

ENSEMBLE Case Study: Partners HealthCare System

Partners HealthCare uses InterSystems Ensemble to integrate internal and external EMRs

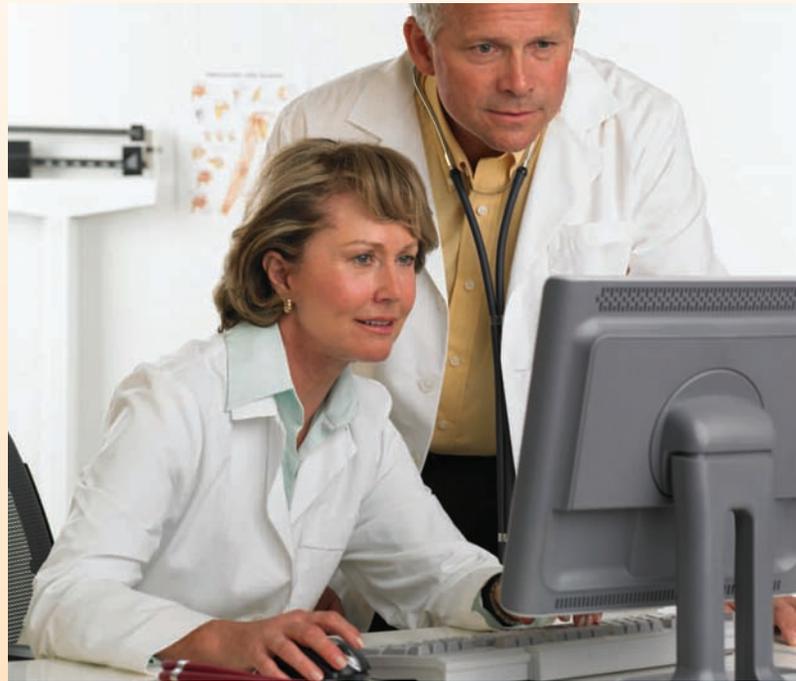
Partners HealthCare System Inc., based in Boston, Massachusetts, is an innovative integrated health-care network that includes multiple major hospitals with more than 7,000 physicians attending to four million outpatient visits and 160,000 admissions per year.

Partners' institutions, including Massachusetts General Hospital and Brigham and Women's Hospital, consistently rank among the best hospitals in the United States, according to *U.S. News and World Report*. To maintain its leadership status, Partners establishes enterprise-wide, CEO-supported corporate initiatives under the banner of "High-Performance Medicine."

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Steve Flammini, CTO

One of these initiatives includes electronic medical record (EMR) adoption by all community physician practices in the Partners system. To achieve this goal, Partners offers these physicians full, Web-based access to its internal EMR. But first, Partners must rapidly create interfaces (programs that handle data translation and transmission between systems) to the community physicians' practice management and scheduling systems, and integrate that data into its EMR. The initiative also gives participating physicians access to more than three terabytes of data in Partners' clinical data repository (CDR). InterSystems Ensemble® rapid integration platform is a key enabling technology for this initiative.



High-performance HL7 messaging and data transformation

In this application, Partners uses Ensemble as a hub to integrate and coordinate the flow of patient information between community-based medical practices and the Partners EMR and CDR systems. Ensemble also integrates this information with Partners' enterprise master patient index application to ensure consistent identification of patients between the external and internal medical record systems.

Ensemble accepts HL7 "ADT" (patient administration), and "SCH" (schedule) message types from the community physicians' practice management systems. It then determines which type of message was received, and transforms the message, if necessary, to the Partners standard HL7 message formats. Ensemble also validates the content of the ADT messages before passing the information on to the master patient index system. If a message does not pass validation, it is rejected and Ensemble sends an email alert to the appropriate resource. The transformed SCH messages are sent on to the Partners EMR.

The Ensemble application also processes HL7 “LAB” messages from vendors used by the community-based medical practices. Based on message content, Ensemble breaks these messages into laboratory, microbiology, and pathology components. Ensemble transforms the components into the standard CDR HL7 formats, and then transmits the messages to Partners CDR.

Partners now has more than 320 community physicians online and integrated with its EMR, submitting tens of thousands of ADT, SCH, and LAB messages per day, using several different practice management systems. “This project would have taken much longer without Ensemble’s rich HL7 support,” says Partners CTO Steve Flammini. “Ensemble has given us tremendous flexibility with data transformations, and made us much more agile in delivering on this type of integration.”

Rapid and flexible interface development

Partners uses Ensemble’s graphical Business Process Language (BPL) editor to quickly build the business logic of its interfaces to community-physician practice management systems and third-party laboratory systems. The logic includes integration of this “external” patient information with Partners’ enterprise master patient index and EMR, and complex data transformations. Explains Flammini, “Ensemble’s visual data transformation editor enables us to create complex, XML-based transformations in a matter of hours. This is key as most of the work in creating interfaces involves changing one vendor’s data formats into another’s.”

Once the interface to a system has been created it becomes like any other native object in Ensemble’s object-oriented development environment. It can be easily “sub-classed” and modified for connection to new practice management or laboratory systems, instead of developers having to write each new interface from scratch.

In practice, it’s frequently necessary to modify interfaces, while they are in use, to add or alter transaction codes and to add new data mappings. Partners leverages Ensemble’s architecture and flexibility to enable interface analysts, instead of developers, to perform these modifications via a browser-based user interface. The modifications are applied immediately to the running system. This has freed time for developers to focus on rapidly integrating new physician practice management systems with Partners EMR, and to meet the organization’s aggressive goals for EMR adoption levels. “Ensemble has helped propel this entire effort,” says Cindy Bero, chief information officer at Partners Community HealthCare, Inc. “Ensemble enables quick development of integration points with the small physician practices, and has drastically shortened the time it takes to bring these practices online.”

Ready for growth with high-performance and scalability

Since this Ensemble project integrated its first community-physician practice management system in August 2005, there has been no unplanned downtime, and no data integrity issues. “Uptime and reliability of Ensemble has been superb,” says Flammini. “Based on our experience, so far, and on our experience with InterSystems products throughout our organization, we expect this Ensemble platform to easily accommodate rising message volumes as we bring more medical practices onboard.”

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