

**ENSEMBLE WHITE PAPER**

**INTERSYSTEMS ENSEMBLE®:  
RAPID AND RELIABLE INTEGRATION  
FOR HEALTHCARE ORGANIZATIONS**

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**Executive Overview**

Ensemble, the rapid integration platform from InterSystems, provides a number of important benefits to healthcare organizations looking to integrate and build upon their existing applications. These benefits include:

- Full scale of integration capabilities in one unified environment
- Rapid integration and deployment of integrated systems
- Easy management of integrated systems
- Partnership with InterSystems

Ensemble enables the rapid completion and easy management of any integration project, and provides native support for the technologies, standards, and protocols that are most widely used within the healthcare industry.

# INTERSYSTEMS ENSEMBLE: RAPID AND RELIABLE INTEGRATION FOR HEALTHCARE ORGANIZATIONS

## Introduction

Historically, many healthcare institutions offering a wide variety of medical programs have taken a “best-of-breed” approach when implementing software systems. The result is often a loosely coupled network of clinical, financial, administrative, and logistical applications, each using different databases, technologies, operating systems, and hardware platforms.

Since they already have departmental systems that work well, most healthcare institutions are looking to integration as a way to streamline operations, increase productivity, and improve the quality of care. Many of them envision the day when all of their systems will be integrated, supporting a variety of solutions for regulatory compliance, physician portals, electronic health records, executive dashboards, “operational” data warehouses, and other strategic initiatives the future may bring. That is why it is vital for healthcare organizations to choose integration technology that can help them achieve their strategic, as well as their tactical, goals.

It is also vital for healthcare organizations to limit the resources required to build and maintain their integrated systems. Therefore, they must choose technology that allows them to integrate quickly and easily, and provides excellent systems management capabilities.

This paper outlines the benefits of using Ensemble, the rapid integration platform from InterSystems, for application integration within the healthcare industry.

## Rapidly Complete Any Integration Project

InterSystems Ensemble is the first fusion of a data server, integration server, application server, and portal development software in a single, seamless product. Because it merges all integration, development, and management capabilities in a unified, easy-to-use environment, Ensemble is able to dramatically reduce the complexity associated with integration projects. Thus, it enables extremely fast integration and rapid composite application development of the broadest range of healthcare solutions.

Ensemble’s unified integration, development, and management environment provides a complete set of features and capabilities, including:

- A large Adapter Library (including adapters for HL7 and X.12), plus the ability to quickly and easily build custom adapters.
- An XML-based data transformation language that facilitates “drag-and-drop” transformations between different data formats and message types.
- A high-performance messaging engine that persists every message flowing through your integrated system.
- Graphical business process modeling and automation technology based on the BPEL standard.
- Support for process customization through user-defined business rules.
- The ability to model and manage business processes that include human workflow operations.
- Dynamic server pages development technology that enables rapid development of portals and other composite applications.
- The ability to quickly and easily build “graphical executive dashboards” that display user-defined metrics in real-time and enable alerts and automated responses to set conditions.
- A graphical display that traces (historically and in real-time) every message generated by your integrated system.

All of Ensemble’s integration, development, and management capabilities are extensible, and customizable.

*Sharing a common metadata and object model that is captured from and utilized for integration and process flows is a very effective way to unify the environment and reduce redundancies for efficiency and optimization. InterSystems Ensemble blends together these elements with a service-based architecture, leveraging a vehicle for storing and managing messages, which InterSystems calls its persistent object engine, a unified development environment, and a customizable management and monitoring system. Clients interviewed indicate that this unique combination provides them with a powerful software platform that eases rapid integration and development, while its underlying infrastructure offers high performance.<sup>1</sup>*

In addition to being easier to use, Ensemble has a shorter learning curve than most other integration platforms. That's because interface specialists, application developers, and system managers all work with a single data and business logic model, a shared metadata repository, and one development and management environment.

## **Quickly Integrate Any Application**

The first step in any integration project involves building the adapters or interfaces required to connect to the different applications in the integration domain. This activity often represents the most work associated with an integration project. The ability to decrease the time it takes to build these interfaces will therefore have a direct impact on the time-to-solution of the project.

Ensemble excels at streamlining the creation and management of a wide range of interfaces and protocols, and includes native support for HL7 and X.12 (HIPAA). Customers have reported a three-fold increase in productivity when building HL7 interfaces with Ensemble as opposed to competitive offerings.

***“Our interface specialists say Ensemble enables nearly three times faster interface development...”***

**Gary VanderHeiden**  
Manager of IT  
Metropolitan Hospital

Although HL7 will be the primary interface for healthcare integration projects, many complex integration projects will require interfacing with applications using other technologies. Ensemble includes an extensive library of pre-built adapters including: relational (Oracle, DB2, SQL Server, Informix, Sybase, etc.), Caché, TCP/IP, HTTP, SMTP, POP3, XML, SOAP, Web Services, File, FTP, Java, COM, and .NET.

Most systems found within healthcare institutions use either Caché-based or relational-based technology for their databases. Proprietary systems can be accessed in a variety of ways ranging from File and FTP adapters, custom-built interfaces supporting proprietary protocols, and advanced screen-scraping technology supported by Ensemble.

## **High-performance Message Processing for Faster Integrated Systems**

Within an integrated system, the speed at which messages are processed directly affects the overall speed of the system. Message persistence (saving messages in a database) and first-in/first-out (FIFO) processing are highly desirable. But they do, by their very nature, slow down message processing. Ensemble provides 100% message persistence and is configured for FIFO processing by default. Even so, its high performance and efficient HL7 messaging infrastructure allow Ensemble to process messages twice as fast as other products that provide neither persistence nor FIFO processing.

***“Ensemble processes messages over two times faster while providing nearly effortless FIFO setup...”***

**Gary VanderHeiden**  
Manager of IT  
Metropolitan Hospital

Ensemble's transactional message warehouse and persistent object engine share the same core technology as InterSystems' Caché database, technology that has been tried and tested for high availability, scalability, reliability, and disaster recovery in the largest health-care solutions around the world. Using either multi-CPU or distributed system configurations, this technology supports millions of transactions a minute and tens of thousands of concurrent users every day.

<sup>1</sup>Sandra Rogers in the IDC white paper, "InterSystems Ensemble: Integration for Today's rapidly Changing Enterprise"

## Easy Debugging and Management of Integrated Systems

Ensemble saves every message that flows through an integrated system – and can access and analyze data from the message warehouse in real time. This enables a wide range of capabilities, including:

- Guaranteed delivery of messages.
- State management for long-running processes.
- Immediate access to all messages for auditing, reporting and message replay.
- Graphical message tracing and management for problem identification, isolation, and resolution using Ensemble's Visual Trace technology.
- Real-time business intelligence solutions providing instantaneous awareness and appropriate response to events across the entire enterprise.

## InterSystems as a Technology partner

For over a quarter of a century, InterSystems has provided the healthcare industry with innovative, state-of-the-art technology and outstanding support. Our customer service department runs a 24X7 Worldwide Response Center (WRC), closely linked with our development organization, and staffed with experienced software engineers. Customers open, close, and set the priority of all support calls. Senior management is immediately notified of all critical-level support issues and the critical support log is reviewed weekly by our CEO.

Superior products and support have made InterSystems a leader in providing data management and integration technology to the healthcare industry. Our high-performance multidimensional database, Caché, is the leading database in healthcare worldwide. Our technology can be found in all of the top ten hospitals in the United States. Six of the top ten 10 healthcare application vendors in the world have built their businesses using InterSystems' technology. Of the over 4,000,000 end users who rely on the more than 100,000 systems powered by our technology every day, over 70% are in healthcare.

Healthcare organizations will benefit from InterSystems' long-term experience with the healthcare IT community. We are members of the Health Information Management and Systems Society (HIMSS), ANSI SQL Committee, and Health Level Seven (HL7), as well as such forward-facing organizations as the VistA Software Alliance and the Center for IT leadership (CITL).

## Conclusion

Ensemble provides distinct benefits to healthcare organizations looking to integrate their existing applications. Ensemble's comprehensive set of features and single, consistent architecture enable the rapid completion of any integration project. Flexible, rapid integration and development means a quicker time-to-solution. High performance, scalability, and availability mean faster response, increased reliability, and improved data integrity. End-to-end, graphical configuration and management reduces maintenance overheads, and speeds problem detection, isolation, and resolution – resulting in easier long-term management of integrated systems.

Ensemble users gain the advantage of InterSystems' experience and dedication to serving the IT needs of the healthcare community.

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The logo for InterSystems, featuring the word "INTERSYSTEMS" in a bold, black, serif font. The letters are closely spaced and have a slightly irregular, hand-drawn appearance.