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Technology Backgrounder

System Overview

The DocuSign Online Signing Services is composed of several parts that operate together to form a legally binding solution for sending and signing documents. The center of the solution is the DocuSign 'Vault' (server) in which all documents are encrypted and stored. The documents are accessed by authenticated users through secure connections, and all document activity is monitored and audited. Documents may be placed into the vault by using DocuSign's desktop client which securely sends any document to the service, or by using the DocuSign Gateway API, which is a SOAP compliant secure web service. Documents are 'tagged' with 'sign here' tabs which indicate and record signature activity. Recipients access these documents using a browser and a 128-bit encrypted SSL link, and can sign without any other software or certificates.

Infrastructure

DocuSign operates on a high-availability cluster of Microsoft SQL2000 servers, and Microsoft Windows 2003 application servers, hosted at XO Communications in Irvine, CA. Physical access to the servers is behind a series of locked and secured doors and is provided only to DocuSign authorized personnel, checked against drivers license ID, accompanied by a guard, and constantly monitored by closed-circuit cameras. Every component in the system is monitored for failures and/or any unusual activity on a 24-hour, 7 day, 365 day-per-year basis.

The DocuSign Electronic Signature

When a user first receives a document to sign through DocuSign, a wizard helps the new signer setup a DocuSign Electronic Signature. This signature appears as a script signature, and is composed of several elements which ensure this signature is unique to the owner, and can only be used by that person. The creation of this signature does not require any special software or signing pads, and can be accomplished quickly. When signing, this signature is placed on the signed document in the appropriate locations as indicated by the sign-here tabs.

How It Works

When a document is sent from the DocuSign Desktop Client to the DocuSign Online Signing Service, transmission takes place over 128-bit encrypted (SSL) Secure Sockets Layer. Documents are converted to a locked file, and sent to the DocuSign Vault where it is registered with the Audit Manager, time-stamped, and encrypted using NIST AES (National Institute of Standards and Technology, Advanced Encryption Standard) Encryption from RSA, triple DES, and the Rijndael algorithm



SHA1 hashing for comparison, and to ensure the documents are tamperproof. To put this in perspective, the computational power required to break this encryption and decode the document would take several years using powerful computers.

The locked document file is stored along with a transaction data which details the DocuSign account holders who may have access to this document. Each time the document is requested for viewing, by an authenticated user, it is re-rendered using this encrypted hash. If for some reason the underlying document has been altered, the transaction would terminate, and the document would not be viewable. DocuSign has sophisticated audit controls which ensure only those who are authorized to view and sign can do so.

Authentication

DocuSign has developed an authentication architecture which enables different forms of authentication to be included from 3rd party providers. As an example, DocuSign's ID Check service is provided by Fair Isaacs, and is integrated as an authentication step in the product. By developing the authentication architecture, and enabling 3rd party services to be included, DocuSign ensures it will be able to include new tools as they emerge.

Web Services Gateway API

For application developers wishing to empower their existing applications with online signature capability, DocuSign offers the Gateway API; a SOAP compliant WSDL Web Services interface. The Gateway API provides 'round trip' online document signing capability which can be integrated into existing applications. Benefits of using the DocuSign Online Signing services via the Gateway API include rapid application development, and leveraging online signing technology rather than having to build it.

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