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Service-oriented architecture

Unlocking hidden value in insurance systems

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Service-oriented architecture

Unlocking hidden value in insurance systems

By Donald Dehne and Jay DiMare

As customer needs shift and IT capabilities evolve, insurance companies are under increasing pressure to become more innovative – both in terms of their business model and their operations. Service-oriented architecture (SOA) offers a number of advantages that, when understood and exploited by both the business and IT sides of an insurer, can help address any number of business challenges.

Introduction

The need for more operational flexibility and increased information sharing, plus pressures to enable more efficient processing, are creating a new level of internal IT challenges for an industry already steeped in intricate procedures. Yet the complex nature of insurance service contracts and claims processing is a primary reason why insurers are reluctant to dive into new technology. While carriers and their service partners have leveraged IT, the industry has not moved as rapidly or as thoroughly as other industries.[1]

In addition to the focus on optimizing existing processes, today's insurers face diverse market pressures – driving the need for basic changes in business capabilities and functionality. Not surprisingly, companies are concentrating their efforts on areas that can help drive differentiation, including:

- Straight-through processing to help reduce cycle time and cost, and improve customer satisfaction
- Tighter integration with service partners to help eliminate redundancy and rework
- The promotion of Web-based self-service to attract new markets
- Realtime access to information from and to producers to create a seamless organization
- Faster speed-to-market of innovative products and services.

Typically, companies' internal systems and applications – while delivering powerful functionally – are "hardwired" for specific environments and users. Extending functionality to new users – not to mention large numbers of existing user groups – can be costly and time consuming. Strategic changes in operating models and/or expansion into new markets are often delayed or abandoned because of the inability to unlock the potential of these systems.

As forward-thinking insurers look for opportunities to leverage their IT investments and unleash technology-enabled processes to resolve pressing business issues, it becomes clear that better ways of integrating technology are needed. We believe that service-oriented architecture (SOA) may be the answer.

What is SOA?

Service-oriented architecture (SOA) is a style of developing and integrating software. It involves breaking an application down into common, repeatable "services" that can be used by other applications, both internal and external, in an organization – independent of the applications and computing platforms on which the business and its partners rely. Using this approach, enterprises can assemble and reassemble these open, standards-based services to extend and improve integration among existing applications, support collaboration, build new capabilities, and drive innovation at every point in the value chain.

The power and flexibility of SOA comes from the use of discrete components representing individual business tasks ("services"). With SOA, insurance companies have the opportunity to very quickly combine, build and deploy new services across different systems, platforms and lines of businesses by virtually "plugging in" the new service to their existing infrastructure.

The potential benefits of service-oriented architecture to insurers can best be explained using real-life examples. The following three scenarios demonstrate how SOA can be applied to help solve business problems, bring more value to the business, and equip your company for an ever-changing landscape.

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Accelerating and simplifying the claims process

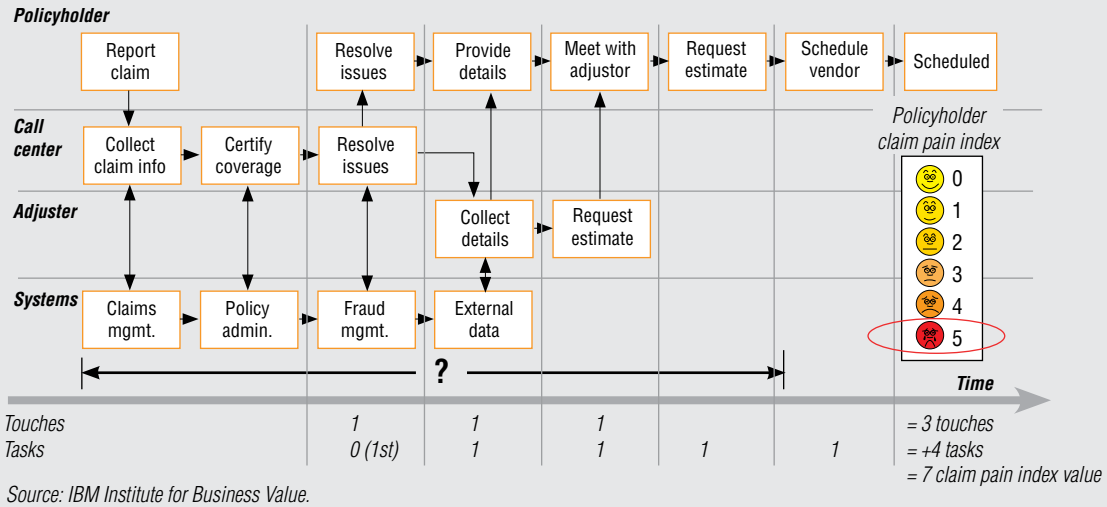
While claims processing is one of the most basic insurance functions, policyholders attach little value to the process itself; they are far more interested in rapidly resolving their claims. Unfortunately, claims is a complex process involving a large number of variables determined by the line of business, type of loss, and severity of the claim. The need for near realtime communication across multiple channels, the sheer number of critical parties, plus escalating concerns regarding fraud only add to the challenges – contributing to longer cycle times and making it increasingly difficult to control costs. In the end, policyholders can find the process time-consuming and painful.

How the process works today

The majority of claims, no matter how complex, follow a similar process. Yet in most organizations, different lines of business, even different product sets within a line of business, may rely on entirely different databases and applications. Some applications are developed in-house and work alongside those that have been purchased "off the shelf." Mergers and acquisitions may have introduced additional, incompatible systems. And as a rule, these applications were not designed to extend to policyholders or traditional partners in an efficient way.

The result is that the claims process is marked by redundancies; the necessity for manual intervention at many steps; the opportunity for errors as information is re-entered by different people, and lengthy cycle times. Figure 1 shows a generalized view of the first part of a claims process – in the eyes of the policyholder.

FIGURE 1.
Partial claims process



Source: IBM Institute for Business Value.

SOA allows granular access to application funcitonality supporting dramatic change of technology-enabled business processes.

Here, we introduce the concept of a Claim Pain Index. The index is based on the number of "touches" and activities between the trigger point and the desired outcome for the client: in this case, between filing the claim and meeting the adjustor. The first touch and each corresponding single activity add one point to the total. Each additional touch and corresponding activity adds two points. Each activity without a touch adds another point. Zero would be a perfect score; a score of three or above is likely to have an impact on customer satisfaction. In the example above, there are three touches and four separate tasks – a Claim Pain Index of seven, and a very unhappy client.

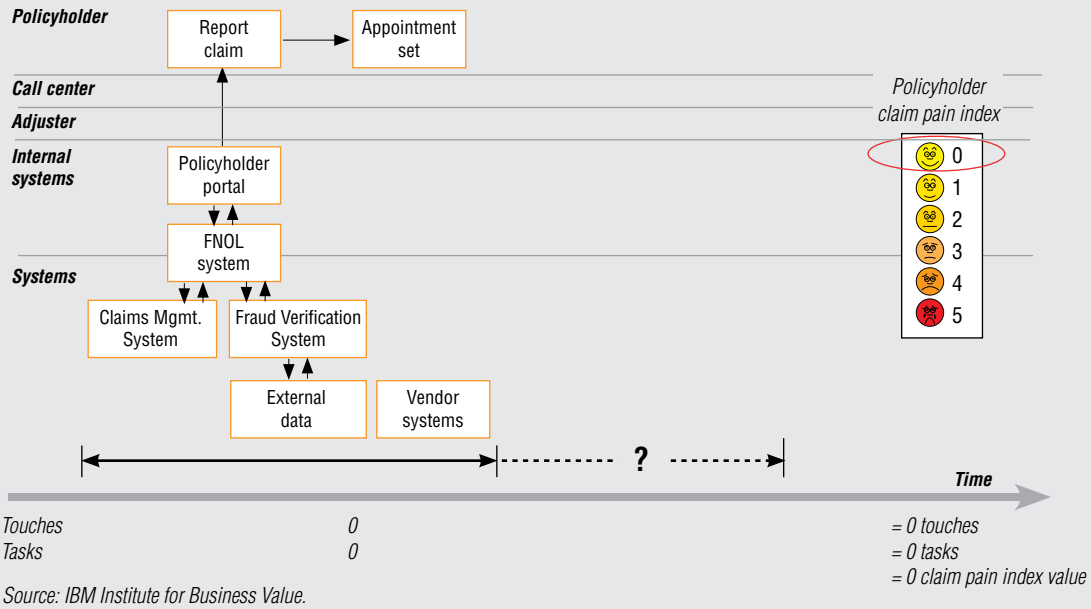
From the insurer's perspective, the steps are necessary because there are a number of systems involved, with different skills required to use them. More often, these systems do not interact for many of the reasons cited above – hampering the insurer's ability to change the process.

Integrating systems for faster claims

The question becomes, how can insurance companies improve the process and ease the pain for the policyholder, given the restrictions and constraints imposed by current technology? Insurers can only change the business processes if their critical applications are flexible enough to enable the change. Systems integration for those applications supporting the claims process must be seamless. SOA can help provide this level of systems integration and collaboration.

If we return to the claims process, the Claims Management System is typically the central, controlling system in the overall process. If the information held in other supporting systems could be made available to the Claims Management System in a flexible, accommodating manner, and at the time the claim is first entered, the process could be redesigned as shown in Figure 2.

FIGURE 2.
Revised partial claims process.



Source: IBM Institute for Business Value.

This dramatic elimination of activities is only possible when systems can interact in real time. As you can see when comparing the two figures, the need for customer interaction is greatly reduced. There are no touches and no associated tasks between the claim report and the desired outcome: the Claim Pain Index is zero; the client is satisfied.

Of course, this begs the question: how can a company achieve this kind of integration? Certainly, while this type of system communication has been possible in the past, previous approaches were too costly, since they relied on custom, point-to-point interfaces that were typically not used elsewhere in the organization. SOA provides a highly flexible approach to integrating both internal and external systems.

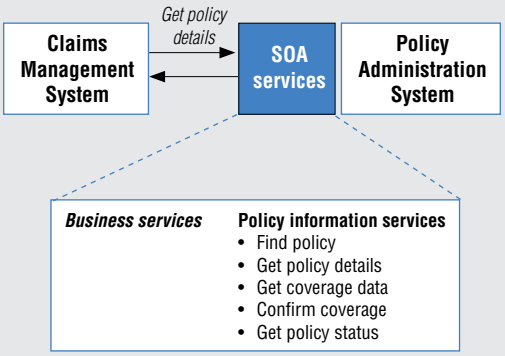
SOA services supports integration with external business partners as well as internally-focused integration.

To demonstrate how this is accomplished, we can examine just one of the interactions implied in Figure 2. With the initial claim report, it is necessary to first check the Policy Administration System to verify coverage for the claim. (In Figure 1, this is shown as a separate activity). Often, the Call Center representative, or worse, another entity in the organization, would have to access a different application system than the one where the claim data is captured.

This could be avoided if there was an economical and technically flexible approach to integrating the Claims Management System and the Policy Administration System. SOA fosters this kind of communication, as shown in Figure 3.

A controlled set of services is required to expose the data needed. These services mask the complexity of data, as well as the use of business rules required or currently included as part of the application itself. While this example shows the services being used by the Claims Management System, the services could also be used by other applications within the insurer's domain, such as underwriting or billing. Better yet, these same services can be extended externally to business partners, such as agents or partners in the claims process.

FIGURE 3.
Claims Management System using SOA Services to access Policy Administration System information.



Source: IBM Institute for Business Value.

The value to the business

There are a number of advantages to this solution. First, and perhaps most important of all, the faster, simplified process provides benefits for all parties involved. For the insurer, reduced cycle time equates to a lower cost to process a claim. Beside the obvious time-based labor savings, this approach can translate into fewer handoffs, and a lower incidence of errors. In some cases, it may also enable companies to reduce staff, since fewer people are required to complete the same number of claims.

Real-time exchange of data between systems results in accurate data with limited opportunity for error, lowering cost of operating for both the business and IT.

In today's insurance industry, the ability to undertake this kind of business process evolution can serve as a critical differentiator, with the potential to deliver significant competitive advantage. However, as many carriers have discovered, this degree of business process change is only possible if the technology that enables the process can change easily. Existing systems integration techniques can be costly, inflexible and time-consuming – limiting the business's ability to respond appropriately to changing requirements. SOA, on the other hand, provides the flexibility needed to support rapid change – efficiently and cost-effectively.

For the policyholder, this process may also yield benefits – in multiple ways. The reduced cycle time and fewer interactions with the insurer can translate into a lower level of frustration – what we referred to as a lower Claim Pain Index value. This can help bring improvements in customer satisfaction, and lessen the possibility that the claims process will alienate customers.

Insurers may also directly benefit from SOA as a software design and implementation approach. As demonstrated in our simple example, exposing services for certain core systems can produce additional advantages from their reuse in future integration efforts. For instance, development of an SOA insurance solution within IBM yielded a 45 percent reuse rate[2] for a set of common services surrounding price quotes and first-notice-of-loss. In our earlier example, common services for accessing policy data are needed by many, if not most, insurance systems. Extrapolating the reuse factor against any of the core systems may generate a significant return with the first instance of reuse.

In our example, we do not mention the impact to the business when there are errors. By letting the data flow among systems electronically, we are able to lessen errors caused by data entry or other manual mistakes. This can equate to a lower cost of operations – not only due to fewer errors, but also through the ability to quickly identify and address issues stemming from incorrect information. This often flows directly to lower loss payouts for both fraudulent and inaccurate claims.

Last, with services available to integrate key systems such as claims, fraud management and policy administration, the insurer can be well positioned for future integration with partners. This qualitative benefit is easily quantified when considering integration with the independent agent – a capability that may often equate to an increases in sales and resulting policies. Partners are more readily supportive of a standards-based, non-intrusive systems integration approach. This allows them to use the software of their choice to run their business, with minimal effort to integrate with their carrier partners.

Enabling policyholders to administer their own policy

Consider something that, to most consumers, should be a very simple process: changing a policy. Yet today, few insurance carriers permit a policyholder to make even the simplest change to an existing policy, and most are not available to accept changes outside normal business hours.

This creates numerous problems for the insurance company. First, the cost of processing policy changes in this way continues to increase. Not only is there the cost involved when even simple transactions require intervention by several employees (which also slows cycle time); there is also the price of lost opportunity as agents and employees spend their time servicing policy changes instead of selling. Consider also that the policyholders, the process and the systems that support them are not customer-centric, and fail to meet evolving customer expectations for simplicity, speed and convenience. Understandably, this may have an impact on customer retention.

How it works today

Looking at an auto policy change, a policyholder wanting to add a new driver to an existing policy must contact his or her agent or the company's call center. Initial information is forwarded to a processor, who checks for accuracy, follows up to gather more details, and enters the change into the system. The change is then forwarded to an underwriter, who reviews the information and may order additional underwriting reports. This might require the underwriter to contact the policyholder for more information. Since this change has an impact on rates, a bill for the additional premium is generated and sent to the policyholder. The payment is processed when received.

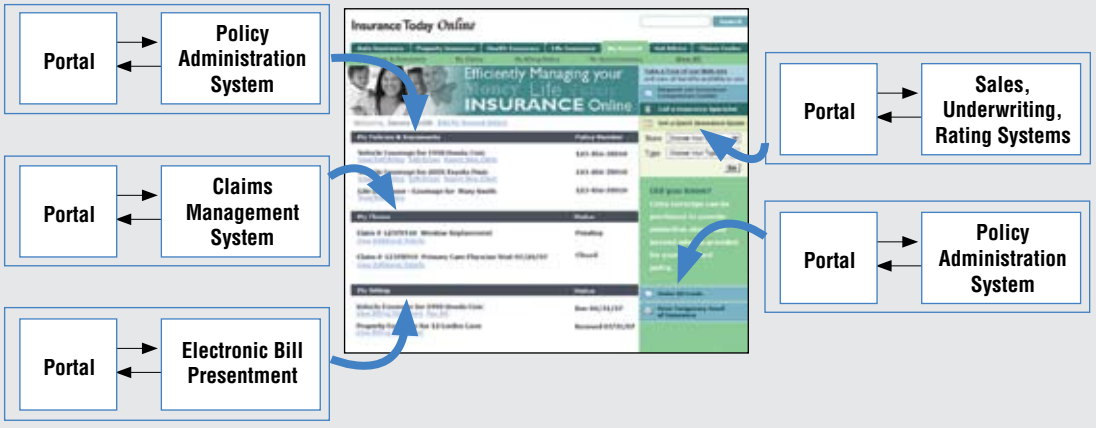
Creating an opportunity…with SOA

By extending services directly to the customer, it is possible to create significant differentiation and competitive advantage. The objectives are simple:

- Create an environment in which policy and billing services are available when, where and how customers want them
- Create reusable policy services
- Integrate various data sources by using pre-built services.

These goals can be accomplished using a Web portal. Figure 4 demonstrates the type of capability the portal might allow.

FIGURE 4.
Sample policy administration portal.



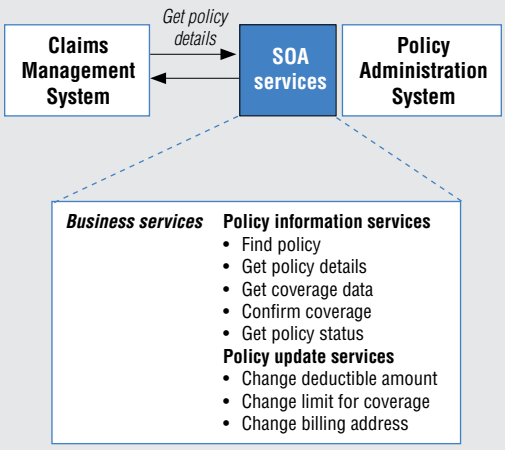
Source: IBM Institute for Business Value.

Services supporting key, central systems such as Policy Administration are prime candidates for significant reuse.

The portal integrates typical policyholder information. The Web page mock-up shows the type of information an insurer can display, and hints at some of the functionality that may be possible. This capability isn't new – it's existed for some time. What *is* new is how we would actually build such a system, given the challenges faced by both businesses and technologies in today's insurance industry.

SOA provides a way to build this portal using standards-based, reusable services. The call-outs in Figure 4 show the type of systems collaboration required to collect the necessary information and provide any type of update capability. Now, these interactions can be implemented by any number of techniques for systems integration. The power behind using SOA, however, is in presenting standards-based, reusable approaches to construct the interfaces. We demonstrate this by looking at one specific interface between the Portal and the Policy Administration System, shown in Figure 5.

FIGURE 5.
SOA Services allowing access to policy administration functionality.



Source: IBM Institute for Business Value.

It is evident that the services listed above could be used for any number of other purposes, such as interfacing between a Claims Management System and a Policy Administration System, between an independent agent's core Agency Management System and the insurer's Policy Administration System, or between any other internal or external system the insurer deems necessary to get at this information without requiring a custom interface each time.

An SOA framework makes it possible to redirect and extend existing systems and processes to the customer – rapidly, securely and at a much lower cost – using well-established applications and business rules.

The value to the business

The obvious, and most important, benefit of this solution is that it responds directly to customers' evolving requirements – all within a secure and personalized environment where a customer can verify and modify a policy at any time. Many policy changes can now be handled without employee or agent intervention. The cycle time for most of these requests is reduced. This can mean lower costs, fewer errors and increased speed. Also, realtime billing and payment options can help improve cash flow. But these benefits flow from implementation of the portal. By all means, the primary business value of any SOA investment comes from the solution that is built – not SOA itself.[3]

The SOA-based approach to building the portal may bring benefits of its own – adding greater flexibility in determining exactly which functions and capabilities are brought to the portal. The SOA approach is referred to as a loosely-coupled systems integration method. In our example, the portal is integrated with,

but separate from, each application it talks to. The Policy Administration System or the Claims Management System can change and evolve over time without impacting the portal, and vice versa. Second, if designed properly, these services enable an insurer to reuse the same services for other purposes down the road. For example, you will notice that some of the same services reused for different purposes help solve two simple business problems mentioned in this paper. The benefit has the potential to cascade into shorter integration time in the future and, eventually, faster time-to-value for new systems.

Last, the integration of data is in real time. The data does not have to be moved, replicated or reformatted: it is maintained in the source system. In our example, the Claims Management System continues to control all of the claims data, and so forth. Data is exchanged electronically. Putting these points together, data quality is much higher due to the SOA systems integration approach.

Supporting and retaining agents for strategic growth

We've discussed how insurance carriers can use SOA to deliver greater business value via client-focused processes and systems. However, for most insurance companies, there is another critical constituency that requires consideration: agents.

For many policyholders, the agent remains the "face" of the insurance company – and a trusted financial advisor. Because of this relationship, agents can help drive growth by up-selling and cross-selling existing products and services, introducing innovative new offerings, or moving into new markets.

Consider a carrier that has expanded into a new geographical market by acquiring a regional insurer. The business case for the acquisition rests on quickly and efficiently making the company's product portfolio available to its new agents. Growth also depends on rapid systems integration to support the agents as they maintain and expand existing business.

Yet the carrier must interact with the agents through multiple systems and protocols, including the proprietary system developed for the acquired company. Agents are forced to access and enter data using different, often inconsistent, interfaces. Policy changes that are entered through one system may come back via another. And any change to an existing product or service can require cascading changes to multiple interfaces, applications and databases. This collection of challenges may take years to remedy – sometimes simply endured as opportunities are lost. What many carriers are finding is that integrating with agent systems can be a slow, expensive exercise. This may delay new product introductions and slow a company's entry into new markets or distribution channels – to the point where the return on a merger or acquisition may be significantly lessened. Finally, since a carrier's relationship with its agents is largely defined by its ability to efficiently deliver products and services, revenue can suffer as agents seek out companies that can provide direct and timely support.

Agents can use existing agency software, yet be integrated with select carrier applications.

Getting to market faster

So how can a carrier provide both standard yet flexible interfaces to current and future agents? At the same time, how can these interfaces offer some degree of integration with an agent's core systems? Also, how can the carrier integrate new agents, as in the case of a merger or acquisition, in as short a period as possible? Collectively, these questions present a tall order for IT – even for the most sophisticated carrier. SOA, again, presents an ideal opportunity to resolve this challenge.

In Figure 6 we present two alternatives to addressing the problem above:

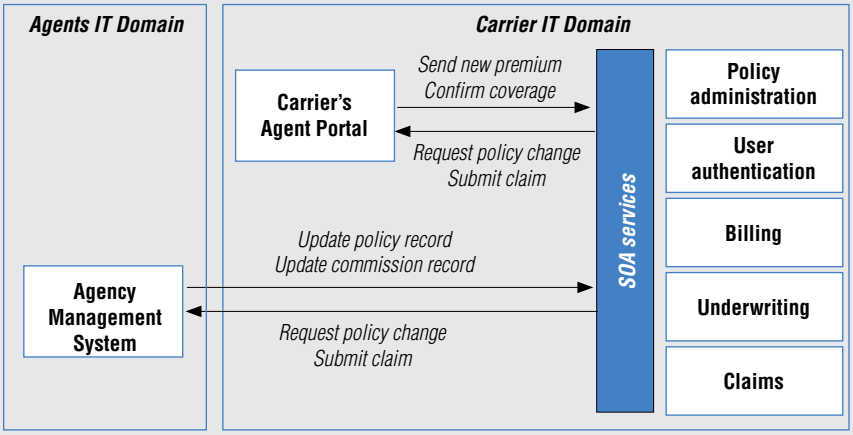
- The carrier can develop a portal for its agents using SOA services.
- The same SOA services used to develop the portal can be exposed via network connections to the agent's systems, providing some direct ties between the systems.

The agent portal offers a single, consistent interface for the work environment. Many of the same services can be developed for customer-facing functions such as Policy Information Services or Policy Update Services, mentioned earlier, or any of the claims services implied in the other scenarios. In addition, other business services, such as fraud and validation, underwriting, vendor integration and billing may be reused here to create an environment that facilitates a seamless transaction flow between carrier and agents.

The value of SOA

SOA can help companies increase their market speed by creating a more integrated environment for agents. SOA presents a standards-based, non-intrusive approach for integrating with business partners. Each partner, the carrier and the agent in our example can continue to use the software

FIGURE 6.
SOA services supporting multiple agency integration approaches.



Source: IBM Institute for Business Value.

Carrier and agent systems can work together as needed, yet change independently with business demands.

they need to deliver their product. Again, the data does not need to be moved, replicated or reformatted: it is maintained at the source and managed by the firm with the expertise and processes to support it. Carriers may change their systems at will, with minimal or no impact on the agent. The agents can do business with the software of their choice – relying on a standards-based interface to the carrier. This can help deliver real operational advances that may in turn assist carriers in becoming more agile and more responsive, while improving service levels and cutting development and maintenance costs for both the carrier and the agent.

In the end, what the SOA environment is capable of doing for the business is establishing a platform for growth through acquisition or channel integration. It can help a company drive new revenue by bringing new products and services to market faster and more efficiently – through one channel or across many. It can also help control costs by eliminating redundant interfaces and building on investments made in existing IT assets along lines of business, channels and geographies.

And, by providing an environment that makes it fast and easy to access information and perform transactions, SOA can help significantly improve agent satisfaction and loyalty.

Conclusion

We have presented three different business problems familiar to the insurance industry, and helped solve each using SOA. In every case, value is returned to the carrier, its customers and its partners – making it a win-win-win approach.

While these applications address three very different business challenges in the insurance industry, all have one common denominator: unlocking the value of existing IT assets to support evolving business needs. This level of flexibility can bring additional value to insurance companies – supporting their ability to transform technology-enabled business processes, and fundamentally change the way their organization works.

It should be clear that SOA is much more than an approach to integrating applications, or an architecture for software design: it is a technique that permits an organization to differentiate itself by quickly and efficiently delivering new services to meet changing market realities. In doing so, SOA can help trigger major transformations in the way an insurer does business.

In closing, there are three options for getting started:

- Build it
- Buy it
- Evolve to it.

An SOA solution can be built using a "greenfield" approach by encapsulating services from within your existing application portfolio, or through a combination of new and existing services – as indicated in the client self-service portal, the agency portal and the direct agent integration examples presented earlier.

The idea of "buying" SOA could be misinterpreted. SOA is not a product, and cannot be purchased as such. However, there are a number of major software vendors, as well as numerous insurance industry-specific niche players, that have SOA-enabled products on the market. IBM and several other companies are working to develop *Composite Business Services*, an industry-specific set of services that can be used for new development, or to supplement and modernize existing application software.

Last, evolving to SOA is prudent using any of the above approaches. Clearly, for agent integration, "baby" steps may be necessary. Over time, a portfolio of services will be needed to integrate most agents. For building portals like policyholder self-service, the very nature of the portal fosters breaking this problem into pieces, and evolving over time. In some ways, SOA is like any new technology. Eventually, we expect SOA to be well entrenched in the industry, so it's best to start any evolution at your company today. Others have already started.

About the authors

Donald Dehne is a Senior Managing Consultant in the Core Insurance Systems Practice, responsible for assisting insurance industry clients in strategic planning and requirements development for Policy Administration, Automated Underwriting, Workflow Systems and Portal Interfaces. Don has more than seven years of consulting experience working with insurers, and has also held executive-level positions in underwriting, marketing, and operations for a major property and casualty Insurer. He holds a Chartered Property and Casualty Underwriter designation from the American Institute for Property and Liability Underwriters.

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Additional reading

"Changing the Way Industries Work." IBM Global Business Services. October 2006. http://www-935.ibm.com/services/us/gbs/bus/pdf/g510-6319-01-soa-changing.pdf

"Insurance 2020: Innovating Beyond Old Models." IBM Global Business Services. May 2006. http://www-935.ibm.com/services/us/gbs/bus/pdf/g510-6291-00.pdf

"Services Oriented Architecture: A Practical Guide to Measuring Return On Investment." IBM Global Business Services. October 2006. http://www-935.ibm.com/services/us/gbs/bus/pdf/g510-6320-soa-roi.pdf

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[2] Data observed during the development of IBM Composite Business Services for Insurance.

[3] DiMare, Jay. "Service-Oriented Architecture: A practical guide to measuring return on that investment." IBM Institute for Business Value, 2006.

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