White Paper

SOA in Insurance Industry

Executive Summary

Today's insurance industry is growing at a rapid pace. The instant response to customers and change in business processes is highly desired to get the competitive advantage. As a result of rapid growth Insurance Companies have to deal with following (the list not complete):

a. Increasing number of the IT systems involved in supporting their business.
b. Increasing number of product lines.
c. Increasing number of customers and partners.
d. Increasing number of mergers and acquisitions.
e. Increasing demand to improve time to market.
f. Increasing responsiveness and flexibility.

To fulfill the business need and time to market, insurance companies are facing ever-increasing integration challenges. Most of the insurance companies have been managing large number of independent IT systems to serve their business. Most of these systems are self-contained & monolithic and do not have any idea about other systems in the organization.

For decades, insurance companies have been evolving away from these self-contained & monolithic systems towards network models. The goal of linking processes with transaction and data is one of the most important goals of an insurer's IT department to live with dynamics of business. Few insurance companies have achieved a degree of success by implementing a set of EAI applications or proprietary interfaces, but customized interfaces with external application have proven to be expensive to create and maintain. Moreover because of tight coupling it is not easier to replace EAI applications. "Integration" remains a major issue.

Service Oriented Architecture (SOA) proposes insurers to achieve their integration goals in an efficient manner. SOA helps insurer to achieve elusive goal of loose coupling. SOA address the challenges faced by business and IT managers like:

1. Challenge to deliver new solutions rapidly with fewer resources.
2. Challenge to integrate new solutions with legacy applications etc.

With the help of SOA, insurers can construct business application rapidly by utilizing existing services abvilable intra or inter organization. SOA is an IT strategy that organizes the discrete functions contained in enterprise applications into interoperable, standards-based services that can be combined and reused quickly to meet business needs.

Few insurance companies have already adopted the Service Oriented Architecture approach and getting competitive advantages over others. The Service Oriented Architecture approach implemented correctly will reduce the total cost of ownership (TCO) of systems and increase the Return on Investment (ROI) by leveraging existing IT assets and enable true components re-usability.

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Purpose

This white paper examines the need & implementation of SOA in Insurance industry. This document briefly describes the following:

- Business and technical challenges faced by Insurance Industry
- How SOA can help Insurance Industry to achieve its goals.
- Business benefits from SOA
- How to adopt SOA

Insurance Industry Challenges

Challenges are mounting day by day for insurers. Increased pressure for profitability translates into a hard look at cost reduction and top-line revenue growth. Profitability is linked to the ability to accurately assess risk and manage customer relationships over time to achieve financial success.

Insurers recognize that in order to respond to these pressures, they need to improve efficiency of back-office processing functions while improving the quality of service to the distribution channel. Agents have become more selective in choosing carriers; they are looking to align with an organization that not only has a wide product portfolio, but makes it easy

Business Challenges

In an industry marked by fierce competition, consolidation, and globalization, insurers have to differentiate themselves at all levels, including product innovation, distribution and customer service. At the same time, they need to constantly streamline and enhance the flexibility of policy administration and improve regulatory compliance. Among the challenges insurer face is:

- Competitive pressures
- Increase complex distribution channels
- Slower policy issuance
- Streamlining claims service
- Regulatory compliance

In the competitive world insurers are finding ways to do more with less.

Competitive Pressure

In the competitive world insurers are finding ways to do more with less. The ability of insurer to survive and show cutting edge depends upon how the insurer take advantage of the opportunities of the market to satisfy the customer needs with efficient profit margins. It sometime leads to addition of new business process or modifications in existing process with minimal impact in current infrastructure.

Competitive pressures, Increase complex distribution channels, Slower policy issuance, Streamlining claims service and Regulatory compliance are the most important business challenges of any Insurance company.

Increasing complex distribution channels

Insurance market is as usual dominated by agent-based sales, distribution channels have multiplied and become complex. Insurer finds it difficult to leverage its distribution channel and make it easier to work with agents and distributors. To overcome the these complexities of multiple channels serving the market, insurer has to make agents and distributors an integral part of the business and to manage distribution more effectively, insurers need to become "plug and play" operations. However, this is also difficult due to the inflexibility of their legacy systems.

New policy issuance

The fragmented nature of the insurance value chain has been increased tremendously. To provide a seamless experience to the customer, it requires better orchestration between different steps of the customer acquisition process. Inaccurate data, incomplete data, multiple hands-offs, and the re-keying of data are some of the challenges insurers face when issuing new policies.

Streamlining claims service

It is well known that retaining existing customers is always more cost-effective than acquiring new ones. The claims experience is pivotal to customer retention. The claims strategy has three fundamental pillars: claims efficiency, claims effectiveness and customer service. With the legacy infrastructure, where various systems are distributed heterogeneously and working in silo, it is hard for insurer to provide customer claims efficiently and in time frame to a lesser extent. Customer is always eager to know the status of claims from the day customer files it. With the systems, which are not synchronized within reasonable time frame, it is almost impossible for insurer to provide accurate status of claims to the customer.

Regulatory Compliance

Enterprises have to comply with government regulations to stay in business. Insurance industry across geographies is all the more susceptible to regulatory compliance. Each insurance company has different calculation/estimation rules for different geographies. This creates the need for more modular solutions where everyday changing regulatory compliance can be addressed

Some recent regulations in US, notably Sarbanes-Oxley, required IT organizations to review and in some cases retrofit all business systems. This diverted scarce IT resources and funding away from development of new business capabilities. Future regulatory changes could require further changes.

IT Challenges

Flexibility, dealing with legacy applications, addition of new systems and time to market are the most important technical challenges of any Insurance company.

IT infrastructure of any company is never being untouched if there is change in business process. The IT of insurance organizations has to deal with large and increasing number of systems involved in supporting their business, which is result of expanded product lines, distribution channels, mergers and acquisitions. Most insurance companies find themselves managing several independent IT systems of different sizes and dozens of business applications spread throughout the enterprise. Some to major challenges faced by IT of the insurance company are:

Flexibility

Often called "agility" within the industry, is about rapidly adapting to, and taking advantage of, change. For example, when a new opportunity arrives (e.g., a new product offering is identified) or a business condition changes (e.g., a merger), companies need technology solutions to support this changing environment rapidly and without much hassle.

Dealing with Legacy Applications

According to the Celent survey of insurance carriers1, 69 percent of core life and 60 percent of core property & casualty carriers retain legacy systems. Numerous mergers and acquisitions mean many insurers have multiple legacy systems, resulting in siloed processes, data, and management. Legacy IT systems are found hard to synchronize with the other application in the enterprise and with increasing number of legacy systems IT house of insurer needs to find the ways of handling the legacy systems.

Addition of New Systems

Addition of new IT application/systems is obvious during merger, acquisitions and expansion. To provide customer seamless service, all of new applications have to interact with the other application in the enterprise. These systems are not readily available to integrate with current IT infrastructure. Integration of these systems requires recourses and time; due to pressure from business stakeholder, IT departments find it is difficult to rapidly incorporate chagnes.

Time to market

It is response time in updating/upgrading the IT infrastructure to reflect the changes in business. High time to market potentially is not considered to be good offering by IT solution hub. In the complex distributed heterogeneous environment, the challenging factor for IT infrastructure is promptly align with the rapidly changing business rules & processes and meditate on the changes in business process.

SOA in Insurance Industry

Service Oriented Architecture is an approach to Enterprise Architecture where major components or software pieces are exposed as "service". The process of exposing existing components and software pieces as services abstracts the complexity of the individual component/software piece and hence enables real loose coupling.

In any industry, be it Insurance or Manufacturing or any other, Enterprise Architecture (EA) give the true picture of the organization's IT systems. How systems are related to each other, how systems are integrated with each other, how much tightly coupled systems are, how business processes are define? Answer to these questions drives the IT strategies of the organizations, for the evolution of IT systems.

Service Oriented Architecture is an approach to Enterprise Architecture where major components or software pieces are exposed as "service". The process of exposing existing components and software pieces as services abstracts the complexity of the individual component/software piece and hence enables real loose coupling. By converting software elements/pieces into services, SOA enables organization to reuse existing services and create new solutions rapidly and with less money. SOA makes EA flexible, easier to modify, easier to evolve with less number of resources.

Web Services

The SOA is an IT approach which has been around for quite a while. Organization has been practicing this approach for many years to improve their EA architecture. There are quite a few numbers of technologies which have attempted to realize the goal of SOA, where each software element/component in the organization available as a service. Web Services is one of the effective ways to make a software element/component as a service.

Webservices are tactical in nature, while SOA is a way of thinking about building software components.

Web Services are based upon open interoperable standards, free from vendor specific locks. These open interoperable standards enable to make any type of software element/component available as service irrespective of the hardware, operating systems, and programming language. Web Service is not the only way to make an SOA, however it is the most effective and matured way of achieving SOA.

Evolution of SOA in Insurance Industry

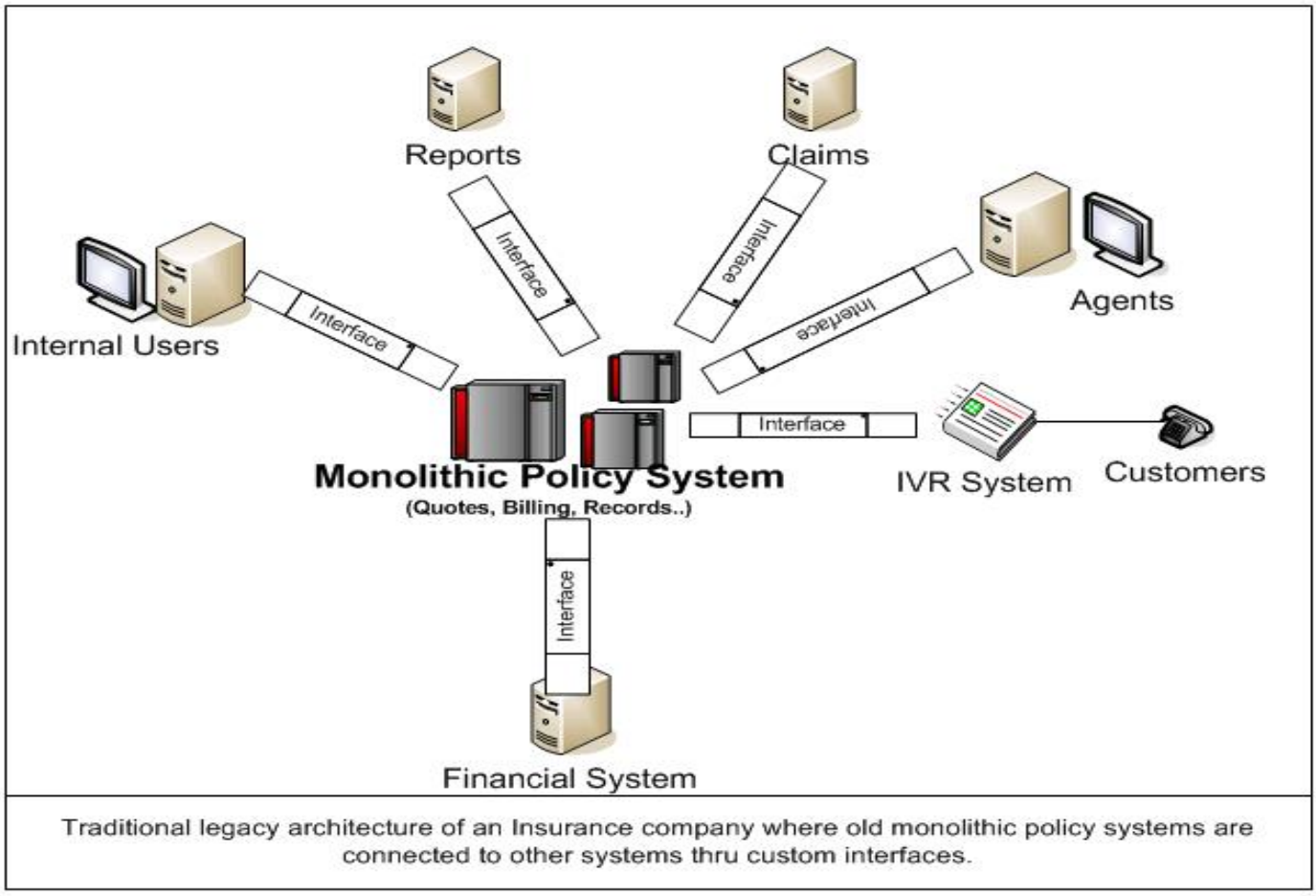
Monolithic Systems

In the olden days most of the insurance companies used to build applications with the intention of fulfilling the requirement of specific business functionality or used to target a specific department in the organization. Most of these systems are self contained & monolithic and do not have any idea about other systems in the organization.

The need of time & business and evolution in IT enables organization to integrate disparate systems with the help of proprietary interfaces and EAI application.

The systems communicated with each other using custom/proprietary interfaces, so tightly coupled. The support for those custom/proprietary interfaces was expensive and even sometimes not available because of the obsolete technologies.

A typical traditional insurance industry's IT architecture integrated using custom interfaces is depicted below:



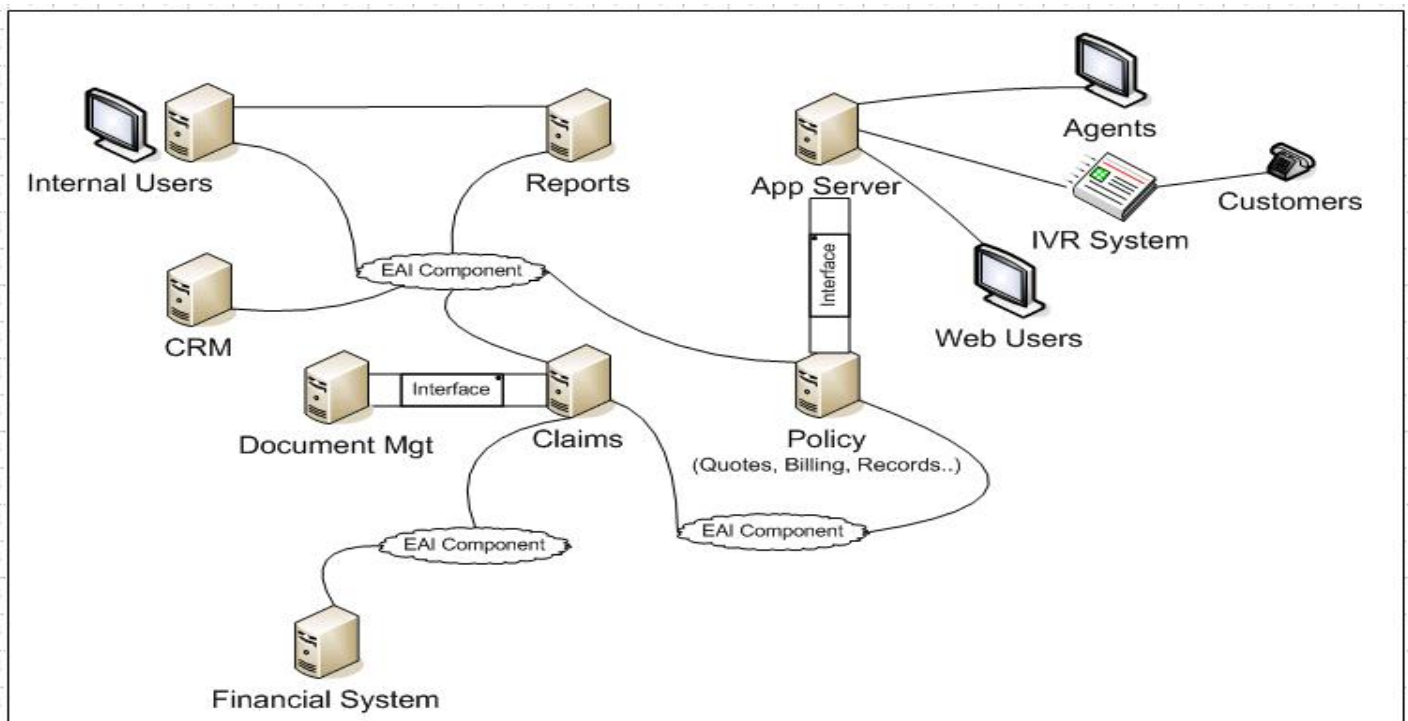
Traditional legacy architecture of an Insurance company where old monolithic policy systems are connected to other systems thru custom interfaces.

Distributed Systems

With increasing demand and evolution in technologies, new specialized software applications like CRM, SCM etc are developed. These applications quickly become interdependent and requiring each other to complete the core business processes. The organization's business processes were not only interacting with internal systems but also with external systems. The architecture where more than one computer system participates in the completion of a business process is called distributed architecture.

The unavailability of flexible integration technology, high cost of custom integration technologies caused organizations to take advice from integration focused & technology companies. These integration oriented service/technology companies introduced EAI to facilitate integration in the distributed environment.

A typical insurance industry's distributed IT architecture integrated using EAI components/modules is depicted below:



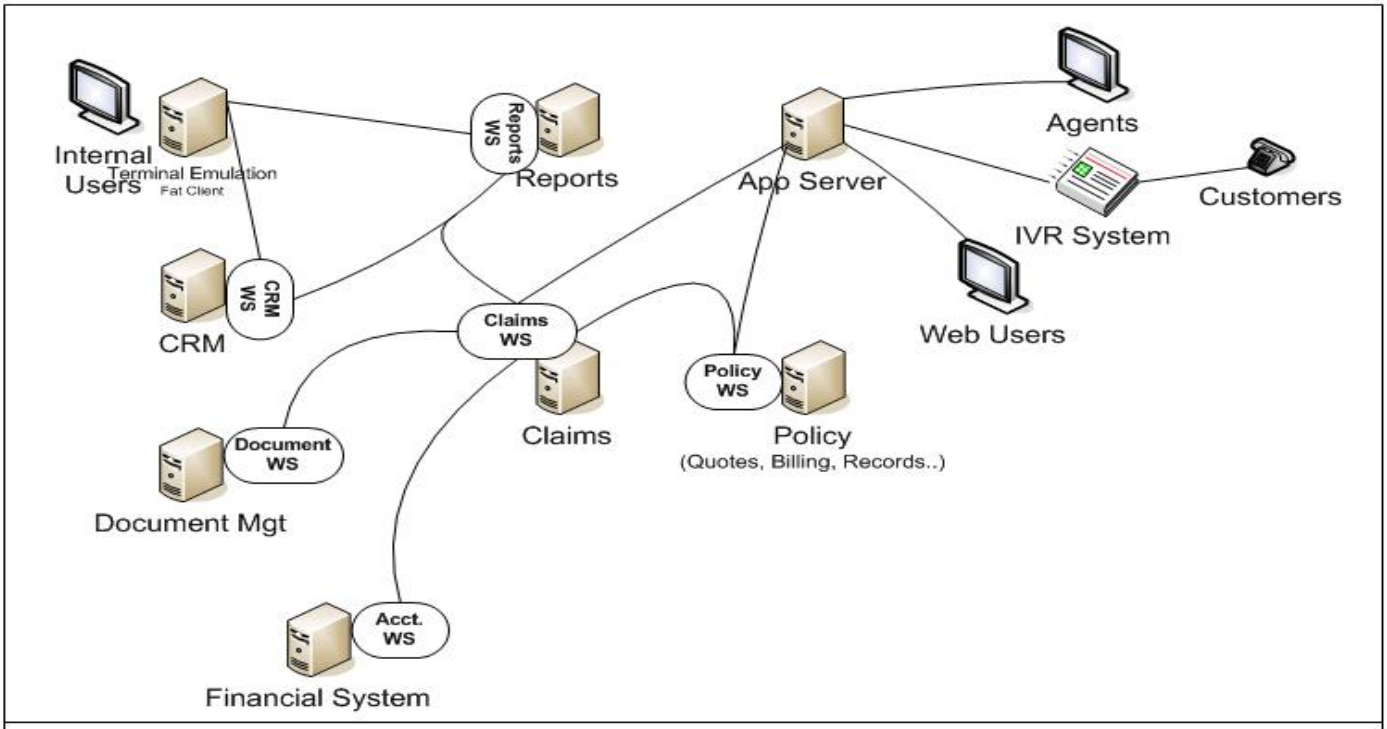
Common Distributed Architecture of an Insurance company where most of the systems are connected thru proprietary EAI components to handle core business processes.

Service Oriented Architecture

Software as a "service" is making major impact on the field of Enterprise Architecture. Service Oriented Architecture approach is making the high level of interoperability between systems, improving the alignment between technology and business processes. Because of its open standards, the SOA has the potential to deliver vast improvements in IT cost control, business agility, and business process efficiency.

SOA makes it a simple matter to change hardware and software, as well as technologies and even their locations. This makes business managers highly independent to pursue with their business goals with fewer technology constraints.

A typical insurance industry's distributed IT architecture integrated using SOA approach is depicted below:



Maintaining SOA is quite simpler and less expensive than traditional tightly coupled Enterprise Architectures. All systems communicates with Web Services (the SOAP based open source);

EAI	SOA Based on Web Services
Based on proprietary technology	Based on open standards.
Relatively tight coupling between systems	Loosely coupled systems.
Minimal vendor interoperability	Standard-driven vendor interoperability.
Restricted reusability of EAI broken interfaces	Highly reusable service interfaces by any SOA-enabled application.

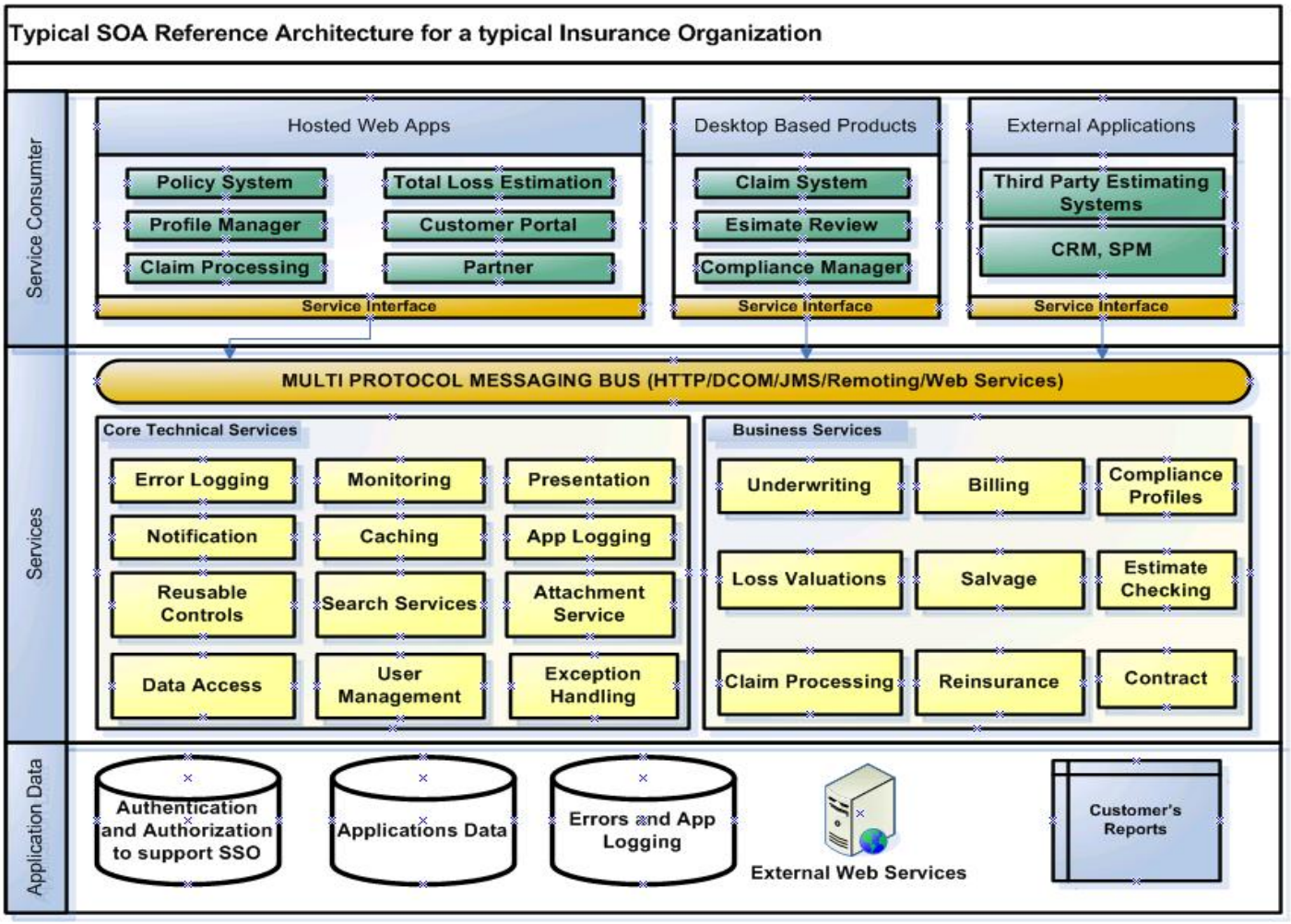
SOA Reference Architecture

SOA Reference Architecture provides the blue-print of enterprise architecture based upon the building blocks of SOA. The starting point for building the reference architecture is services.

An SOA is built around the concept of a business and technical service. Making software components/elements/units as a reusable piece of logic designed service to execute a piece of business process with standard access and invocation interfaces. So the first capability of any SOA reference architecture has to deal with service identification and creation, whether formed of old components or newly written ones.

Once these services have been created, the power of an SOA is derived from joining these services together.

Here is an example of a SOA reference architecture created by Infogain for one of its client (Mitchell).



SOA Benefits

SOA is not only beneficial from IT perspective but also from business perspective. It is extremely important to know that SOA helps organization to streamline their business process and extremely quick in creating and modifying business processes and lowering IT budgets.

SOA can be defined as a set of design and organizational principles that expose business logic and data as independent reusable services. The overall objective of SOA is to structure the organization such that business vision and requirements can drive IT towards the same goals without technology impeding achievement of objectives.

Exposing IT assets as reusable services gives business managers the ability to capitalize on previously unrealized integration points.

Business Benefits from SOA

Lower IT Budgets, High ROI on IT Projects, Promotes alignment of IT with Business, Higher Business flexibility are the primary tangible business benefits of SOA.

Lower IT Budgets

Due to increased competition and lower margins, companies are looking for lower budgets in managing their IT systems. According to Tom Pohlmann of Forrester Research, CIOs are seeing value in cutting costs and getting more out of their prior investments.

The SOA model has the ability to decrease IT budgets in several ways.

a. Since the underlying applications and technology to support an SOA are already in place at most large organizations, the development of service components is more about integrating existing application and business logic than it is about writing completely new systems.

b. SOA can lower IT budgets is by extending the useful life of certain business applications. Many of today's large business applications require frequent upgrades and, depending on their length of service, may need to be re-architected or replaced to meet new business requirements. With a SOA in place, IT organizations have a new method for meeting business requirements. Functionality from various applications, exposed via the services layer, can be integrated to create new applications, views of data, or automated processes. The continued use of IT assets, therefore, also contributes to a decrease in IT budgets.

c. The SOA inherently changes an IT organization's definition of development projects. Today, many IT organizations are still pursuing bigger implementations with tremendous amounts of capital, resources, and time dedicated to projects – and with no guarantee of success. With a SOA, projects are smaller in scope and are completed in less time. As a result, the capital investments and resources required to complete these projects are quite less.

Higher ROI on IT projects
Reduction in development timeframes and the resources dedicated to these projects directly impact the costs associated with a project. Reducing the costs of development projects will positively impact ROI.

Promotes alignment of IT with Business
SOA adds value to an organization due to its ability to align the IT organization with the business drivers of an organization. The process of abstraction that is completed as part of SOA removes application specific complexities. This allows IT resources to focus on how to best use their portfolio of applications and data stores to meet the business requirements.

Higher Business flexibility
SOA contribution in the business flexibility is recommendable. According to a recent study of Fortune 500 companies, over 80% of companies had altered their business model in a given two-year period. Nearly 66% of these companies stated that their business model changes had been constrained by inflexible IT5.

The speed of change is likely to increase going forward and business managers will have to continually adjust business models to meet customer and competitive pressures. To be effective, these adjustments will have to be implemented rapidly and without the interference of IT limitations. Although a SOA will not remove all IT obstacles, a well-designed SOA does give IT managers a new method for creating solutions based on proven business applications.

IT Benefits from SOA

Loosely coupled architecture, modular approach, non-intrusive and standard based architecture are the primary deliverable of SOA based architecture.

Loosely coupled architecture

- Increases organizational agility; allows companies to easily assemble, and modify business processes in response to market requirements
- Provides a competitive advantage by offering greater flexibility in the way computer systems can be used to support the business
- Lowers implementation costs by increasing reusability; services can easily be shared across multiple applications
- Increases IT adaptability; changes--resulting from mergers, acquisitions, division, package application implementations, etc.--are easily integrated
- Easy accessibility of deployed/published components inside/outside company network.

Modular Approach

- Enables incremental development, deployment, and maintenance; avoids the need to do costly and risky "big bang" software implementations
- Decreases development effort by reducing complexity (through a "divide and conquer" approach)
- Over time, accelerates deployment of new application functionality; process becomes mostly assembly of existing services versus mostly new development

Non-intrusive

- Allows existing investment in IT assets to be leveraged
- Lowers risk and development effort; avoids the need to rewrite and test existing applications

Standards-based

- Platform independence allows companies to use the software and hardware of their choice
- Allows companies to engage in a multi-source strategy, reducing threat of vendor lock-in
- Delivers economies of scale; same technology can be applied to address a broad range of business problems
- Reduces complexity and fragmentation resulting from use of proprietary technologies
- Lowers training requirements; increases available labor pool

SOA Adoption

Adopting SOA should be thought of as strategic direction and not as a project. SOA requires commitment from business and IT leaders.

Tactically, some organizations have begun by identifying legacy applications with data sets (or features) that, if exposed, could benefit other systems or processes (then creating services around the access of this data). Strategically, the process beings at the Enterprise level with the identification of services that drive the organization technically and from a business aspect. It is the creation of a high-level blueprint of all the technical and business services that define an organization. This strategic analysis will evolve over time and is used to evaluate subsequent tactical projects to ensure compliance with the overall SOA of the organization.
Initially, the challenge of SOA implementation is to properly identify instances where similar business functions are provided by multiple systems within an organization. Secondly, the execution of the identified services must be considered, where the challenge is extracting complexities from individual services. To realize the benefits of reduced complexities, SOA strives to remove the processing (orchestration) of services interaction from individual services; thus increasing service reusability.

SOA Adoption:

1. *Create a SOA Plan*
2. *Discover Services*
3. *Create Services*
4. *Govern SOA*

Creating a SOA Plan

Any organization cannot implement a successful SOA without a plan. It seems to be obvious, but you would be surprised to know that many large and well-run organizations approach SOA implementation without a thorough plan. It need not be some huge documentation that no one is interested to read.

A good SOA plan should be built upon with following factors in mind:
1. Requirements
2. Existing technologies
3. Reference or target architecture
4. Migration plan
5. Financial and resource allocation issues
6. Timelines

Service Discovery

Service discovery begins with an analysis of the complete corporate environment that identifies viable business initiatives that can be realized by an SOA. The business initiatives are then broken down into their component business processes and supporting web services.

Discovery via Rationalization
A common method for service discovery is a process known as service rationalization, which involves a careful analysis of all the systems and applications providing a specified business function. Through service rationalization, business functionality supported by the least frequently accessed systems can be implemented within those that are more frequently accessed. For example, while it may be possible to process a customer credit in a CRM application, this is most often done via the ERP Billing module.

Discovery via Consolidation

Another method of service discovery is to consolidate services. In this step, all services instances are redefined into a consolidated version that supports the superset of all the interfaces exposed by the individual instances. The goal is to eliminate redundant services, leaving the minimal number of services for development and support going forward. The consolidation of services in essence creates groupings of services that can support multiple interfaces and reduces the total number of services to be created.

Service Orchestration

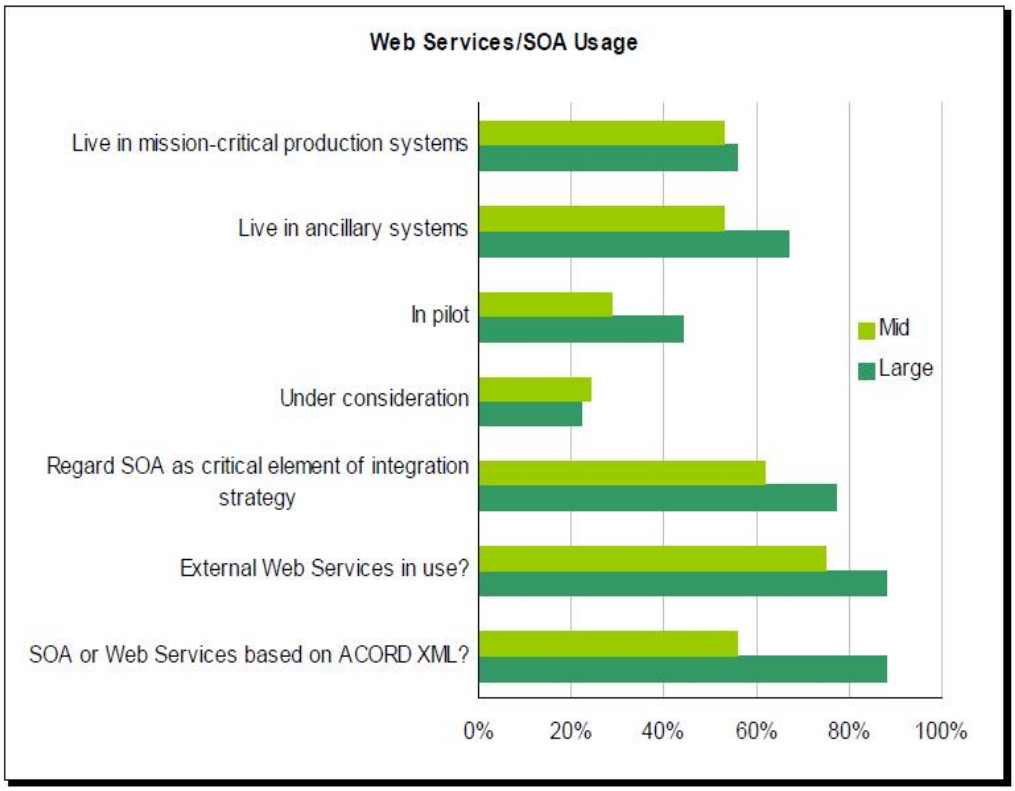
Finally, the discovered services need to be combined and coordinated in a logical fashion. This is known as service orchestration. Although orchestration logic can be built into each service, this approach quickly leads to very complex logic. A better is approach is to use what is known as Business Process Management (BPM). Using BPM, the complexities of individual services are minimized and individual services cannot independently invoke other services for completion of a business task. The intelligence is placed within a business process layer. Business processes are responsible for procedurally invoking each constituent services, thereby providing a composite service for the services originally requested. So, rather than burdening each individual service with processing logic, a separate composite service is created that controls the interaction and processing of its services.

Service Creation

In the service creation phase, developers use a "web services scorecard" that evaluates which web services are the best candidates for development according to set of criteria that attempt to balance complexity with reuse potential. In tandem with web service development, the tem will finalize the supporting architecture required to make the SOA a reality. In addition, this phase establishes mechanisms to manage, measure, and refine web service performance upon deployment.

SOA Adoption in Insurance Industry

SOA is in wide use in the insurance industry today. In Celent's most recent insurance CIO/CTO survey, the majority of respondents across both the large (over US$1 billion in annual premiums) and midsize (US$100 million to US$1 billion) reported using SOA in mission critical systems today, and more than half regard SOA as a critical element of their application integration strategies.



Source: Celent 2005 US Insurance CIO/CTO Survey

Case Study

Mitchell International is a leading provider of information, software and technology solutions used to automate and optimize the automotive P&C claims and vehicle repair process. In 2004, it had premium income of over 150 million USD, with 10 million claim settlements in a year.

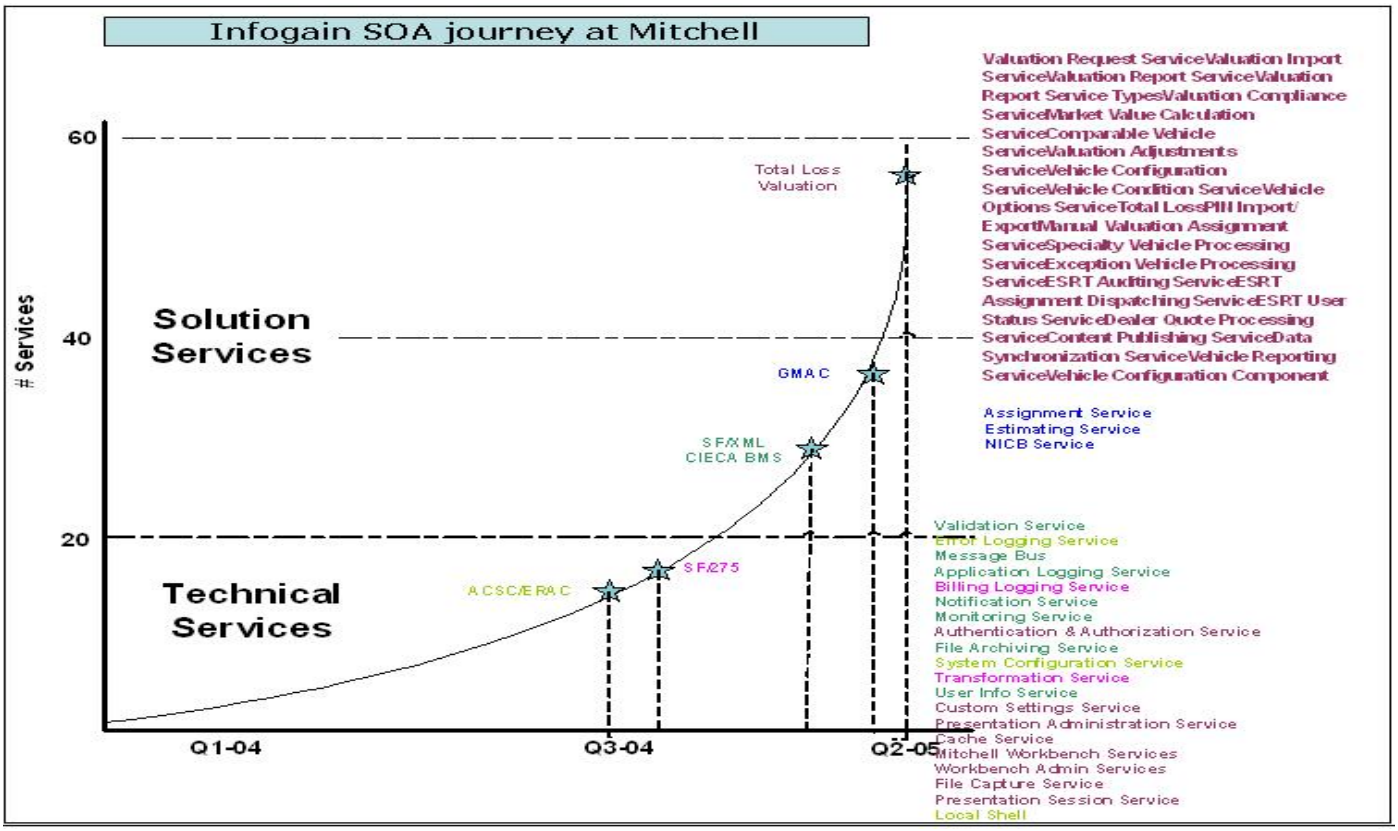
Mitchell had a large number of independent product lines which used to perform specific tasks. These products were written in older technologies like C, C++, VB, COM etc. With the increasing demand to market and customer expectations, it was becoming difficult for Mitchell to respond rapidly with huge independent set of products written in older technologies.

Mitchell needed to streamline its claim process and integration of its huge siloed products while improving time to market and cutting overall IT expenses by 20-30%.

Mitchell contacted Infogain in 2004 to re-architect their existing infrastructure and make it SOA enabled. Infogain and Mitchell architect team together prepared a SOA adoption strategy and roadmap for Mitchell and suggested to use WLI as the integration layer.

By using WLI as the basis of its SOA strategy, Infogain begins to streamline Total Loss claim process for Mitchell as the first application on SOA. While developing Total Loss claim process Infogain identified and developed the basic technical services that could potentially be required by other processes or products.

Infogain journey continued with the identification of more and more reusable technical and business services.



With increasing number of reusable services, new application development time started reducing and hence time to market was increasing for Mitchell. As a result Mitchell is tangibly observing the reduction in IT costs and quick turnaround applications.

Conclusion

SOA offers enormous benefits to companies across all industries. All organization strives to get increased levels of return from IT investments while delivering the level of agility that competitive business demands. SOA promises to fulfill their desire of high ROI along with agility.

SOA provides the architectural framework for solutions and applications that are Componentized, Interoperable, Modular and scalable. SOA greatly reduces the development time because of reusability. The service benefits of reuse offer the potential not just for IT to deliver better service in the near term, but also to ensure that the benefits increase proportionally over time as levels of reuse increase.

By building solutions based on SOA, insurers can achieve following benefits:
1. The flexibility and scalability to quickly respond to changing customer needs and business requirements.
2. The ability to integrate best-of-breed partner applications with standard industry-leading softwares and middlewares.
3. The ability to selectively and incrementally modernize infrastructure while preserving legacy investments.
4. The opportunity to avoid dependency on propriety approaches.
5. The ability to re-use existing components in new applications and services.

For the insurance industry, SOA and the re-use of existing systems can bring significant business advantages. The advice is to approach SOA with caution and care and if properly executed, there is no reason why organizations should not drive new business and maximize existing investments.

About Infogain

Infogain Corporation is a technology solution provider helping you to attract, retain and service your customers better. Combining the deep knowledge of technology and business process and leveraging its dual shore business model Infogain Corporation helps you to unlock the potential of scattered and unrelated data though integration and analysis.

We were conceived with an entrepreneurial spirit that aims toward customer delight in all of our associations. We incubate the leadership attributes of our employees by promoting entrepreneurial ventures, and combining them with strong technical and business plans.

Our goal is to understand your business, share a common business goal with you, and help you reach your objectives. We value the long-term relationship we create with our customers and ultimately become an extension of their businesses.

We strive to empower our customers through our solutions. Our objective is to capitalize on the client's existing IT infrastructure and unlock the potential of scattered and unrelated data using our Customer Asset strategy - in which we recognize a company's greatest asset as its customers.

We deliver end-to-end solutions through valuable strategy development, consulting services, and highly skilled engineering execution. With over a decade of on-time/on-budget delivery, Infogain has built strong practices and worldwide delivery capabilities in CRM, ERP, integration, and business intelligence; we cover industry verticals like financial services, telecom, healthcare, manufacturing, retail, and government. And for clients who wish to outsource ongoing operations, Infogain supports these and other applications in a robust and tested application management environment.

Over the years, Infogain has invested in sustaining a strong infrastructure that is reflected in our world-class network of people, processes, technology, and knowledge aspects of the work environment in which we provide end-to-end solutions to our clients worldwide. These investments enhance the productivity rates per employee while significantly reducing project-centric risks for our clients.

Established in 1990 as Headquarters in the Silicon Valley, California, Infogain has global footprints in UK and Europe and a SEI-CMM level 5 compliant Global Delivery Center in New Delhi, India started in 1996. The state-of-the-art development center is equipped with latest technology and networked work environment with multi-layered controls for enhanced data, network and physical security. The facility operates around the clock to support clients across multiple continents and time zones. With our global presence we offer the benefit of localized control for our customers combined with the advantage of low cost and high quality.

www.infogain.com