



Microsoft Server Product Portfolio Customer Solution Case Study



Overview

Country or Region: United States

Industry: Healthcare

Customer Profile

ActiveHealth Management is a technology-driven health management company that is committed to improving the quality of patient care while minimizing costs for health plans and self-insured employers.

Business Situation

The company saw an opportunity to encourage people to take a more active role in their healthcare by making available comprehensive, personalized medical information to individuals and their physicians.

Solution

ActiveHealth worked with partner Netsoft USA to create the Web-based ActiveHealth PHR, built using Microsoft® .NET Framework 2.0.

Benefits

- Improved, more proactive patient care
- Reduced healthcare costs
- Better physician and patient decision making
- Enhanced protection of medical information
- Flexibility for future expansion

Health Management Company Improves Patient Health, Lowers Healthcare Costs

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Jeff Nadler, Chief Technology Officer, ActiveHealth Management

Based in New York City and employing more than 550 people, ActiveHealth Management recognized a need to help people be more proactive about healthcare. The company built a solution for health plans that would consolidate members' health-related information and, more importantly, offer recommendations about practical steps that members and their physicians could take to head off potential problems. Working with Microsoft® Gold Certified Partner Netsoft USA, ActiveHealth developed the ActiveHealth PHR, a personal health record built using Microsoft .NET Framework 2.0 and powered by the ActiveHealth CareEngine System. The solution draws information from a Microsoft SQL Server™ 2005 database and interoperates with other, non-Microsoft-based technology. With the new solution, health plans can deliver clinical decision support while engendering member loyalty and reducing insurance costs.

Situation

The healthcare industry is undergoing a significant push to reduce overall costs. One way it is doing so is by empowering consumers to take a more active part in managing their own health and care, thereby decreasing the need for costly medical services. ActiveHealth Management, a wholly owned, independent subsidiary of Aetna, recently set out to develop an innovative way for health plans to strengthen customer satisfaction, help patients and their physicians make informed decisions about healthcare, and reduce operational costs.

After conducting considerable market research, ActiveHealth identified the need for greater transparency of healthcare information for individuals. "We noticed a real absence of truly useful, usable options for making medical information from multiple sources accessible to health plan members through the Internet," says Jeff Nadler, Chief Technology Officer for ActiveHealth Management.

The company decided to develop a Web-based solution that could deliver more complete personal health record (PHR) information than what was currently offered by most health plans. Says Lonny Reisman, MD, Chief Executive Officer of ActiveHealth Management, "The few available personal health record systems provided important portable storage for medical records. What was lacking was a dynamic analytic capability that could inform individuals as their data changes or as the medical community's knowledge of various wellness and disease processes change. Given our roots in data exchange and analysis, a smart PHR was a logical extension for ActiveHealth."

ActiveHealth determined that its PHR would encourage health plan members to be less passive about their healthcare. "We want members to be better informed and play a

greater role in managing their own and their families' health," explains Nita Stella, Senior Vice President of Product Development for ActiveHealth Management.

The company's goal was to give end users an intelligent system that encompasses personal as well as clinical data, and one that performs automatic updates to reflect claims information as well as information that is typed in by members. ActiveHealth wanted the solution to constantly process all the data and proactively generate action items, recommendations, and alerts for individual members.

Solution

To fulfill its vision, ActiveHealth turned to long-time partner Netsoft USA, a Microsoft® Gold Certified Partner. Says Nadler, "Netsoft USA is a trusted systems integrator with which we've partnered to successfully develop other products."

In January 2006, the companies began the project definition phase, bringing in the sales and marketing team and the product development group to refine the desired product characteristics and competitive differentiators, and produce functional business requirements.

Technology Choices

As part of the architecture development phase, ActiveHealth and Netsoft USA determined how best to build the new PHR system. "We felt it was important that ActiveHealth have the flexibility to use a variety of technologies for the solution," says Harry Collins, Managing Partner and Director of Development for Netsoft USA. "So we suggested building it with Microsoft .NET Framework 2.0 and using service-oriented architecture to integrate content with different platforms through straightforward Web services development and abstract application layers."

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Frank Norman, Chief Information Officer, ActiveHealth Management

Adds Frank Norman, Chief Information Officer for ActiveHealth Management, “The Microsoft .NET Framework gives us speed-to-market advantages, and service-oriented architecture helps us integrate our smart PHR and clinical decision support with other partners’ products.”

The joint team of system architects designed the solution to draw data from two separate databases, making interoperability between the platforms an essential aspect. ActiveHealth opted to use Microsoft SQL Server™ 2005 database software to handle the solution’s contextual data—including member demographic and workflow data. It already used an Oracle database to handle transactional data, which involves claims, lab results, and prescriptions, in addition to procedural and diagnostic data.

“We had no concerns about interoperability between the two database applications because of the sophistication of Web services as a means of standardized system-to-system transactions,” says Nadler. “I also am confident that if we ever decide to consolidate the databases or switch their responsibilities, we can. Web services really live up to the media claims of plug-and-play interoperability.”

ActiveHealth and Netsoft USA also took scalability into consideration while developing the solution. Aetna, the solution’s pilot customer, was planning to roll out the PHR solution to 15 million of its members by 2008, reaching as many as 30 million members by 2010. “We knew that we needed the solution to be able to maintain a lot of member data as it grew,” says Stella. “After extensive performance and stress testing, we felt confident that our product’s architecture would support scalability for multimillions.”

Securing patient data while ensuring both patient and physician access to it also ranked

among the challenges facing ActiveHealth and Netsoft USA. The partner used Secure Sockets Layer (SSL) technology for hardware protection and Web Services Enhancements (WSE) to help safeguard the communications channel through which the data is transferred.

Solution Functionality

The resulting solution is an intelligent, interactive personal health record known as the ActiveHealth PHR. The solution is powered by the company’s patented clinical decision-support technology platform, the CareEngine System.

As new data is received, either from claims or from members, it is scanned by the CareEngine System to identify individualized, actionable opportunities to improve care. The CareEngine System compares this member-specific information to a database of the latest findings in evidence-based literature, which is continuously updated by a research team of physicians, nurses, and pharmacists. When the solution finds opportunities for better care, members and their physicians receive personalized e-mail notifications that instruct them to log on to their PHR account and see such findings as potential adverse drug interactions, the absence of therapeutically beneficial drugs, and missing lab tests. They can also view reminders for preventive exams such as mammograms and colonoscopies.

ActiveHealth went live with the solution in February 2007 to a pilot group of 100,000 Aetna members. Within a couple of months, ActiveHealth made its version of the PHR solution available to more than 600,000 Aetna members and expects to follow an aggressive adoption schedule until it reaches its initial goal of 4 million members.

“Using Microsoft technologies helps us ensure the security of the solution, which is crucial when it comes to personal health information.”

Moshe Naimi, Director of Sales and Marketing, Netsoft USA

Benefits

ActiveHealth PHR supports clinical decision making to improve outcomes for health plan members who, along with their physicians, can make better healthcare-related choices due to the wealth of comprehensive information at their fingertips. For health plans, the solution means reduced healthcare costs and enhanced security for online communication among members and physicians. For ActiveHealth, the technology on which the system is built provides the ability to cost-effectively expand functionality and scalability for a stable, long-term solution offering.

Improved, More Proactive Patient Care
ActiveHealth PHR is designed to help members manage their overall healthcare more effectively. Each time members visit physicians, fill prescriptions, or get lab tests, information related to that event is automatically added to their ActiveHealth PHR, producing an evolving, longitudinal view of their health.

A February 2005 study published in *The American Journal of Managed Care* demonstrated the potential effect of a system that scans administrative claims information and clinical data to detect gaps in care and promote better health. The researchers discovered that there was an 8.4 percent reduction in the number of hospital admissions in the member group that used the scaled-down system versus a control group of members.

“The solution supports faster diffusion of medical knowledge to individual members because it is constantly scanning for new, relevant information,” says Nadler. “Because the system operates from a more complete view of each member, it can make specific, proactive recommendations to help prevent health problems from occurring.” For instance, ActiveHealth PHR lets users know

immediately that they should not drink grapefruit juice while on certain drugs for high cholesterol or reminds newly diagnosed diabetes patients to see an eye doctor. The system even tracks whether the patient has taken the action or ignored the alert.

The next version of ActiveHealth PHR will identify medical conditions that apply to each particular member and the degree to which members have those conditions. It will then select members as potential candidates for integrated disease-management programs, a further step toward improved overall health. “We want to actively invite members to join our disease-management programs to help them improve their health outcomes,” says Stella.

Reduced Healthcare Costs

ActiveHealth PHR helps health plans identify costly procedures and operations, and works with them and with individual members to take proactive steps for prevention or early detection to avoid those procedures. In the same study in *The American Journal of Managed Care*, insurance costs among those following the system’s recommendations were U.S.\$77.91 per member per month less than those of the control group, and paid claims were \$68.08 per member per month less. Paid claims for the entire intervention group were \$8.07 per member per month lower than those for the entire control group, which suggests an eightfold return on investment for a health plan payer.

“By identifying gaps in care, as well as proactive, preventive actions for individuals to take to diminish the need for healthcare services, the ActiveHealth PHR enables health plans to conserve their resources while also helping them improve the health of their members,” says Nadler.

“Making changes and enhancements to the product is not the hard part, thanks to the flexibility of Web services and extensibility of the .NET Framework. The challenge lies in prioritizing all our ideas.”

Jeff Nadler, Chief Technology Officer, ActiveHealth Management

Better Physician and Patient Decision Making
With access to centralized information that includes lab test results, medications (past and present), immunizations, allergies, and procedures related to an individual, physicians are granted a more comprehensive view of each patient's history, enabling them to make faster, more informed decisions. Says Stella, “Our objective is to facilitate better decision making between physicians and patients. We do so by making a patient's entire health history and all relevant data available to any provider authorized by the patient, and also by offering suggestions about best practices for the specific member's circumstances so that physicians can make the most informed choices.”

The solution's powerful health risk assessment (HRA) further engages members online and encourages them to provide additional personal health information that is not available from claims, such as height and weight, smoking status, allergies, and use of over-the-counter medications and herbal supplements. That data helps the CareEngine track and expand the number and types of opportunities that it can find to improve care. While several other personal health records provide consolidated medical history information, the ActiveHealth PHR is powered by a comprehensive clinical decision-support engine that encourages members to actually *act* on that information.

For example, a 45-year-old man takes kidney medication and, through his HRA, adds to his personal health record that he also takes a pain reliever once a day to alleviate his back pain. That information triggers an alert that tells him that pain relievers can adversely affect people with kidney problems and that he should speak with his doctor right away.

Enhanced Protection of Medical Information

With so much privileged knowledge available through the solution, ActiveHealth needed to safeguard member information beyond even stringent HIPAA regulations. “The goal was not just to comply with regulations, but to go way beyond them to ensure the comfort level of members as they use the solution,” says Norman.

Says Moshe Naimi, Director of Sales and Marketing for Netsoft USA, “Using Microsoft technologies helps us ensure the security of the solution, which is crucial when it comes to personal health information.” In addition to the security systems safeguarding its data centers, ActiveHealth uses encrypted virtual private networks (VPNs), WSE security protocols, and two-factor authentication for the data itself. Members are encouraged to share information with all their providers but can specify particular providers if desired, and the selected providers are granted read-only access through the use of a secure user ID and password. A physician needn't be part of the member's health plan to be granted access.

Flexibility for Future Growth and Expansion
In building its PHR, ActiveHealth did not develop a static solution but one that could grow with the company as the healthcare industry and technology continue to evolve. “Both Web services and the .NET Framework benefit us in the ease with which our solution can integrate and interoperate among heterogeneous technology,” says Nadler, “not to mention the efficiency and speed of the development process afforded by .NET tools. We believe that our use of those tools will help us easily modify and build on our solution—regardless of the surrounding technologies—to provide even greater value to physicians, members, and health plans over time.”

ActiveHealth plans to continue enhancing its solution by elevating the sophistication level of its personal health record to reduce time

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demands on both physicians and members.

Plans include providing multilanguage support and context-related search, expanding access to data from more sources, and offering other products alongside the PHR, such as ActiveHealth's new Value-Based Formulary solution. "Making changes and enhancements to the product is not the hard part, thanks to the flexibility of Web services and extensibility of the .NET Framework," says Nadler. "The challenge lies in prioritizing all our ideas."

Microsoft Server Product Portfolio

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