What Are The Advantages And Disadvantages Of Digital Signatures?

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A digital signature, whereby the conditions are met, provides a receiver with extremely strong reason to think that the intended message has been created personally by a known sender (digital authentication), and that no modification in the transmission has been made in the course of delivery. Digital signatures have become a core component of many current and future cryptology-based email applications and have been utilized by users since the 1990s. They are now being utilized in much more advanced internet applications, as well. Digital signatures have become a part of how people transfer money online, as well. Without them, it would be difficult to send funds from one party to another. Digital signatures have become a standard component of many new and upcoming email applications, as well.

The evolution of digital signatures into a more secure system came about as a result of advances in information technology. Improvements in the field of cryptography enabled digital signature scheme to work without the need for any secret algorithms or encryption methods. With the use of public key infrastructure, electronic certificates could be efficiently managed. Public key infrastructure is a group of computer systems which serve to maintain digital certificates for servers and devices.

One advantage of digital signatures is that they do not change the existing IP address of an email message. Email messages sent using digital signatures have their origins on the internet, and the location of the origin server is displayed as the IP address. Therefore, it is safe to assume that email messages sent using digital signatures are safer than those sent using other means. Electronic mail also has the advantage that it can be sent to multiple recipients at a time. Digital mail is a cost-effective solution to the over-reliance on paper faxes.

As an electronic signer, it is easy to send email messages to multiple recipients, as they would be transmitted digitally, via the internet. Electronic signatures eliminate the need for email to fax copies to multiple recipients. There are no maintenance costs involved, as there are no print costs involved with email and electronic signatures. Lastly, electronic signatures can be transferred to numerous parties, which increases the security of the digital signature.

There are certain shortcomings of digital signatures. First, the sender's computer should be able to read the digital signature of the recipient. Most digital signatures have authentication checks performed by the recipient. In some cases, this authentication check is done by the sender's computer. The disadvantage of this approach is that if the computers cannot agree on the digital signature, then the digital signature will be rejected. This can be overcome by creating multiple layers of encryption.

A second disadvantage of the digital signature is that, because it relies on a public key system, it is vulnerable to hackers. A hacker can break the signature by intercepting the public key that identifies the owner of the keys. A third advantage and perhaps the most significant disadvantage of the digital signature are that it has limited value. A digital signature is useful only if it can be used as a valid form of identification. It is useless as a proof of identity or as a guarantee of security. For instance, consider the following scenario:

Alice finds Bob in the online forum. She wants to buy a product from him but doesn't have her key or her password. To make a payment she uses her online shopping application. When she submits her order to the seller under the digital signature of Bob, the payment is credited to her account but when she checks her account she finds that it does not match the details she entered.

In conclusion, digital signatures have their advantages and disadvantages. They can be used as a secure form of identification and as a method of securing credit cards and other financial transactions. But they are not as useful as a one-way hash function, because they are only useful as a guarantee of security and as an authentication tool for financial and personal data. The one-way hash function is more practical and widely accepted because it is a stronger and more efficient way to create digital signatures.

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