Connecting people to data at Wilhelm Karmann GmbH

Back in 1901, Wilhelm Karmann took over a coachwork company that produced horse-drawn vehicles. A year later, he began making special body shells for automobiles. Now with approximately 6000 employees, Wilhelm Karmann GmbH is an independent full-service vehicle supplier to the automotive industry, offering a wide range of services that vary from complete vehicle development and manufacturing engineering to niche vehicle assembly. A key factor in meeting the company's business goals is how its two most value assets – people and data – are being connected.

Producing automotive legends

Wilhelm Karmann GmbH is a partner to the automotive industry in Europe and North and South America. With its unique portfolio of competencies and capabilities, Karmann is able to complement the in-house facilities of its customers. Projects handled by Karmann for automobile manufacturers include the:

❑ Design, development, tooling, production planning and manufacture of complete vehicles of all types.

❑ Design and engineering of modules, components and tools.

Karmann is best known for its success with convertibles, but its expertise goes beyond open-top vehicles. The company has developed and manufactured many well-known car projects, amounting to over 3 million automobiles. The VW Karmann Ghia Coupe and Convertible, BMW Coupes, the VW Porsche 914, the VW Scirocco, the VW Corrado and all Ford Escort Convertibles and VW Beetle Convertibles were projects handled by Karmann.

The current Karmann customer list includes Audi (Convertible), Daimler-Chrysler (Mercedes-Benz CLK Convertible, SLK body-in-white module), Jaguar (XK8 Convertible), Renault (Mégane Convertible), and Volkswagen (Golf Convertible).

A heterogeneous world

Like all producers in the motor industry, Karmann GmbH is dependent on a complex IT environment. A number of operating systems are responsible for different applications. For example, AIX supports applications like CATIA and relational databases; Windows NT is used on distributed PCs; and VM and VSE run critical mainframe applications. Currently, Karmann's mainframe is an IBM 9672-R45 "super server" with VM/ESA 2.3 and VSE/ESA 2.3 installed.

Since no third-party software exists which meets all of its needs, Karmann's IT team has developed a number of applications. One of these is the company's sophisticated production planning system, which covers supply chain aspects such as contracts, purchasing, and parts logistics. This system makes use of CICS and VSAM data on the IBM 9672. Its programming language is *Communication Program Generator* (*CPG*), developed by Lattwein GmbH of Düren, Germany.

Accessing CICS data via web browsers

As with enterprises everywhere, the rising use of PCs at Karmann brought requirements for graphical user interfaces for host data and for data downloads to PCs. The IT team has met these requirements by exploiting *NetPage*, part of CPG Level 5. NetPage is an HTML generator for web applications that can exploit all of the standard functions supported by browsers (frames, radio buttons, and so on).

Access to host data uses a three-tier setup. With NetPage, HTML pages are built on Microsoft Windows and made available via an NT web server. When a browser calls a page, the web server uses APPC (Advanced Program-to-Program Communication) to connect to CICS at the S/390 host.

At the host, data is collected, and a CICS program controls what is returned to the browser and in which format. Data can be shown, for example, as plain text or an HTML table. The browser also can be instructed to launch an office application and put the data in a spreadsheet or word processing document.

Two sample browser screens are on the next page. In the one on the left, users define the range of the data they want to see and its format. The screen on the right shows host VSAM data that has been analyzed. Graphics used in such screens are stored on the web server.

Convertibles Made by Karmann
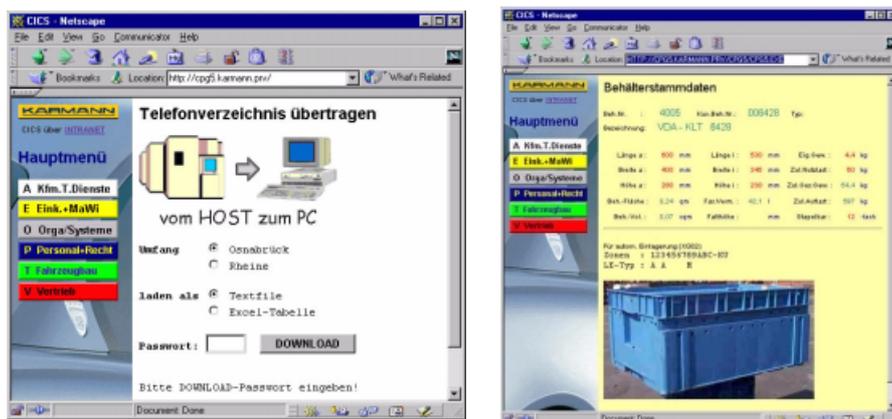
Sample Browser Screens

Linking CICS to relational databases

The next step in connecting Karmann's employees to its business data was to link CICS on the S/390 host with relational databases on other servers. Specifically, this meant Oracle running on an RS/6000 SP2 with AIX. For this, the IT team again exploited functions from CPG and a multi-tier configuration.

❑ In CPG programs on the host, application developers can use commands like READ, WRITE, UPDATE, or DELETE to access other database systems such as Oracle. These commands are stored in a data set and filled with variables during runtime.

❑ An NT server between the S/390 host and the RS/6000 connects with the host via APPC (Advanced Program-to-Program Communication). On the other side, it uses ODBC (Open Database Connectivity) to interact with the Oracle database.

This type of configuration makes it possible to connect to any database system that has an ODBC interface. To make things simpler, however, Karmann and Lattwein currently are working on a project to connect CICS and Oracle directly and thus make the NT server unnecessary.

Benefits for all

These recent actions at Karmann have been beneficial for everyone involved. For PC users, host-based data is much more accessible, and it's easier to "mine" valuable information from it. Thus they can do their work more efficiently, more effectively.

Karmann's IT team also has benefited. For example:

❑ Browser functionality means that application developers don't have to worry about every detail of data presentation. Functions like scrolling a displayed page, character font size, or going back to a previous page are standard with browsers.

❑ Writing programs that download data via a browser is much easier than before, because fewer interfaces are involved. In general, programmers only have to deal with copying data and then making a link in an HTML page.

❑ Direct exchange of data between CICS and PCs is possible using another tool available with CPG Level 5. An additional server for this is not required.

As Walter Manemann, IT Project Manager at Karmann comments, *"Although it sounds a little crazy, creating pages with NetPage and using CPG Level 5 is so easy that it's actually fun to do the programming! And not being forced to change our databases in order to provide new views of their data helped us keep our development costs within our budget."*

Finally, Karmann did not have to abandon its previous IT investments in order to provide this enhanced support. Instead, the company chose to build upon those investments, making them an even more valuable asset in the pursuit of its business goals.
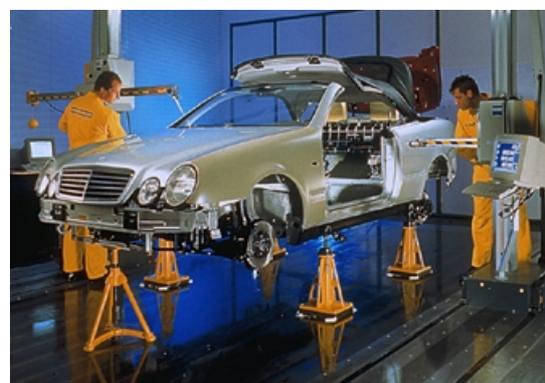
Additional information

For information about Wilhelm Karmann GmbH, visit:
    www.karmann.com

Lattwein GmbH has its home page (in German and English) at:
    www.lattwein.de

The home pages for VSE/ESA and CICS are:

❑ **ibm.com**/s390/vse

❑ **ibm.com**/software/ts/cics

Walter Manemann
IT Project Manager
Wilhelm Karmann GmbH
wmanemann@karmann.com

Hans Joachim Ebert
S/390 Technical Support VM/VSE
IBM Munich
eberthj@de.ibm.com