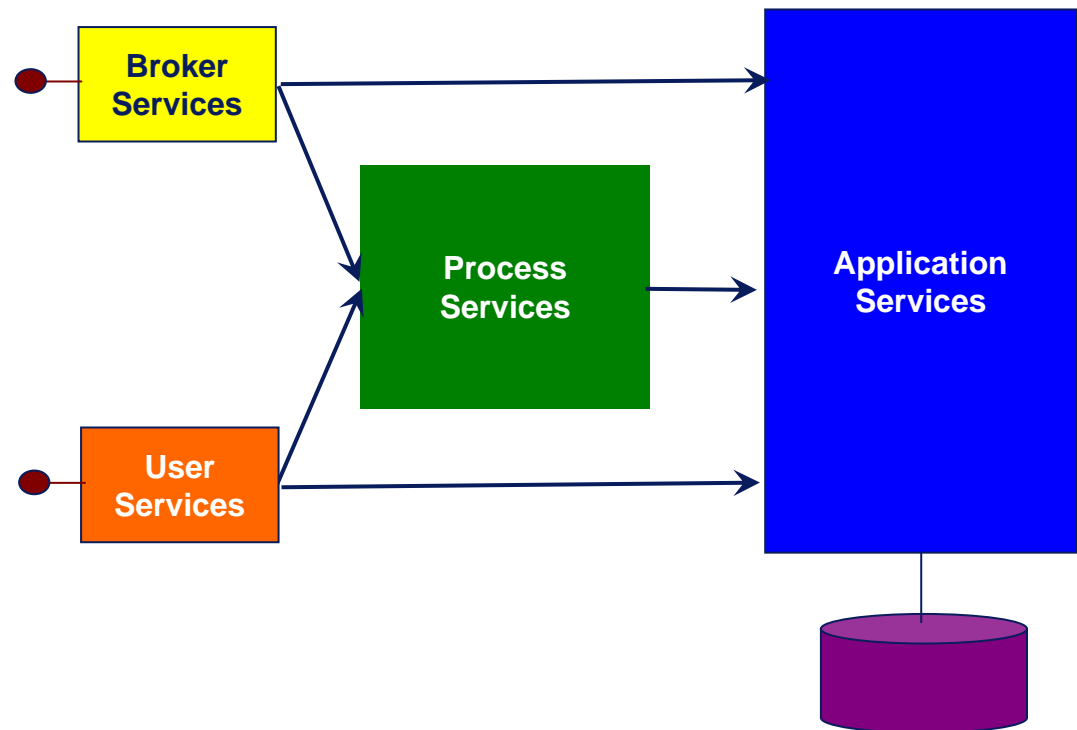
- Workflow & Composite Applications
- Human Task Management
- Business KPI Monitor/Measurements
- Process Integration
- Process State Management

Portal (User)

- Human Interaction
- Composite Views
- Role-based View
- Customization/Personalization
- Session State Management

Services (Application)

- Primitive Services
- Entity State/Behavior
- Data Access Services
- Utility (Stateless) Services
- Entity State Management



SOA Myth vs. Reality

Area	Myth	Reality
Business	<ul style="list-style-type: none"> ▶ SOA has nothing to do with the business and is only for technology ▶ SOA is a silver bullet to automating the business ▶ Legacy assets can last another 30 years by just wrapping them in web services 	<ul style="list-style-type: none"> ▶ SOA is focused on the business and enables process transformation to new levels of integration, visualization, monitoring, and optimization ▶ SOA is an evolutionary, not revolutionary, movement toward business composition and not a silver bullet ▶ Legacy assets are not transformed in SOA, but can participate where it makes sense; 30 years longevity extension is not reasonable
Technology	<ul style="list-style-type: none"> ▶ SOA replaces EAI for internal application integration ▶ SOA requires web services ▶ Web services allows development of components in any language or technology 	<ul style="list-style-type: none"> ▶ SOA is not a replacement for EAI messaging middleware and most SOA infrastructure makes use of such middleware ▶ SOA is a concept much older than web services; Standards-Based SOA is dependent upon web services ▶ Web services are remote calls and should be minimized, so it is best to still select one component model or programming language to improve performance.
Delivery	<ul style="list-style-type: none"> ▶ SOA is a technology ▶ It is harder to build a SOA system than a stand-alone monolithic application ▶ Web services are not yet mature enough to build enterprise systems 	<ul style="list-style-type: none"> ▶ SOA is not a technology, it is a concept and a strategy for using technologies to build business automation solutions ▶ Tools for Standards-Based SOA automate development tasks and make building easier than in the past ▶ Web services are in their second generation of standards and address many enterprise needs

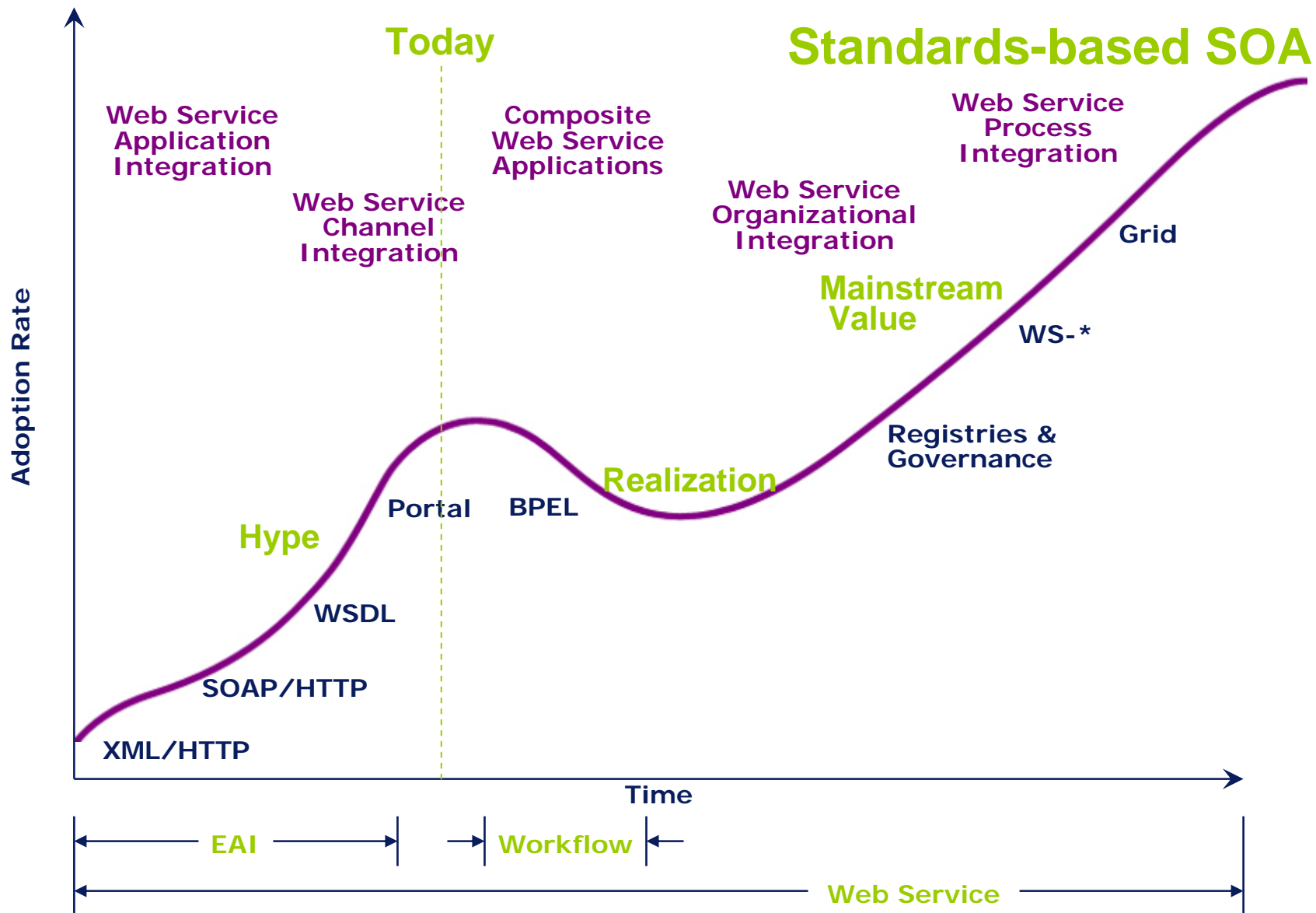
Recurring Themes

- ▶ **SOA is not the right solution to every business problem**
- ▶ **Standards-Based SOA is a trend because it adds business value**
- ▶ **Investment in technologies supporting SOA is required before expected benefits can be realized**

SOA Adoption



SOA Adoption Curve



Market Insights...

*“By the end of 2007, Forrester expects to see **75% of Global 2000 firms implementing SOA** — but even small and medium-size businesses (SMBs) are broadly adopting SOA. In addition to SOA’s strategic business benefits, SOA also applies inside of IT, **optimizing application integration scenarios, extending the life of existing applications,** and increasing the flexibility of many types of IT-based business solutions.” **Forrester, June 2007***

*“The **SOA platform market** is on the point of **evolving from early adopter to the market adoption phase of deployment.** As might be expected, this is starting to drive price pressure, and user expectations of completeness of scope and ease-of-use are increasing. Inevitably this will accelerate the acquisition rate, and even quite significant vendors such as webMethods have been shown to be vulnerable. The result is generally positive for existing customers of companies being acquired due to the greater stability and combined mass of the two organisations.” **Butler Group, June 2007***

*“By all accounts, **SOA is still early in its adoption cycle. Only about 19% of all organizations have SOA in place,** of which 12% plan to increase their use of SOA and 7% have no further plans. Eleven percent are in the midst of piloting or implementing SOA and another 22% are researching the use of this technology.” **Computer Economics, Feb 2007***

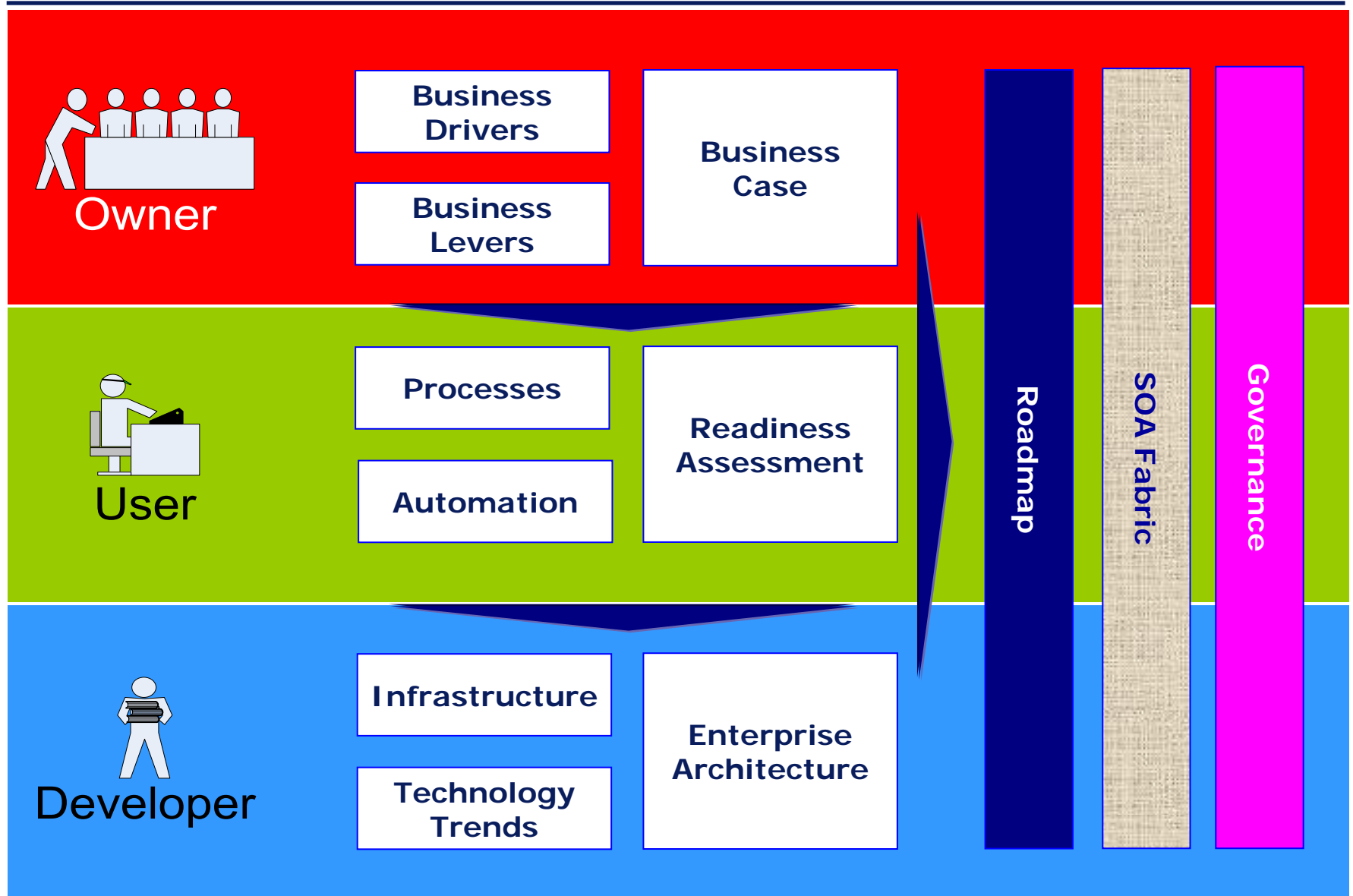
Planning Your SOA Initiative



SOA Roadmap



A structured and systematic planning approach helps fully realize the benefits of SOA



SOA is designed to deliver value much earlier in the implementation cycle

Standards-Based

Using standards to **deliver re-usable technology** components that enable complex business processes in a consistent, structured and repeatable fashion

Business-Aligned

Shift to a holistic perspective to meeting business requirements. Instead of focusing only on the tactical needs of a project, SOA looks to **enable business functionality in a way that can be used by others in the future**. It also allows individual pieces of the business process to be realized by best-in-class solutions.

Change-Oriented

Focus on the creation of IT components expecting and anticipating changes. **SOA looks to recognize that change is inevitable**: Customer demands, new go to market strategies, regulatory mandates and other change drivers are the reality. SOA designs for relevant, agile solutions so that critical dynamic business rules and processes can be quickly adjusted.

End-to-End Business Process

Addressing business information and processes across organizational and technological silos. SOA relies heavily on master data and meta data to enable **visibility of key information across the enterprise**.

Disciplined Governance Approach

SOA is more than just technology; it requires supporting processes and organizational alignment to realize value outside of the context of the first project. **Portfolio management, enterprise governance, organizational changes, and communication are key** elements that will ultimately drive the success of SOA.

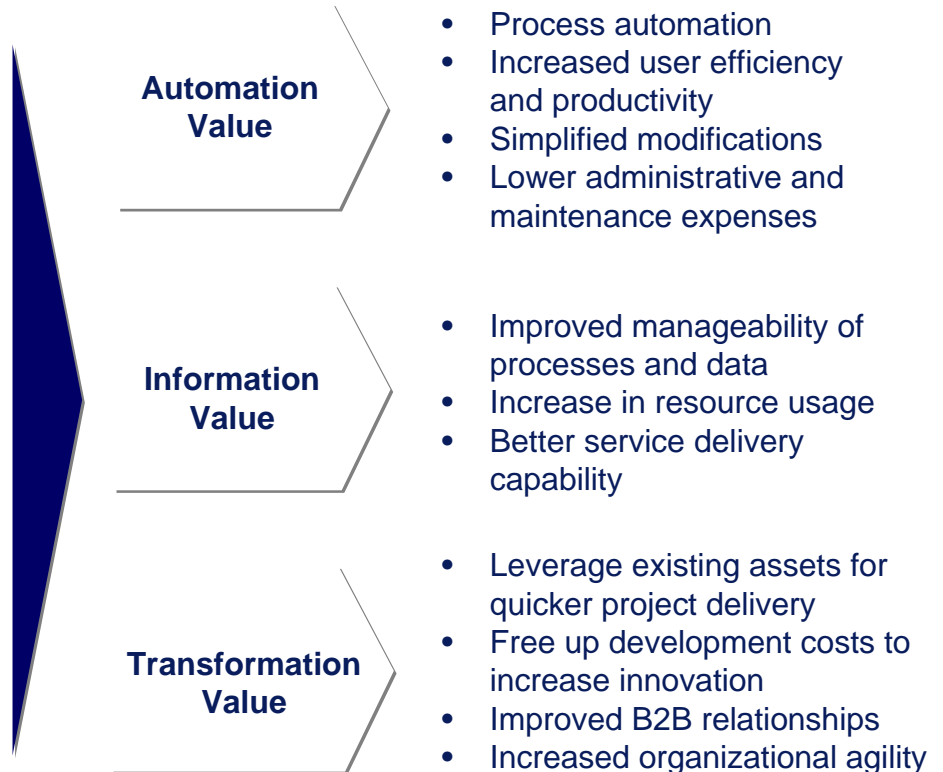
The SOA approach can bring value for both business and IT

“Don’t confuse capability with benefits. The former doesn’t automatically lead to the latter.” Gartner, March 2007

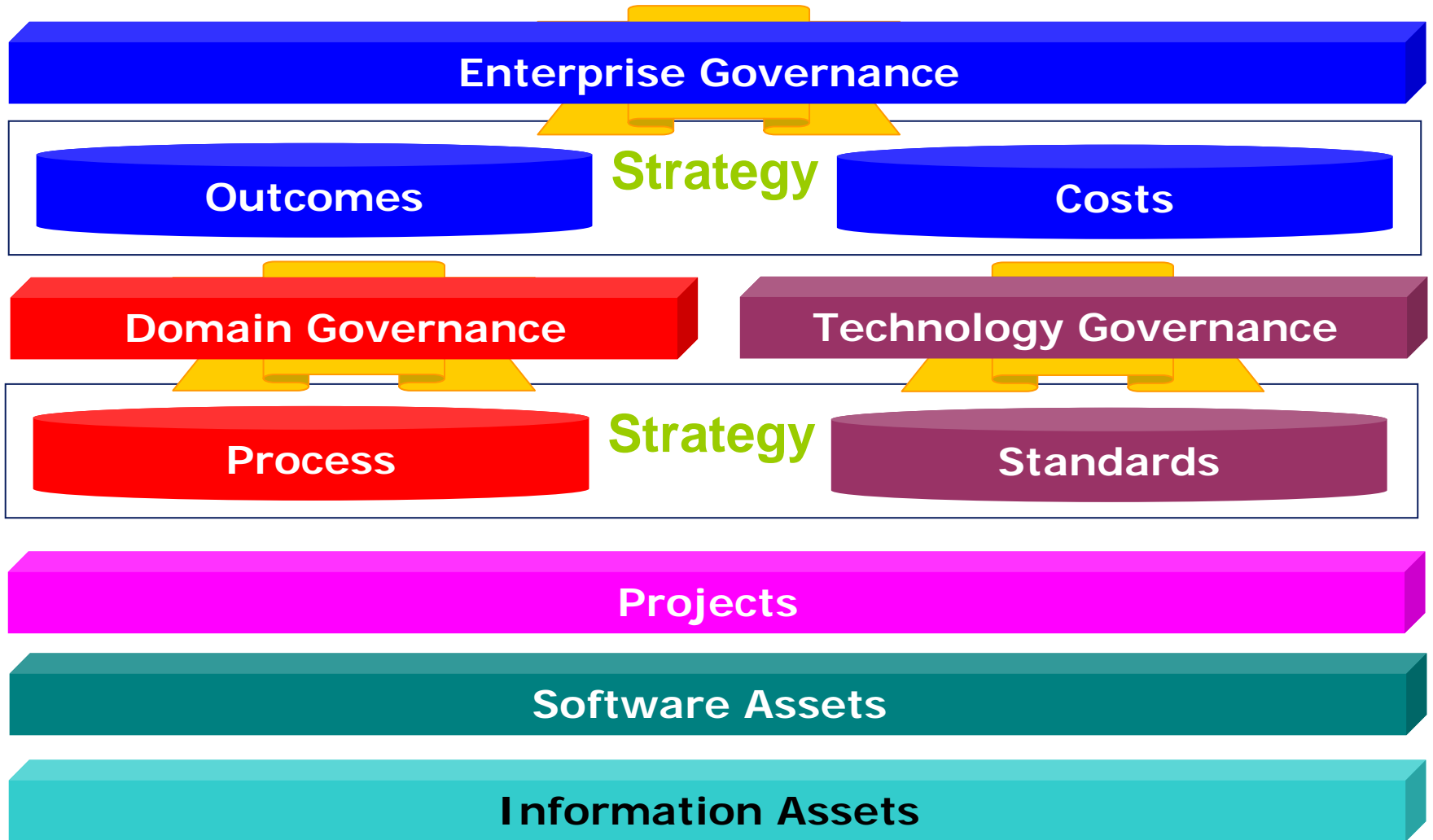
IT Capabilities of SOA

- Incremental deployment of applications
- Reuse of existing services
- Standards-based access to IT systems
- Loosely coupled architecture
- Application deployment flexibility
- Repository and registry for management and discovery of services
- Service utilization and reusability monitoring
- Aggregate service functionality to create new process applications

Business Benefits of SOA



Governance Structure



Balancing benefits and challenges: Disciplined Management helps tip the scale

SOA Benefits

- Increase business agility by composing business defined services into process implementations
- Leverage existing (back-office) applications assets and investments
- Decrease business dependence on IT through better definition of roles and responsibilities
- Free up maintenance costs to support innovation

**Disciplined
SOA
Governance
maximizes
business
benefits**

SOA Challenges

- Business needs to properly articulate service functionality requirements
- New roles and responsibilities between business and IT required
- Service based modelling requires new standards for security and authorization
- Repositories and models needs to be shared between business and IT

SOA Implementations in Human Services



SOA Implementations in Human Services

- User Services
 - Self Service Applications
 - Call/Change Centers
 - Information Portals
- Process Services
 - Workflow Management
 - Document Imaging
- Application Services
 - Rules Engine
 - Income Calculator
 - Forms & Correspondence
- Utility Services
 - Appointment Calendars
 - Task Management
- Broker Services
 - Integration Hub
 - Message Routing
 - Data Transformation
- Enterprise Services
 - Identity Management
 - Enterprise Security
 - Auditing

Key Facts and Benefits



In Summary...

- SOA is a **concept of exposing business functions as services** both internally and externally
- Once standard services are exposed, they can be aggregated to provide unified views and integrated to automate business processes
- SOA puts the **control of business processes in the hands of business analysts**
- Building a robust infrastructure to integrate services helps maximize the sharing of common services
- A modern SOA uses **standards-based web services to promote reusability and interoperability**
- SOA alleviates the need of depending on a single package or vendor
- SOA helps to extend the life of existing applications
- A structured roadmap to foster governance and management of services helps realize benefits earlier
- Like any IT investment, **the ROI of SOA has to demonstrate quantifiable benefits**
- SOA is **not the right solution to every business problem**

Questions



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