

Digital Signatures Make Northwest Aerospace Technologies' Workflow Soar

Overview

Executive Summary

Northwest Aerospace Technologies, Inc. (NAT), an engineering services company specializing in large transport category aircraft modification programs, was interested in streamlining, expediting, and cutting costs related to their AutoCAD drawing approval process, and additional departmental workflows. Since it was an enterprise-wide requirement, the solution needed to be scalable and deployable for multiple departments throughout the company, in multiple locations. The solution NAT implemented also had to be compliant with Federal Aviation Authority (FAA) Advisory Circular 120-78, which calls for the integrity and authenticity of electronic records.

The implementation of an enterprise-wide digital signature (standard electronic signature) solution that allowed the company to upgrade to a more agile workflow that fully satisfied all regulatory compliance.

By implementing the CoSign® digital signature solution within their Engineering department, NAT overhauled its workflow, improving it significantly. In addition to enabling NAT's 55 engineers the ability to digitally sign their engineering drawings with a standard digital signature, CoSign fell in line with NAT's compliancy issues and satisfied their organizational requirements for scalability and multiple location deployment. Utilizing CoSign permitted the engineering documents to remain electronic through the entire signing processes, allowing for expedited workflow, e-archiving, and communication with their client base. NAT predicted a 60% reduction in the number of printed documents in additional departmental workflows once CoSign was deployed throughout the enterprise.



Customer	Northwest Aerospace Technologies, Inc.
Country	USA
Industry	Engineering
Applications	AutoCAD
Number of Signers	100

Case Study

Introduction

NAT routes a substantial number of engineering-based paper drawings as part of their quality check process. Each drawing requires up to 7 authorization signatures and often needs to be routed between NAT's two facilities in Washington and Montana, as well as third parties. After signatures were acquired, the document was scanned and emailed to the customer for approval. The numerous steps required of the quality check led to a prolonged process.

In order to expedite their quality check process, NAT decided to implement a digital signature solution that would allow them to eliminate their reliance on a paper-based workflow and guarantee the integrity and authenticity of their electronic records. In addition to the engineering-based uses for a digital signature, NAT foresaw the significant upside of adopting digital signatures in other departments throughout the organization, such as the expediting of processes, improving efficiencies, and the cutting of costs by reducing reliance on drawn-out paper-based procedures. This case study focuses specifically on the CoSign digital signature implementation within NAT's Engineering department.

Digital Signatures That Keep Your Business Moving

Business Need

In addition to requiring their files to be portable between organizations, NAT stipulated that their digital signature solution needed to be scalable and globally verifiable over time, in order to seamlessly grow with the organization and work with third parties for the life of the documentation. The solution also needed to provide the ability to archive documentation for seven years. Additionally, it needed to be compliant with FAA Advisory Circular 120-78 guidelines governing the use of digital signatures. In order to accomplish this, the solution needed to be unique, significant, secure, non-reputable, traceable, and allow for the scope of the signature to be easily interpreted.

Key Challenges

The challenges that a multi-office organization poses to workflow processes are significant. The process NAT utilized previous to its CoSign deployment consisted of the Engineering department drafting drawings in AutoCAD, converting the drawings to a PDF, printing and routing the documents for the signature of up to 7 engineers, and then scanning the signed paper-based drawings so that they could be electronically archived and routed to the customer. The need to print the PDF and route the paper files, in order to sign the drawing that was eventually scanned back into an electronic form, was a timely and counterintuitive practice, which also reduced the accuracy of the drawings.

In the case of NAT's Engineering department, with a workflow that required almost 3,000 signature authorizations a month, the opening of a second office in Montana exacerbated the inefficiencies that the organization encountered in a paper-based process. NAT needed a solution that consolidated an involved manual process of signing, copying, routing, and scanning thousands of documents.

Solution

NAT realized that if their documentation could be kept electronic from inception through signing, document turnaround could be reduced from days to hours. As such, NAT decided that implementing a digital signature was the key to moving from a paper-based to electronic workflow.

Digital signatures facilitate the conversion of the traditional paper-based signature into the digital realm, by adding a digital "fingerprint" as a signature to a document. This "fingerprint", based on Public Key Infrastructure (PKI) technology is unique to both the document and the individual signer. The PKI technology in the signature is also utilized to prove that the signatory is indeed the signer of the message and that the signer actually approves the content of the document. PKI technology has been widely tested and accepted as the only standard method capable of guaranteeing an electronic document has not been altered. Any changes made to the document after it is signed invalidate the digital signature, thereby protecting against forgery, ensuring non-repudiation, and securing the documentation.

NAT chose the CoSign digital signature solution because it provided them with the exact solution the organization needed, enabling them to keep their documentation electronic throughout the signing process. CoSign provides a portable signature format that allows partners, customers, and prospects to retain and verify the proof of identity, intent, and transaction integrity over the life of the record. Via the CoSign® PSF™ (Portable Signature Format), when NAT digitally signs their electronic files, third parties can seamlessly verify the elements of identity, intent, and integrity over the life of the electronically routed drawings, without the need for any proprietary software or connectivity to NAT's network (validation of PKI digital signatures is a built-in functionality in popular desktop applications such as MS-Office, Adobe Reader, AutoCAD, and many others). Utilizing PKI-based technology, CoSign also satisfied the guidelines set forth by FAA Advisory Circular 120-78 by maintaining the integrity and authenticity of electronic records.

In addition to satisfying the FAA guidelines, CoSign's out of the box integration with Active Directory allowed NAT an effortless enrollment of its users. CoSign's intuitive operation was easily adopted by NAT's

employees with a very brief training period. Finally, CoSign allowed NAT the ability to place multiple graphical signatures, time stamps, and reason codes on their documentation, satisfying internal requirements the organization had for the digital signature solution they deployed.

Results

The quantifiable outcomes of NAT's CoSign deployment have been noteworthy. By utilizing CoSign digital signatures, NAT has been able to digitally sign hundreds of documents a month, placing as many as 7 signatures on each document. The ease with which documentation is routed has expedited the engineering documentation process from days to minutes, allowing the engineers to process their overall workload at much faster pace. In addition, the Document Control Manager's workload has been alleviated by decreasing their need to scan, photocopy, print, and manually ship thousands of pieces of documentation, allowing for more projects to be processed simultaneously.

Lessons Learned

NAT's deployment of CoSign brought several important issues to light with regards to digital signature solutions: the need for a transportable solution, simplicity of use, and the capacity for multiple digital signatures. See below for a more detailed explanation of each.

- With documents that were being routed to multiple offices and a client base that also needed to review and sign the documentation, it was essential for NAT to find a standard digital signature solution that would facilitate collaborative efforts and cross-organizational communication. If NAT had implemented a proprietary solution, it would have required their customers and any other party that intended on viewing the documentation to have the same solution. Since any such requirement would have been problematic, CoSign, with its standard technology, allowed external parties to verify the authenticity and integrity of the document, without the need to download any software.
- Simplicity is the key to ensuring that a technology deployed is a technology used. If the digital signature solution that NAT implemented was complicated, used a wizard, or took more than 10 seconds to execute, they would have fallen short of realizing their objective of making their business processes as fluid as possible.
- Tight integration with an organization's existing user management system and the organization's signed applications is also a key factor. This capacity ensures that the deployed digital signature solution does not require the company to alter the way it works, and it does not overload the company with additional management tasks. CoSign seamlessly integrated with NAT's Active Directory, allowing for effortless user management.
- A key element in NAT's workflow processes involved the need for up to 7 individuals to sign a single document. There are numerous digital signature solutions in the marketplace that limit users to one signature per document (once the first signature is placed on the document it seals the document. Subsequent signatures then invalidate the document). Utilizing CoSign, which allows for multiple digital and graphical signatures, allowed NAT to maintain the same signing capacities they had with their initial paper process.

About Northwest Aerospace Technologies

Northwest Aerospace Technologies (NAT) is an engineering services company specializing in commercial aircraft modification programs requiring FAA/EASA/Foreign Regulatory Agency approval and the development of highly engineered proprietary products. Principally, NAT provides integration management for major aircraft modification programs involving multiple suppliers and develops engineering, modification parts kits, certification documentation and FAA/EASA certification for major alterations.

For more information please visit <http://www.nat.aero>.

About CoSign Digital Signatures

ARX's CoSign digital signature solution automates approvals affordably in a compliant manner, allowing engineering organizations to go paperless, expedite business processes and save costs. CoSign is the only digital signature solution that is seamlessly integrated with Microsoft SharePoint and other popular DM/ECM solutions. CoSign signatures are globally accepted by external partners without the need for proprietary-validation software. CoSign is also centrally managed through the organization's user directory for reliable control of signature privileges, and ease of use and administration. Learn more [about CoSign digital signatures](#).

About ARX - The Digital Signature Company

ARX (Algorithmic Research) is a global provider of cost-efficient digital signature solutions for industries such as life sciences, healthcare, government, engineering, and energy. ARX engineers and scientists have more than 20 years of experience in security and standard digital signature application. ARX helps businesses secure, streamline, and scale their processes and transactions with the proper controls required by legislation, regulation, and industry best practice. [Learn more](#) about us.

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