

CertifiedMail.com



## Solution Overview

# Moving Fast and Securing a Position in an Emerging Market with .NET Technology

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***CertifiedMail.com originally offered their services as an Application Service Provider (ASP) exclusively, providing secure delivery of critical business messages and e-mail over the Internet via their Web site. The Microsoft .NET platform has allowed CertifiedMail.com to meet the technical challenges of an emergent marketplace and expand their business. Now, in addition to their ASP service, CertifiedMail.com offers customers secure, onsite Internet-based messaging solutions that integrate with virtually any in-house system. They also provide services for PocketPCs, Internet-enabled cell phones and other wireless Internet devices. CertifiedMail.com has solutions that target the healthcare industry and provide compliance with the new Health Insurance Portability and Accountability Act (HIPAA). Because it embraces open standards, the Microsoft .NET platform enables CertifiedMail.com to be a fast mover in a burgeoning market – quickly bringing new products and services to market as needs arise.***

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## Company Overview

CertifiedMail.com emerged in 1999 as a spin-off of Safetynet, Inc., a PC and network security firm founded in 1991. Safetynet spent two years developing the technology and then launched the Internet venture to run under its own steam. Initially, the company only offered its secure messaging services to customers via the Web – allowing secure messages to be sent using a Web browser, or using the Send Certified™ component that they developed for Microsoft Outlook and Lotus Notes. This system is Web-based and all secure messaging is done through CertifiedMail.com's servers. Powered by Windows 2000 Advanced Server and SQL Server 2000, the current CertifiedMail.com configuration can handle over 2 million messages per day.

"We have developed a secure Internet e-mail platform that requires no special software for senders or recipients," says Bob Janacek, Executive Vice President for CertifiedMail.com. "It leverages the open standards of the Microsoft .NET platform to support both wired and wireless Internet devices, and tightly integrates with servers run by our ASP partners and enterprise customers." The company also realized significant cost savings with the Microsoft .NET platform. "By developing the CertifiedMail technology using Microsoft instead of Unix-based technologies, we have calculated that we saved four man-years, worth more than \$300,000," says Janacek.

## Profile

CertifiedMail.com provides secure message delivery and tracking with a Web browser, or with a Send Certified™ button that is integrated into Microsoft® Outlook® or Lotus Notes. They also offer secure messaging solutions that allow customers to house their own servers.

## Business Need

CertifiedMail.com wanted to be able to integrate with a wide variety of customers and adapt to new market needs and new technologies, such as cell phones and other wireless Internet devices. They also wanted to leverage their extensive knowledge of Microsoft development tools and Internet products to deliver a product with rock-solid reliability.

## Benefits

Using Microsoft .NET Enterprise Servers has allowed CertifiedMail.com to quickly get its product to market with lower development costs as well as impressive reliability and performance. It has also allowed them to quickly develop new solutions and evolve to meet the emerging needs of the burgeoning secure messaging industry.

## Microsoft Technologies/Products Used:

Microsoft Windows® 2000 Server  
Microsoft Windows® 2000 Advanced Server  
Microsoft Windows® 2000 Datacenter Server  
Microsoft Exchange Server 2000  
Microsoft SQL Server™ 2000  
Microsoft Visual Studio® 6.0  
Microsoft Visual SourceSafe™ COM  
Application Center 2000  
Microsoft ISA Server 2000

Although impressed with CertifiedMail.com's secure messaging technology, many large customers were interested in housing their own secure messaging systems. Based on what they had already developed for their existing service, CertifiedMail.com was able to quickly produce their CertifiedMail Appliance™, providing customers with an in-house solution and greater peace of mind. For larger customers seeking an enterprise-level solution, they developed the CertifiedMail Server™. Working with the Microsoft .NET platform made it easy for CertifiedMail.com to develop these valuable solutions – essentially allowing them to scale their existing system, using much of the same code base and saving valuable development time.

CertifiedMail.com once focused primarily on the legal and financial markets, however they are now expanding into other markets as needs arise. For instance, the electronic exchange of medical records and other personal information has recently become a hot topic. The government has acknowledged the potential for major security infringements. HIPAA (Health Insurance Portability and Accountability Act) requires messaging security to be in place in just two years. Those who fail to comply will face tough civil and criminal penalties. As the industry scrambles to meet the compliance deadline, the agility of the .NET platform has positioned CertifiedMail.com to meet this new market demand – offering the healthcare industry flexible solutions that deliver the high level of messaging security that will soon be required by law.

## **Solution**

CertifiedMail.com is patterned after the .NET framework from end to end. Windows 2000 Server is used as the Operating System for the CertifiedMail Appliance, and Windows 2000 Advanced Server and Datacenter Server are used for high-performance and high-availability CertifiedMail Server applications. SQL Server 2000 is used as the data store and Exchange Server 2000 is used for processing inbound and outbound messages. Microsoft's ISA Server performs the critical firewall duty.

According to Bob Janacek, "The .NET platform enables our secure e-mail system to integrate with a wide range of Datacenter operating systems (such as Unix, AIX and VMS) and hardware. This makes it an ideal integration platform for customers of all sizes, and maximizes our sales potential. By using the .NET platform, we have doubled the number of customers in our market. Since many of the largest customers have diverse Datacenter operating systems, our sales forecasts are more than double what they would be if we had built our servers on a closed system."

CertifiedMail is utilizing Microsoft Passport and Notification services (two components of the Microsoft services currently codenamed "HailStorm"), to add convenience for users. Passport enables Single Sign On service, which provides a method for authenticating users. Notification enables automatically generated instant messaging, advising users when they have a new secure message, or advising users when a recipient has read a message that they sent.

Compliance with open standards, and the overall agility of the .NET platform, allows CertifiedMail.com to offer HTML, HDML (Handheld Device Markup Language), WAP (Wireless Application Protocol) and WML (Wireless Markup Language) interfaces from the same Web servers. "This enables our customers to send, receive and track secure e-mail messages from anywhere, keeping them securely in touch with their important information no matter where they are," says Janacek.

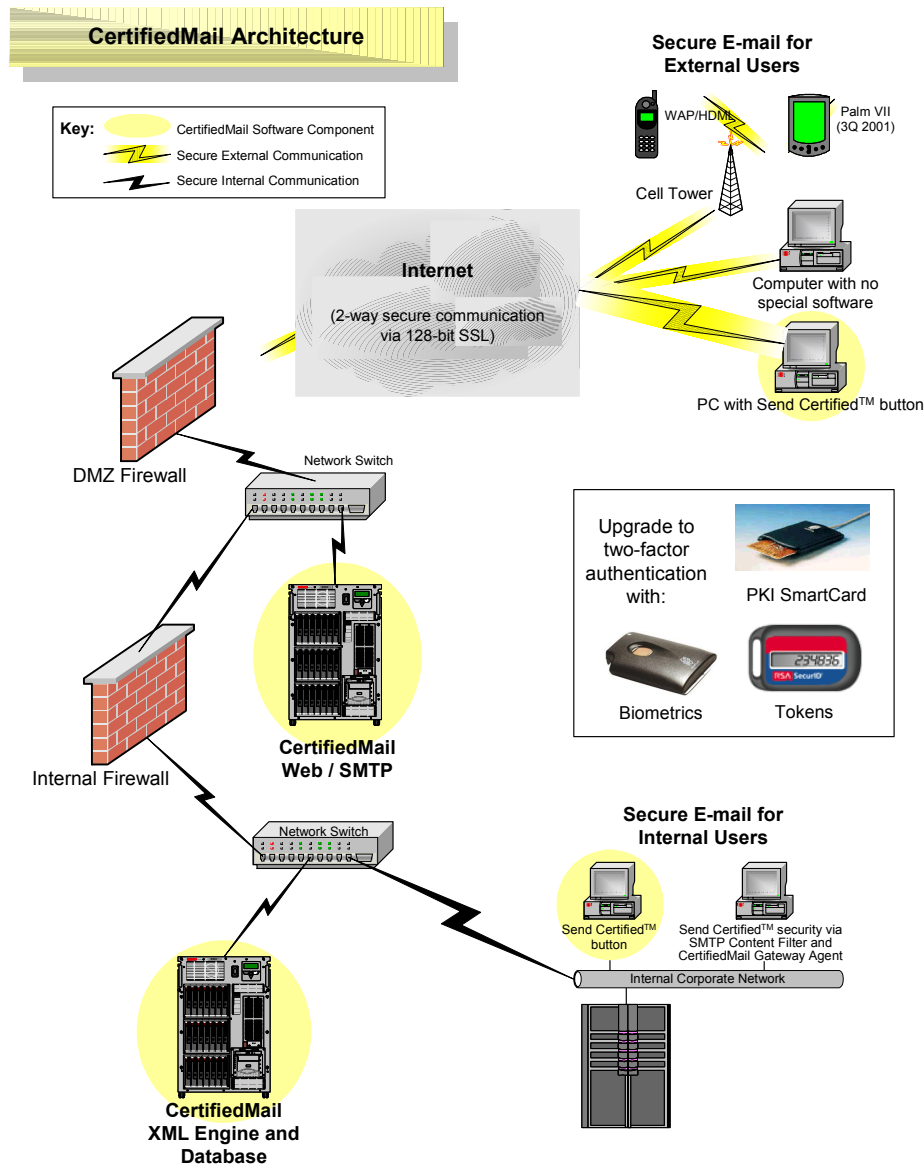
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Executive Vice President  
CertifiedMail.com

Critical in the development of CertifiedMail.com's solutions were Microsoft's Component Object Model (COM) components, the Visual Studio 6.0 developer system, and the Active Server Pages (ASP) technology.

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For more information, visit us at <http://CertifiedMail.com>

CertifiedMail.com is using the Network Load Balancing and Cluster Service features of Windows 2000 Advanced Server to scale their systems. Their use of SQL Server and Exchange Server in clusters improves availability and performance. Using a clustered configuration, CertifiedMail.com is able to get very high transaction levels with their servers. The current configuration, which includes two database servers, two Web servers, and two e-mail servers, can produce two million secured transactions per day. Future plans include using Microsoft Application Center 2000, which will make it even easier for CertifiedMail.com to configure and manage high-availability



server arrays. Application Center will also help CertifiedMail.com manage remote servers at customer sites.

## ***A Bulletproof Web Application***

CertifiedMail.com's Web-based secure email service is built on a traditional 3-tier architecture, and provides the architectural foundation for their other secure messaging solutions.

The Web server farm (presentation layer) runs on Windows 2000 Advanced Server, which includes IIS 5.0 (Internet Information Services). Microsoft Exchange 2000 Server is used for the business logic tier - processing incoming and outgoing email, sending notices to individuals and receiving encrypted messages sent from Send Certified buttons. The data tier, comprised of a Microsoft SQL Server 2000 database in a clustered configuration, stores the certified emails. This allows CertifiedMail.com to provide the maximum response time to users, serving as a high-performance queue and message store.

"We use the Exchange 2000 platform in a clustered environment to accommodate very high levels of SMTP traffic in a very reliable way," says Janacek. "When an individual sends a single message from person to person, there is very little load on the server. However, the load is much higher when we have a data feed coming to the server via XML, such as stock trade confirmations or monthly billing statements. In one day, through their batch billing processes, companies can generate hundreds of thousands of bills and feed them to the server via XML. That can create a very heavy burst of SMTP traffic that Exchange Server is perfect for handling."

According to Janacek, "SQL Server 2000 gives us the performance and stability we need to produce a fast, reliable database solution. When compared to other database solutions, its ease of administration and automated maintenance features have provided us with a very high-quality, self-maintaining solution." Janacek points out that another advantage of SQL Server 2000 is its native support for XML.

Building on the Microsoft .NET platform has allowed CertifiedMail.com to build easy-to-use applications. An individual can compose a CertifiedMail message simply by going to the CertifiedMail.com Web site, requiring nothing more than a Web browser and Internet access. If the Send Certified component has been installed, the messages can be composed in a user's own messaging/email program (Microsoft Outlook or Lotus Notes) and then sent securely by simply clicking on the Send Certified button. Either way, the message is encrypted and travels over the Internet to CertifiedMail.com's secure Web server, where it is logged, time-stamped, fingerprinted, and stored in a SQL Server 2000 database. The business logic performing these functions is written in the Microsoft Visual C++ development system.

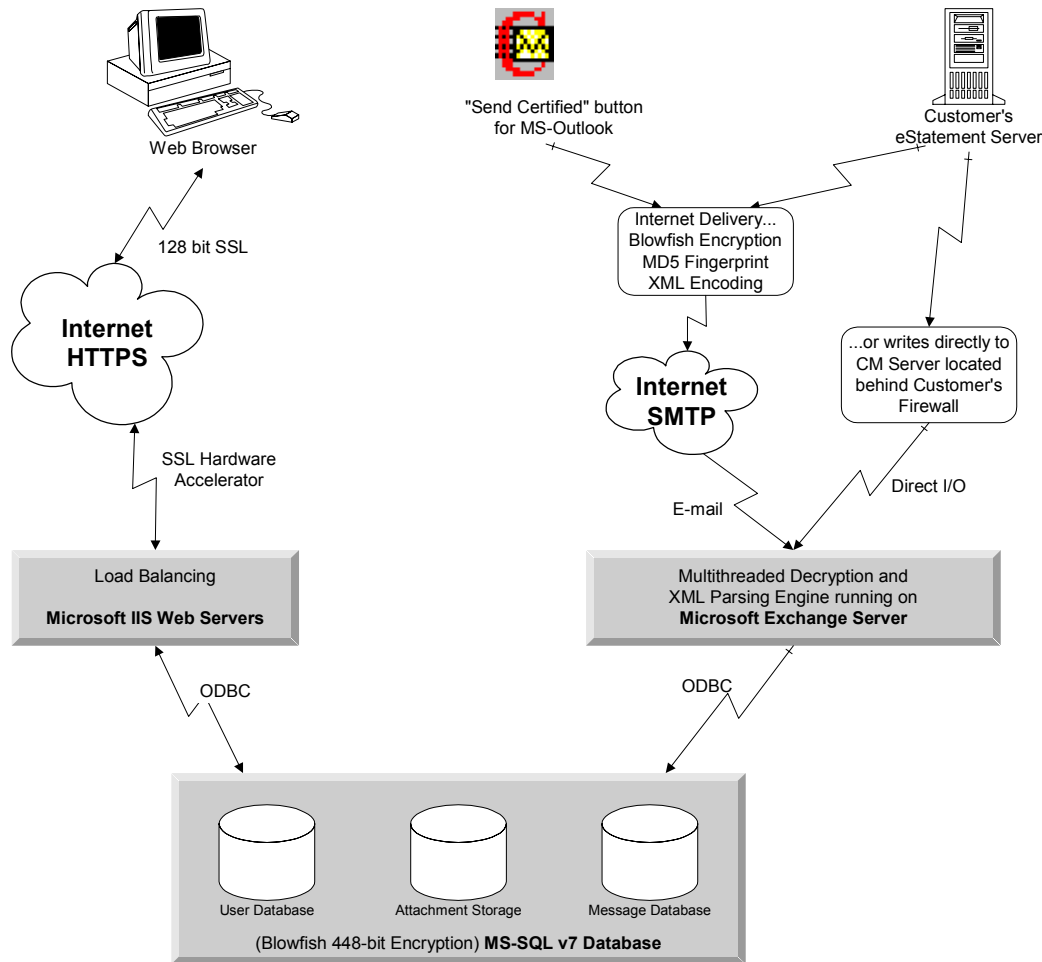
If the email recipient is already in the CertifiedMail.com system, it immediately sends an email telling them that they have a certified mail message waiting and provides a URL link. If the recipient is not already in the CertifiedMail.com system, the server creates a receive-only/reply-to-sender account and inbox for the recipient and sends them an email notice, which arrives through their regular email system.

Upon receiving notification of a certified message, the recipient clicks on the link (protected by the Secure Socket Layer encryption implemented in IIS 5.0) and is taken to the CertifiedMail.com site. There, the recipient is authenticated by a password and allowed to pick up the message. When the recipient opens the message, CertifiedMail.com records the fact that the message was

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opened by the authenticated user, logs the time and IP address of the recipient's computer (or wireless phone), check the message's integrity by examining its original fingerprint and notifies the sender that the mail was received.



“Our ASP site is composed of Intel SSL accelerators, and also Intel Gigabyte Switches,” says Janacek. “Both of those provide very high performance communications to our Internet users. In addition, we have Intel Architecture Servers, which are based on Quad Processor PIII Xeon Chips. For storage, we have a Hitachi RAID system that provides enterprise class storage and reliability.”

### Securing Enterprise Customers

Understandably, some large customers want the peace of mind provided by having their own secure email servers located on their own premises. For these customers, CertifiedMail.com can deploy the CertifiedMail Appliance or CertifiedMail Server at the customer's site. Either secure messaging solution is easy to deploy and support. A local PC support person, or even the resident Microsoft Office expert, can easily integrate the CertifiedMail Appliance into a company's network. The CertifiedMail Server is designed for larger, enterprise-level applications but installs with comparable ease. Because the CertifiedMail Server is Windows-based, and runs on standard Intel-based servers, the cost to deploy and maintain CertifiedMail Server is significantly lower than comparable Unix-based solutions.



For CertifiedMail.com, the process of developing these new products was surprisingly easy. "The Microsoft .NET platform allowed us to offer solutions to customers who wanted to house their own secure messaging systems," says Janacek. "The work we had done developing the Web application was directly relevant to the new project. We found that we could apply the same code base, which saved us time and money." Developing new solutions is simply a matter of deploying the technology on different scales and integrating it with existing systems.

"Since CertifiedMail.com is built on the .NET platform, it embraces open standards," says Janacek. "This allows our CertifiedMail Servers to integrate with Datacenter servers running various operating systems. And with its XML interface, we can rapidly integrate secure e-mail with other ASPs." Some of CertifiedMail's customers use mainframes, Lotus Notes, and Unix-based systems, all of which can operate with the Windows-based CertifiedMail servers placed at the customers' site. "Because Microsoft has embraced open standards like XML with its .NET platform, it makes it easy for our product to talk to a wide range of systems."

CertifiedMail.com has designed the application to be self-maintaining, creating user accounts on the fly, managing inactive accounts, cleaning out old messages, and otherwise providing a virtual database administrator in a box. "Using Enterprise Manager to manage the SQL Server database and various components of Windows 2000 such as Performance Monitor, we have scripted many of the routine maintenance tasks, including database backup and performance threshold alerting," Janacek explains. "This significantly reduces the time required to maintain the CertifiedMail.com solution and saves us and our customers a lot of money."

### ***Easy Integration Secures Financial Privacy***

One enterprise-level customer that has implemented a CertifiedMail Server solution with outstanding success is Fiduciary Trust Company International. Since 1931 Fiduciary Trust has managed the assets and investment strategies of individuals, families and institutions. Their clients represent the wealthiest and most discerning class of investors. Increasingly, their customers wanted to communicate with their investment managers online. Privacy and security are highly valued by Fiduciary Trust and their clients, so they were thorough in their consideration of CertifiedMail and their proposed solution.

Implementing the CertifiedMail Server solution required interoperating with Fiduciary Trust's heterogeneous IT environment. "Our environment is mixed Sun/Solaris, and CertifiedMail brings the Windows 2000 platform into it," Says Jim Cassata, Web Services Manager at Fiduciary Trust. "The CertifiedMail solution interoperates seamlessly, utilizing open standards such as XML and Internet protocols."

Other important advantages enjoyed by Fiduciary Trust involve reliability, cost and standardization on a single platform. "Availability has actually exceeded our Unix platform," says Cassata. "The CertifiedMail solution was easy to install and has been easy to operate. Using CertifiedMail and Windows 2000 we are getting comparable performance, better security and better functionality for one quarter the cost of what it would take to do in a Sun/Solaris environment."

Stephen Tall, Executive Vice President and Chief Technical Officer at Fiduciary Trust, says, "We use a variety of operating systems, including AIX, Sun and Windows. Increasingly we are seeking to consolidate on one common platform. We'd like to consolidate on Windows 2000. From the

desktop down to the server, Windows 2000 provides a very widely available standard that we can employ in our environment, simplifying our management and allowing us to spend more time adding value for our clients and less time managing a variety of standards.”

### ***Helping a Healthcare Industry Leader Comply***

CertifiedMail.com is deeply involved in the healthcare arena. The healthcare industry represents a truly massive market, involving almost every American in one way or another. The amount of personal information moved between doctors, hospitals, insurance providers and other healthcare institutions is staggering. Soon, the exchange of all information will have to be secured to insure privacy. HIPAA (Health Insurance Portability and Accountability Act) has created a whole new demand for CertifiedMail.com’s technology as the healthcare industry scrambles to meet the 2003 compliance deadline.

HIPAA mandates that within the next two years the health insurance industry will be required to supply secure exchange of patient data between the healthcare enterprise and their vendors, and also between the enterprise and all of its customers. HIPAA presents an enormous challenge for the health insurance industry. A single insurance provider can have 10 million customers or more, and each of those customers can be accessing the Internet from virtually any platform imaginable. CertifiedMail’s challenge was to provide a secure messaging solution that can scale to accommodate tens of millions of users and also communicate to every type of Internet device.

A major Blue Cross Blue Shield company has recently turned to CertifiedMail.com for a secure messaging solution. As one of the nation’s leading healthcare benefits companies, they provide health benefit plans, dental and vision benefits, pharmacy benefit management services, life insurance and workers’ compensation benefit management to more than 7 million Americans. With monthly outbound messaging requirements that can reach into the millions, they realized the need for security even before the new HIPAA regulations were announced.

With a diverse and expanding IT infrastructure and heterogeneous data coming from a variety of sources, the healthcare company was looking for a solution that could provide them with flexibility and scalability. They decided to work with CertifiedMail.com for a variety of reasons. CertifiedMail.com’s commitment to the .NET platform supports open standards and a wide range of interoperability – offering easy integration with their dynamic IT environment. CertifiedMail.com also provides an onsite solution that will allow them to maintain control of all of their data. Blue Cross recognized that CertifiedMail.com’s system is user friendly and realized the benefit of keeping things simple, yet very secure, for all of their customers and partners.

### ***Benefits***

#### ***Microsoft, A Familiar Face***

Safetynet, CertifiedMail.com’s parent company and predecessor, utilized Microsoft products. “Our developers were already very familiar with Microsoft languages and platforms, so developing with Microsoft was a natural extension of our existing skills,” Janacek says. “Once we confirmed that the platform could scale to the needs of our customers, it was a natural selection.”

Janacek says that Visual Studio is a productive, unified environment for integrating Visual Basic and Visual C++. His team used Visual Studio to design HTML pages, presentation layer, business logic, and calls to the SQL Server database. “We can work end to end without switching

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environments,” he says. “The breadth of features covered in one integrated environment is very nice and a huge time saver for us.”

Not only is the company’s existing staff familiar with Microsoft products and technologies, but CertifiedMail.com has also found that the outside talent pool is heavily populated with developers who are also familiar with Microsoft tools and technologies. “As our company grows, it will be important to be able to bring new developers online as quickly as possible,” Janacek says. “Since Microsoft developers are very productive, we find that we can get our business goals accomplished in a very tight labor market.”

### ***Answering a Need for Accessibility, Reliability and Security***

When it came to choosing a platform to build their business on, CertifiedMail.com did not take the decision lightly. There were obvious advantages to developing on the Microsoft .NET platform, but reliability was also a critical requirement. Based on the perception that it would provide 24x7 uptime and reliability, some people at CertifiedMail.com wondered if the company should move to Unix. CertifiedMail.com ran a battery of tests that demonstrated that Windows NT Server was up to the task. The reliability improved further when Windows 2000 arrived.

“We were pleasantly surprised at both the speed and reliability of Windows NT Server 4.0 with Service Pack 6,” Says Janacek. Since upgrading to Windows 2000, CertifiedMail.com’s confidence has only grown. In fact, CertifiedMail’s ASP service has not had a server-related interruption for its customers. Once, when a single database server went down unexpectedly, the automatic fail over to the other database server in the cluster allowed operations to continue uninterrupted.

“We looked at .Net and knew that it was the answer to our business dreams,” says Neil Haymes, Senior Vice President of Operations for CertifiedMail.com. “It means two things to us. First, it means universal access. We absolutely need to be everywhere the customer needs us to be. If they happen to be in a software application in the desktop, they must have access to us. If they are receiving financial bills, and they want to securely message back to the company that sent them the bill, they must have access to us. And they don’t want to authenticate or put their password into sixty different places.”

“The .Net strategy allowed us to create the highest level of access in a very simple way,” says Haymes. “We are able to provide authentication through Microsoft Passport. We can easily integrate with our partners with the use of XML and SOAP, allowing our partners to provide their customers with secure messaging.” Haymes continues, “Ideally, we wanted to present an ASP type of model, one that allowed users to be able to say, ‘You know what? I use Internet Explorer, so I can get to them any time I need to, 24x7.’ The .NET platform has allowed us to provide that extreme level of access – universal access.”

“The second thing that the .NET platform means to us is availability. We needed our service to be up all the time,” says Haymes. “For CertifiedMail, acceptable availability means that there is never an instance when somebody who needed secure messaging can’t get to us. The critical question was, ‘What platform supports our required functionality and can be 100% available?’ We’ve achieved it by using all Microsoft .NET platform software.” Haymes concludes.

The very nature of CertifiedMail's service requires that the servers themselves be secure. CertifiedMail's use of Microsoft ISA has been an overwhelming success, providing top-level security and exceptional functionality.

"Before we installed ISA Server, we had used Linux to run the firewall. But we found Linux is very hard to configure," says Janacek. "It's free, but you don't have support. If anything goes wrong, you are on your own. Microsoft ISA has an intuitive GUI that makes it much easier to configure. Plus ISA has a lot of features that you can do with VPN. For instance, you can directly filter message content before it arrives in Exchange or another mail server. The Linux firewall could not do that."

### **Ready for the Wireless Frontier and Beyond**

The flexibility of the Microsoft .NET platform has also allowed CertifiedMail.com to tap into the expanding wireless device market. Researchers project that within three years there will be more handheld wireless devices accessing the Internet than there will be PCs accessing the Internet. CertifiedMail.com moved its product into the wireless world by incorporating the WAP, WML and HDML protocols. As a result, users can retrieve and send CertifiedMail messages from their Web-enabled wireless phones and PocketPCs.



"Microsoft had the foresight to know there might be new types of pages to deliver," Janacek says. "The flexibility of the .NET platform has allowed us to tap into what will soon be a billion-device market – all integrated within our Windows environment. By providing a flexible architecture, we can offer HTML and mobile browser support from the same Web servers." CertifiedMail.com is busy forging alliances with cellular companies to make CertifiedMail a built-in service provided to cell phone users.

Another service being developed by CertifiedMail.com involves the automation of secure data feeds. "The .NET XML -driven CertifiedMail Automation Engine enables CertifiedMail.com to provide automated data feeds from business partners, providing a mechanism to securely send financial statements, stock trade confirmations and other computer-generated output," says

Janacek. "This provides a significant cost saving, since it eliminates the need to physically print and use postal mail for this information."

The .NET Enterprise Servers are Microsoft's comprehensive family of server applications for building, deploying and managing next generation integrated Web experiences that move beyond today's world of standalone Web sites. Designed with mission-critical performance in mind, .NET Enterprise Servers will provide fast time to market as well as scalability, reliability and manageability for the global, Web-enabled enterprise. They have been built from the ground up for interoperability using open Web standards such as XML. The .NET Enterprise Servers are a key part of Microsoft's broader .NET strategy, which will enable a distributed computing model for the Internet based on Internet protocols and standards in order to revolutionize the way computers talk to one another on our behalf.

### ***For More Information***

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