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Empire Blue Cross and Blue Shield Delivers Customer-Centric Services over the Web

Using e-business Portals to Transform
Relationships with Members,
Physicians, Brokers, and Employers

*By Geoffrey E. Bock
March 2002*

Prepared for IBM

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*Using e-business Portals to Transform Relationships
with Members, Physicians, Brokers, and Employers*

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EXECUTIVE SUMMARY

Founded in 1935 and growing through multiple mergers, Empire Blue Cross and Blue Shield is New York State's largest health insurer. In the early and mid 1990s, the state-regulated not-for-profit firm faced serious business challenges as it was losing money and had not aggressively pursued the managed-care revolution. Its turnaround from a failing health insurance carrier to an industry-leading organization began in 1995 with new executive leadership and a renewed business vision to focus on customer service.

In the midst of its financial and organizational difficulties, Empire was operating six separate membership, billing, and claims processing systems. These were the consequences of its merger activities during the 1980s. In 1995, Empire launched an initiative to modernize operations by consolidating the disparate membership, billing, and claims processing operations into a single enterprise system. It took Empire over four years to design, build, and deploy this consolidated enterprise system.

Eliminating disparate systems had a number of strategic business benefits, beyond reducing operational costs. By consolidating legacy systems, Empire was finally able to centralize all membership, billing, and claims processing activities into a single set of business operations. With a common enterprise platform in place, the company had the necessary foundations for enhancing the delivery of services to its different customer groups.

Empire has now introduced four customer-focused self-service portals, targeting the needs of members, physicians, brokers, and employers. Customers actually interact with Empire's consolidated enterprise system as necessary, while doing their business online. In effect, Empire has achieved the "Holy Grail" of claims and membership processing—Web-enabling individual business transactions in real time. For instance physicians now have a 93 percent first-pass adjudication rate for member claims. (This means that Empire automatically processes 93 percent of the claims submitted over the Web or can resolve any discrepancy in real time.) Empire has also reduced the time for brokers to develop a proposal and enroll new members from an average of 25 to 30 days down to 2 to 3 days.

Improving customer relationships is a profitable business strategy. Empire is well along the road to delivering on its promise of customer self-service.

BUSINESS CONTEXT: THE TURNAROUND OF A TROUBLED FIRM

Moving to One World Trade Center

On December 12, 1997, *The New York Times* reported that Empire Blue Cross and Blue Shield had signed 21-year lease with the Port Authority of New York and New Jersey to move its corporate headquarters to One World Trade Center. This relocation from the company's longstanding offices in mid-town Manhattan represented an important break from the past. The move symbolized the turnaround for New York State's largest health insurer.

In the early and mid 1990s, the state-regulated not-for-profit firm had been in dire financial straits. Empire was hemorrhaging red ink as the insurance carrier of last resort for many New Yorkers. Founded in 1935 and growing through multiple mergers, it had remained largely in the indemnity claims business and had not aggressively pursued the managed-care revolution of the 1980s. Empire was mired in unprofitable businesses and business practices. Its surplus (or cash reserves on hand to cover outstanding insurance claims) had shrunk to \$39 million in 1993 and was thus significantly below the New York State statutory requirement as well as the benchmark set by the Blue Cross and Blue Shield association. Its former Chief Financial Officer (who was fired in 1993) had been convicted of perjury and was facing a prison sentence. And as late as September, 1997, Empire had been sued by a group of angry customers, alleging that the health insurer deliberately delayed or refused payment of claims through such practices as "not promptly notifying consumers when a claim is received, ignoring letters and phone calls inquiring about claims, making repeated requests for previously submitted information, and sending out confusing explanation-of-benefit forms."¹

In fact, 1997 was a watershed year. A quiet transformation was gathering momentum, as the company methodically put its financial house in order, reengineered internal operations, announced new products for new

markets, and focused on revolutionizing its customer-facing operations.

New Leadership

During the darkest days of its financial crisis, Empire began its recovery from a failing health insurance carrier to an industry-leading organization. Dr. Michael Stocker, a seasoned healthcare manager, took over as President and Chief Executive Officer in November, 1994. Almost immediately, he brought in a new management team, including Kenny Klepper, a former colleague, who joined as Senior Vice President in January, 1995. The two had worked together at their prior positions with CIGNA Health plans.

Stocker and his executive team focused on two critical factors: improving the quality of health insurance services (which had deteriorated significantly in the midst of the organizational turmoil) and introducing competitive managed-care products that New Yorkers would find appealing. Empire's "financial comeback appears substantial," *The New York Times* noted on October 8, 1997, as the company rolled out its initial wave of managed-care offerings. "But questions linger about whether it [Empire] can provide high-quality coverage" and win back the trust of its customers.

Over the next few years, Empire continued to address these lingering doubts as it restructured its business operations. The New York State legislature modified the terms of the Direct Pay program to spread the risk among all health insurance carriers operating in the state. This changed the business landscape and enabled Empire to cap some of the drain on its resources. In addition, company executives began to make the case for shedding Empire's not-for-profit corporate structure and reorganizing itself into a for-profit (and profitable) healthcare enterprise.

THE E-BUSINESS INITIATIVE: COMPETING THROUGH CUSTOMER SERVICE

A Consolidated Enterprise System

Behind the scenes and out of public view, Empire was in the middle of overhauling its entire technology infrastructure. At the time of its financial crisis, Empire was operating six separate membership, billing, and claims processing systems, which were the end result of its merger activities during the 1980s. Not surprisingly, its customer service operations were in disarray.

¹ "Cutting Through The Red Tape: Insurers' Delays On Medical Claims Irk Consumers, Sparks Suit," *The Wall Street Journal*, September 12, 1997, page C1.

Stocker and his executive team realized that multiple systems contributed to high operational costs and poor customer service. “Customer service was the one area where we could make the changes and see the results,” he observed.

Summary: IBM-Related Solutions and Technologies

SOLUTION: Major e-business initiative that transforms both internal operations and customer-facing business processes. Initiative consolidates all membership, claims, and billing activities into a single system. Empire launches four e-business portals for members, physicians, brokers, and employers to facilitate customer self-service. Empire also updated its business continuity planning and disaster recovery planning, initiatives that proved critical to quickly rebuilding the destroyed portions of its IT infrastructure following the September 11, 2001 attack.

SOFTWARE AND SERVERS:

- WebSphere Application Server
- MQSeries
- VisualAge for Java
- Lotus Notes
- IMS database
- CICS transaction-oriented environment
- RS/6000
- eServer zSeries (formerly S/390 Parallel Enterprise Server)

SERVICES: IBM Global Services

BUSINESS BENEFITS: Designing and developing a consolidated enterprise system for membership, billing, and claims processing had a major impact on internal operations: Empire could focus all of its attention on only two systems—rather than on six legacy systems (which the company had built or acquired during successive consolidations). In addition, Empire has proceeded to launch a customer self-service environment and build four different e-business portals, one for each key constituency: members, physicians, brokers, and employers.

Using these portals, customers interact directly with Empire’s enterprise system for real-time processing of claims and inquiries.

- Physicians now have a 93 percent first-pass adjudication rate. (This means that Empire automatically processes 93 percent of the claims that doctors submit over the Web or can resolve any discrepancy in real time.)
- By reengineering internal processes and using the broker portal, Empire has reduced the time required for brokers to develop a proposal and enroll new members from 25 to 30 days down to 2 to 3 days.

Empire’s business continuity planning and disaster recovery planning efforts paid off in the aftermath of the destruction of its corporate headquarters on September 11, 2001. The wide area network and data center stayed up—the company was able to function despite the loss of its corporate headquarters. Voice and data traffic on the corporate networks was automatically rerouted through backup nodes. Most corporate systems were restored within five days.

In 1995, Stocker and his executive team launched an initiative to modernize Empire’s operations by consolidating the disparate membership, billing, and claims processing operations into a single enterprise system. It took Empire over four years to design, build, and deploy this consolidated enterprise system. Introducing the system was an arduous process as well. The company reengineered (and streamlined) its core business processes, reorganized its routine operations, and downsized its staff. Empire’s recovery has depended on an astute combination of technological innovations and organizational improvements.

A Necessary Investment

The consolidated enterprise system—which merged six separate systems into two—was a necessary investment from a number of technical perspectives. Fully functional in 1999, it was Y2K compatible and removed any lingering doubts that Empire would be able to operate effectively in the new millennium.

The consolidated system for membership, billing, and claims processing created a secure systems infrastructure. It provided the foundations for Empire to meet the Health Insurance Portability and Accountability Act (HIPAA) standards for the security and confidentiality of electronic health information. And the enterprise system provided Empire with the opportunity to update its systems operations, back-up, business conti-

nuity planning, and disaster recovery procedures so that all operational data were readily available at multiple hot-sites. Empire's network had multiple fail-over nodes; in the event that the network at the World Trade Center went down, voice and data traffic would automatically be rerouted to backup locations in Albany and on Long Island.

The end result proved critical not only for substantially improving routine operations but also for transforming the company into a responsive, customer-centric, and disaster-prepared organization.

Meeting the Needs of Four Distinct Customer Groups

Eliminating redundancy had a number of strategic business benefits beyond reducing operational costs. By consolidating legacy systems, Empire was finally able to centralize all membership, billing, and claims processing activities into a single set of business operations. With a common enterprise platform in place, the company had the necessary foundations for enhancing the delivery of services to its different customer groups.

Health insurance is a complex business involving multiple parties. Empire's customers (and key stakeholders) comprise four separate constituencies—members, physicians, brokers, and employers—each of whom has specific needs and concerns.

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MEMBERS. Members are the insured individuals and families who receive the healthcare benefits. They are concerned that their health insurance will meet all of their medical needs in a timely fashion.

PHYSICIANS. Physicians and their office staffs are concerned about ensuring member eligibility and receiving payment for services delivered in a timely fashion.

BROKERS. Brokers are intermediaries who identify benefits packages for employers, particularly in the small group marketplace (ranging from two to fifty employees). Brokers prepare proposals for employers and help them evaluate choices among multiple insur-

ance carriers. When the employers accept the Empire proposals, the brokers administer the enrollment process by collecting information about members (and their dependents) and passing it onto Empire.

EMPLOYERS. Employers are organizations that provide (and, to varying extents, pay for) healthcare insurance as part of their employee benefits packages. Employers are responsible for paying premiums. They are concerned about healthcare costs, administrative efficiency, and the quality of members' benefits.

Once it deployed the consolidated enterprise system, Empire had organized all necessary operational information into a single transactional environment. But this was only the beginning. The company still needed to create the linkages with its multiple customer groups.

Call Center Operations

Even with the new membership, billing, and claims processing system in place, providing health insurance coverage still required a mixture of paper-driven and telephone-assisted business processes. Members, physicians, brokers, and employers needed to send Empire various forms and then wait for

replies. When customers had questions or problems, they called the company and expected to resolve the issues over the phone. Depending on who they were and what matters they had, customers had to dial one or another toll-free number, make any number of menu-selections, wait for the next-available customer support representative, and hopefully talk to people who had satisfactory answers.

All too frequently, this was a time-consuming and frustrating process. Empire had segmented its call center operations into a series of specialized customer touchpoints and had to triage incoming calls to appropriate customer support representatives.

When implementing the consolidated enterprise system, Klepper and his technology team also began to address the problems of call center operations. Together with Gloria McCarthy, senior vice president of operations, and key staff members from her organization, the technology team focused on the complexity of

call center activities and the need for specialized customer service representatives, trained to answer only certain classes of questions. Operational specialists and technologists worked together closely to blend operational insights with technical expertise. Staff members from both groups identified ways to combine work activities within individual call centers and to cross-train Empire employees about how to answer a wider range of questions. In so doing, the technology team began to introduce intelligent-routing capabilities into call center operations, where inbound calls were automatically routed to larger groups of customer service representatives who, in turn, could readily query online databases of questions and answers. “We emphasized getting the [customer’s] call to where it needs to go,” Klepper explained, “and then having people available to answer the call. Customer service representatives would be able to handle more and more questions, more intelligently.” Close collaboration between the operational staff and the technology staff ensured an effective set of solutions for call center operations.

Rather than reengineering the paper processes and relying simply on customer service representatives to handle customer’s questions, Empire executives began to incorporate the Internet and the Web into their plans for expanding customer touchpoints.

Reengineering Business Processes

Once they had put their financial house in order and had begun developing the consolidated enterprise system, Empire executives began to take a hard look at Empire’s internal business processes. In early 1999, they assembled sets of process-oriented reengineering teams to identify how Empire could streamline internal operations and reduce operating costs.

The reengineering teams identified a series of promising opportunities. For instance, one team examined how Empire did business with the independent insurance brokers (who sell health insurance to individuals and small groups). The team determined that when brokers wanted to prepare a proposal for a small member group and then enroll the new members with the company, Empire had an 80-step paper-driven process that took 25 to 30 days to complete. Moreover, 60 percent of the forms brokers completed contained errors, and Empire had to either call or send a letter requesting additional information. With an automated system, these forms processing errors would be eliminated.

As the reengineering teams began to redesign various internal processes, they also began to realize that they could use Web-based solutions. “As we got into it [our process redesign activities],” remarked Steve Bell, vice president for business operations, “the Internet exploded all around us, and people began to figure out what it could do for us.”

Like many organizations large and small, Empire had been tracking the Web for a number of years. The company had gained some initial experience by introducing its first Web site in July, 1997, using it to distribute plan information online. The time had come, however, to move to the next stage and use the Web for mission-critical business applications.

A Vision for Customer Self-Service

Rather than reengineering the paper processes and relying simply on customer service representatives to handle customer’s questions, Empire executives began to incorporate the Internet and the Web into their plans for expanding customer touchpoints. “We wanted to be in the vanguard of providing our customers with 24 by 7 self-help,” Klepper noted. “We wanted to exert the leadership in this [the health insurance] industry for transforming how it works.”

The vision for customer self-service was simple enough. Customers should be able to go online any time of the day or night and do business with Empire. Members should be able to easily change their personal information or check on particular claims. Physicians should be able to quickly verify patient’s eligibility and submit claims online. Brokers should be able to research benefits packages, tailor plans, and determine quotes online. Employers should be able to directly enroll employees and verify their benefits coverage.

Delivering on this vision was another matter.

An Outside-In Approach to Business Portals

By mid-1999, Klepper, who had assumed executive responsibility for systems, technology, and infrastruc-

ture, was ready to launch Empire's strategic e-business initiative—a transactional, functional environment for customer-facing interactions. Empire would deploy four interrelated—albeit separate—business portals: one for each of its four constituent groups. Empire would take the lead and make it easy for these customers to do business with Empire, any time of the day or night.

Business and technology teams at Empire decided to take an outside-in approach for specifying customers' requirements. These teams organized a series of focus groups and worked with members, physicians, brokers, and employers to sketch specific usage scenarios and to determine what information they required at each step of the way. "Our problem was that we knew too much about the health insurance business," Klepper observed. For example, members and employers did not usually want to read formal Explanation of Benefits documents. Rather, they wanted to interact with an environment which would deliver an effective experience: quickly pay claims when submitted or explain (in a timely and understandable manner) the reasons for delay or denial. Empire needed to explain benefits coverage within the context of processing payments, not as a separate search activity. Empire thus had to focus on solutions that encapsulated its customers' experiences from the customers' perspectives.

All of the portals relied on a common enterprise infrastructure, beginning with the consolidated membership, billing, and claims processing system that Empire was rapidly deploying at the time. Each portal would present a separate view of the enterprise data and underlying business processes, tuned to the needs of particular customer segments. For example, members would be able to check on claims in process, while doctors could directly submit claims for immediate approval.

Empire now needed to extend its enterprise infrastructure to create this set of customer-facing, transaction-oriented business portals, based on a common Web application platform.

Betting on IBM Solutions

By 1999, developing and deploying mission-critical Web-based applications appeared to be technically feasible. To do so, Klepper and his technical team concluded that they needed a middleware layer. This layer would deliver enterprise application integration (EAI) services and link the proposed customer-facing business portals to Empire's operational system. This EAI services layer would create and organize customers' experiences, manage customers' interactions, and access the consolidated membership, billing, and claims processing system as required. As they scoped out the technical requirements, Empire technologists decided to add a Web application server and an underlying messaging bus to their core enterprise infrastructure. Moreover, always concerned about strategic business directions, Klepper again focused on maximizing Empire's investments in its technical operations.

IBM was already a major technology provider to Empire. In particular, Empire's consolidated enterprise system ran on an IBM platform and was supported by a range of IBM software. IBM Global Services provided various solutions-oriented design and implementation services. "We made the decision at the beginning [of our business portal initiative] to maximize our relationship with IBM," Klepper asserted. "We bet on the fact that IBM had a strategic emphasis on WebSphere as one of its suite of software products. We wanted a single point of accountability." Having a single relationship facilitated a cleaner, faster development (and problem resolution) process. Empire opted for using a comprehensive suite of products from a single vendor in order to speed the resolution of any product-related support or integration issues that almost invariably emerge during the development effort.

The Empire technology team decided to adopt a J2EE application framework. They would significantly accelerate their application development efforts through building reusable components and incorporating them into a Web application server. They decided to use the WebSphere Application Server as the intermediate server for organizing and managing all elements of their customers' experiences, as well as using MQSeries as the underlying messaging-oriented middleware

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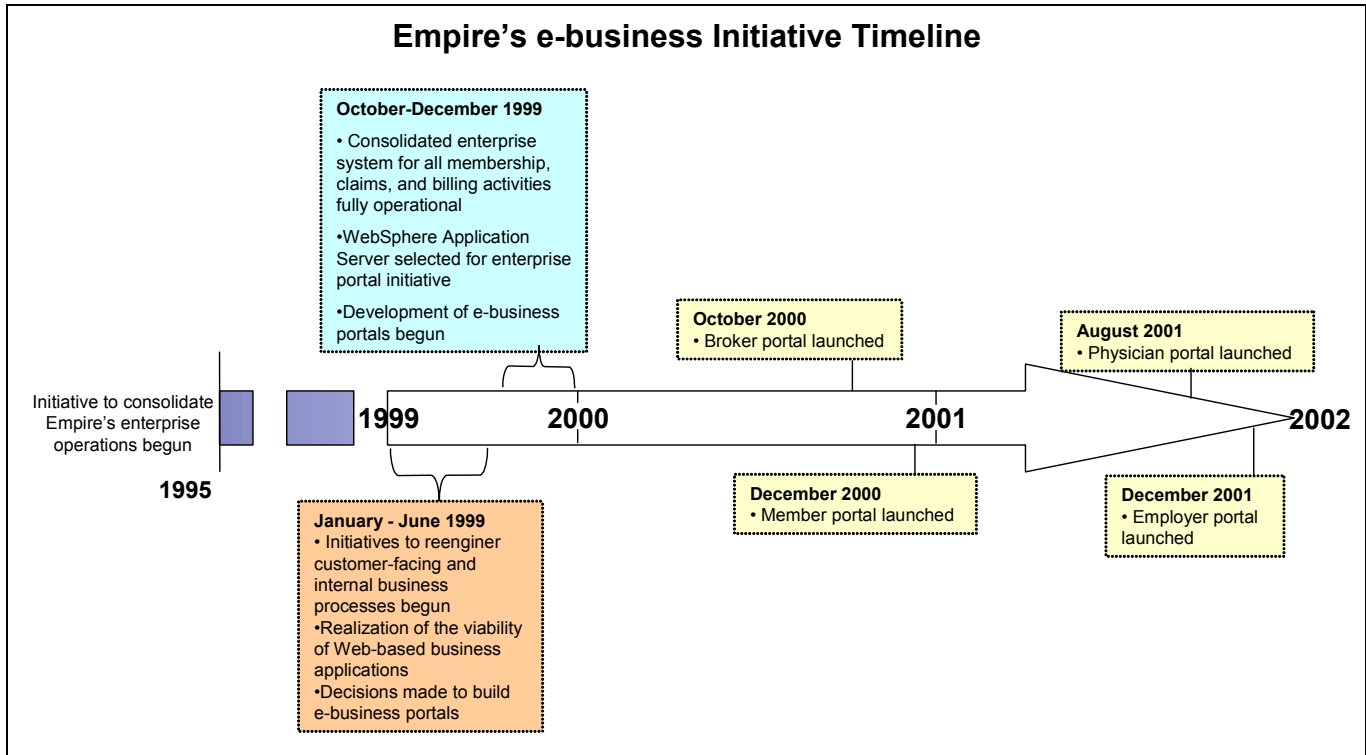


Illustration 1. Empire's e-business initiative began in 1995 with the decision to build and deploy a consolidated enterprise system for membership, billing, and claims processing operations. This strategic enterprise system became fully operational in late 1999. By that time, Empire had made the decision to build and deploy four customer-facing e-business portals. The broker, member, physician, and employer portals were introduced between October, 2000, and December, 2001.

for communicating with the back-end system. They added RS/6000-AIX platforms to run these applications and adopted VisualAge for Java as the integrated development environment (IDE).

RESULTS: PROFITING THROUGH SEAMLESS CUSTOMER EXPERIENCES

Delivering Business Benefits

The Empire technology team had a simple goal and a comprehensive development plan. Anything that Empire customers could currently do over the phone or by fax, they should be able to do through an e-business portal. Delivering on this vision required engineering discipline: implementing the core Web application infrastructure and then rolling out successive e-business portals for each of the four customer groups.

Since 1999, Empire has spent over \$60 million on the advanced technologies and systems related to its e-business initiative. (This includes the costs of build-

ing an intranet and developing various enterprise systems, in addition to the business portal initiative.) But, according to David Snow, Empire's president and chief operating officer, it expects to recoup its investment through improved operating efficiencies and reduced errors, not to mention the intangibles of greater customer satisfaction.

A Phased Implementation

Development began in October, 1999. The first portal, for brokers, went live 12 months later. Empire launched its member portal in December, 2000, its physician portal in August, 2001, and a beta version of its employer portal in December, 2001.

Illustration 1 shows the overall timeline for planning, developing, and launching the four customer-facing business portals.

Bringing Empire to Customers' Desktops

Empire is steadily building momentum behind the e-business portals for its members, physicians, brokers, and employers. Each portal focuses on the interactions and transactions that customers have with Empire. Each portal needs to be easy to use, easy to navigate, and highly responsive (completing most individual transactions within a few seconds).

Moreover, each portal blends customer self-service with live interactions. Each portal includes innovative "click-to-talk" capabilities that are directly integrated with Empire's call centers. Thus, when members, physicians, brokers, or employers are stuck and need help, they can request live assistance while doing business over the Web. They can automatically connect to a customer service representative who is trained to answer their kinds of problems. The "click-to-talk" capability senses the user's current context and automatically directs the customer's request to the appropriate representative. The customer support representatives, in turn, can view the customer's screen, talk to him (or her) over the phone, and provide direct assistance for completing the transactions online.

"We are the first major enterprise to combine real-time collaboration tools and an e-mail response system into our call centers," reports Michael Galvin, vice president and chief infrastructure officer. "This is changing the culture of the call centers from a traditional bureaucratic approach to one where we have to work directly with individual business units," he continued. "We now have to cross-train our customer service representatives to be able to respond to Web-initiated requests as well as those that come in directly over the telephone."

The member, physician, broker, and employer portals all rely on a single source of membership, billing, and claims-related information. As shown in Illustration 2, customers actually interact with Empire's consolidated enterprise system as necessary, while doing their business online. WebSphere and MQSeries provide the critical connections for linking the customer-facing portal environments to the consolidated membership, billing, and claims processing system. All of these Web-based communications are secure—Empire implements 128-bit encryption.

In effect, Empire has achieved the "Holy Grail" of claims and membership processing—Web-enabling individual business transactions in real time.

The Member Portal: Continual Access

Members have continual access to all of their health insurance information through the member portal. After registering for the portal online, they can change personal information (such as address, phone number, or name of their Primary Care physician) or beneficiary information (such as a new child). They can search for providers, find descriptions of individual benefits, check on claims payments and statuses, request replacement ID cards, and view their prescription drug benefits. In addition, the portal serves as a communication channel—Empire can send members specific messages (such as explaining the reasons for a partial payment on a claim), and individuals can communicate directly with Empire (via e-mail or the "click-to-talk" capability).

Empire organizes all of these member-related capabilities through a click-and-browser user interface, as shown in Illustration 3.

Empire rolled out the member portal by first signing-up its own employees and then revising the user interface capabilities in light of their experiences. Empire launched a marketing campaign for the member portal in April, 2001, beginning first with a series of regional TV ads, emphasizing the ease, the convenience, and the security of doing business with Empire over the Web. Empire has followed up with direct mail and workplace-based campaigns.

As of December, 2001, more than 103,000 of Empire's 4.4 million members have registered to use the site. While proportionally a relatively small percentage of the total registered members are beginning to use the member portal, Empire estimates that it has processed over 400,000 transactions on the portal. Empire also plans a number of marketing initiatives during 2002 to publicize the availability of the portal, increase registrations, and emphasize that going online is a fast and effective way of getting up-to-date, member-related information.

The Physician Portal: Supporting Business Processes for Delivering Services and Receiving Payments

Using the physician portal, doctors within Empire's network can confirm a patient's eligibility, obtain pre-certification, and process claims within seconds. The portal is designed to reduce administrative costs—both for physicians (and their staffs) as well as for Empire.

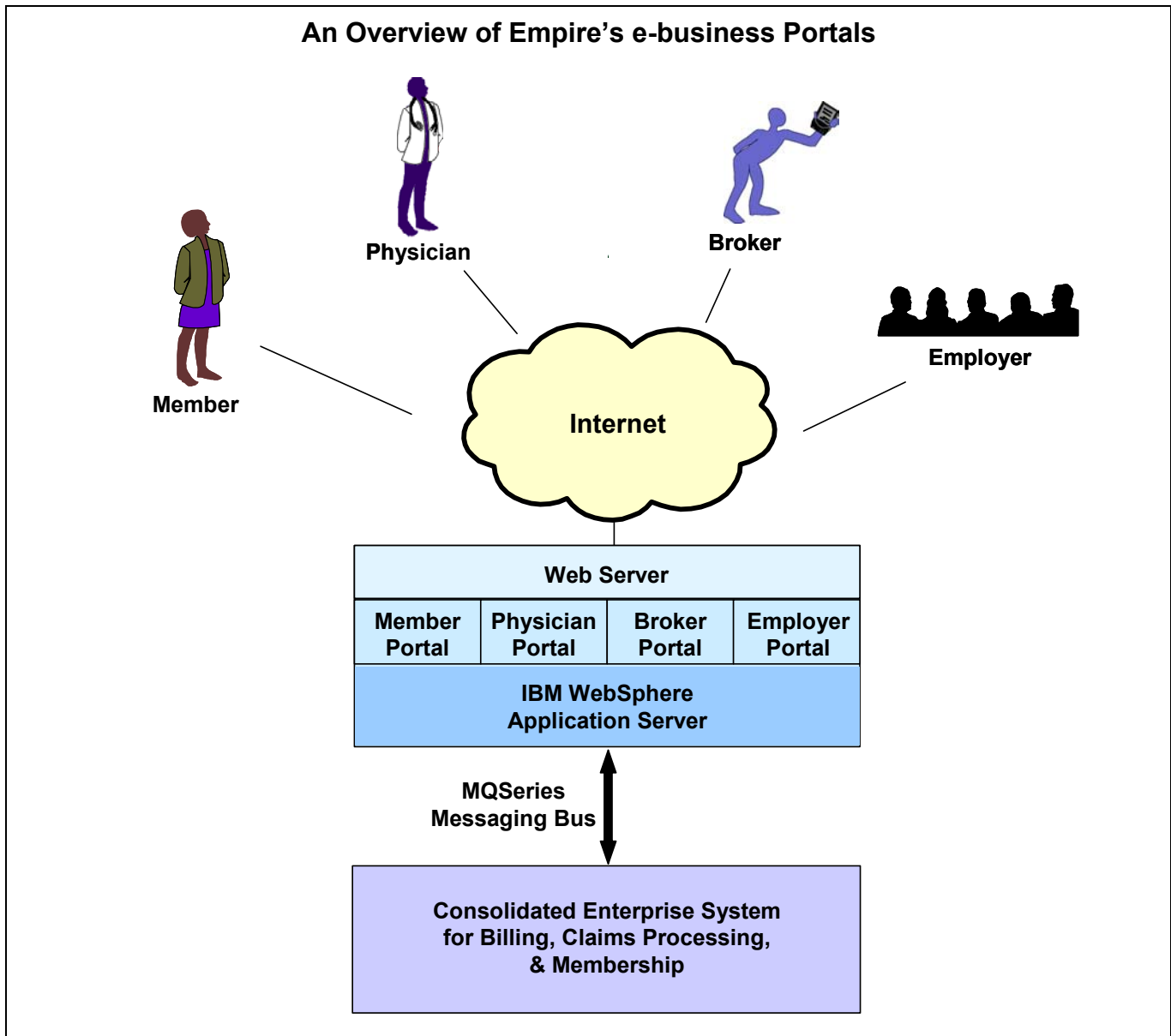


Illustration 2. Empire's e-business portals link customer-facing environments to the consolidated enterprise system for billing, claims processing, and membership. IBM WebSphere Application Server and MQSeries message bus provide the critical connections.

Empire has organized the Physician Portal around the business processes within a typical doctor's office, as shown in Illustration 4. Doctors with multiple offices can manage their patients at each location.

- Providers (doctors or their office staff) list their patients in their "waiting rooms."
- Providers click on patients' names to see detailed listings of benefits online (such as effective dates for

coverage and co-payment information) as well as running totals of deductibles.

- When providers need approvals for specific procedures or hospital stays, they access an authorization feature to get a pre-certification or to search for an existing one.

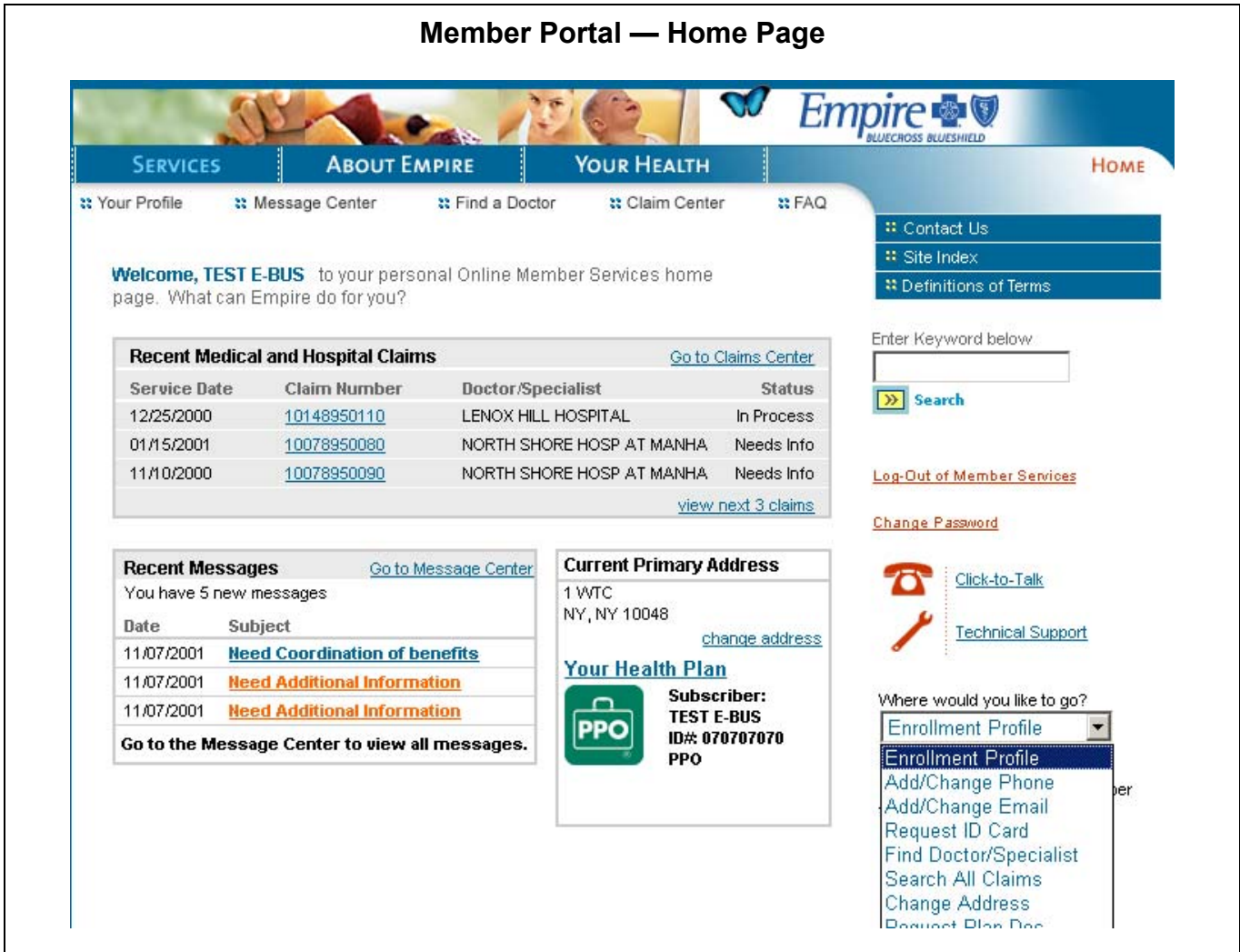


Illustration 3. Empire members view all of their outstanding medical and hospital claims, as well as recent messages, when they log onto their member portal account. They can also choose a number of other activities, such as change phone numbers or request a new identification card. At any time, they also have access to the “click-to-talk” option and can directly contact a customer support representative over the telephone.

- Providers can file claims while patients are in the office: they simply add the procedural information to a prefilled electronic form, submit it for processing, and receive an immediate response (identifying physicians’ payments and patients’ responsibilities) before the patient leaves the office.

The end results are fewer paper forms, faster payments, and hassle-free billing.

Empire is achieving a 93 percent first-pass adjudication rate for claims processed through the physician portal. This means that Empire automatically processes 93 percent of the claims that doctors submit over

the Web or can resolve any discrepancy in real time. When providers encounter a problem with a claim, they can use the “click to talk” feature to immediately contact a claims specialist who can usually resolve the issue. Only 7 percent of the claims require follow-up action.

Empire is in the midst of a major launch initiative for this portal. As of December, 2001, roughly 11,200 of its 80,000 network physicians (or 14 percent) had registered and are using the physician portal. Empire now plans a marketing campaign for physicians, emphasizing the ease of use, the security, and the business benefits for using the portal.

Physician Portal — Home Page

Verify a patient's plan type, plan status and effective dates. **GO!**

Empire BLUECROSS BLUESHIELD

MY HOME PAGE | REFERENCES | SEARCHES | MAINTENANCE | HELP

MEMBERS | SETTLEMENT

Office Name
My Office
Waiting Room
Joe Webb

Member Notices

Today's Date: 02/01/2002 EST

Welcome, DR. SMITH

Member Search

Please Enter a Member ID **SEARCH >>**

eMessages
You have 0 new eMessages

Inter Office Messages
You have 0 new messages

What's New At Empire?
Check out some of our latest features..

- Eligibility Status
- Claims Status
- Claims Submission and Adjudication.

Check back with us to see our latest site updates...

APPLY >> **UPDATE MY PROFILE >>**

[Privacy Notice](#) [Legal Notice](#)

Services provided by Empire HealthChoice, Inc., a licensee of the Blue Cross and Blue Shield Association,

Illustration 4. When they log-on to their own accounts within the physician portal, individual providers get a quick snapshot of all their outstanding business with Empire. Providers enter a member's identification number and then can view the member's coverages as well as enter claims for any medical services provided.

The Broker Portal: Preparing Proposals and Enrolling Members for Small Healthcare Groups

The broker portal is designed for insurance brokers who sell healthcare policies to the small employer groups. It simplifies the business processes for comparing benefits and rates, preparing proposals, and then enrolling groups online.

Once they register for the portal, brokers can create proposals for their clients online. They can prepare documents with side-by-side comparisons of various benefit options and costs. Brokers can select from multiple Empire benefits packages and customize proposals to individual clients' needs. They can send the pro-

posal and associated product brochures electronically or as a set of hard-copy documents. Once a small business owner decides to insure with Empire, the broker handles all of the enrollment activities.

Many brokers have rapidly accepted this more efficient way of doing business with Empire. As of December, 2001, over 1,900 of the 4000 independent brokers in Empire's database have registered to use the broker portal. Since the portal's inception, brokers have created 5,939 proposals and enrolled 1,212 separate groups.

The business benefits to Empire are substantial. By reengineering internal processes and using the broker portal, Empire has reduced the time required for bro-

kers to develop a proposal and enroll new members from an average of 25 to 30 days down to 2 to 3 days. Empire's broker-relations staff can now spend more of their time working with brokers and helping them to develop new business, rather than answering routine questions and correcting administrative errors.

Employer Portal: Self-Service for the Mid-Tier Market

The employer portal is designed for Empire's mid-tier marketplace—employers with up to 250 employees—where the company maintains its own sales force to sell directly to these firms. Empire now seeks to provide a self-service environment for employee registration, termination, and benefit changes.

Benefits managers within these mid-sized firms now have the capabilities to administer their company's healthcare plans on their own. Using a Web browser, they can add new employees (and their dependents) as well as remove employees when they leave the company. Benefits managers no longer have to fill out paper-based forms and then wait for the changes to take effect. Empire, in turn, reduces its overhead costs while increasing customer satisfaction.

Empire introduced a beta version of its employer portal in December, 2001, and is continuing to refine its capabilities.

Rapid Development through Component Reuse

The Empire technology team uses a rapid development methodology—build upon a core infrastructure, develop and reuse individual components, and iterate through successive versions of the individual portals in light of customers' experiences. The J2EE framework is essential for component reuse.

For example, the technology team needed several months to design and implement an enterprise Java bean that determined the eligibility of individual members. Through component reuse, the team was able to implement the Java bean that determined the

eligibility of various physicians within a day and a half.

RECONNECTING AFTER SEPTEMBER 11TH

Empire's emphasis on enterprise operations, business continuity, and disaster planning was sorely tested by the destruction of its corporate headquarters in the terrorist attack on the World Trade Center on September 11, 2001. Fortunately (and according to plan), the company was running its operational systems at remote data centers and did not lose any operational data. Nor did its systems environment or business operations ever fail; the backup systems performed as designed. Sadly, Empire lost nine staff members.

As the chief infrastructure officer, Galvin had been extensively involved in developing the disaster-planning procedures and was the most senior IT executive in the building that fateful Tuesday morning when the first jet struck. "The Empire staff knew what to do," Galvin recounted four

months later. "People took the initiative even in the midst of the crisis. For instance, Mark Arras, a server engineer operating the corporate network, managed to switch the primary domain controller to a backup site as he left his desk. His quick thinking saved us several days of work to restore the internal corporate network." Following his escape from the collapsing building, Galvin immediately traveled north to the company's Albany office to help lead the recovery effort.

Within a day, Empire had procured 250 servers, 500 desktop systems, and 500 laptops, to replace those lost in the World Trade Center. "We had a lot of file servers, 40 different intranet applications, and our Lotus Notes e-mail system that had to be restored," Galvin explained. The recovery team quickly made a rank-ordered list of all the work they needed to do and proceeded to rebuild the corporate intranet over the next five days.

In the immediate aftermath of the attack, Empire introduced a new section on its Web site for disaster re-

Empire's emphasis on enterprise operations, business continuity, and disaster planning was sorely tested by the destruction of its corporate headquarters in the terrorist attack on the World Trade Center on September 11, 2001.

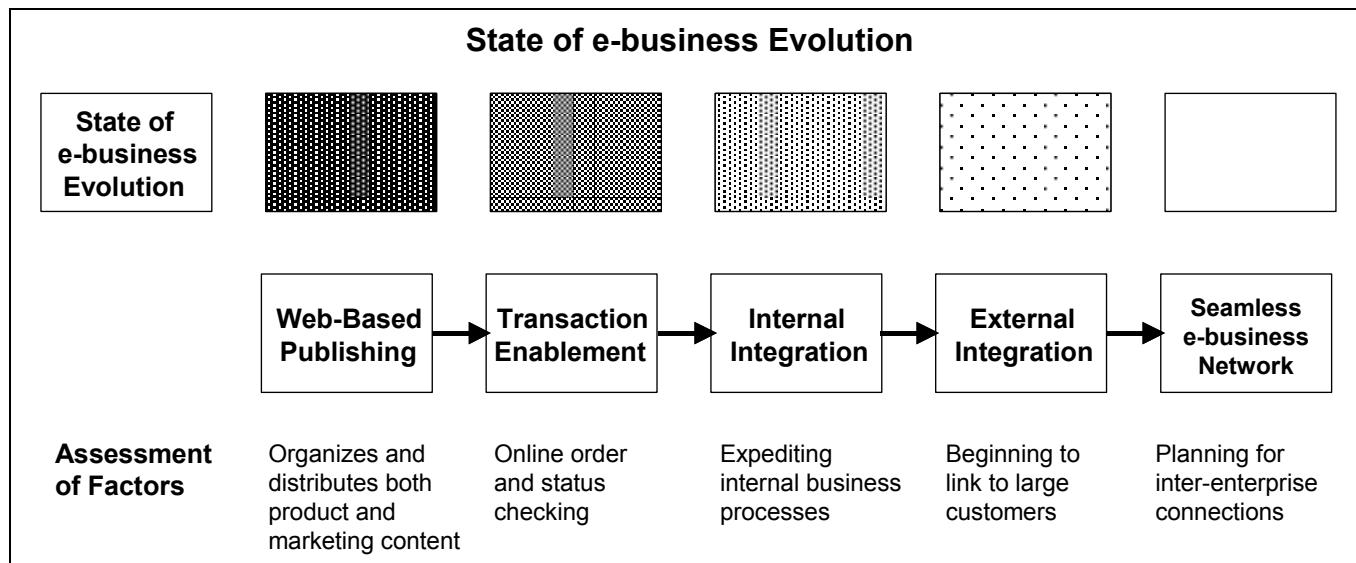


Illustration 5. The e-business environment at Empire builds on a major initiative to foster internal integration as well as external integration. When widely adopted by members, physicians, brokers, and employers, Empire will deliver true “state four” functionality and deliver essential customer-facing activities. As demonstrated by its 93 percent first-pass claims adjudication rate for physicians, customer-centric portals make it easy to do business with Empire.

covery in order to get the word out to employees about how to contact the company. The company had the flexibility to distribute its headquarters operations to remote locations in Albany and on Long Island.

In fact, Empire’s e-business investments in state-of-the-art networking technologies and the Internet yielded innumerable benefits. Calls into its call center were automatically rerouted to backup centers so that customers could continue to contact the company for their medical insurance needs. The member, physician, and broker portals remained online and operational—Internet service to these sites was not interrupted. The company thus continued to function effectively, despite the devastating loss of its corporate headquarters and its need to rebuild its corporate headquarters IT environment.

FUTURE DIRECTIONS: TOWARDS AN INDUSTRY-WIDE IMPACT

Profiting from the e-business Transformation

Empire is now emerging as an e-business leader in its industry. “Sound management led Empire from near-insolvency to a strong balance sheet in the late 1990’s,” *The New York Times* editorialized on October 1, 2001, as it added its voice to the campaign to allow

the company to shed its not-for-profit status. In fact, the company has placed a big bet on doing business electronically. Empire’s activities to-date with its four customer portals and its continued plans for their future enhancements are integral aspects of its sound management practices.

Improving customer relationships is a profitable business strategy. Empire is well along the road towards delivering on its promise of customer self-service for its own members, physicians, brokers, and employers. Empire is also putting plans in place to have an industry-wide impact, by delivering its e-business solutions to other health insurers.

Illustration 5 summarizes the state of e-business evolution at Empire

Enhancing Portal Capabilities

Empire continues to enhance the capabilities of its individual e-business portals, depending upon the requirements of particular customer groups. Currently, it is planning a series of upgrades to its various portals during 2002, focusing on delivering end-to-end business processes. In particular:

- Empire will introduce a pharmaceutical management system to the physician portal. Physicians will

be able to write prescriptions for their patients online and send them to the patients' designated drug stores. Empire expects to be able to pass electronic messages, in a secure and authenticated manner, to a number of electronic pharmacy management systems operating in New York State. Patients will then be able to either go and pick up their prescriptions at convenient locations or have them delivered.

- Empire will enhance its broker portal and will send brokers automated alerts about renewal dates for existing small-group coverage. Brokers will then have additional time to contact their clients and discuss coverage changes (and pricing) well in advance of their renewal dates.

Empire continues to identify opportunities that reduce operational costs while also enhancing the value of the ongoing business relationships.

Furthermore, physicians have a unique set of problems—they need to deal with many healthcare providers in addition to Empire. Moreover, Empire realizes that most physicians, particularly in medium and large group practices, have their own electronic practice management systems running within their offices. Empire's browser-based desktop is thus a separate and distinct venue for managing patient activities and processing health insurance claims. For busy staff members, the physician portal requires a separate set of steps beyond those of the practice management systems.

Empire is currently exploring its options to couple its physician portal into the electronic environment of a typical physician's office. Since Empire's e-business portals are based on an open and extensible component-based architecture, it is technically feasible to integrate the portal's business functions with third-party business systems without a great deal of difficulty. In so doing, Empire will create a seamless set of experiences for physicians and their office staff.

Evolving the Technical Infrastructure

Relying on IBM Systems and Solutions

Empire relies heavily on IBM hardware and systems software, as well as the services of the IBM Global Services organization. The consolidated membership, billing, and claims processing system, implemented between 1995 and 1999, runs on an eServer zSeries and uses an IMS database. Empire has developed its own customer relationship management system, using a separate zSeries and running a CICS transaction-oriented environment.

After a careful technical evaluation of competing alternatives, Empire technologists selected IBM WebSphere Application Server as the enterprise application server for building its business portal initiative. They also selected MQSeries as the messaging-oriented middleware for linking the back-end systems to the Web-centric applications. Empire has deployed both WebSphere and MQSeries on RS/6000 hardware running AIX. Empire began its development using WebSphere 3.0.2, and upgraded to a later version, WebSphere 3.5, by August, 2001.

A Four-Layer Architecture

"We have implemented a structured, modular, four-layer architecture," notes Shevin Conway, Empire chief technical officer. This architecture relies on WebSphere Application Server and MQSeries as the key middleware elements. As shown in Illustration 6, the four-layer architecture includes an application layer, a business components layer, a framework layer and a systems layer.

The application layer controls the presentation of information to individual groups of customers. It represents the packages of business services presented to members, physicians, brokers, and employers on their respective portals. The application layer also provides distinctive services for Empire employees through the company-wide intranet. Most important, the application layer enables Empire to manage a single set of Web-based application services for all four of its customer groups.

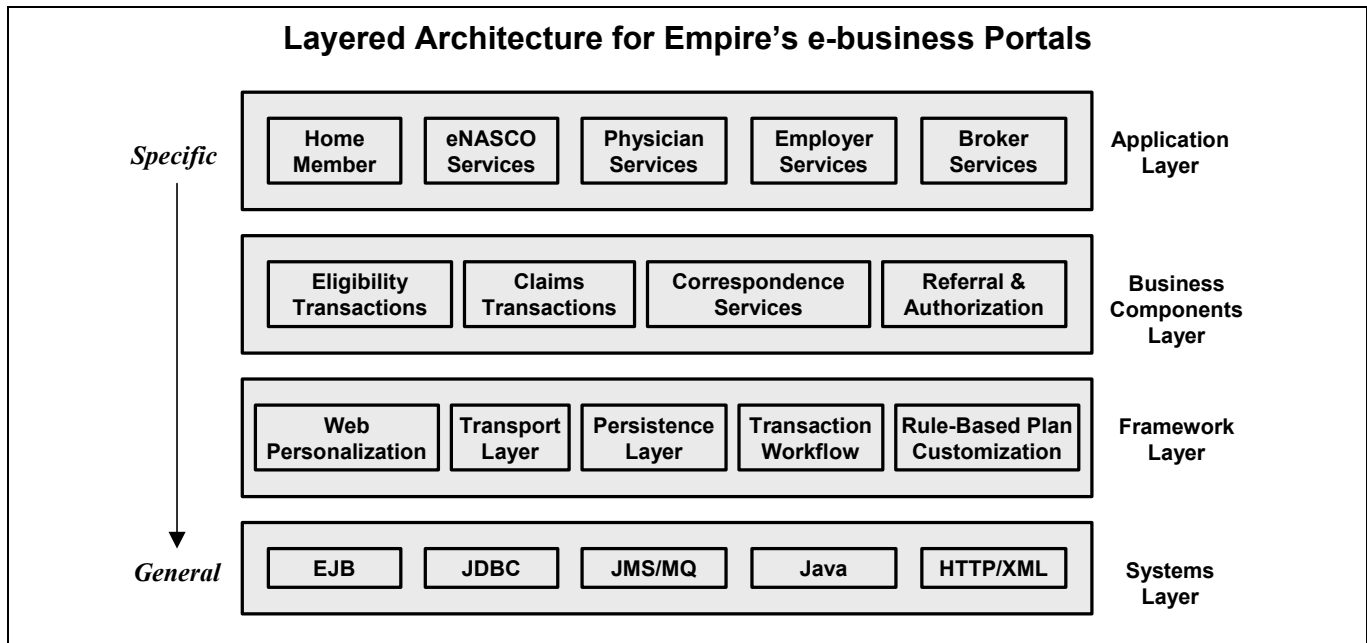


Illustration 6. Empire's e-business portals rely on a four-layer architecture.

The business components layer manages a wide range of business services, necessary to support customer activities within their respective portals. These business components include referral and authorization activities, correspondence services, claims-related transactions, and eligibility-related transactions.

The framework layer supports the specific, business-related primitive actions for doing business within individual portals. The framework layer includes rule-based plan customization, transaction workflow, persistence, transport, and personalized (tailored) information delivery.

The systems layer manages the underlying systems infrastructure, including support for XML, HTTP, Java, message queuing, JDBC, and J2EE services. Moreover, the systems layer abstracts all of the transactions into Java-based data objects and serves as the bridge between the Web-centric applications environment and the back-end enterprise system. The consolidated enterprise system manages all of the data related to membership, billing, and claims processing.

Systems Environment

The systems layer accepts data as XML-formatted documents from the framework layer. The systems layer then transforms the data into an IMS transaction

code and passes it to the consolidated enterprise system. The systems layer returns results by performing comparable transformations in the reverse order and creates an XML-tagged document that contains the results of an inquiry. Empire has developed its own XML-DTD and document object model (DOM) for this purpose.

Empire needs to accommodate HIPAA-compliant privacy and data security standards. Among other things, it supports 128-bit encryption for all Web-based interactions.

Finally, Empire logs all of the transactions occurring through its e-business portals within its customized customer relationship management system, named Excel. (This transaction-oriented system is written in COBOL and CICS.) MQSeries messages exchanged between the business portals and consolidated enterprise system are simultaneously recorded by Excel. This enables Empire to close the loop on any customer-administration issues. Thus, if a member requests a new membership card online and calls the company two days later to inquire whether the card has been sent, the customer service representative will use Excel to check on the status of the customer's request. The customer service representative will be able to trace the customer's request from the Member portal and provide information about when the card was mailed out.

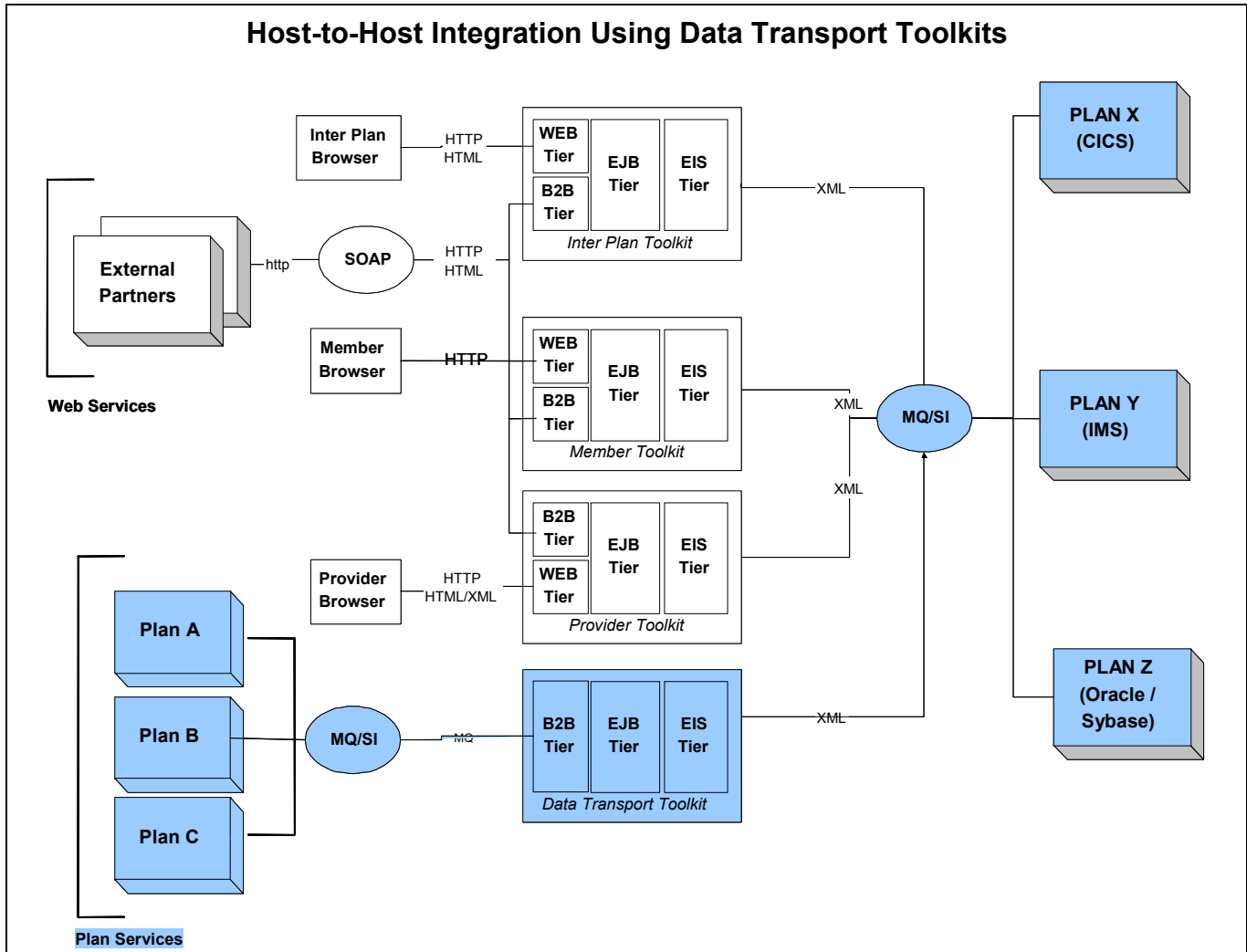


Illustration 7. Empire's host-to-host integration uses data transport toolkits based on XML messages. Items with the shaded background are planned for future implementations.

As shown in Illustration 7, the Empire infrastructure is based on host-to-host integration using XML as the underlying document messaging format and MQSeries as the messaging transport layer.

Designing for Users' Interactions

Both ease of use and systems performance were major design considerations. Empire technologists and IBM consultants from IBM Global Services designed the business portals with a view to accessing the consolidated enterprise system as infrequently as possible. They analyzed customers' interactions in detail to determine what data people would require at any specific point in time. They then optimized the performance of

the business services and data services layers to take into account users' anticipated interactions. For instance, one query to the consolidated enterprise system would return all member-related data from the consolidated enterprise system, a second would return a summary of claims per member, and a third would provide details on a specific claim. The intermediate business services and data services layers would then subset, reorganize, and transform the data to accommodate end users' requirements for a specific context within a portal.

This approach to enterprise application integration minimizes the number of requests to the consolidated enterprise system and makes each request as simple (and as efficient) as possible. This approach also pre-

fetches and buffers data in anticipation of users' requests based on their current contexts and their anticipated actions.

"The project team actually did some analysis and determined what information was needed at what time by Web users. The team then superseded the transactions to categories of information so that Empire's portals did not waste bandwidth by requesting information that customers did not need from the back-end system," notes John Mahony, an IBM Global Services systems engineer associated with implementing the system. "The system design was based on trial and error, as well as on expert opinion about how people were actually going to use the system."

Empire technologists and IBM consultants also designed the business portals for true 24 by 7 operation. Customers can continue to do business with Empire, even when the consolidated enterprise system is down for routine maintenance or some other event. When this system is offline, customers' requests are logged as CICS transactions within the customer relationship management system, and queued up for later processing when the IMS system is back online. Customers receive a message informing them that Empire will respond to their requests when the consolidated enterprise system is back online.

Performance Parameters

Empire, in fact, has stringent performance parameters, requiring sub-second response to simple queries, and 7 to 20 second response for processing claims.

This required a sophisticated design and implementation of business objects and business rules, running through the intermediate Web application server. WebSphere's performance was thus a key consideration. As a middleware layer, "WebSphere has the capability to support several thousand hits-per-second and hundreds of thousands of simultaneous connections," Conway emphasizes.

Using WebSphere Application Server and MQSeries

The WebSphere Application Server controls the presentation and persistence of all information that appears on the individual business portals.

WebSphere supports the execution of a series of enterprise Java beans (EJBs)—or software components—that control the flow of customer interactions at each of the e-business portals. MQSeries, in turn, serves as the messaging-oriented middleware for accessing customer data stored within the consolidated enterprise system.

For instance, when a member logs onto the Member Portal, he or she sees a series of HTML page displays. Authentication and security are controlled by a separate LDAP server. Once authenticated, WebSphere creates a member session. An EJB then initiates a request for member information, which generates an XML-formatted query and sends a message (transported through MQSeries) to the back-end consolidated enterprise system. This system rapidly returns the appropriate member-related information to the portal, again using MQSeries as the transport layer to exchange XML-formatted documents.

A WebSphere-enabled application, running as an e-business portal, manages various kinds of transient data—such as authentication information, session state, and so forth—using an Oracle database. The consolidated enterprise system stores all persistent data—totaling several terabytes—related to membership, billing, and claims processing activities.

Implementing Live Help

Empire implements a "click-to-talk," live help capability as an integral aspect of its e-business portals. When customers request live help, business rules determine how their call requests are processed and which customer service representatives respond based on such factors as the current page being viewed and the current line of business.

The e-business portals (running the WebSphere-enabled application environment) pass the call requests directly to the call center switch through the underlying network infrastructure. That is, most of the routing requests are handled within the corporate intranet before they actually reach one of the operational call centers. Empire is using the Webline Integrated Call Management (ICM) capabilities provided by Cisco and integrated into the Cisco-powered TCP/IP network running within Empire. Empire is also using an integrated e-mail response system provided by Cisco.

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