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Picture Replacement Techniques for Newspapers

Handling large image files demands a lot of capacity from the workstations and network. Increasing the performance of both has been a constant demand for newspapers during the last years. IFRA has published this report to find out what kind of benefits picture replacement techniques bring in terms of productivity and process control and what would the possible limitations be.

Picture replacement, also called OPI (Open Prepress Interface) as Aldus originally named it, means creating a low resolution file of the high resolution file in an OPI server. The low resolution file is sent to the page make-up workstation. There the image is positioned, cropped and sized, and the instructions are stored as OPI comments. During output, the OPI server processes the high resolution image using the comments received from the make-up workstation and inserts it into the final page.

This kind of workflow reduces the release times of the workstations remarkably making it possible to keep more pages and advertisements open close to the deadline. Also, proofing and page transmission to remote printing plants become more fluent. Since the OPI server functions as a node inside the network, process control features have been added as well,

In the project, carried out by The Technical Research Centre of Finland, in addition to the technical factors of picture replacement, case studies from seven different newspapers were included to gather their experiences from practical work.

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1. Introduction

Open Prepress Interface (OPI) was originally developed by Aldus for the exchange of picture files between the DTP page make-up program and the traditional high-end colour system. This interface uses PostScript comment lines, giving them a new significance. Using the OPI, a low-resolution view file of the high-resolution picture, which has been saved in the colour system can be positioned at the DTP workstation. The pages are then returned to the colour system for output. The colour system automatically inserts the high-resolution picture files in the page according to the OPI comments.

OPI has subsequently lent its name to the so-called OPI server solutions. The OPI server software generates a low-res view file for the page make-up application. The high-res picture remains in the server near the RIP, while the user works with the low-res version. In the output, the OPI comments are automatically replaced by the high-res picture in the server. Now that there is less transfer of high-res picture files in the network, the process of page make-up can be accelerated substantially. Until now OPI server solutions have been developed mainly by manufacturers of output systems. More recently also some vendors of newspaper prepress systems have announced that they are adding the picture replacement function to their databases.

Most of the currently marketed OPI server systems conform to the OPI developed by Aldus. But as this requires that the page make-up program is compatible with the OPI, many developers of OPI server software have extended their OPI specifications so that the page make-up application program does not have to know how to add the OPI comments to the output file.

With the adoption of totally electronic page make-up in newspaper page production, the number of picture files to be processed is usually so large that the OPI or picture replacement, as it can be called in more general terms, is the only practical solution. The file size depends on the image size, and resolution, and the colour pictures files are, of course, three or four times larger than the monochrome files. In other words, the larger the picture files, the greater the need for picture replacement.

The project has been carried out as a commission of IFRA (INCA-FIEJ Research Association) and the Scandinavian Newspaper Technical Council (NATS) at the Graphic Arts Laboratory of the Technical Research Centre of Finland (VTT/GRA). The report was written by Ms Hannele Antikainen, MSc, Research Scientist.

The project was conducted by a project group with the following members:

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We would like to express our thanks to the members of the working group for their valuable comments and advice, as well as the representatives of the newspapers studied, for their time and interest during the project.

2. Trends in Newspaper Page Production

The tendency in the page production of newspapers is away from overlapping jobs, which means that the traditional production department with text and picture processing is disappearing. The production department is gradually turning into a unit, which handles page output, the printing and distribution of the newspaper, and the entire circulation. The editorial room now assumes overall responsibility for page production, while at the same time changing over to totally electronic page make-up.

Correspondingly, the handling of advertisements is being moved from the traditional production department to the advertisement department, integrating the entry and processing of advertisements. This development is accelerated by cost and efficiency considerations. The new prepress organisation aims at a faster throughput and extended deadlines, to satisfy the readers who demand the latest news.

While the work load is reduced in the production department, some additional resources are needed for technical support to help with hardware and software problems, to advise the staff in prepress, and to assist advertisers with the handling of advertisements, in order to transmit them, without any problems, electronically to the prepress department of the newspaper.

Picture replacement techniques successfully support electronic page make-up, making it possible to speed up page production. The OPI server actually integrates the different elements of the page. This requires that the OPI server contains the production database or has access to that database. The elements of the page are sent to this database as soon as they are ready. The final page is pulled together at the output. In spite of the picture

placement function, manual work may be needed, because the advertisements — especially the large ones — which come in as colour separations or paste-ups may have to be assembled on the pages manually.

As result of the increasing colour requirements of newspapers, there are now more printing units than before. This in turn could mean that the investment costs of a printing press should be shared by more newspapers. This development also increases the electronic transmission of newspaper pages. The change to remote printing is also supported by the lower costs and the earlier delivery of the newspapers.

The so-called "remote OPI" uses public or private telecommunication networks, offering a relatively low-cost way of transmitting pages to the printing plant. In this case, there is an OPI server in the prepress department and at the printing plant where the pages are output and printed. In the near future, advertisers may send their advertisements through the public data networks directly to the prepress database from where it can be passed to the OPI server. The development of telecommunications, especially the introduction of the digital telecommunication network, ISDN, will speed up the transmission of material in electronic form.

3. Functional Properties

3.1 OPI Servers

The OPI server solutions are of the client-server type, using page make-up workstations, such as Macintoshes, PCs and Unix-based workstations, as clients. The same Macintosh and PC workstations can also function as OPI servers, although the more efficient Unix workstations have gained more ground recently. A software OPI which can be installed on a selected platform has advantages from the user's point of view. He can choose the platform which best fits into his prepress environment. The server which runs the OPI application usually takes care of page spooling and routes the pages to RIPs or RIP queues. In most cases, these applications are sold as separate programs. Also, the ripping of the pages can be done by the same server which handles the picture replacement functions.

Work Flow

In the OPI server solution, the high-res picture data — monochrome or colour — is first stored in the memory of the OPI server (Figure 1). The picture normally comes for storage from a picture processing system where it has been made ready for output. At this stage, the pictures may have the right size and cropping, but these tasks can also be carried out in page make-up.

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