2Change
HTWC Services

▶ Specifically designed to provide a low-risk solution for transferring legacy applications and data to systems running on Unix, Linux, or Windows. **2CHANGE provides a fully automatic migration process between different platforms and heterogeneous programming languages.**
The extensive expertise of HTWC's team and our uniquely developed software tools, ensures success for all of our migration projects.

▶ Proven Legacy Migration Services by HTWC

All legacy modernization projects require careful planning and execution. To minimize risks and ensure success, only experienced migration specialists with proven tools should be considered. HTWC is proud to offer **2CHANGE**, which is an end-to-end service that combines two decades of migration experience with the best modernization tools on the market.
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▶ Mainframe Rehosting to Unix/ Linux/Windows

There are several products on the market that allow a certain level of mainframe applications and data rehosting on open systems such as Unix, Linux, or Windows. However, other products typically leave it up to the customer to do the porting of the legacy software, which is preformed either manually or with a semi-automated process that is incomplete and increases IT costs.
Mainframe migration may seem overwhelming, but with the appropriate

services and tools to produce a complete automated conversion the process will be very simple. This process handles all aspects of migrating source programs, copybooks, screen formats and Job Control Languages (JCLs). A special function that is also completely automatic provides the migration of data that is stored in data sets, as well as hierarchical and relational databases. The migration process is quick, precise and cost-effective.
In addition, applications are written in a previous version of COBOL or in obsolete languages such as; RPG II or Assembler, which can be converted to the latest version of COBOL. By combining the automated **2CHANGE** migration process with XFRAME, HTWC's powerful rehosting platform, the results from the mainframe migration rehosting process are bound to be relatively lower, both in risk and cost. With a new system that is rehosted on XFRAME, the performance will instantly improve and the costs will dramatically lower rather than in the legacy environment.

A separate brochure is available on XFRAME that provides more details.

▶ Assessment and Discovery

SYSMIG is our set of powerful migration tools. Typically, the first tool used for any project is ICON.
Developed in-house by HTWC, ICON is used to scan and catalog a customer's software inventory.

Service Highlights

▶ More than 20 years of experience

▶ Tool based processes for error-free conversion

▶ Qualified personnel OS migration

▶ Language conversion

▶ Integrated S/W Inventory and Assessment

ICON provides easy access to the number and names of cataloged objects with information on their quantity, typology and any detected anomalies. All the subsequent processing steps of **2CHANGE** are accomplished using the inventory created by ICON, providing complete control over each converted module. A separate brochure is available for ICON that provides more details.

With an established software inventory, you are now in a position to make informed decisions about your migration options. With **2CHANGE**, HTWC can provide the following language migrations and conversions:

- VSE/ESA to OS/390
- CPS to COBOL
- PL/1 to COBOL
- C A Easytrieve to COBOL
- Assembler to COBOL
- RPG to COBOL

All of the COBOL applications created during the conversion are structured, readable and easily maintainable. With any project, HTWC engineers will also provide the best migration consulting and troubleshooting expertise in the industry.

▸ XMF and SPL

XMF is HTWC's XFRAME migration framework, where the automatic conversion of source codes can be managed in a controlled environment.
Source Code Processing Language (SPL) is a migration language developed by HTWC, which allows a set of rules to be defined for specific conversion tasks. In any conversion project, the primary objective is to preserve the valuable business logic that is built into legacy applications.
To do this a converter must be open, easy to use, powerful and easy to extend.
As an integrated environment, XMF controls the conversion life cycle of an entity or a stream of entities. A conversion with XMF can either run fully automatically or interactively. XMF works independently from the source and the target language. XMF and SPL allow HTWC to quickly develop new conversion products and to adapt existing tools to the customer requirements.

▸ VSE/ESA to OS/390 Migration

The VSE2MVS Converter is a tool used to move software from IBM VSE to IBM z/OS (MVS).
It is composed of two primary components, which are COBOL to COBOL II converter and a VSE to z/OS JCL converter. If needed, each of these tools can be used separately.

The COBOL Level I to Level II converter will automatically change any Level I code that is no longer supported by the COBOL

Level II compiler. Alternatively, the original code is reformatted to provide better readability.
For example, condition closing statements (i.e., END-IF, END-PERFORM, END-READ, etc.) are inserted in the original program, so it can readily leverage all the capabilities offered by COBOL II. Programs using CICS, DB2 and DL/I are also supported.

▸ CSP to COBOL Conversion

IBM Cross System Product/Application Development (CSP/AD) is a fourth generation language (4GL) developed by IBM. Using the HTWC CSP Converter, it is possible to extract and rebuild your existing CSP libraries into native COBOL ready for use with the latest compilers. This migration process produces the following:

• COBOL Sources & Copybooks
• BMS Maps
• DCLGEN for RDBMS Tables
• Record Descriptors for VSAM or DL/I
• CICS Configuration Tables

With the latest release of the CSP Converter, programs that were originally developed in conversational mode may be converted to a pseudo-conversational mode, significantly reducing the system overhead that is needed to run on the new applications.

VSE to OS/390 Highlights

▸ Move from VSE/ESA to OS/390

▸ Automated COBOL I to COBOL II conversion

▸ Automated JCL conversion

▸ PL/I to COBOL Conversion

The HTWC PL/I tool will automatically translate PL/I programs coming from IBM and Unix environments to COBOL II code. The conversion process is highly customizable allowing the user to choose the template of resulting COBOL programs. A small set of run-time functions along with source codes are provided to the user as part of this process. Conversion from CICS, DB2 and DL/I are also supported.

▸ CA EASYTRIEVE to COBOL

The HTWC EZT2COB converter will automatically translate CA Easytrieve programs in IBM and Unix environments into COBOL II code.
The conversion process generates code that preserves the programming logic of the original Easytrieve application.
The generated code is 100% COBOL and every Easytrieve function is replicated in pure COBOL without any calls to external routines.
All properties of commonly run reports are supported and automatically converted into logical COBOL processes. EZT2COB also supports multi-report programs, as well as access to DB2, VSAM and DL/I data.

▸ Assembler Conversion Services

Many companies still rely on their core applications that are written in assembler language. These applications are usually written decades ago, but yet their functionality and business logic can be difficult to replicate or replace. Unfortunately, maintaining this software is cumbersome and finding programmers with the necessary skills can be difficult. In many cases, these applications present a risk of integrity to the key IT infrastructure.
HTWC Assembler Conversion Services solves this problem by creating functionally identical to COBOL applications from assembler code. This type of conversion provides a robust and convenient way to preserve valuable business logic, while creating new applications that can be run in a variety of environments.
The powerful HTWC tools, A2C and CORBA form the functional foundation of Assembler Conversion Services.
These tools are composed from a set of rules, which consist of hundreds of individual rules. These rules are written in HTWC's Source Code Processing Language (SPL) and are executed in HTWC's Integrated XMF (Integrated XFRAME Migration Framework).
Assembler Conversion Services by HTWC are very cost-effective. Each project is typically carried out on a fixed price basis and billing is performed each line of code. The final price will depend on the quality of the source code and the complexity of the applications.
With the inherent flexibility of A2C, HTWC can easily meet the needs of most individual customers.

▸ RPG to COBOL Conversion

The HTWC RPG Converter can automatically translate IBM RPG II programs to COBOL code. The conversion process is performed only once in the HTWC migration lab. The converted applications are then returned to the customer ready to run. No additional runtime system is required. In most cases, RPG II is converted to COBOL as part of a legacy migration project to open systems such as Unix. In some cases, customers have converted existing RPG code without a platform change, because they were unable to maintain the original code base. Each conversion service is designed to be highly adaptable to varying customer requirements.

UNIX/Linux Rehosting Highlights

▸ Move from legacy systems to UNIX/ Linux /Windows

▸ CICS and IMS/DC support

▸ VSAM, DB2 and DL/I support

▸ JCL conversion

▸ VSAM to SQL Conversion

Using the VSAM2SQL Converter, we can automatically migrate VSAM/ISAM files into RDBMS tables (Oracle or DB2).
The Converter produces table creation scripts/JCLs, table loading programs and translates the user PL/I and COBOL code, changing both traditional and CICS file access instructions (OPEN, READ, WRITE, etc. and EXEC CICS READ, STARTBR etc.) into the corresponding EXEC SQL instructions.

▸ Overview of HTWC

HTWC is one of the top leading European rehosting, software conversion and application management solutions company. HTWC focuses on large organizations and is a valid aid in all those problem solving processes related to enterprise systems.
In particular, HTWC deals with all matters related to the integration and modernization of legacy environments. HTWC has specialized in Mainframe rehosting and software management solutions since 1987.
Currently, HTWC labs develop products for rehosting analysis, migration, conversion and reengineering of legacy software.
The integration of these products guarantees a reliable, flexible and cost effective solution for our customers.

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