Nothing is as frightening as acting without knowing.

— J.W. von Goethe
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Introduction

Braintribe has a great deal of experience in migrating data from legacy systems. Such migrations can involve the conversion of file formats, restructuring and expanding of index data and lastly importing content into the new archive structure based on the Content Service Platform (CSP).

The following list displays the main phases of migrating documents out of existing storage systems in the CSP. Information from the data analysis can lead to an adaptation of the process and determination of the implementation time frame.

Starting with the signing of the contract, we suggest the following phases:

- Technical analysis of existing structures
- Generation of a migration plan
- Acquiring a migration archive
- Adaptation/creation of migration tools
- Reorganization of the index-store: includes the conversion/expansion of the existing index information
- In case of proprietary solutions, implementation of a corresponding CSP object store connector for:
  - The direct integration of available data structures instead of a migration, or
  - The migration of the existing objects
- Testing the solution
- Creation of an experience description
- Inspection and approval by customers
- Implementation of the migration
- Evaluation and final inspection

In the following chapters, the steps of legacy archive migration are described more in detail.

Figure 1: Schematic representation of the migration process (description of the individual steps are in the following chapters)
Technical analysis

In many cases, inexact specifications and a lack of detailed information make an analysis of the existing data the necessary first step.

Formats

If content needs to be converted into other formats, an analysis of the existing data formats in the current archive is necessary. Representative documents will be converted via CSP Conversion Services and the results will be analyzed.

Index values/structures

The structure of the existing index and metadata will be analyzed in order to define a new index structure. The definitive new index structure will be built upon the existing structure and can also be expanded with additional information. Such additional index information can be derived from another existing data source or can be directly made available by another application. The CSP’s own index store can be deposited in any related database.

Furthermore, any existing authorization structures and changed requirements will be registered and defined as necessary.

Data volume

The existing data volume must be evaluated in order to determine the approximate time frame of the migration process.

Migration plan

After concluding the technical analysis, the actual migration plan is created. This plan contains a description of the process, the data security concept and a project plan for carrying out the migration.

Additional requirements

A database to be used for the index store must be determined. Furthermore, the new archive/storage medium must be selected for the object store (e.g., SAN, NAS, Juke-Box, Fileserver).
Migration archive

A migration archive is created as a starting point for all migration activities, and the index data and objects of the legacy system are copied into the migration archive. This is necessary for multiple reasons:

- To have test data available for the adaptation/creation of migrations tools
- To protect original data
- To avoid putting additional stress on the legacy system during migration so that current operations are not interrupted

As such the migration archive also contains a copy of the production database(s). In certain scenarios, including cases of successive migration, the copying of the objects can be left out.

Figure 2: Migration archive as a starting point
Migration tools

Existing CSP migration tools are then used for the index reorganization and migration. These can be adapted according to the defined requirements or, if necessary, new migration tools can be created.

Installing CSP

Before starting the actual migration, at least one CSP instance will be installed and configured for the migration. This contains the definition of the content store (index and object store) and a client configuration based on the existing IT infrastructure.

Migration tables

For a comprehensive documentation of the migration, migration tables are created, which contain all the relevant information regarding the migration. This includes old and new index values, ablage structures, file sizes, as well as the results of the individual processing steps (e.g., conversions). This information makes system restarts (e.g., after a system-related interruption) as well as review of migration results possible at any time (see Ch. 12).

Index reorganization

The existing index structure is reorganized/migrated based on the migration archive. In the context of the reorganization/migration of the index data the data is also imported into the index store of the CSP and is accessible via the CSP integrated UI for search and display.
Object store connector

Depending upon the initial data volume, the following options are available for the integration of objects/documents:

- The migration of the objects can be canceled if the existing storage structure is directly integrated with an object store connector. This option is especially interesting with extensive data volumes, as long as no additional maintenance costs are incurred for the legacy system.

- A migration option which has proved itself with large data volumes is the successive migration of objects during running operations. This way the new solution can be implemented at the most convenient time, irrespective of the legacy data. New objects are stored in the new structure, while the migration of the legacy objects runs in the background (starting with the newest). Should a user access an object that has not been migrated yet, it will be retrieved via the CSP connector during runtime of the legacy system.

- Another option is the incremental migration of the legacy data up to a given residual volume. As soon as this volume is reached, the migration of the remaining objects is carried out over the course of the weekend, and the systems can then be switched over.

- With low data volume and without any special conversion requirements, all objects can be migrated over the course of the weekend.

In any situation the relevant object data are entered into the migration table. That includes time and results of individual processing steps, such as conversions. In addition, the file size before and after the conversion will also be noted in the migration table for later review.

Testing

In the test phase, the migration solution is checked for its ability to carry out the defined requirements. The goal is a faultless migration of representative test data and access to index data and objects via the CSP client components.

Creation of procedural documentation

Given that the records were properly archived in the legacy system and that the new solution has the same requirements, the data transfer must also be properly documented. The legal framework for the creation of procedural documentation is based (in Germany) on § 239 and § 257 of the German code of commercial law (HGB), from which certain requirements for the archiving of commercial documents, in paper as well as in electronic archiving systems, are derived. Based on this procedural documentation, in combination with a protocol in form of a migration database, an independent third party is able inspect the dutiful implementation of the data transfer.
Approval

The final step before the actual migration is the approval of the migration tools and documentation by the customers.

Implementing the migration

The created migration tools are subsequently used to carry out the actual migration of the data and files. Since file migration can take more time, the customer will typically assume the role of monitoring the migration process. In this context, the involved CSP instances will check error messages that might arise as well as the migration tables for any abnormalities.

Any errors that might arise during the migration process (e.g., flawed source format) will be reviewed accordingly, and the affected object will be reset for migration.

Evaluation & final inspection

Upon completion of the migration process, evaluations based on the migration tables are carried out. Included in these evaluations, among other things, are:

• Empty data fields
• Irregular changes in file sizes
• Irregular protocolling of individual process steps

These cases are inspected individually, irregular error sources are recorded, and the remaining objects are migrated. As an optional last step, the migration tables and protocols can be archived in the CSP for future review.

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