Interoperability Services in the Cloud
HL7 Interoperability as a Cloud Service
Raising Your Expectations on Data Integration

Executive Summary
Healthcare IT has traditionally comprised a collection of dissimilar solutions selected independently by specific hospital departments and practices with no focus on interoperable data that can be shared across providers. With the global changes wrought by healthcare reform and the new focus on cross-enterprise data sharing, medical sites are seeking solutions for data compatibility. Standardizing data across multiple systems within and across enterprises is complex and costly. This white paper explores a new approach to data interoperability, including communicating it based on a cloud, SaaS model, with all the benefits of a cost-effective outsourced solution.

The Problem
Historically, no one has ever connected the departmental dots. The broad range of specialists who treat patients across the continuum of care typically work in isolation, rather than as a cohesive group. Sharing patient data, whether hard copy or digital, has been the exception, not the norm. Today's fragmented healthcare IT environment simply mirrors the fragmented healthcare system that created it.

The software applications that can potentially bring consistency to this disconnected environment are selected independently, often by medical facilities charged with the care of the same patients or engaged in the same care specialties. Until recent government regulations, healthcare IT vendors had little incentive to push for industry standards. As a result, today healthcare IT remains a mosaic of disparate applications and data silos. In this environment, data interoperability typically requires extensive time and expense if indeed it can be achieved at all.

Healthcare Evolution and the Need for Greater Interoperability
Enter healthcare reform—and a new emphasis on efficiency, economy and cross-enterprise communication. Interoperability has emerged as a major priority for a number of important reasons.

First, Meaningful Use and related legislation have made data sharing and interoperability the law of the land. The ability to send data directly to an outside
EHR will become a requirement for MU Stage II for both eligible professionals and hospitals. Providers receive monetary incentives for compliance, which will later give way to penalties.

Second, interoperability also is becoming part of the law of the healthcare jungle-like landscape, where only the strong survive. As competition in the healthcare market increases, providers are compelled to develop complex business models that involve affiliations with multiple healthcare entities and contract physicians. The rapid growth of teleradiology firms reading for multiple hospitals is a case in point. Again, numerous disparate IT systems must be able to communicate to sustain these business relationships.

Third, in this environment, providers are entering into formal affiliations with other providers to address operational and financial challenges. For example, recent years have seen a tremendous growth in HIEs, ACOs and hospital mergers. In these situations, each entity comes to the enterprise IT table with its own IT infrastructure. These must be blended into a cohesive system where the whole is greater than the sum of its parts.

The State of Interoperability Today

Today, a healthcare IT system supporting interoperability and cross-application communication is typically an inefficient and costly process implemented as a patchwork of dissimilar solutions. The process may involve dedicated point-to-point connections, costly interfaces, middleware and more—with many points of failure. Most often, solutions are implemented onsite by the healthcare entities involved and typically do not rely on a global plan that can be replicated across multiple systems. In-house IT maintenance is also time-consuming and expensive.

AbbaDox HL7 Interoperability Cloud Services

As an alternative, IDS takes IT interoperability to the cloud to deliver a new level of ease of implementation, streamlined management, precision, and convenience. The innovative IDS AbbaDox Interoperability Cloud takes the complexity of system integration out of the healthcare enterprise. It enables disparate systems to communicate as a customized, managed, turnkey SaaS solution. Relying on HL7 and other industry standards, the unique IDS cloud solution benefits from standardized components and procedures, enabling rapid deployment and the cost-savings of an economy of scale.
How It Works

Today, the AbbaDox HL7 Interoperability Cloud relies largely on industry standard HL7 data but does incorporate other emerging standards. Shortly, it will be combined into a new platform that supports direct transmission of CCD documents across providers into an EHR.

In a nutshell, the AbbaDox interoperability solution enables HL7 and other data to flow from a medical IT system to the Interoperability Cloud, where it is transformed into a format compatible with the endpoint system, typically in another customer location. It is then forwarded on to other systems.

Significantly, while HL7 is a standard protocol, it comes in several flavors, which the IDS system reconciles. Integration also involves data mapping, handled through complex, customized interfaces. The Cloud solution also reconciles client-specific discrepancies across any enterprise and workplace variables in nomenclature definitions and formatting attributes for entities such as patient IDs/MRNs, accession numbers, referring IDs, exam codes, and more. Differences in HL7 prefixes and postfixes and DICOM data also are addressed.

The Interoperability Cloud also incorporates a range of additional advanced features that speed data flow, while adding reliability, scalability and security to the system.

The Interoperability Cloud is flexible and customizable to specific needs. For example, it may be used to standardize HL7 feeds from a range of third-party applications for compatibility with IDS AbbaDox or another vendor’s software system. It may manage data originating on or off the customer premise or involve inbound data, outbound data, or both. If information is returned to the originating system, it is automatically restored to its native HL7 format.
Use Cases

The Interoperability Cloud meets virtually any interoperability need. It can help multi-site facilities, HIEs, and ACOs share data across locations. It supports teleradiology groups with efficient viewing of appropriate diagnostic images from any location and in particular to transmit exams to sub-specialty teleradiologists, wherever located. It can help a trauma center’s IT systems ingest a transfer patient’s digital record in near real time, making it accessible to the appropriate physician. And it enables reporting directly into a client RIS or EHR.

For every site, it enhances quality-of-care by enabling more complete, integrated patient information, speeds treatment, creates operational efficiencies and reduces costs. In short, the IDS proprietary Interoperability Cloud is a vital tool that will effectively position healthcare businesses of every specialty, size and stripe to rise above the enormous challenges ahead.

Customer Specific Implementations

Specific interfaces and pathways are built for each customer, which often requires bi-directional compatibility with multiple sites. These include:

- Numerous dedicated HL7 channels, each on a separate port and handled by a dedicated service. A large teleradiology operation may have more than 100 channels. This structure offers enhanced scalability and reliability.

- Specially crafted interfaces to manage data appropriately. Affordable through an economy of scale.

- A single, standardized HL7 outgoing feed format for each site or system, regardless of the number and variety of incoming HL7 feeds. This simplifies IT complexity, streamlines system management and speeds addition of new integrations.

- Immediate acknowledgement of data receipt, prior to parsing it. This enhances the ongoing speed of message receipt and allows IDS to manage any required troubleshooting with the original message structure still intact.
Control over network traffic for location and priority of prefetching of relevant priors.

Support of redundancy, failover and DR strategies with control of multiple servers and archives.

Reporting on key staff activities involving transactions through the Interoperability Cloud, such as the number of radiology reports completed.

The Benefits of Interoperability Services in the Cloud

- Ultra-fast implementation and adaptation to needs.
- Expert implementation team leveraging years of experience.
- Affordable through an economy of scale.
- Elimination of onsite set up and maintenance.
- Costs shifted from capital equipment to an operational budget.
- Elimination of technical obsolescence.
- Workflow focused technology.
- Customizable to meet every site’s needs.

Analytics

As a nexus for data exchange among numerous IT systems, locations and physicians, the IDS Interoperability Cloud can provide a record of multi-site, -system and -physician workflow. Cloud transactions can be analyzed to report on information and trends as diverse as an individual specialist’s caseload and throughput, a radiologist’s productivity rank among peers, and a facility’s referral patterns.

To support this, the AbbaDox Cloud provides a broad range of analytics features, including reports and reporting templates that can be auto populated by system data to provide insight on an almost limitless range of parameters. Analysis also can be run by clients in-house through download of CSV transaction logs.
The Complete AbbaDox Cloud Ecosystem

The IDS AbbaDox Cloud is part of the AbbaDox ecosystem, which comprises a broad range of best-of-breed, secure cloud-based applications, features, and IT building blocks that benefit from the Interoperability Cloud. After in-depth client consultation, they are provided as a customized implementation to meet users' specific clinical and operational needs with all the inherent benefits of SaaS delivery. Individually, each AbbaDox component can integrate with existing client systems to fill a gap in workflow automation, such as critical findings communication or charge capture. Collectively, they constitute an enterprise-level healthcare IT system that makes physical location irrelevant and can link multiple locations into a virtual healthcare facility without walls.

In addition to the Interoperability Cloud, the AbbaDox ecosystem comprises a broad range of clinical and operational applications and features, including:

- Clinical Reporting
- Coding
- Document Management
- EHR
- Patient Management
- Performance Analytics
- Referral Marketing
- Resource Scheduling
- RIS
- Speech Recognition
- Transcription
- Clinical and administrative data repository
- Enterprise/referring physician portal
- System customization, implementation, and maintenance services