Fax Integration using XML

August, 1998

VSI

The Leader in Integrated Fax

Fax Integration Using XML

The network fax industry is predicted to grow to over $1B in sales in the year 2000 with a CAGR of 44%[1].   These impressive numbers can be easily justified based on the compelling benefits of network fax—but it begs the following questions:

> *Why has it taken so long for the network fax industry to really grow*?   and...

> *Will the growth promises for this industry truly be fulfilled this time around*?

After all, the benefits of network fax have been compelling and available for more than a decade now. And the industry has faced dramatic, but unfulfilled growth predictions in the past.

Without solving a major problem facing the network fax industry, we believe that the industry will not be able to reach its true potential, nor will it meet or exceed its current growth predictions. But if this problem can be solved, these exciting numbers may very well be conservative.

The Problem

For network fax to be truly effective, it must be integrated with users' applications—whether it be word processing, ERP, sales force automation, or purchasing. The work of integrating a particular application with fax involves custom integration from each application to a particular fax vendor's solution.   Since there is no standard way to communicate information to a fax server, the application manufacturer has no interface to which to write; fax integration is left up to the end-customer or the fax industry.

This work, while not terribly difficult, often requires more intimate knowledge of the application than a fax vendor has or wishes to have. The results are application-to-fax integrations which are (1) not supported by the application vendor, (2) difficult to support by the fax vendor, and (3) vary from one fax server to the next. If a customer does its own fax integration, it will be to a particular fax vendor's solution. If that customer wants to change fax servers— they start over.

The same set of issues applies to fax server interfaces with fax service providers or with fax servers from another vendor. Interfaces are custom-developed, and built in a way that minimizes the chance for interoperability.

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[1] International Data Corporation, *U.S. Computer Facsimile Market Review and Forecast, 1996-2001*, Davidson, February 1998.

The significant problem that is facing the network fax industry today: there is no standard means of communicating between (1) fax servers and the applications that need faxing services, and (2) between various fax servers or fax service providers across a network, including the Internet.

The impact of this is staggering. There are over twenty viable network fax server vendors, and connections between the fax servers and applications are being made one at a time. And the resultant interface only works with the built-to fax server. The same problem exists for fax servers connecting across a network to other fax servers or to a fax service provider. There are no standard ways to connect, so each interface is developed as a one-off.[2]

This is ironic when you consider that fax is one of the simplest, most well-established protocols around. All you need is a fax number, and you can communicate around the world. We need to move to this model with network fax. After all, users just want to send faxes!

The Solution

We believe the solution is for the industry to adopt a simple, common interface format for applications to use when communicating information to a fax server and to implement this format across the leading fax server vendors' products and leading business software applications.

Following the model of success demonstrated most visibly within the Internet community, this interface, if it is to work, must be simple, widely available, easy to use, easy to implement, and free.

VSI believes that the tool to implement just such an interface has emerged on the computing landscape and should now be embraced by the network fax industry. That tool is XML, the hottest language since HTML.

About XML

XML is a markup language, like HTML, with a vocabulary that consists primarily of "tags." HTML was specifically designed for marking up documents to communicate how they should be formatted for display on the World Wide Web. The purpose of XML is far more open-ended, but in general it is a "meta-language" intended to be used to define other

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[2] However, standards for Internet fax are emerging for both store and forward fax over the internet (ITU T.37) and real time facsimile communication over networks (ITU T.38)

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standard markup languages (known as Document Type Definitions or DTDs) with a variety of purposes. Furthermore, XML allows and encourages the communication of <u>information content</u> rather than mere <u>formatting</u>. Because of the universality of XML, DTDs can be used to allow different systems to exchange information in a standard, process-readable format.

XML is the "eXtensible Markup Language." The "extensible" part of the name is key; XML can be defined for an incredibly wide variety of applications. Sports scores, purchase orders, auction bids, and weather updates can all be expressed in XML. This flexibility, or extensibility, is achieved by allowing users— or industries— to define their own vocabulary of XML tags to represent information that is relevant to that industry. These extended tags— and the rules about how to use them— are all defined in a DTD file which is either embedded in the XML document, or made publicly available to any program that wants to comply with an agreed-upon information exchange format.

In addition, freely-available XML parsers eliminate the burden of parsing and validating XML interchange documents. This greatly reduces the work and support required to implement an application that reads XML.

The XML-F Interface

VSI is proposing a set of DTDs for network fax transactions called "XML-F". This interface is a simple, powerful means of passing fax transactions to and from fax servers. It is based on three simple structures that allow any conforming application to (1) send a fax, (2) get status of a sent fax, and (3) cancel a fax.

VSI is proposing XML-F as an open interface, meaning that application vendors, fax service providers, and fax server vendors are all free to use the XML-F DTDs without royalty or obligation to VSI. XML-F is not a VSI product, but rather a proposed fax server interface format, set forth for the good of the fax server industry and for business in general.

VSI is currently testing portions of XML-F with its VSI-FAX product line to evaluate the viability and benefits of using XML for network fax. VSI encourages all application vendors and fax vendors to consider the benefits of adopting XML for fax, and specifically XML-F, and providing important feedback on this effort to further refine and define a common application to fax interface, based on XML.

The Benefits

The benefits of a common interface are numerous:

- A leveraging of the efforts of application vendors, integrators, and fax server vendors to make fax services ubiquitous in the world.

- Fax interoperability, resulting in decreased pain/friction for customers and expanded opportunities for the fax server industry.

- Faster adoption of the Internet for fax toll bypass.

- Reduction of the work required for fax integration, thereby permitting the customer and fax vendor to use additional engineering and support resources on more beneficial projects (like customer training or product testing).

- The possibility of making network fax a more attractive communications alternative to integrators looking for a ubiquitous messaging delivery system.

- An increase in likelihood of rapid network fax take-up because the same ease of access provided with fax machines would become available for network fax servers.

XML-F Standardization

XML-F is too young to consider official standardization, but as the concept of exchanging fax transactions over XML catches on— and application and fax server vendors themselves experience the benefits of XML— VSI hopes to work with the industry to pursue standardization of XML-F through standards bodies.

The first steps are: to propose the XML-F concept and validate the need for a common interface; to get industry and customer feedback; and to build and promote a reference implementation. Once a preliminary implementation is validated the official process of standardization can begin.

VSI is currently hosting a web site at www.vsi.com/xml-f for information and discussion on fax integration using XML.

XML-F and other Standards Efforts

Other worthwhile efforts have been made to standardize network fax transactions. Here is how XML-F differs or is compatible with some of those efforts.

Firstly, in keeping with the philosophy of simplicity, XML-F does not specify a transport but a format for data. Therefore, the whole issue of whether XML-F is exchanged via SMTP or HTTP or FTP or a file system is left up to the implementation. The advantages of having a common file format exchange for fax transactions is in and of itself of

significant benefit to integrators. Since XML-F implies no transport it might easily be used in addition to certain fax-over-the internet schemes as merely a different and more extensible way of representing the data of a fax transaction.

Secondly, XML-F is the first proposed implementation of a fax interchange method to be based upon XML. This permits all implementers of XML-F to utilize freely-available parsers and other tools which are expensive to write and maintain in pursuit of implementing this standard. Other efforts require custom parsing or require network fax to use only the namespace or functionality available in the existing messaging model.

Thirdly, XML-F may be extended to support additional needs of applications and additional capabilities of fax servers since XML-F does not rely upon an existing messaging structure for communicating the necessary service parameters. Therefore, it is possible that XML-F could be expanded to support configuration parameters or least-cost-routing schemes in advanced implementations.

Conclusion

The network fax industry is clearly facing a significant growth stage. Will we be able to overcome the major obstacles to true, sustained growth? If the industry is able to adopt a common interface like XML-F for application-to-fax-server interoperability, and for fax-server-to-fax-server communication, we believe that a major threat to the industry's aggressive growth will be eliminated.

For More Information:

  http://www.vsi.com/xml-f

  http://www.w3.org/xml

  http://www.xml.com

  http://www.microsoft.com/xml

  http://www.finetuning.com