

digital-to-digital conversion services

The Evolution of Conversion Services: How Digital Data Has Changed and What You Need to Know Today



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introduction

In a digital-to-digital conversion, document images, checks, statements, and computer reports that are in a specific digital format are changed (or converted) to a different format. Digital conversion should not be confused with migration, which involves moving data from one media to another without changing the format. While digital conversions are required for numerous reasons, most occur when organizations move to a new technology that is incompatible with the one they are currently using.

This document explains why conversion services are necessary, the process that takes place, and how the use of old legacy information can be maximized regardless of origin or format.

the evolution of document imaging and content management technology

Digital storage of images and reports has been available to the business community for almost 30 years. In that relatively short period of time, the technology has evolved significantly. The slow, big iron hardware with low-density media and rudimentary software found in COLD (computer output to laser disk) systems of the past has now morphed into inexpensive desktop systems on one hand and an integral element in today's enterprise content management (ECM) systems on the other.

The evolution of digital storage technology can be categorized into three stages:

Stage 1

In the early 1980s, document imaging and report management were generally developed by and for large corporations – with a corresponding price tag. Most systems were standalone technologies that promised a paperless office. Not only did this not happen, but to maintain their perceived competitive edge and lock in customer loyalty, vendors systematically employed complex compression routines and placed proprietary “wrappers” around their images so that the images could not be read by any other system. IBM, for example, used advanced print stream and created Advanced Function Presentation (AFP) instead of using a standard format like Tag Image File Format (TIFF or TIF) that uses well-defined industry standard and published compression routines, headers, and wrappers.

Stage 2

From the late 1980s through the late 1990s, a middle tier of document management organizations evolved that developed and sold systems for middle- and lower-tier companies. These vendors started out developing proprietary formatted systems, but later, as more industry standards evolved, moved to embracing standard formats. During this time, hardware performance increased as prices decreased, and storage media density, mainly optical discs, also increased in capacity. In the check-imaging world, an example would be Bisys/DSI, which used a TIF compression routine but also employed a proprietary wrapper that rendered the images unreadable by anything other than their proprietary software.

Stage 3

This stage started in the late 1990s and continues today. During this period, imaging technology has become a commodity item, and while some implementations are still standalone, most are integrated with other information repositories or used as a component in a larger ECM system that pools images, data, sound video, email, and any other information assets into repositories with a single access portal.

But ECM has its own integration problems when pooling many existing disparate proprietary technologies.

technology, which invariably is better, faster, smaller, and cheaper than the previous one. In the case of imaging and COLD technology, the problems with proprietary wrappers and compression routines emerged once stage 1 and the early years of stage 2 were over. Vendors who used proprietary formats to store images and reports locked users into the old system. The bottom line was that a new system could not read an old system's images or reports. This resulted in end users being forced to maintain both the new and old systems, which was undesirable for the following reasons:

- Keeping both systems meant paying hardware and software maintenance on both systems.
- Users had to launch and access two systems to get the information they needed.
- The media that contained the old images became unreliable as it aged.
- The old hardware that read the old media became obsolete, unsupported, and eventually permanently inoperable.



As technology evolves, each stage has a finite lifecycle. Once a lifecycle is over, it is replaced with the latest technology, which invariably is better, faster, smaller, and cheaper than the previous one.

2. Effect of Legislation

With the passing of legislation such as Gramm-Leach-Bliley, HIPAA, Sarbanes-Oxley, and SEC 17a-4, records management was finally forced from its dusty basement to a central place in business strategy. With particular regard to information stored in old legacy systems, the new laws caused organizations to take a harder look at the security,

problems associated with legacy archive systems

1. Proprietary Image Formats

As technology evolves, each stage has a finite lifecycle. Once a lifecycle is over, it is replaced with the latest

reliability, and accessibility of that information. In addition to facing the strong probability of having inoperable hardware and unreadable media, other problems for organizations included:

- The high level of personal risk that C-level executives and corporate boards faced for ignoring the archiving integrity of corporate information.
- The inability to meet lifecycle and archive standards mandated by legislation.

Standard and Proprietary Formats Explained

An image is created using pixels that are collectively called raster data. Raster data must be assembled (formatted) to create a viewable image. The information on how data is formatted for a particular image is contained in a header or wrapper. The formatting information contained in the header may include compression algorithms and methodology, bits per pixel, image width and height, image aspects, and other specifications. Without this information, it is virtually impossible to “interpret” the data and create an image from it.

Headers fall into two basic categories: “standard” and “proprietary.” Examples of standard headers would be TIF, JPG, BMP, etc. With published, consistent formatting information in the header, standard generic image viewers can interpret the raster data and easily display images.

With proprietary headers, the situation is different. The roadmap in the header to interpret the raster data is known only to the vendor or programmer. Only the vendor can assemble the raster data to view the image. Accordingly, a TIF viewer (or any other standard viewer) will be unable to interpret the raster data or display a proprietary image.

Digital-to-digital conversion involves “cracking” the codes and keys on the image headers to turn the image from a proprietary format to a standard format.



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digital-to-digital image conversions can solve these problems

Digital-to-digital conversion solves the problems associated with legacy archive systems by taking proprietary formatted images and reports and converting them into standard formatted data. In the case of images, all indexes/MICR are extracted from the old system’s database and associated with its corresponding image. The resulting output is prepared to enable end users to use one of four archive/retrieval methods:

- The images and indexes are placed in files utilizing a naming convention that allows them to be easily integrated into the client’s new system. This process results in users accessing all images and reports, old and new, from the new system.
- Content can be loaded into a new archive using storage technology such as RAID, coupled with search and retrieval software. This system is then placed at the client site and users can access the content using network or web-based workstations.
- Content can be archived on new media, as stated above, but hosted at the conversion company’s site in an ASP environment with users accessing content via web connectivity.

- Content can be loaded onto individual digital media such as CDs or DVDs along with retrieval software so that each media is a self-contained archive.

Digital-to-Digital Conversion Process

- The client sends the conversion company a sample of the images or reports that require conversion and an approximate volume count.
- The conversion company processes a test sample and returns it on digital media along with an estimated cost to complete the services.
- After signing off on the sample, all the media that requires converting is sent in.
- The actual job is run with rigorous QA and the content is returned on the media of choice.

Benefits of the Conversion Process

- The risk of legacy hardware failing or not being supported is eliminated.
- The risk of the old media becoming unreliable is eliminated.
- The cost of maintenance on legacy hardware and software is eliminated.

other items to note in data conversions

Auditable Quality Control Procedures

Accuracy should be a conversion vendor's number one priority, and proving it should be number two. All conversion work should pass through a rigorous quality control process that provides auditable reporting of the content on the media received, the conversion process, and the target media produced.

This will result in clients having the assurance that all content intended for conversion is actually converted. And conversely, any specific source content not converted will be reported as exceptions.



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The Difference Between Conversion and Migration

Conversion involves taking data in one format and converting it into another format. **Migration** involves moving data from one type of media to another type of media without changing format. Migration services are usually used when archive media or hardware is old and unreliable and clients wish to move the data to new, higher-density media that can be read by the latest hardware technology. Most conversion vendors should support a long list of hardware and media when offering migration services.

Test Conversions

Prior to selecting a vendor to perform conversion services, organizations requiring digital conversion should request that the vendor convert a sample set of images or COLD reports for test purposes. The test should include converted

images and reports along with, as necessary, all corresponding indexes that have been extracted from the legacy system's database. This test process is particularly relevant if the converted output is to be imported into a new system. The fact that a conversion vendor has previously converted specific

source content has nothing to do with preparing the content so that the target system can properly import it. When importing images and indexes into a new system, that system usually requires that the files have a specific naming convention and indexes are placed in a specific format. This should be tested by whoever is responsible for the import, which is typically the new system vendor.

Imaging System Audit Service

Some conversion vendors will offer image system audit services. This is important in industries affected by legislation such as Sarbanes-Oxley and Check 21 that mandate document archive and lifecycle standards. A conversion services vendor can help in compliance issues by offering audit/quality control services that can mitigate the risk of loss and liability from irretrievable customer information.

To accomplish this, a copy of the image archive and corresponding index database is sent to the conversion services vendor. The vendor runs these files through a process that will identify all images that are irretrievable due to:

- Bad scans
- Corrupt files
- Images that have partial or no database records
- Database records with no corresponding images
- Duplicate records

Whenever possible, the vendor should extract all exception items onto separate media for the client's investigation and resolution.



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Data Encryption and Confidentiality and Non-Disclosure Agreement

Ideally, conversion source data is encrypted before it is sent to the conversion vendor and again when the target data is returned by the vendor to the client. Clients should also ensure that prior to sending any data to a conversion vendor,

confidentiality and non-disclosure agreements (appropriate to the client's situation and industry-mandated requirements) are signed and in place.

Vendor Experience in Converting Images, Reports, and Data

Even though they are few in number, it is usually best to select a company whose core competency is digital-to-digital conversion services. Data conversion work is often considered the "dirty end" of the content storage business. This is probably why it is not just end users who use conversion vendors. Many ECM and document management companies, outsource service bureaus, ASPs, systems integrators, and resellers all subcontract out conversion work.

Conversion companies should have the in-house expertise and talent to "crack" proprietary image formats. Cracking files is both an art and science.

Finally, conversion vendors should be able to handle conversions that range in size from a few hundred megabytes to 10 terabytes or more. This means they should have high-capacity hardware, wide bandwidth connectivity, and a large inventory of old, obsolete hardware to enable them to read old and long-forgotten archive media.

conversions made easy

If you're looking for a convenient, secure, and cost-effective digital-to-digital conversion solution, Jack Henry™ can help. Our Enterprise Conversion Solutions (ECS) team has the proven experience of converting more than 500 types of data from nearly every check and document imaging platform in the industry.

safely convert your data

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