SOA for health plans

New connections for
new business models

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SOA for health plans

New connections for new business models

By Edgar L. Mounib and Jay DiMare

A key to healthcare transformation is providing information to improve quality and cost, minimize clinical and administrative waste, improve clinician productivity, inform and empower consumers to make informed decisions and trigger insights that can lead to innovations. An impediment to this is an inability to integrate technology that enables more efficient and responsive information exchange. Service-oriented architecture (SOA) offers a number of advantages that, when understood and exploited by both the business and IT sides of healthcare organizations, can help address any number of evolving business challenges.

Introduction

Many countries and organizations are struggling to address rapidly rising costs, poor or inconsistent quality and inadequate access or choice of healthcare services, particularly in the new economic environment. In response, healthcare must become more patient-centric, value-based, accountable, affordable and sustainable. There are early signs of this transformation as we are witnessing changes to the consumption, financing and delivery of healthcare that are redefining how healthcare organizations operate and, even, compete.[1]

Consumers are increasingly bearing greater responsibility for optimizing their health, including financing their healthcare, for example. They must make better health and lifestyle decisions, as well as optimize the healthcare value. This will require fundamental changes in their attitudes and behaviors.

Payers – public or private health insurers ("health plans"), employers and governments – also shoulder the burden of healthcare costs, but often inadvertently reward poor quality care in pursuit of reduced episodic costs; this will no longer suffice. For example, private health plans are increasingly morphing from at-risk insurers and payment administrators into value-added service providers with more clearly defined customers.

Healthcare delivery will also change as the emphasis shifts from episodic acute care services to include prevention and chronic condition management and better care coordination. This will lead to new business models, delivery channels, services, facilities, skills and the need for improved administrative and clinical information.

Key to the successful healthcare transformation, including the aforementioned stakeholders, is information management. Today, information is generated at unprecedented rates. The increased volume of this data and the speed with which it is proliferating is creating an indigestible information glut and an information management crisis.

Healthcare providers face the onerous task of storing, organizing, accessing and integrating large amounts of patient clinical and insurance claims data. Payers struggle with the administrative inefficiencies of managing claims, billing and payment information and related processes. In a recent survey, for example, private health plan and provider executives reported that their respective organizations could save at least US$1 million per year if these claims, billing and payment processes were more efficient.[2]

Looking forward, information will be a key enabler for transformation. The challenge is how to facilitate healthcare decisions by getting the right information in the right form to the right person at the right time. And in many parts of the world, security and privacy add complexities that challenge even the most competently run organizations. Flexible business processes and the supporting IT infrastructure are key to this.

Clinical and administrative information may be spread across multiple disparate systems. This can be due to merger and acquisition activity that brings various legacy systems under one healthcare organization. As organizations grow through acquisitions and mergers, the systems prevalent in diverse geographical regions vary significantly, making it harder to access and share information.

Though function-rich, IT systems and applications were originally designed and implemented for specific departmental or functional areas and users. Attempts to extend functions to new users and geographic regions – while still serving large groups of current users – can be costly and time-consuming. Therefore, plans to change operating models or extend market reach are often postponed or simply cancelled – all because of the inability to integrate functionality that already exists in systems that were never meant to communicate.

As healthcare organizations look for opportunities to make the most of their existing IT investments, improve technology-enabled processes and address the demands of the current business environment, they are simultaneously looking for more efficient ways to integrate and align their IT systems. We believe that a service-oriented architecture (SOA) approach 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.

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New connections for new business models

The power and flexibility of SOA comes from the use of discrete components representing individual business tasks (or services). With SOA, healthcare organizations have the opportunity to 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 benefits to this approach are very promising. Early healthcare adopters of SOA have already reported benefits. For example, one U.S. health plan has reported a 50 percent reduction in claims processing costs and a significant improvement in time-to-market for both new products and in responding to changing regulations and mandates.[3]

We offer three real-world scenarios that illustrate the benefits of SOA from the perspective of consumers, healthcare payers and healthcare providers:

- Supporting patient-provider decision-making at the point-of-care

- Optimizing the health-plan enrollment process

- Improving provider access to eligibility and benefits information.

Supporting decision making at the point-of-care

Consumers around the world will need to better realize value from the healthcare system as they increasingly assume greater responsibility for their healthcare (see sidebar). To effectively navigate through the healthcare system to optimize their individual, value-based, episodic and longitudinal care experiences, consumers need accurate and timely information, particularly at the point of care, where there is interaction between the patient and healthcare provider.

Empowering consumers to manage their healthcare

In response to rapidly rising healthcare costs, some countries and healthcare organizations are promoting consumer-driven, or consumer-directed, healthcare as a way of controlling costs and improving quality. In this approach, consumers are informed and empowered to better manage their health and healthcare through greater transparency of cost and quality data, for example.

Associated consumer-driven health insurance products enable consumers to modify their insurance to their personal needs. They generally include greater choice of health plans and providers – and greater financial risk – for consumers. Key to the success of these plans is exposing consumers to the actual prices of medical care services, particularly through Web-based information tools. Such consumer-driven health insurance products are available in countries like the United States, Switzerland, Singapore, China and South Africa.

Weighing treatment options today

While consumer-directed insurance products continue to generate broad consumer interest and grow enrollment, they have also garnered attention for their potential to lower healthcare spending by reducing unwarranted utilization of health services. However, they may also discourage consumers from getting necessary medical care.[4]

A key to realizing the promises of consumer driven healthcare is greater transparency into costs. Health plans can play an important role here. They can better inform consumers and providers on the financial liability and cost and quality trade-offs associated with consumer-directed insurance products to help them make treatment decisions at the point of care and plan for future healthcare expenses.

Yet with the proliferation of diverse claims systems and disparate information sources, coupled with members covered by supplemental health plans, it is virtually impossible to locate, calculate and integrate annual and lifetime deductibles, approved treatments, co-payments and other pertinent information in realtime.

Consumers, meanwhile, are faced with questions at the point of care that they cannot immediately resolve and that may have an impact on treatment decisions. Typical questions include: How much will I need to pay for this visit? Have I hit my maximum visits or deductible for the current year? How much will I have to pay if I choose a different treatment or provider? Circumstances and/or choices impel consumers to assume greater financial accountability and control over their health-care decisions. These decisions become even more complex with new types of consumer-driven insurance products.

Healthcare providers often hit a hurdle when seeking answers to the same types of questions: depending on the treatment selected, they need to know which entity to bill and when it will be paid. Providers must also determine how much of that cost will be borne by the patient and when it should be collected. Finally, crucial questions concerning provider billing processes must be resolved, such as how much will the provider be paid for visits or treatment, who will make the payment and when will that revenue be realized?

Figure 1 illustrates a representative decision making process between the consumer (patient) and healthcare provider and includes input from the corresponding health plan.

This scenario illustrates a key problem health plans face: support processes and systems were not designed to support a consumer-centric approach. Consequently, this drives up costs (for example, multiple health plan employees are needed to address even simple questions; costs of rework to correct incorrect billing procedures), slows cycle time to resolution and affects member and provider satisfaction.

Figure 1 also illustrates that patients are not empowered to select treatments and providers in realtime. That is, they need comparative information on treatment and provider options, a consolidated, realtime view of their utilization, limits and deductibles across products and consistent information across healthcare provider, member and customer service portals and other channels, for example.

FIGURE 1.
Treatment research process after initial care.

Source: IBM Institute for Business Value.
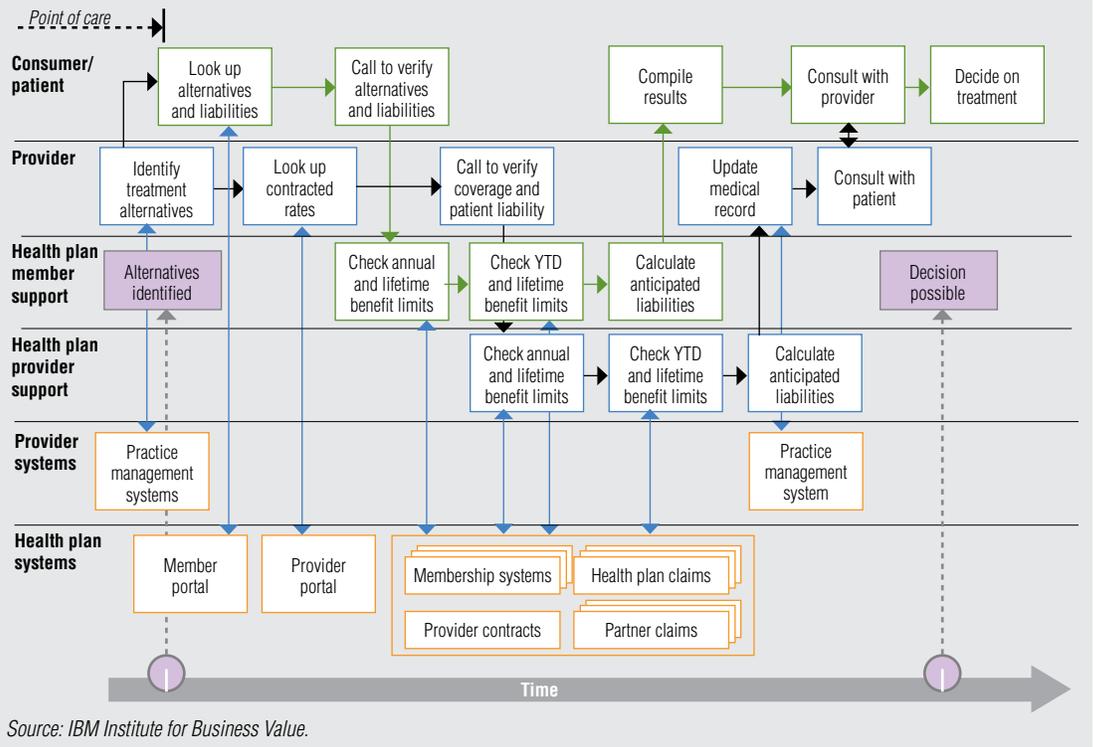
Enabling a more flexible, responsive process

Only by extending eligibility, benefit and calculated payment information directly to the end consumer can we begin to realize the promises of consumer-driven healthcare. The objectives are simple: we must create an environment in which easily accessible information and services are available when, where and how consumers want them. Thus, health plans, healthcare providers and other stakeholders should allow greater integration between their systems to support this.

"[Consumer-driven healthcare] will push the need for consumers to view aggregated information. SOA will be key to this."

– Director of Information Services, U.S. health plan[5]

Health plans should begin by transforming their business and support processes to enable rapid calculation of "accumulated" spending, given member's deductible, to determine the consumer and health plan liabilities. With dependable information available

at the point of care, members and health-care providers can have more meaningful discussions to determine the best treatment alternatives.

Figure 2 illustrates one approach to delivering this information through the healthcare provider's practice management system. The provider would present treatment alternatives with an understanding of coverage and costs. Patient liabilities for the different treatment alternatives are known and are accessed through the practice management system at the point of care.

The practice management system can electronically communicate with the health plan through a single SOA interface – services that mask the complexity of determining the consumer's total liability for a particular medical service. The SOA services can provide this information in realtime, with up-to-date totals on lifetime benefits, factored co-payments and in the context of year-to-date deductibles. They can also reduce billing mistakes and conflicts, as all parties involved would proceed with knowledge gathered from the same information.

FIGURE 2.
Revised decision process with benefit totals and payment information at the point of care.

Source: IBM Institute for Business Value.
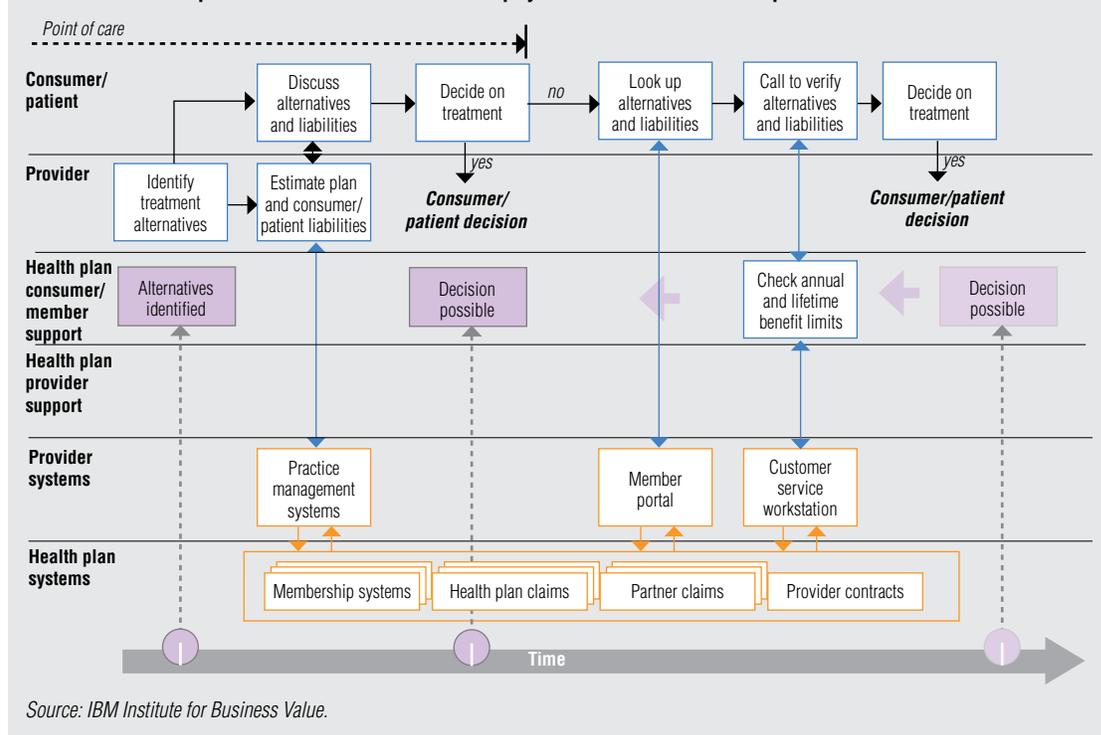
This integrated, interactive approach could offer other functions and related benefits. It could also allow members to immediately debit pre-determined payments in realtime. Members could also choose to access funds from health savings accounts to cover deductible expenses. Beyond improving time-to-revenue/reimbursement for the point of care and reducing paperwork relating to health savings accounts for the healthcare system or plan, health plans could also avoid a potential dependency on specific bank or card processors that may offer similar processes. By removing this dependency, health plans can gain business flexibility, now and in the future. To achieve these goals, an SOA approach is key.

Lastly, this approach does not take the place of existing self-service options, such as the portal-based solutions offered to both members and providers. Quite the contrary,

this approach can be leveraged across all stakeholder applications and interfaces, further supporting the concept that all parties involved will use data from a single source.

Building an integrated, interactive system is a complex undertaking and attempts to provide information that, today, may need to be calculated or derived from data contained in multiple information systems. How can health plans build this? Why aren't today's system integration approaches sufficient?

In the case of health plans and other payers, there are many solutions and approaches to deal with this challenge – most of which are costly to maintain or change in the future. SOA provides an approach to allow secure but flexible access in realtime without imposing special software on healthcare providers. *Figure 3* demonstrates how health plans could conduct this integration opportunity through SOA.

FIGURE 3.
Sharing benefit totals both internally and externally through SOA services.

Source: IBM Institute for Business Value.
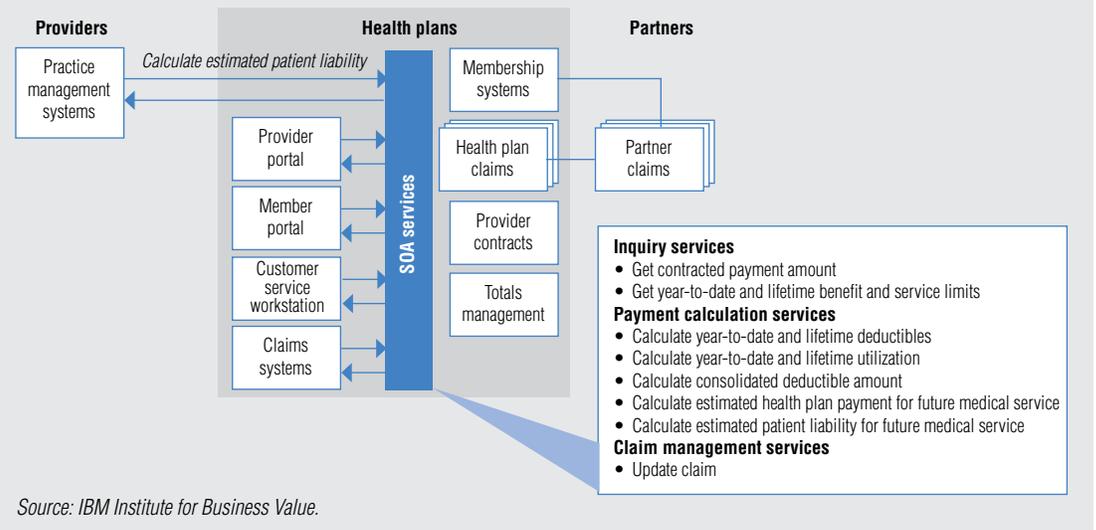
A layer of services is built to allow communication with a health plan's core systems while shielding end users from the complexities of these systems. Moreover, these services could be built using Web services (a technology alternative) or other programming approaches. The service would be designed to provide specific information in exchange for needed inputs. Any system needing to use the services would "call" (request) and provide the needed inputs and would then receive the response.

This approach demonstrates reuse of the same services for both internal and external uses. Internally, the portal solutions supporting consumers, healthcare providers and other stakeholders use the same SOA services as those used by the health plan's direct interface for providers. The same SOA services can be used to provide co-payment details and patient liability information to claims systems.

In Figure 3, the practice management system would simply ask the health plan system to "calculate the estimated liability for a medical service" and the amount would be returned. The SOA services could either calculate this or use additional application support to help manage these complex requests. The practice management system updates the amount paid and manages any amounts due with the health plan or the patient after the claim is finally settled.

A win-win-win scenario
The obvious and most important, benefit of this solution is that it helps further consumer-driven healthcare. It helps address consumers' evolving requirements – all within a secure and personalized environment where a consumer can query eligibility and benefits information for spending limits and other personalized information at any time. So consumers are empowered to take a more active role in managing their health and healthcare by better understanding their financial liability and treatment options.

Healthcare providers also gain in this approach. They are better able to work with the consumer to deliver more personalized, high-value care – with a realistic view of eligibility and benefits information. This approach also enables more realtime billing and payment options, reducing administrative costs and accelerating the time-to-revenue/reimbursement cycle, which reduces the providers' bad debt.

Lastly, health plans win using this approach. They are better able to deliver more personalized service to consumers and providers, realize greater cost savings (for example, through more efficient use of call center staff), improve accuracy and the timeliness of services rendered, and increase consumer and provider loyalty by removing inefficiencies from the payment settlement process. This results in differentiation and a competitive advantage for the health plan.

These benefits flow from implementation of an SOA-enabled architecture. The standards-based approach, where the services are disconnected from the application systems they support, means there is a reduced need for new application software and allows an incremental approach to application changes. It also means that a single interface can be built and offered to any number of healthcare providers.

Reuse was also demonstrated in this scenario. In Figure 3 (see page 7), a single set of SOA services provides access for internal systems integration as well as external collaboration with partners' systems. Reuse provides for higher quality software with fewer errors. It also provides shorter development and integration times for second and subsequent uses.

Optimizing the enrollment process

Another challenge to consumers and health plans is the enrollment (individual or group) into an insurance plan. While predominantly a U.S. business challenge, this example demonstrates the use of SOA for a high-volume, short timeframe data collection effort involving the health plan and any number of partners or direct customers, such as large employers. Existing workflow and supporting systems often entail both manual and automated complex data-entry enrollment activities using a number of disparate systems.

Health plan enrollment processes today

Insurance enrollment typically involves large volumes of data from multiple channels, which, in different formats, can hamper assimilating data across systems – exacerbating problems. All of this adds to the frustration for stakeholders and increases the inefficiencies for both providers and health plans.

"Enrollment is major issue for us. Each year, our people and systems are strained in dealing with the enrollment of millions of members with an annual turnover rate of about 20 percent."

– Chief Information Officer, U.S. health plan[6]

Additionally, health plans often experience difficulties when converting electronic input (such as large flat file transfers or Internet-based enrollment data) or paper-based (fax, mail) information to one universal electronic format. Paper-based data must be either scanned or keyed into the insurer's system, for instance. Quality checks are made throughout the process, and exceptions are sent back to the enrollee for correction and resubmission. In Figure 4, we see how these inefficient and time-consuming activities can create hurdles in what should be a seamless process.

The large volumes of data involved in the enrollment process can create multiple roadblocks when handling related functions. Existing core systems often cannot respond efficiently to business requirements – creating multiple challenges when consolidating, reconciling and reporting information. As illustrated in Figure 4, there are often multiple membership systems (due to merger and acquisition activity, for example), different software (for different lines of business or the limits in application software) and even different claims systems where benefits for a member must be loaded.

Common problems can also include rework generated from adding and removing members, changes in members' eligibility and benefits status, excessive errors due to disparities in data compilation modes (and slow capture and resolution of those errors) and complex data-entry into back-end systems. Rework due to errors creates a significant amount of downstream work for a health plan. Claims may have to be corrected that were paid in error, and members and providers may be dissatisfied over incorrect payments due providers and reimbursements due members.
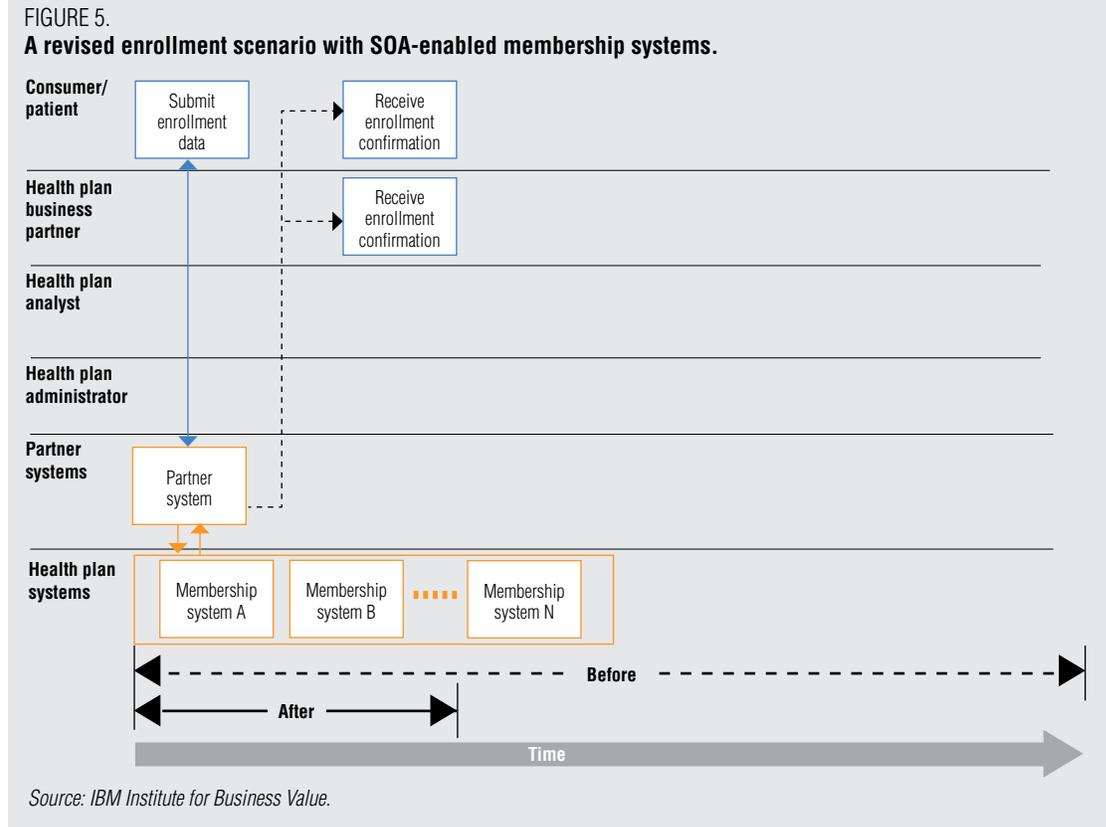
FIGURE 4.
Sample health insurance enrollment process today.

Source: IBM Institute for Business Value.

These issues often result in operational challenges. Health plans must often add seasonal workers to handle this workload, which leads to problems inherent in hiring and retaining appropriately trained staff. There may also be operational inefficiencies that can create bottlenecks in processing enrollment information, such as the complexity of the enrollment process, the number of players and the inflexibility of legacy systems. Group and individual enrollment can take place in different channels, multiple membership systems can proliferate and critical information can reside in any number of IT platforms.

When the entire process is completed and validated, fulfillment will issue plan information to administrators and enrollees as required and will produce and send the enrollee's insurance membership/identification card. This process may take days, and sometimes weeks, to complete. The resulting inefficiencies affect both enrollee and the health plan.

New members may see a delay between the time they receive their cards and the time when benefits are in effect. This delay causes uncertainty about whether their coverage is in force, disrupting the payment process at the provider and creating additional customer service work for the plan and the broker who sold the policy.

A more flexible, more responsive system

Instead, health plan information systems could transform data collection from disparate information sources using a single set of SOA services. Access to any number of membership systems could be seamless – resulting in numerous benefits for all stakeholders. Enrollees – both groups and individuals – could continue to provide required enrollment information in their current mode. In Figure 5, we see an example of how such a system could work.

In our example, data is being collected by a health plan partner that uses its own application software to collect the data. For larger groups, this partner system may be the employer's own corporate human resources application. For smaller groups and individuals, enrollment data is collected using Electronic Data Input (EDI), faxes, paper forms and Web input.

Each of these four channels – EDI, fax and paper and Web – would still be supported and require the same effort to capture and validate input, such as with a document image system for fax and paper, or a Web application. However, these existing data capture systems can interact with the membership systems in the same manner as shown in Figure 5.

FIGURE 5.
A revised enrollment scenario with SOA-enabled membership systems.

Source: IBM Institute for Business Value.

Once collected and validated, the data capture systems could immediately communicate with the membership systems, using SOA services to directly submit information into the membership systems and enable automatic fulfillment at enrollment. Complete, updated plan information could be passed back to the health plan's system. Insurance membership/ identification cards would then be automatically generated and sent to members.

An optimum situation would be to move to a paperless system. This would mean guiding all enrollees to some manner of automated enrollment input, such as Web access, or through group or partner systems, as shown in Figure 5.

This solution has significant appeal to all players: the consumer/member, the employer, the health plan and the broker/agent. The challenge for health plans, however, is building this interface more effectively than current approaches. How, for example, do health plans provide direct input access to their membership systems in a cost effective and secure manner? How can they build an interface once and expose it to any number of partner systems, without building custom, point-to-point solutions that need to be maintained?

There are numerous options to build such a solution today. Most of these involve a custom approach to integrate the health plan's systems and a new partner's systems. These point-to-point alternatives are difficult to duplicate and costly to maintain. Instead, SOA provides a standards-based approach that allows health plans to build a single set of services and expose the services to business partners. An SOA approach supports authorized partner systems to "call" and store their enrollment data.

Figure 6 illustrates how these SOA services can be built and used both externally (for example, by partners and large corporate clients) and internally (for use by support staff, for example).

By building a layer of services that provide access to existing systems, integration is possible by any system that can "call" or use the services. The services would be designed to collect and return the appropriate data. In the Figure 6 example, reuse is demonstrated as the "Add Member" component allows authorized external partners to "add members." The health plan's Web-based enrollment system uses the same service.

FIGURE 6.

SOA services providing a single interface for systematic entry of enrollment information.
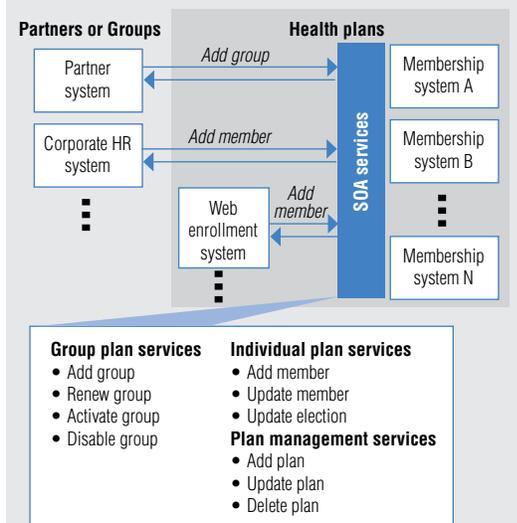
Source: IBM Institute for Business Value.

There are several implementation considerations with the approach shown in Figure 6. First, the SOA services can shield any connecting system from the complexity of multiple membership systems. This layer of protection also allows membership systems to change, whether from consolidation, migration to new platforms or additions due to acquisition. The same interface can be used both internally and externally. These systems can also use the same services to load the enrollment data from various inputs (for example, EDI, fax and paper input) and various formats into the membership systems in realtime.

Other applications and uses can benefit from this architectural approach. For example, validation and error handling can be enhanced at the time of data capture. More meaningful error handling can occur at the time of enrollment – not after data has been moved between two or three systems before eventually being loaded into a membership system. In the above example, partner systems would use validation and control checks in their own system – as well as the SOA services called to put the enrollment information into a membership system.

Benefits of SOA to the enrollment process

While this sort of integration improvement brings obvious benefits, how can a healthcare organization move toward this sort of infrastructure improvement? While previous attempts at this sort of revamped processes were very costly – relying on custom, point-to-point interfaces that were typically not used elsewhere in the organization – SOA, by leveraging previous technology investments, provides a highly flexible and cost-effective approach to integrating both internal and external systems.

Taking the SOA approach enables seamless collaboration among stakeholders, which can significantly reduce service enrollment and administration costs. New members do not need to modify their existing processes to interact with the health plan, for example. This improved level of collaboration can lead to fewer manual processes, since formerly time-consuming, repetitive labor-intensive processes can now be automated. This helps to create a more efficient and flexible enrollment environment – improving "on ramp" time across multiple channels to multiple products (for example, health, dental and eye).

SOA specifically provides health plans a way to provide system integration without requiring collaborating partners to purchase or install new software. SOA services are developed or purchased and installed on the health plan's systems. The services are "exposed" to authorized partners only, providing a secure communication channel. The granularity of the services, down to the consumer/member level in our example, allows flexibility in how the integration is approached by the different partners. Last, the services provide an additional place in the process for data quality, helping to position downstream uses for lower error rates.

Health plans can reduce the time it takes to load group enrollment data, while also reducing error rates when uploading member and benefit information. In some cases, SOA may also enable organizations to reduce staff, since fewer people are required to enroll the same number of members, or handle increased volumes with the same staff. In fact, many health plans that have assessed applying a SOA approach to enrollment project an overall cost reduction of at least 15 to 20 percent.[7] Moreover, with the concurrent improved ability to handle data-entry errors,

health plans can improve data coordination and make better use of historical member information – all while improving provider and member satisfaction.

By providing an environment that makes it faster and easier to enroll members and groups, and thereby offering a differentiating competitive factor for the healthcare plan, SOA can offer a competitive advantage for healthcare plans in a crowded, increasingly competitive marketplace.

Improving healthcare provider access to eligibility and benefits information

A common problem facing healthcare providers, particularly in the United States, is the inability to obtain eligibility and benefits information for the consumer (or health plan member) in a timely, efficient manner at the point of care. Currently, the process begins when insurance information is required for patient registration.

Accessing eligibility and benefits information today

For most providers, the process for accessing eligibility and benefits information is more or less the same: the patient is first asked to provide proof of insurance. If he or she is an existing patient of the provider, the insurance information is checked against a local patient database while the patient waits to be seen by the provider.

If the patient is new, the provider staff may or may not immediately submit an eligibility and benefits inquiry to the health plan (for example, this may depend on how busy the provider staff is at that moment). This health plan inquiry occurs via telephone, the Internet or

fax. In Figure 7, we can see how the unwieldy and time-consuming transmittal of eligibility and benefits information can result in unsatisfactory results for all parties.

Delaying the eligibility and benefits check until after the delivery of care can lead to numerous issues. For healthcare providers, hard-to-access eligibility and benefits information can consume resources (for example, staff time spent on inquiry and reworking claims) and lengthen time-to-revenue/reimbursment. For health plans, providing eligibility and benefits information requires a large operations staff that also will consume time and resources in handling inquiries or, if needed, reworking claims. These administrative issues affect satisfaction of all stakeholders.

Why is this happening? Part of the problem is that the consumer's information can reside in multiple systems – often in geographies that offer different services on different technology platforms. In many instances, these systems require separate access, which can consume time and duplicate efforts.

Other factors, including the experience of the health plan's support staff and the volume of inquiries, will determine how quickly the requested information is obtained and passed back to the healthcare provider. While many health plans currently offer providers Internet access to information about eligibility and benefits, providers still must contend with various Web sites and different record formats. Additionally, smaller provider organizations may not have sophisticated computer systems or a dedicated IT staff in the event those systems fail.

FIGURE 7.
**Typical process for checking a patient's eligibility and benefits.**
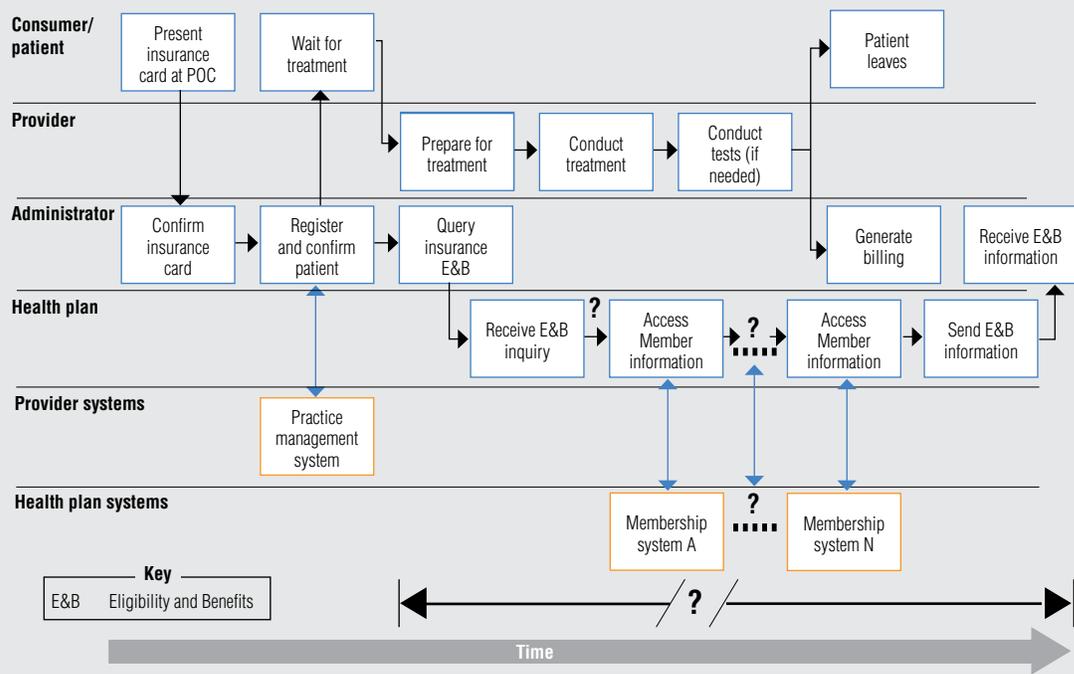
Source: IBM Institute for Business Value.

Providing self-service access to eligibility and benefits information

How can health plans improve the process and ease the burden on providers, given the current restrictions and constraints imposed by current technology? Payers can only change their business processes if their critical applications are flexible enough to enable change. Integrating those applications supporting access to eligibility and benefits information must be seamless – and afford higher levels of communication and collaboration. SOA can provide these capabilities.

In an SOA-enabled environment, the aforementioned problems can be avoided by presenting the provider staff with easy, self-service access to information about eligibility and benefits. This would help streamline the process – likely resulting in higher patient satisfaction, quicker time-to-revenue for providers and a reduced manual inquiry burden for health plans. In Figure 8, we see that if the systems could collaborate, a more effective process flow could provide numerous benefits to all parties: consumer, provider and health plan.

FIGURE 8.
Revised process with eligibility information returned in realtime.
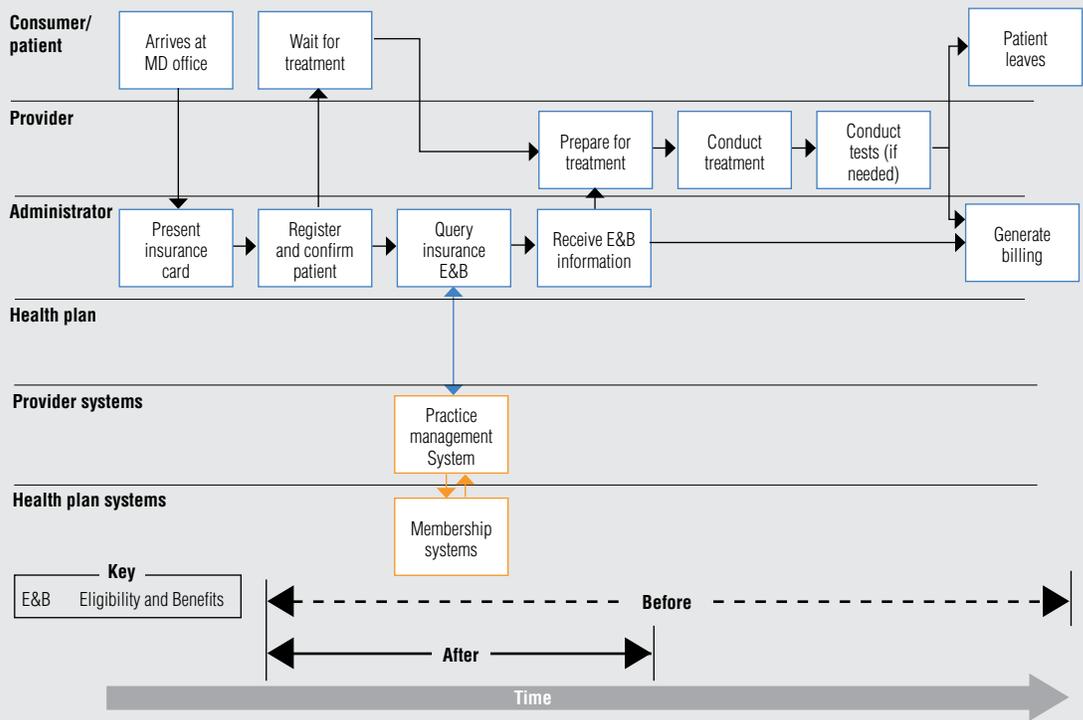
Source: IBM Institute for Business Value.

By enabling providers' point-of-care administrative systems to access eligibility and benefits information through a secure connection, confidential access to a member's information can occur when and where needed. While this is not a new capability, SOA provides a way to do this using standards-based, reusable services, without adding significant new software components. This is the differentiating factor – allowing health plans to address a pressing industry need by leveraging existing infrastructure investments without having to make major new technology expenditures.

Here is how it works. When a patient visits a healthcare provider and presents/swipes his or her insurance membership/identification card, the provider staff requests eligibility and benefits information to the health plan directly through the practice management system. The patient's eligibility and benefits information is then presented in the context of systems known by the provider personnel at the time of request, in or near realtime. The provider continues the process as it would normally do, using systems the staff is already trained for.

So how do we integrate the systems to support this capability? Health plans need to provide a way for providers using any number of practice management systems to access the eligibility and benefits information in a secure manner. The point-to-point approaches in use today are not cost effective, nor are they flexible enough given the market environment we've described.

SOA better enables health plans to provide controlled access to their systems with a single interface to any number of contracted healthcare providers. Figure 9 illustrates how a layer of reusable SOA services can be put in front of any number of membership systems.

FIGURE 9.

SOA integration between healthcare provider and health insurer systems.

Source: IBM Institute for Business Value.
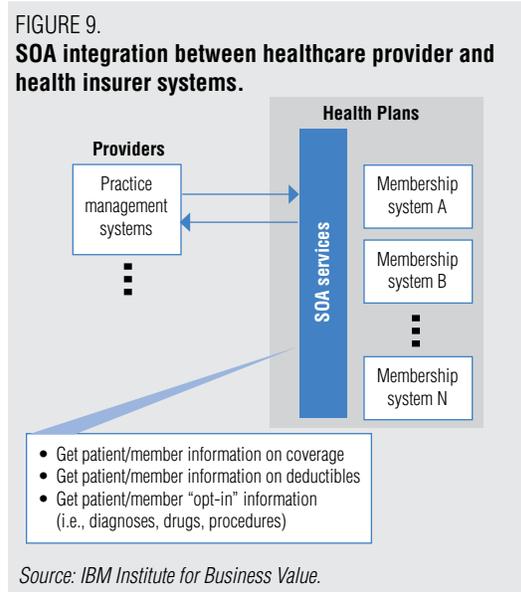
In some ways, this scenario could be viewed as part of a bigger, enterprise architecture based on SOA principles. In this example, a layer of services connected to the core systems allows access to the functionality in those systems – without giving outsiders access to the system itself.

Health plans can provide access to eligibility and benefits information in a controlled fashion: only those providers authorized to access this information will be allowed to use the SOA services and will be shielded from the complexities of the underlying systems. From a systems management perspective, health plans can provide this single interface to different providers in any location. An additional motivation for providers to participate is that no additional software is needed.

Security is controlled in a number of ways. First and foremost, health plans can control who is allowed to use the SOA services. There are additional controls that can be put in place on the technical mechanisms to allow the system communication. Security can also be designed into the SOA services themselves. For example, there can be multiple versions of "get member information on coverage," with each version giving back different information – all tied to who is asking for the information.

In Figure 9, the providers' practice management systems will use the SOA services to "get member coverage information" and have this information returned from the health plan system directly into the application. Best of all,

SOA services enabling this functionality can be built from the various business applications already residing in the health insurance company's portfolio. They can be exposed to and used by any authorized healthcare provider.

SOA: Delivering more value to healthcare providers, health plans and consumers

With an SOA approach, healthcare stakeholders can collaborate seamlessly when obtaining eligibility and benefits information; this benefits everyone. Providers can determine eligibility and benefits prior to treatment – helping to make sure that the correct care is provided and to improve their revenue cycle – without changing their administrative process. As there is less confusion about their benefits, consumers should enjoy a better healthcare experience.

The benefits to health plans may be the most tangible of all. Beyond improving relationships with providers, health plans may experience an increase in membership retention and enrollment due to an improved member experience. This kind of business-process evolution can serve as a critical differentiator that may deliver a competitive advantage. By instituting an SOA environment, health plans can achieve the flexibility needed to support such business process transformation – efficiently and cost-effectively.

By giving provider staff direct access to eligibility and benefits information, health plans can also reduce their own costs. With a dramatically reduced occurrence of phone inquiries (thanks to more electronic inquiries),

health plans can better leverage the utilization of their support staff. Through an SOA approach, health plans may also reduce systems maintenance costs by aligning and leveraging IT capabilities. .

Conclusion

We have presented three different business problems familiar in healthcare – and helped solve each using SOA. In every case, we believe value is returned to consumers, health plans and healthcare providers – making it a win-win-win approach.

While these applications address three different business challenges in healthcare, 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 healthcare organizations – supporting their ability to transform technology-enabled business processes and fundamentally change the way their organizations works. Moreover, SOA also enables healthcare organizations to lower costs by better enabling integration, reusing of assets and reducing business risk by providing quality, simplicity and governance.

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 can permit an organization to differentiate itself by quickly and efficiently delivering new services to meet changing market realities, such as new economic constraints. In doing so, SOA can help trigger major transformations in the way a healthcare provider or health plan does business.

SOA is indeed revolutionary. By exploiting its capabilities internally, as well as with external entities of all kinds, organizations can forge new connections and support new levels of collaboration and innovation. There is simply no limit to the number of connections and configurations – with benefits that promise to reshape not only a business or an industry, but a whole economy – even the global economy.

In this way, we believe, SOA is potentially as transformative as the Internet. Nevertheless, SOA has had remarkable acceptance as a universal means of integration across diverse application vendors, technology infrastructure vendors and, most importantly, different health-care stakeholders.

But precisely because of its range and power, SOA can be a little daunting to the organization that has yet to use it. Like anything else of this scale, it must be employed responsibly and intelligently – with a sense of vision, purpose and strategy. Through our own use of SOA and in thousands of SOA engagements across the world, IBM has gained a very good sense of how to proceed with SOA:

- Focus on a business problem, and use SOA to solve it. SOA is a means to an end – not an end in itself.

- Start small. Use your first SOA project to "learn the ropes." If it is successful, show it to other parts of the business to demonstrate what can be done with SOA.

- Begin to build new human capabilities. SOA requires some specialized skills that entail a learning curve. It is best to instill these skills *now.*

- Think long-term. The hardest, most prolonged and most expensive part of SOA is building the initial architecture. Once that's in place, additions or changes – new channels, back-office functions or business lines – can be made much faster and less expensively. Over time, the return on this initial investment can be dramatic.

Whether you build, buy or evolve to an SOA infrastructure, the time to start is *now.* We expect SOA to be well entrenched in the healthcare system. Everyone will eventually have it, but you can win new customers with better services by using it first.

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Related Publications

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