

Technology Corner – 3rd Quarter 2008

Digital Signatures

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Gone are the old days of the manual typewriters that were used to type up lease agreements. Although the typewriter created a more professional looking lease contract as opposed to handwriting it, mistakes sometimes meant re-typing the entire agreement. Then along came thermal fax agreements that were not widely accepted by most lessors due to the deterioration of the physical paper over time. The plain paper "faxable agreements" came next; although this is still commonly used it is not generally accepted outside of micro/small ticket leasing. Technology has now allowed

us to use documents that are based on Microsoft Word templates, PDF templates, etc., thereby increasing the speed and efficiency that lease documents can be produced. Now on the horizon is the new breed of e-commerce solutions that is starting to change the entire finance industry, not just the leasing industry. This new media form is called *digital signature*. A *digital signature* replaces the handwritten signatures while providing a much quicker and cost effective solution to the mail and courier service. In order to understand *digital signatures*, we must first understand what a *digital signature* is.

A *digital signature* has the same function for an electronic document as a handwritten signature for a printed document. *Digital signature* have traditionally been confused with electronic signatures. An electronic signature is a scanned copy of a physical written signature. A *digital signature* is an installed file on a computer that validates both you (the sender's identification) and the receiver (lessee's) identification. The digital signature provides an un-forgable piece of data that confirms that the recipient has signed and agreed to be contractually obligated to the document to which the signature is attached. In fact, many

people would argue that a digital signature actually provides a greater degree of security than a handwritten signature.

The reason for this is that once a digitally signed message (lease contract) has been received signed by the lessee it can be proven that the signature attached has in no way been altered either intentionally or accidentally since it was signed. Furthermore, secure *digital signatures* cannot be repudiated; in other words the signer of a digital document cannot later disown it by claiming the signature was forged. This is because *digital signatures* enable "authentication" of both the recipient's identification and the digital message by utilizing a cryptographic protocol made up of algorithms.

To understand this we must first understand the three main parts of a *digital signature*. A digital signature normally consists of three algorithms;

- i) A key algorithm
- ii) A signature algorithm
- iii) A verification algorithm

Key Algorithm

This algorithm is based on the principles of cryptography to securely encrypt/decrypt whatever data is being sent or received. The keys can both be public and private, and they are also used to validate and set up:

- Name and e-mail address: This is necessary for contact information purposes and to enable the viewer to identify the details.
- Expiration date of the public key: This part of the signature is used to set a shelf life and to ensure that in the event of prolonged abuse of a signature it will automatically be reset.
- Name of the company and or individual: This section identifies the

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- recipient to which the signature belongs.
- **Serial number of the Digital ID:** This is a unique number that is bundled to the signature for tracking and extra identification reasons.

The signature algorithm is used to describe the manner in which an individual can sign a digital document that does not allow him to later deny the signature. This is because the signature algorithm accepts a finite sequence of data and returns another finite sequence of data called a "signature."

Verification Algorithm

- The verification algorithm is part of the digital signature certificate that is issued by the sender's resident file programs' protocol to ensure the validity of the received data by utilizing a process called hashing.
- It ensures, by means of verification and validation, that the user is whom he/she claims to be. This is done by combining the user's credentials to the digital certificate.
- It also verifies the date and time so that the senders or recipients can not dispute if the message was actually sent or received.

One of the best systems that we have seen for *Digital Signatures* is called "Waypoint" by a company called "Recombo" (www.recombo.com). In our example below we look at a very simplified example of Recombo's process. The lease professional can set up a template based on their current

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documentation (that can be reused on an ongoing basis). The software then digests the data on the template into a simple string of code; the message (lease document) is then encrypted with a key. The document is then sent to the user (let's call our user the lessee), who is then put through a verification process (usually about 14-17 seconds) to validate that they are the intended recipient of the document. This process is exact and will ensure that if a document is sent to a company only the intended recipient (not just the e-mail recipient) is in fact the person that signs the document. Once the recipient has read and signed the document (usually in two to three different places to ensure that they not only signed but, that they intended to sign the document), the document is then sent back via the same secured channel. The receiving system verifies the validity of the received document. The system can even be set up to send a direct copy to the lessor as well as the broker once the lessee has digitally signed the document. This whole process can be done in a matter of minutes and all for less than the price of a courier. If a user is uncertain of the credibility of a digital signature it is possible to verify the digital signature with a Digital Certificate Authority. Signatures can also be revoked if they are abused or if it is suspected that they are abused. Now that we know that the process is simple, what about the enforceability of *digital signatures* in the court rooms?

On October 1, 2000, the new Electronic Signatures in Global and National Commerce Act (ESIGN) took effect. The ESIGN law allows businesses to enter into legally enforceable transactions and contracts over the internet and prevents a contract from being declared void simply because it is in an electronic media format. The main significance of ESIGN is its deep adaptation of contract law with specific influence of state laws that generally govern contracts. The ESIGN act established a basic framework that each state must operate within if they want to enact laws to govern electronic contracts, thus eliminating any uncertainty. If a state chooses not to adopt their own version of UETA (Uniform Electronic Transaction Act) or any other type of law to govern electronic contracts, then ESIGN's provisions will govern the digital contracts for that specific state. ESIGN also prohibits states from refusing to enforce digital contracts simply because of the electronic format or due to the use of an electronic signature. Standards and Poor's has also denoted to the validity and enforceability of these documents in an article titled:

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Full Spectrum Equipment Finance and Leasing

Legal Issues of Securitized Auto Loans in an E-Contract World
 Publication date: 10-Jul-06 "There are state and federal laws that uniquely apply to eContracts. These laws have two main goals: ensuring that eContracts suffer no disadvantage in the commercial markets relative to paper contracts and that consumers benefit from all the legal protections they enjoy when entering into paper contracts. Standard & Poor's is comfortable that, under these laws, as to the issues of legality, validity, and enforceability, eContracts can be viewed as equivalent to paper contracts...."

In addition to the legal framework surrounding the enforceability of digital signatures, ESIGN also provides additional laws that prevent any state from requiring vendors to use any specific technology to create digital signatures. ESIGN also provides important protection for the consumer. For example: it ensures that consumer protection laws such as those specifying content and timing of legal notices and full disclosure must be identical for digital contracts as they would be on paper contracts. Online vendors are to be held to the same antifraud and deception provisions as vendors who operate offline. One of the most important aspects of this consumer protection is that online vendors must give consumers a choice of electronic or paper contracts. No customer, whether commercial or consumer, can be forced to use digital contracts if they do not wish to. Also, before a digital contract is enforceable, vendors must give customers at least the same level of consumer protection, i.e. privacy and documentation, that is equal to any customer using conventional methods, whether commercial or consumer, would receive. This means that vendors must maintain secure systems that are capable of preserving electronic records so they may be accurately reproduced at a later date for reference by relevant parties. Article 9 of the Uniform Commercial Code, which came into effect on July 1, 2001 addressed the creation of security interests, the sale of chattel paper and secured leasing transactions by means of digital documents. The ESIGN laws have also made it clear that transactions made electronically are equally valid as those made using traditional pen-and-ink signatures.


Now in 2008, there have been many advances in the field of biometrics that have allowed for new methods of verification since ESIGN was promulgated in 2001. These advancements have lead companies like Recombo to provide 128-bit SSL 3.0 protection and contract validation through companies like VeriSign, e-Original and Equifax to validate the users' identity whilst providing the user with a user-friendly environment that tracks, monitors and archives the digital document on behalf of the vendor (leasing company).

In summation, when we consider the following;

- Business today is being conducted not only across the city but across the world. As such, it is imperative to truly know that a person is who they say they are even from thousands of miles away.
- The ever-increasing cost of couriers, mail, driving to and from the customer's office and the storage costs for paper copies will not diminish over time.
- Most brokers and lessors alike have already adapted smart phones, online credit applications, web enabled CRM's and customer communication tools, automated scoring models, PDF documents, fax agreements, etc., in order to streamline and create an efficient business model.

Are digital documents really that far off or are they just the next logical step in the evolution of the equipment finance industry?

Anthony is the Founder and President of both Litehaus Systems and Provisio Financial Services. Litehaus is a technology company that offers off the shelf equipment lease broker software. Provisio Financial Services is an equipment leasing company based in Western Canada focusing on small / mid ticket and cross border lease transactions.




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