

Issue 11

Volume 2003, Issue 11

25th February 2003



Success story Medea3

The Fast Lane to Knowledge Innovative web-based document delivery system

The Internet has a lot to offer, but miracles seldom happen. If you are looking for a specific scientific paper, you quickly reach its limits and have to go back to the classical sources of libraries or archives. But then the problems often start, with cumbersome ordering procedures and long waits. Not so in North-Rhine-Westphalia (NRW). There, an unparalleled ImageWare Components Medea3 net-based document delivery system has been implemented under the project management of the HBZ (high-school libraries center).

If you look up the ancient Greek mythology, Medea is not normally associated with speed or knowledge, but rather with sorcery. And from the point of view of the users, the Medea3 project has got something to do with witchcraft - with the magic of speed.

Greek mythology does not only have good things to say about Medea herself. Suffice it to say that the daughter of Aeëtes king of Colchis, endowed with magical powers, stole the Golden Fleece with JASON and the other Argonauts, and after that was noted for other misdemeanors. It was more her magical powers as a sorceress that gave rise to the name for the Medea project.

JASON & Medea

As a result, an association of NRW universities started the JASON project in 1994 with the goal of automating the ordering process as far as possible. Medea came into play as the main delivery and reception component. In 1995 the JASON / Medea document ordering and delivery system went into production. A researcher first looked for an article in the JASON database (periodical titles database) in his own university or college and could then issue the order with a hotkey.

And since the name of one of her husbands, JASON, is a good acronym for "Journal Articles Sent On demaNd", the name of the main project can be explained, and the link between ancient Greek mythology and the digital present made.

In the past, nothing seemed like magic if a student needed to read an article from a journal that was not immediately available. Patience was needed. After submitting an order on a handwritten slip at the university, three, four, even eight weeks could pass before a copy of the article was in the hands of the student. Of course a lot has changed in the meantime and a number of projects were started to take the step into the digital age.

In North-Rhine-Westphalia a plan existed years ago to acquire a digital library. A part of the plan had the goal of using computers to accelerate the ordering process for copies of journal articles, called "non-returnable documents" in librarians' jargon.

The initiative started in the university library of Dortmund University and of UB Bielefeld, where they started thinking about the problems of electronic ordering and delivery systems as early as 1993.

The success of the system was phenomenal. Soon, 30 percent of orders could be delivered within 24 hours and 60 percent within 48 hours - a quantum leap compared to the previous situation. Medea in the first version already helped the suppliers cut costs and significantly raised customer satisfaction. This was not only a question of delivery time, but also of completeness. Today, over a million journal titles can be researched in JASON and about 172 000 can be ordered through the system.



Medea3

But there were still unfulfilled needs. For example the system ran under DOS. Another problem was that the orders were not stored after they had been processed, and this was not only a disadvantage when dealing with complaints. As it was not a central system, all libraries had extra effort for the installation and administration of the Medea workstations. The documents were only delivered in TIFF format. And the effort for producing statistics as the basis for billing and other purposes was very high.

The next step forward could only be achieved with a central delivery and reception system, flexible in use and fitted with modern technology. Medea3 is designed in this way.

A team made up of members from HBZ in Cologne (customer and project management), Dortmund university library and ImageWare Components GmbH in Bonn (supplier), supplemented with partners from Bielefeld university library and the Rhine State Library in Koblenz,

produced the concept including the migration from Medea2.

The state of North-Rhine-Westphalia subsidized the project and it was approved in the autumn of 2000. The detailed design was ready by the end of 2000 and pilot operation began in the first quarter of 2001.

The main component of Medea3 is a central database server running at HBZ, which collects all article orders. Access to the order data is by a central web application, which allows all associated libraries to view, forward or reject pending orders. The orders are fulfilled by local scan clients fitted with a PC, a scanner and the BCS-2 capturing software.

Special print program

Apart from the scan environment, every library has a special print program for printing cover sheets, collection orders for the library and red loan slips. The program fetches the documents to be printed automatically from a central FTP server in the HBZ, which is also a component of Medea3. This server acts as an intermediate storage.

First all the scanned images from the supplying library are stored there. Then Medea3 does the conversion to PDF format if required, and moves the PDF documents to the delivery directory, which is automatically processed at regular intervals by the print program in the receiving library.

www.hbz-nrw.de
www.inetbib.de
www.imageware.de

Difficulties of Scanning

Where previously, in conventional loan procedures, articles were copied from journals, today the replication is done by a scan process in Medea. Originally only flatbed scanners were used. As long as the journals were thin and the scan personnel were highly motivated, the scan quality was acceptable. But of course it was not like that in practice. If the journal was not laid straight on the scanner, information was lost (missing lines etc.). A further problem was posed by articles in journals, which were only available in thick annual binders. Not only were they difficult to handle when turning the pages, but the scan quality also suffered in the central binding area depending on the thickness of the volume.

Possible variants

Practice shows that scanning is not always the same. Libraries in particular have installed a series of scanning applications over the last few years, for example electronic delivery systems and remote lending, retrospective digitizing of catalogues and many others. There is a high degree of diversity in hardware and software components. There are at least five types of PC with different graphics cards, with or without SCSI, and with different firmware.

There are often four or five operating systems in use, at least as many scanner adapter boards and of course several different makes of scanner with different scanner drivers, and, user-friendly as things are, many variants of scan clients. One very quickly has over a hundred thousand (!) possible variants to deal with.

Overhead scanner

It is therefore not surprising that the 2000 professional scanners that are in use in libraries are all configured differently. Statistically, every library could have a unique installation, and this reflects the situation in practice quite well, resulting in more organizational effort and cost. Everything is compatible on paper, but only on paper. And for real plug-and-play you had to call on the real Medea, because she could do magic, but unfortunately, she is no longer operating.

As a result of these considerations and practical experience with flat-bed scanners during Medea, the Dortmund university library started looking at the use of overhead scanners as early as 1997. They are fast and have features like correction software (automatic book-fold correction), which assures high quality when scanning very thick volumes like journals or books. They also have easier handling, as the volume does not have to be picked up to turn the pages.

With ImageWare Components GmbH the technical trendsetter was brought on board.

Bookeye® overhead document scanners were used. The scan system software BCS-2 also supports TWAIN/ISIS scanners. It can be operated in single scan mode (for test scans) or in scan order mode, where several pages are gathered into a logical unit for printing or automatic delivery by e-mail or FTP.

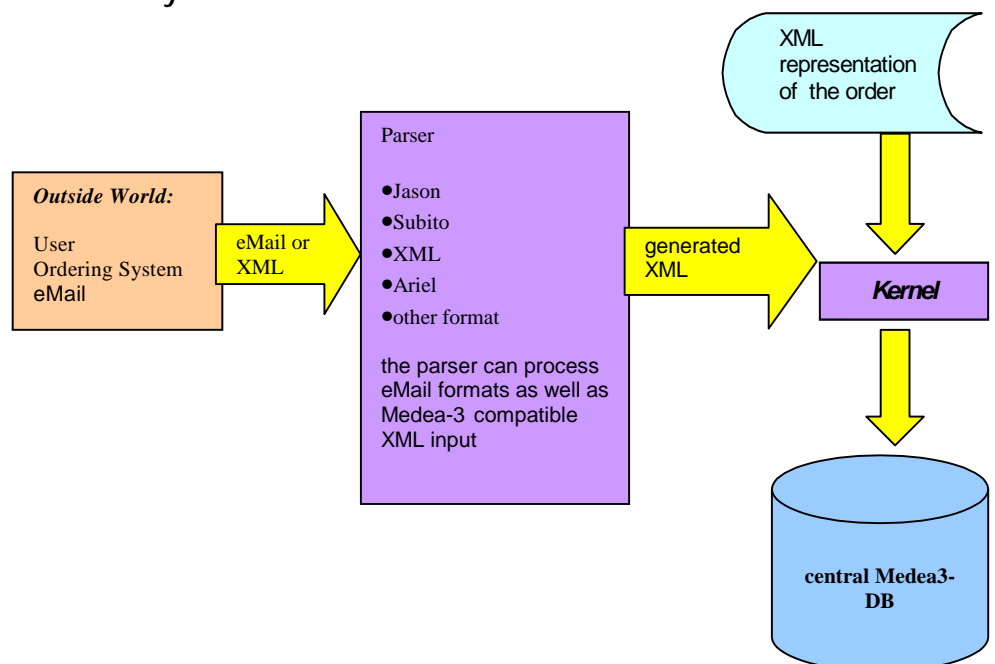
An important fact that has been shown by experience is: the scan quality depends on the motivation of the scan personnel, and customer satisfaction depends to a large extent on the scan quality.

Benefits

Today, the users of the HBZ's electronic delivery system profit from improvements in quality and time. The associated universities, colleges and other institutions have already gained significant cost and capacity advantages from the central organization (at HBZ) Medea3 is very user-friendly. It is available as a web client and the system will have open interfaces.

Orders can not only be entered via the Internet but also by other systems (if the necessary conditions of use are fulfilled). Various delivery methods are offered to the researcher. He can receive the ordered documents via e-mail (home computer), post, fax, FTP (file transfer protocol), web, print and collection at the local library.

Medea3 System overview



Flexible Processes

The procedure is very simple, and defined but flexible processes run in the system:

- the researcher uses JASON (central journal title database) and starts the order
 - the e-mail order from the ordering system arrives at the Medea3 mail server
 - the mail is collected by Medea3 via POP3, checked and converted to XML
 - if error free: the order is written to the database; mail with errors: forwarded to the administrator or postmaster
 - librarian logs in, checks the order, prints the cover sheets
 - librarian fetches the journal (or book) and scans at the scan station
 - data are transferred to FTP storage
 - a background process communicates with the FTP storage and the database and performs the delivery (e-mail, FTP upload, etc.)
- Special Cases**
- 1: Journal (book) not available ⇒ order is forwarded to next library
 - 2: Order not possible due to wrong bibliographic data ⇒ order is rejected by mail or post
 - 3: Even the last possible supplier library cannot fulfill the otherwise correct order ⇒ the order is forwarded to the conventional loan process and the researcher informed as in 2.

Outlook

The Medea3 delivery and reception system already sets new standards in speed and customer satisfaction today

A further aspect of the system lies in its extension, with new co-operations and associates.

Special interfaces are being developed for this, for example to communicate with the common library association in Göttingen, which will enable faster access to even larger stocks.

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Imprint

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System Components of Medea 3

Central Medea3 Server

- Sun/Solaris
- Oracle 8i Database Server (central data storage)
- Apache Web Server with PHP extension
- Medea3 PHP scripts

Medea3 Client

- Internet Browser

Scan Client

- BCS2 (Bookeye Capturing System 2)

Print Client

- m3_print.exe, GhostScript

