



White Paper



5-Minute Report

XML and .NET Technologies Reduce Costs for Healthcare Organizations

- *Up to 30% of healthcare premiums are consumed by administration costs. And 80% of the increase in healthcare costs has been attributed to the soaring cost of benefit administration.*
- *Many of the technological tools necessary to streamline costs and improve care are in place, but they cannot communicate with each other.*
- *Extensible Markup Language (XML) and .NET technologies provide the bridge that can link payors, providers and consumers in a new era of healthcare to reduce administrative costs.*

Transforming the jungle of disparate systems

Healthcare organizations rely on information from a variety of sources. Because many of the healthcare industry's applications were built for legacy mainframe, Unix, NT or Linux systems, data in patient records, financial statements and insurance forms are defined differently. The challenge for many healthcare CIOs is to find a way to define data so that old and new applications can communicate with each other.

Several new technologies, including XML, JAVA and .NET technologies, address this problem by providing a link between various payor and provider systems involved in the delivery of healthcare services. These technologies also allow for the implementation of new products, including consumer-driven healthcare and disease management programs.

XML technology creates a simple text stream

XML provides a mechanism for representing data as a simple stream of text, allowing easy transmission and retrieval, as well as allowing existing Internet protocols to be used to exchange data between systems. The ability to define data structures and deliver it between different systems makes XML particularly valuable to the healthcare industry.



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For example, many managed care organizations have consolidated the IT departments of a large hospital, a network of affiliated doctors, and a group of specialists.

The hospital uses an IBM mainframe, the affiliated doctors use LAN (local area network)-based medical records software packages, and the group of specialists use a medical group software package. To provide access to these records, an IT manager must either have staff log onto three separate systems, convert all systems to a common platform, or create a data warehouse from all systems.

While logging on to three separate systems is inefficient, converting all systems to a single platform requires a large capital investment in software license and new hardware. Creating a data warehouse can provide a solution, with XML providing the common representation of data for easy retrieval. In addition, XML is available on many different systems, because it can use an HTTP protocol to transfer the data itself, and the text format of the data is easily transferred between different systems.

Example

A patient record contains the following information: Name, Address, Post Code, Telephone and ID Number. Using XML, that information is displayed in a document, specifying the identity of each field:

```
<patientrecord>
  <name>
    <firstname>Joan</firstname>
    <surname>Smith</surname>
  </name>
  <address>
    <ad1>529 Smart Road </ad1>
    <town>Peaksville</town>
    <postcode>00777</postcode>
    <telephone>1541468000</telephone>
  </address>
  <idno>123456 123456</idno>
</patientrecord>
```

This is then displayed as:

```
Joan Smith
529 Smart Road
Peaksville 00777
15412688056
123456 123456
```



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XML allows structured information to be displayed in a web-based format, be it over the Internet, NHSNet, or an organization's own private intranet. This format makes it easy for healthcare organizations with different systems to import and export data in a simple format.

Another common scenario for healthcare insurers is to have agents in different states, writing policies that are based on different agent commissions and schedules built for local markets. To provide the right applications to its agents, insurers need an extranet that addresses the individual needs of each agent logging onto the system. The use of XML allows for the consolidation and transfer of data between agents and organizations with different systems.

In both scenarios described above, XML is the key to data consolidation and transfer. Because XML can exchange data among different types of computing platforms it enables disparate back-end systems in healthcare organizations to work together.

XML and Clinical Document Architecture

In September 2000, the Health Level Seven membership ratified Version 1 of Clinical Document ArchitectureT (CDA), which defined XML architecture for exchange of clinical documents. By implementing the CDA standard, the exchange of clinical documents across the entire spectrum of care became possible.

Using XML, hospitals, pharmaceutical companies and HMOs can capture vital information about patients, validate the information for accuracy, and save it in a CDA-compliant file, which can be read and used by other back-end systems, such as hospital information systems, document management software, portals or even other organizations. As a result, data is shared and accessed by anyone within the organization and by external stakeholders.

.NET technology creates common links

XML is a data delivery and presentation standard that figures heavily in Microsoft's .NET strategy for making information readily available via the Internet. XML technology provides the bridge that connects diverse applications and data, and the Microsoft .NET framework provides developers with a single approach to building desktop and Web-based applications.



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In addition, .NET developers can also use the same tools to develop software for a variety of systems ranging from handheld devices to large server installations. Software built on the .NET framework is: typically easier to implement and maintain than conventional software, designed to include upgrades automatically, and minimizes software conflicts by helping incompatible components coexist.

Microsoft's .NET technology is similar in many respects to JAVA E2, which runs on a variety of platforms, including Unix systems. One important difference is that XML is used in every aspect of .NET technology, while JAVA components are configured by property files rather than XML files. This makes .NET a more flexible standard for linking disparate healthcare applications.

Healthcare is one of the core industries that benefits from the .NET platform. The .NET platform takes advantage of the increasing integration of advanced computer technologies, Internet connectivity, business applications and processes into nearly all electronic devices.

Conclusion

XML provides the healthcare information systems with a cost-effective method for data consolidation. It provides a cross-platform way to represent data as a simple stream of text, allowing easy transmission and retrieval

The .NET platform provides the bridge to link healthcare providers, payors and patients together. Like the internet, itself, this architecture immediately creates the efficiencies and quality improvements that reduce costs.

And through this flexible, inter-linked technology, XML and .NET can make innovations such as consumer-driven healthcare and disease management possible today.

Plexis Healthcare Systems provides industry-leading benefits administration software for the healthcare industry.

Built with the very latest Microsoft technology, Plexis software ranked #1 in functionality in an independent industry study. Customers have been reducing costs, streamlining claims operations, and enhancing customer satisfaction with Plexis solutions since 1996.