TECHNOLOGY AND PAGINATION:

Integrating the *New* into Your Newsroom

SOCIETY FOR NEWS DESIGN & AMERICAN SOCIETY OF NEWSPAPER EDITORS

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SND

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Forward

Over the past 10 years, technology has completely changed the way newsrooms operate. Newsroom managers, copy editors, designers, reporters, photographers and readers have all found these changes overwhelming. Computers have given us the ability to do amazing things graphically, to control the design and content of pages and to do research in minutes that would have taken hours, days or even weeks before the advent of the Internet.

But many of us find ourselves working in newsrooms where computer networks and output devices were purchased piecemeal and wired together in ways that are cumbersome, inefficient and frustrating. We find ourselves struggling to meet deadlines with too few copy editors because pagination brought more work but no more people. We find ourselves trying to figure out how to redesign our workflow around new equipment instead of the other way around.

Editors are caught in bewildering discussions with systems and accounting departments as they try to figure out what they need and how to justify it. They face angry staff members frustrated by inadequate training on new equipment that changed their routine and often brought new tasks.

This manual has been designed to help editors cope, whether they are responsible for choosing new equipment or will have it chosen for them by a corporate or in-house systems department, and whether their entire newsroom front-end system is being replaced or just some portion of it. It is not intended as a one-size-fits-all solution to technology and pagination, but rather as a guide to help editors ask the right questions. It is a workbook, not a textbook. Users can pick and choose the chapters that will be helpful to them.

In it you'll find advice from some of the best people in the industry on how to choose, purchase and integrate new technology and equipment into your newsroom, and how to plan a redesign for your newly produced pages.

Olivia Casey
Chair, SND Technology Committee
Joy Franklin
Chair, ASNE Small Newspapers Committee

Preparations

The Technology Committee
A newspaper necessity

Anne Saul
News Systems Editor, Gannett Co. Inc.

Every newspaper should have a technology committee, regardless of whether you are planning to incorporate a new system or are just keeping up with existing operations.

Newspaper technology has changed much in the past 5 or 10 years and will continue to do so. In 1991, newsrooms installed the AP Leaf electronic photo desk system. PCs were upgraded to Windows. The advertising department now composes display ads on Macs.

While none of these were large projects, all affected the newspaper's technology setup — particularly networks and the people who have to support the systems. Therefore, it is necessary for a committee that represents all newspaper departments to keep track of what is happening in the area of technology — at the newspaper and in the industry.

Who should be on the committee?

There should be a representative from each department: news, production, systems, advertising and marketing. This ensures that every department is aware of what is happening in other departments. For example, if Advertising adds new Macs to compose digitized display ads, Systems needs to know how this will affect the existing network. At small papers with limited resources, the newsroom may be able to use these Macs at night.

In addition, technology committee members can share what their departments have learned about various software and systems.

When should the committee meet?

Representatives should meet at least monthly and always regularly. During the installation of a new major system, the committee should meet at least weekly. At other times, l ess often would be fine. The meetings need not be long and might simply be an opportunity for members to update the others on what their departments are doing.

Don't assume that what your department is doing is not of interest or value to others. The News representative might have discovered a new Quark extension or heard that a new version of Photoshop is about to be released; this information is valuable if Marketing uses Quark or if Production and Advertising use Photoshop.

For what should committee members be responsible?

Assign each member of the committee to a specific task. This is particularly important if the newspaper is proposing a new editorial front-end, pagination or classified system.

One member should investigate trade shows and on-site demos and should visit newspapers that use systems you're interested in. Another member should determine your newspaper's requirements for a classified system; other members should do the same for news editorial and news pagination systems. Another should investigate what's new in networks.

If you're not shopping for a new major system, each member should keep track of what's new in his or her particular area of expertise — the new versions of a particular type of software that your newspaper already uses, for example.

Each member should provide a brief report at the meetings.

◆

The Newsroom Flow Chart

Who does what

Heidi de Laubenfels
Newsroom Systems Project Manager, The Seattle Times

When it comes to pagination, only one thing is sure: The way you used to put the newspaper together just won't cut it anymore.

One of the most important parts of paginating a newspaper is re-evaluating who does what. If you were manually composed before, paginating means you no longer need knife-wielding printers in the composing room to put your pages together. But it doesn't mean the work they did goes away — it just gets redistributed, usually to newsroom staffers who may have grown accustomed to loosely sketching a layout on paper and handing it off to someone else.

As you begin to analyze your work flow and decide how it should change, you should be sure and consider the following things:

How has your company defined "pagination"?

Is everyone of the same mind? Does the publisher have the same expectations that the advertising, circulation, prepress and news departments have? Leaders of all these departments need to get together and discuss their goals. Does pagination mean every page gets typeset as a negative, or even as a plate? Will completed pages be sent directly to a remote printing plant? If so, how does this change deadlines across the board?

Who currently decides what stories go on which pages?

If the people making those decisions are also designing the pages, you'll probably need to rethink that. Most sites find it useful to allocate that responsibility to one

or two people — usually news editors — and let designers focus on putting the pages together rather than booking sections.

Whose hands are the last to handle pages on deadline?

Does this happen in the composing room? If so, printers are probably looking after ads and making sure they're on the pages. You'll need to decide whether this responsibility should move to the newsroom. If it does, do you want news editors to have to worry about ads?

(See below for more on advertising issues.)

Who currently tracks page flow?

If it's the composing room, you'll need to decide whether that should continue to be true and whether the newsroom should also keep a list. Typesetting complete pages can cause quite a deadline bottleneck unless you have a page-flow structure in place.

(See below for more on evaluating deadlines and forming a page flow chart.)

How will you track page elements (ads, photos, graphics, stories)?

Do you have an electronic process for tracking ads and their component parts? How do you know when photos and text are ready for production? You'll need to develop some process for monitoring the progress of all these elements in order to keep pages moving on time.

Is anyone in the newsroom currently reading page proofs before the press starts?

If not, that's a step you'll need to add to the process. Paginating usually means sending pages direct to negative, which means no one sees the whole, completed page unless a proof is made.

Who will be responsible for making these proofs, reading them and then making associated fixes? How many proofing devices will you have, and how fast can they pump out pages on deadline? Do you need to see proofs in color, or just black and white? Do you need to see them at full size, or would 75 percent do the job? Who is responsible for maintaining (replacing ink, loading paper, fixing jams) the proofers — newsroom personnel or information services? How does the need to make page proofs change deadlines all the way up the line?

Speaking of deadlines, you'll need to re-evaluate yours, all the way through the process. Start with figuring out how long it takes a finished page to emerge from an imagesetter after it's been typeset by a designer. Then count how many pages you should have to send by a given deadline to make the press start. This will tell you when the first page would have to be sent — and in what time increments others should be sent, such as one every two minutes — to make deadline. Then establish deadlines for photos, graphics and stories accordingly, to make sure designers have time to assem-

ble pages and editors have time to edit copy before their deadline.

You may need to consider bolstering your copy-editing staff to more quickly move news stories through the pipe on deadline. Organized story flow is imperative, but not always possible when you're talking about breaking news.

Who is currently laying out your pages?

Do you have editors in separate departments — who answer to various department heads — working in separate universes? Are the page designers also expected to edit copy and write headlines? Are they people who've never used a computer before, especially to design newspaper pages? How interested in and adept are they at using technology? Will the page-design software they'll be using require agility with any other applications, such as Adobe Photoshop and QuarkXPress?

You may need to consider consolidating page design into one department. This allows one supervisor to schedule work and cover shifts more efficiently. It also lets you maximize workstations by scheduling morning shifts and evening shifts at shared computers. Moreover, it improves consistency in the newspaper's design, allows users to support one another and answer each other's questions, and gives their supervisor an easy way to dispense information about procedural changes, software upgrades and technical issues. There will be a LOT of this information to dispense.

How many people in the newsroom are currently designing pages?

You will absolutely need more. How many more is something you need to evaluate at your own site. Variables include the complexity of the pagination software, the kinds of people you intend to train (and do they have any computer experience?), the number of pages you will produce and how formatted those pages are.

Have a designer produce a whole section and gauge how long it takes. Will you need two people where you only needed one before? One and a half?

How does copy currently flow through your newsroom?

Do slot people or designers send stories directly to individual copy editors, or do they dip into a community pool of stories? Do copy desk chiefs typeset finished stories for paste-up? How will they indicate to designers that stories have been edited and are ready for output on pages?

You might set up a system in which finished stories generate an automatic message to designers when they're moved into a specific "done" basket. Then appoint someone (or a group of people) to monitor that basket and finish pages as stories move into it.

How are you currently getting ads into the newspaper?

Are you receiving camera-ready Veloxes? Supplied film? How many ads are you receiving as digital files? How many ads is your staff scanning? How late are you willing

to accept ads for the next day's newspaper? Who is responsible for making up the paper's ad stacks? What hours do they work?

You'll probably need to develop a department to work with advertisers on supplying digital files. The more ads you receive this way, the fewer you'll have to scan at the paper. And the more ads you have to scan, the more people and equipment you'll have to have to have on hand. You're also likely to need to bolster your ad-makeup department.

If you accept late ads — as most newspapers do — you'll need to have people there around the clock to remake electronic ad stacks as needed. And, of course, you'll need to make sure you've purchased software to reserve ads on pages and make sure it works with your billing system.

How are you currently getting photos into the newspaper?

Who is doing the scanning — the photo staff or engravers? Where are digital files being stored, if at all? How do designers size and crop photos and get them onto pages? Who does this cropping? Who tones the photos and prepares them for the press? How are photos stored after they're used?

You'll need to arrange a way to get your photos into digital format as soon as possible, then store them in a common location. You'll need to develop a method of communication between photo, design and prepress. You'll also want to develop a naming convention to help keep track of files, particularly if you use a lot of photos each day.

(See the next chapter for details on photo flow.)

How are you currently getting graphics into the newspaper?

Are artists creating them, then printing out separations to be shot on a camera? If so, they'll be able to eliminate that step. But instead, they'll have to prepare the files.

Does your new system or OPI — Open Prepress Interface — server require a certain format, such as DCS or EPS? Does it tolerate extraneous space around the graphic, or do artists need to resize the document so the graphic fits snugly within its boundaries? Where are standing graphics stored? Should they continue to be stores in this location and format? Who archives and manages the graphics database?

Artists may suddenly need to spend more time preparing files and troubleshooting Postscript output problems. You may need to consider buying software to automate some of this "preflight" work, or consider appointing a specific person to monitor this file preparation and work on fixing problems, not to mention archiving graphics and managing those files.

How do you currently get stock tables into the newspaper?

If this process isn't already somewhat automatic, it'll need to be. Who will be responsible for assembling stocks and making sure they get onto pages? Can this person take on more tasks, once you have macros in place to format the charts?

Do you currently have editors in the composing room, making last-minute fixes and directing printers?

If so, how will this role change when the composing room goes away? You might want to put these people at the end of the electronic page-production process — to give pages a look on the computer screen, make proofs of the pages, help read the proofs and make fixes.

Who is looking after newsroom technology?

Who loads software, answers desperate calls on deadline when computers crash, and manages upgrades? Who handles training for software users?

Pagination dramatically increases the technical complexity of page production. You absolutely MUST make sure you have the technical support to build pages (and all their associated elements) electronically. If you don't already have some staffers in the newsroom devoted to system support, you should consider appointing some before you paginate.

Extensive training is imperative. Nothing will kill morale faster than throwing complex software at users, then neither training them well enough to use it nor providing them with help when it breaks.

Remember, this is a dynamic process

You'll try one staffing structure, then change it. You should absolutely have a plan going in — How many designers will you need? How many editors? How many workstations? — but be willing to adjust it as time goes by.

At The Denver Post, we've done a good deal of learning by doing. No matter how much testing you do ahead of time, when you're finally on deadline with a paginated page, you'll discover some problems for the first time.

By paginating preprint news sections, for example, we realized we needed two people on staggered shifts to handle the load. One starts the dozen or so pages early in the day, then the other finishes the pages much later, after the daily paper is out of the way and editors have had time to resume reading the preprint copy, which goes to press later. When these sections were manually composed, the designer sent copy out to be read, then printers in the composing room finished the job by pasting up the stories later that night. Not so anymore.

Above all, enjoy the positives in this experience. It's difficult — but exciting. Everyone's challenged by this change, and all are learning something new. Re-evaluating your work flow gives you the opportunity to move people into jobs that may suit them better than the ones they were doing before. And it gives you a chance to add new people to your newsroom. It's a growing process that affects everyone in the newsroom — and throughout the paper.

◆

Notes

The Photo Flow Chart
Developing the details

Tony Ranze

Director of Photography/Photo Coordinator,
New York Times Regional Newspaper Group

As daily newspapers switch to desktop publishing, you must make decisions about the handling of news photographs before making a major commitment to a pagination system.

One of the first steps when considering a pagination system is developing a photo flow chart. This chart details how photos will move from the camera to the electronic page, then onto the film that will eventually be burned to the printing plate.

The proofing system

You must decide at this preliminary stage whether or not to use a proofing system to allow images to move from desk to desk. For example, how will a local news photo get to a city editor to be matched with a story before moving to a layout desk?

While proofs are valuable, it is a mistake to lock up photo technology in the photo department. Section-front photos should be selected by editors looking at color monitors, not at black-and-white proofs. Smaller newspapers may be tempted to cut costs and use proofs at this stage, but keep in mind that editing color photos from black-and-white proofs is a step backward from editing an old-fashioned color print or slide.

The electronic darkroom

With pagination, every photo — from a handout wedding photo to an AP news photo — must be entered into an electronic darkroom. Staff photos are best handled by the staff photographer, who can do the scanning, identify the subjects and write captions. Photos with captions that include important key words can easily be added to an electronic photo archive.

Image technicians — people trained in handling digital photos — can also be used to handle handout photos, AP photos or old library photos. By having image technicians do this work, photographers can be out on the streets taking photos.

Additionally, you should make this critical judgment early in the decision process: Who will be the last person to adjust the image? Image technicians are best for this and are perfect for opening RGB color files and converting them to CMYK files needed for pagination. After each image is converted to CMYK and sized, it then must be placed in a page or an OPI server. Standards for file sizes and types are a must for all pagination systems.

Really good pagination systems also can read the caption information that the photographer places on the scanned photo. A photo without a caption is worthless and dangerous for a newspaper because it increases the possibility of putting a wrong image into print.

Image management and photo flow are extremely important. You need to know a photo's location during every stage of the process; file servers, backups and photo archives are just a few places where a digital image could wind up. You do not want an important image on an editor's hard drive, inaccessible to the people who need it to remake a page.

Scanning exclusivity

It is best that photo-scanning stations be used exclusively for photos. If equipment is shared, even the best computers, film scanners and flatbed scanners probably won't save your photo staff much time. At many small papers, photographers end up wasting time and waiting long periods to use a scanning station. The last thing any newspaper needs is to lose shooting time while photographers wait for a computer.

Finally, in planning your photo flow plan, remember that photos are going to be the largest files moved at your newspaper. Equipment that ensures speed, accuracy and dependability is a must for photo departments. Spend the money necessary to get suitable equipment.

◆

Deciding what you want

The Front-end System

Complete a thorough checklist

Ed Pieratt

Director of Technology, E.W. *Scripps Co.*

ASNE *recommends newspapers complete this checklist before purchasing a new editorial front-end system.*

Affirm the following aspects of any front-end system you are contemplating:

◆Platform and system

—Platform:
UNIX, NT, OS2 or Macintosh?

—Cross platform support?

—Support for third-party software?

—Store EPS or native files (Photoshop, Freehand) in the same database, import them for pagination and track them?

—Maintain and update system administration and user information from any workstation?

—Integrate off-the-shelf software (writing, editing, imaging and pagination) or the existing proprietary system?

—PostScript output language?

—Y2K compliant (if purchased before Jan. 1, 2000)?

—HTML output?
—Track page and element status through the entire editorial process?
—Allow use of third-party software for booking and tracking?

◆Database

—Open database compliant (ODBC)?
—Relational or flat file?
—Directories or file folders for different users?
—Automatic routing?
—Monitors and tracks the status of layouts, articles and photos through the entire process?
—Is the following header info kept with each file for tracking:
Date/time file is created?
Date/time file is changed?
Who made changes?
Database location?
Depth and width?
Page and section?
Run date?
Edition?
User-configurable fields?
—Does it have the following purging options:
Specified by each folder name?
Purge by creation date/time?
Purge by edition?
Purge by run date?
Purge by last edit date/time?

◆Display and editing options

—Ability to attach to notes to story that do not print?
—Edit/check options that show user original story with markup of changes from earlier version?
—Do editors have WYSIWYG?
—Split screen so user can have two stories displayed on screen at once, side by side, with ability to edit both and move text

back and forth between them?
—Search and replace text?
—Spell check with custom dictionaries?
—Append files?
—Move portions of one file to another?
—See who has a story open for editing or as a read-only file?
—Rename a story and leave an audit trail to the new file?
—Original story stays intact?
—Display overset of headlines or copy?
—Auto-fit headlines and story depths?
—Hyphenate and justify files or portions of files?
—Undo H&J?
—Print a file or portion of a file?

◆Various ways of listing files within a folder

—Long listing, showing header info and specified number of lines displayed?
—Medium listing, showing header info and one line of text?
—Short listing, showing name and creator or whatever header info desired?
—Ability to take in wire stories to specific queues, selecting criteria in a wire table?

◆Reporting generation of files using any of the header fields

—Can create specific reports on the fly?
—Spreadsheet-like interface to manage info about layouts, articles and photos?
—Display, export and print custom reports about layouts, articles and photos based on info stored in their headers?
—Report on status and workflow by section, edition or status (proofed, not proofed)?

◆Library

—Headline included with text sent to library?
—Fields set up to sort for:
Page?
Section?

Edition?
Date?
Headline?
Byline?
File name?
Publication name?

—Inch count comes with story when imported to library?

—Transmit stories to third-party electronic info providers or wire services (i.e., Lexis-Nexis, VU/Text)?

◆Images and graphics

—Store photos and graphics in the database? (If not, are links provided to photos and graphics?)

—Attach cutlines to images?

—Transfer cutlines to library system?

◆Security on file folders providing access

—Password-based multilevel security for individuals and groups of users?

—Read-only access by user?

—Read-and-change access by user?

—Can audit trail of all changes made to file?

◆Pagination

—Automatically create folio with date and specified info?

—Can create more than one edition or publication from the database?

—Place different edits of the same story in more than one edition?

—Compatible with third-party pagination products (i.e., QuarkXPress)?

—Support for importing electronic dummies from booking system?

◆Wire

—Support incoming wire/modem transmissions?

—Allow stories to be sorted by header?

—Allow searches by dateline, author, slug?

—Allow complex searches (i.e., is Clinton but not Hillary)?
—Display story length?
—Adjust views for browsing stories (first two lines, first paragraph, etc.)?
—Can send stories from editorial front-end system to wire service or via modem?

◆Support

—24-7 telephone support?
—Dial-up diagnostics from vendor?
—Maintenance contract includes software upgrades?

◆Miscellaneous

—Send a message, which includes a display that gives a choice of reading now or later, to user or group of users?
—Message alert automatically pops up on screen?

◆

Notes

Defining Pagination

Not reinventing the wheel

Tom Coleman
Manager of Graphics Technology Services, New York Times Regional Newspaper Group

Bridge Keeper: *Stop! What is your name?*
Arthur: *It is Arthur, King of the Britons.*
Bridge Keeper: *What is your quest?*
Arthur: *To seek the Holy Grail.*
Bridge Keeper: *What is the air-speed velocity of an unladen swallow?*
Arthur: *What do you mean? An African or European swallow?*

— Monty Python and the Holy Grail

Now then, just substitute the word "pagination" for "the Holy Grail" and the whole passage makes perfectly good sense. Anyone who has been on the journey seeking the elusive pagination process knows the road is fraught with peril and missteps.

Oh, the missteps. One of the greatest missteps is attempting to define pagination. We all know what it is; we just can't explain it.

At a Society for News Design seminar a few years ago, one of the many pagination panels I attended was attempting to define pagination by soliciting input from the SND members gathered there.

Among their answers were:

"Pagination is the ability to manipulate newspaper page elements with a computer."

"Pagination is the process of outputting a newspaper page on one sheet of film, or, in the case of color, four sheets of film."

"Pagination is a technology-enabled newspaper production process integrating all elements of newspaper design into a single..."

Blah, blah, blah — it went on from there, but I dozed off.

Finally, a publisher in the room spoke up and explained it succinctly:

"Pagination is a newspaper process that is supposed to save you money."

Now what a publisher was doing there with a whole bunch of artists is fodder for conspiracy theorists; I think he was a plant, but his point was well made and hit home with a lot of folks in the room.

I could tell, because there was a big shuffling of feet and everyone stood with their hands in their pockets and looked at the ceiling, whistling.

Well, that's what all this stuff was supposed to do, right?

Save money.

Do more stuff with fewer people in less time.

Hold on to that dream.

Defining pagination is just as difficult as implementing it. One of the first pagination systems I encountered consisted solely of news and classified layout software, in addition to the front-end system. I was one of the team leaders charged with deploying the system in the newsroom.

From today's feature-laden QuarkXPress perspective, this system might seem rather limited. But at that time, pagination of news copy enabled the copy editors to actually implement their own page designs rather than have them interpreted by the composing room.

No one could argue that this was not pagination.

Well, actually you could. What we had was in fact electronic layout, which is just

one element of total pagination.

There are 13 basic elements of prepress technology necessary to achieve full pagination:

- ◆Editorial text entry
- ◆Classified order entry
- ◆Classified pagination system
- ◆Ad-dummying system
- ◆Networks
- ◆News layout system
- ◆Photo/graphics processing
- ◆Display-ad system
- ◆Ad-tracking system
- ◆Retail order entry
- ◆Photo archiving
- ◆Electronic library
- ◆PostScript imagesetters

My early pagination experience consisted of only the first six elements with a couple of others that played a role but were not fully integrated. It's quite tempting to take this shopping list and assemble a home-brew system, thus saving money and making the publisher plant a happy man.

But be aware that the sticker price on the big boys' systems will ensure compatibility and stability of the pieces (well, that's what the literature says anyway). If you've still of a mind to take the do-it-yourself approach, godspeed. Before you embark on your journey, may I make a few observations that do not necessarily spring to mind when perusing the above list.

Editorial text entry

Since Lou Grant, most newspapers have graduated from IBM Selectrics and paper-tape readers to some type of basic front-end news system. Just give a reporter an electronic box to capture his/her keystrokes. But don't be lulled into thinking a baby Mac with Simpletext will do the trick, because there's a lot more than meets the eye here. When one gets tempted to unplug their mammoth Atex system in favor of cheap networked PCs, it becomes easy to lose sight of everything the big box did.

What about intra-office messaging? E-mail must be addressed. What happened to the queues and groups? It now becomes necessary to teach reporters and editors how to navigate folders and subdirectories, not to mention file servers, zones and networks.

There usually are options available to interface most existing systems with pagination systems, but sometimes it becomes more economical to replace the old system

rather than retrofit it to new technology. I know of one case where the annual maintenance contract for the front-end system was more than the cost of totally replacing it with networked computers complete with all necessary software and training.

Classified order entry

Don't mess with the people with the headsets! The human interface is of the utmost importance here. A reporter can be made to like a front-end system, but a classified-ad taker who logs a few dozen calls an hour needs an easy screen to navigate. Window after window just won't do here. Get the users in on the discussion of the look and feel really early. And don't overlook the *other* interface: hooking the classified system into the business office. Most of the time this is a home-brew system that must be rewritten completely when installing a new classified front end. One of the reasons I took charge of the newsroom pagination system was because the IS director spent every waking hour with the classified system.

Classified pagination system

Watching those lines of classifieds line up in nice, neat columns is a joy to behold. It is a pretty simple and straightforward process until you actually want to include the headers. What about inline graphics like logos and upsells? And where does classified display fit in?

This is an area best left to the experts. It is quite tempting to try to tackle this with a simple layout program, but trust me, seek professional help from the experts — or you'll be forced to seek professional help elsewhere.

Ad-dummying system

In my first newspaper-related incarnation, I was one of the crew that shared the duties of dummying the paper. Since I worked for a small daily that rarely had more than a 24-page book on its biggest food day, it was not a major task, just an annoying one.

When I saw my first ad-dummying system, I thought it was pretty slick. Problem was that the ad information came from hard-copy printouts from the business office. There was no direct or electronic interface to the ad order system, which, at the time, was paper-based.

Still, entering the ad info was the hardest part of the job, but after that, human intervention was rarely necessary. The ad-space reservations flowed onto the dummies automatically with just minor tweaking. The newsroom was given electronic dummies with which to fill their news holes.

Networks

How many networks does it take to get a newspaper up and running? I lose count. Rule of thumb at most newspapers is three — just in the newsroom.

First, there's the proprietary network installed with the old front-end system. That network is replaced when the PCs come in, usually by 10Base-T. And the NIT is

upgraded to Category 5 wiring for high-speed networks.

But in the newspaper itself, there are quite a few networks. First, of course, is the newsroom system.

Then, there's a business system, usually separate with no connections to anything else in the building, except — if you're lucky — the classified system. Classified is beholden to no one but Systems and the mainframe. Then there are the little Mac networks in the newsroom and ad art departments, each distinct again with no connection. At some small newspapers, these networks might share a printer and nothing else.

A newspaper network should actually be an internet, a number of different networks linked together. While it is permissible to exchange information over this internet, it should be constructed so that information routinely exchanged within one department will not be distracted by "noise" from another.

A common network and common-network interface are absolutely necessary when establishing standards. Most PCs and Macs can be good network citizens on a standard, state-of-the-art network.

News layout system

Now we're getting to something that looks like pagination — electronic layout. Unlike the old front-end model, for which a newspaper reporter placed a global format in the header, most pagination systems format copy during the flow. Hyphenation and justification take place during the layout process. Of course, there is coarse formatting and H&J during the writing process, but this is mostly to gauge depth.

The electronic dummies are received from the ad-dummying system and are dispersed to the copy editors for news layout.

News layout is the area that seems a perfect fit for desktop publishing.

I've always said that I can put out a newspaper with QuarkXPress and Adobe Photoshop and Illustrator. I could, but I wouldn't want to do it two days in a row. It becomes overwhelming dealing with keeping track of all the elements comprising a single newspaper page — from folios to jump lines, cutlines to kickers, and everything else in between.

Fortunately, there are systems and software available to assist in desktop-publishing a newspaper. And I don't consider it wimping out if you choose to go with something like Managing Editor or Baseview systems. I mean, it's still Quark.

Photo/graphics processing

Artists are a pretty smug lot in knowing that they were the first to embrace the new technology. They've pioneered the way for much of today's mainstream processes.

But the road from MacDraw to Adobe Photoshop is long and has become quite complicated. Integrating the art/photo department into the pagination process can be unsettling, with the creative folks being required to learn new techniques in order to become assimilated.

One of the problems we encountered when rolling the art departments into the prepress fold was actually taking control of their systems. They have been lone wolves for so long that it becomes a territorial issue.

Face it, news artists in the late '80s actually were little systems departments — constructing networks, attaching printers, installing extensions. So most of them knew more than the IS folks when the small machines became popular.

Tread lightly here and include artists in designing the system. Graphics require some delicate handling these days because of the sizes of the files being transported. Most graphics processing systems involve some sort of OPI. This usually creates a low-resolution image of the graphic for page-layout purposes while the full-resolution version resides on a temporary fileserver for output to an imaging system. A good fit with the pagination system is a must to ensure the proper swapping of image files when output is requested.

Display-ad system

The creative department helped pioneer the electronic desktop revolution in many newspapers, but integrating these folks into the process is even more of a chore. In an ideal situation, each order for art they receive already should have received the imprimatur of the business office and have been stamped with an electronic signature used to track that ad throughout the system.

In addition, having a system of presenting digital proofs for the dispatch department or ad representatives to bring to their customers should be a part of this system. Remember, the proof output will probably be the only time the ad will be printed until it appears in the newspaper as part of the paginated page.

Retail order entry

When we dummied the paper, we took the ad-size information from the "manifest," the huge ledger board on which we scheduled our ads for the upcoming editions. The ad director lived and breathed that manifest. We would see him bowed over the desk carefully scrutinizing the run sheet, urging its growth.

One time, I mentioned that some day the manifest desk would be replaced by a computer, into which ad reps could enter their ads using the keyboard. He was aghast!

"Not while I'm ad director here!" he barked.

I realized that he couldn't get the same warm, fuzzy feeling from a green screen as he could with the ancient, beat-up clipboard. *The old analog v. digital debate.*

Well, the new digital manifest is the starting point for all retail advertising activity in the newspaper. Entries are routed to the business office and the creative department. Account numbers are assigned or retrieved. Digital signatures are tagged here that allow the ad to be tracked throughout its life cycle.

Ad-tracking system

An ad-tracking system touches many departments, from advertising to produc-

tion to news to business. The display-ad system is as integral to this system as retail-ad order. At the push of a button, a supervisor should be able to determine the status of an ad and where it exists in the system. Likewise, rerunning an ad could occur by a similar pushing of buttons. Obviously, such a system would rely heavily on database management and manipulation and on a substantial archive system.

Photo archiving, Electronic library

Storing photos is easy; archiving is hard. I once asked an IS director at a small newspaper what he did for photo archiving. Simple, the director said: the Macintosh Finder and a digital audio tape (DAT) drive.

Nope — that's storage, not archive.

The true grace of an archive is the ability to retrieve something in a timely manner. This means being able to find it in the first place you look. Remember that mug of the governor with the piece of corn in his teeth we ran in '94? We want to run it again. Find it.

The true worth of an archive won't show up for some time — usually when the image count is near six figures. That's when performance cracks will show and access times approach reality.

Demos of archives usually work with a small amount of data and are no guarantee of real-life performance. Many of the early photo-archive systems we considered looked great at the trade show but sucked big time when we libraried 32,000 images.

The news library is a little easier to work because the text from an entire newspaper rarely equals the size of one full-color photograph. Nevertheless, there still is a matter of cataloging and tagging stories in context. A good electronic library should be able to talk to the photo archive so that we can read the story of the governor's gastronomic faux pas as well as see the evidence.

This news library has become more and more important in recent years, with the advent of new media and alternative means of distribution. The library can no longer be thought of as the stack for finding information long after it is published. It is now the news reservoir that can be accessed by the print publishers or the Internet publishers — or whatever new means of circulation comes down the pike.

PostScript imagesetters

While we're still talking print medium here, all the neat ad-tracking, page-layout and even text-entry systems are for naught if there's a bottleneck at the output end. Imagesetters have come a long way from the Linotronic 200 I started with. High-speed, multi-RIPped, multiplexed behemoths churn film at rated marking-engine speed in production departments these days.

Multiple redundancy is the order of the day here. Where we used to purchase two printers to be sure, now three and sometimes four marking engines are the norm.

Proofing machines — small plain-paper laser printers — are being driven by the same RIP, insuring consistency in output. Big printers and fast RIPs are just parts of the

output solution.

Preflight becomes an issue. Final pages must be checked for the ability to print all elements contained. Font issues would take a whole other article, but they're also a critical part of the output device.

Training: The elusive 14th element

One additional and intangible element that must be acquired — and is arguably the most important — is Training (note the capital T). Each piece of the pagination puzzle requires human resources to manage it in some way. A major investment in training will not necessarily ensure the success of your pagination project, but lack of training will surely guarantee its failure.

That publisher at the SND seminar was probably one of the first to say, "It's the economy, stupid." And if we're honest with ourselves, that is exactly what our goal is with pagination: to save money.

But pagination is a process, not an event. The flip of a switch will do absolutely nothing to save money or time. You must be proactive. Don't wait for the money-saving to happen while continuing in the same old production process with new technology. What will happen is that the process merely becomes "technofied," and you will never achieve true efficiency.

Reaching efficient pagination is a hard-fought battle, one that is acquired over time with proper strategy and conviction from the entire newspaper. Paradigm shifting is nothing new to newspapers in the past 10 years, but pagination is one of the most far-reaching processes that can affect the entire operation.

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Proprietary v. Off-the-shelf

Both system flavors win favor

David M. Cole
Editor and Publisher, The Cole Group/The Cole Papers/News Inc.

Consider: If you were about to launch your paper on a journey that would lead to pagination, what would be the first question you would ask yourself? For many in the newspaper business over the last decade, the question has been, ***"Should we go proprietary or off-the-shelf?"***

Unfortunately, just asking this question reveals an unrealistic expectation, because there are no longer "proprietary" systems and no one has developed a truly "off-the-shelf" system.

Pagination is a complex process. Words have to be written, photographs have to be digitized, pages have to be designed, ads have to be created — and then the whole mess has to be turned into one file that can be output on film or directly to a plate.

Newspaper technologists have known all about the problems of pagination for decades — the first papers were paginated in the mid-1970s — but it took the introduction of the Macintosh personal computer in the mid-1980s to make pagination attractive. A publisher could be given a demonstration of page makeup on a Mac — running maybe Aldus PageMaker, maybe QuarkXPress — and he could see that making up a page was, well, simple.

Nevertheless, few publishers understood that making up a single page and making up an entire newspaper were two distinct kettles of *poisson*, one far larger than the other.

A simple truth was missed: When pages were made up in the composing room, there were physical items to touch and check off on a list — stories in galley type, Veloxes of photos, graphics, ads. If something wasn't there, someone went to the

engraving department (or the copy cutter's desk) and tracked it down.

The need to track stories, pictures, graphics, ads and pages was only the first thing that neither the Mac nor QuarkXPress did "out of the box."

At the same time, the promise of a ubiquitous, user-friendly graphical user interface was tremendous. The Seybold Report on Publishing Systems announced in 1987 that the "fourth wave" had arrived (the first wave was hot lead, the second was cold type and the third was the dedicated publishing systems of the 1970s and early '80s). With Seybold's encouragement, the industry began to think that personal computers could — and should — replace the dedicated systems of the third wave.

The hybrid system

Over the course of the next decade, newspapers and their suppliers began to build hybrid systems that included some "off-the-shelf" components (meaning they came from the general computing industry) and some "proprietary" components (meaning they were written specifically for the newspaper industry).

Pretty much everyone agreed that newspaper systems suppliers would no longer build hardware, but the question of where on the scale between proprietary and off-the-shelf the software fell was answered individually. Some suppliers wrote virtually all of their own software, from word processing to page layout. Taking this route were such suppliers as Unisys Corp. of Blue Bell, Pa.; Harris Publishing Systems Corp. of Melbourne, Fla.; Digital Technology International of Orem, Utah; and CCI Europe of Marietta, Ga., and Højbjerg, Denmark.

Other suppliers hewed to a different line. Dewar Information Systems Corp. — which was purchased in 1995 by Sysdeco, then the owner of what is now known as Atex Media Solutions Inc. of Bedford, Mass. — wrote "glue" software that linked a popular off-the-shelf word processor for Intel-based personal computers (Microsoft Word) to a popular page-layout program (QuarkXPress). Atex itself had taken a similar tack with its Press2Go product, which performed much the same tasks on the Macintosh platform.

Competing systems included a Mac-and-Quark solution from Baseview Products of Ann Arbor, Mich.; PC-and-Quark products from Advanced Technical Solutions Inc. of Wilmington, Mass., and Advanced Publishing Technology of Burbank, Calif.; and the PC-or-Mac-and-Quark system from Agile Enterprise Inc. of Nashua, N.H. Not to be outdone, Denver-based Quark released a workgroup solution called Quark Publishing System.

Today, the world has two hemispheres: "Use Quark for page layout" and "Don't use Quark for page layout." Unfortunately, nobody seems to grasp this division, and the "proprietary" v. "off-the-shelf" labels persist.

Is one easier to implement than the other? Do newspapers find benefits in taking one of these directions not found if they took another? To answer these questions, we talked to a group of newspaper systems managers who have installed pagination at a range of papers.

Rough spots

Travail always accompanies the installation and early implementation of any system — whether it's largely proprietary or largely off-the-shelf. Equally inevitable is that many publishers believe they won't encounter these rough spots and thus see no need to plan for them.

Publishing executives who have adopted off-the-shelf systems seem to suffer from the nagging notion that going the other way might have been easier.

"The fundamental problem with off-the-shelf is its 'one-offness,'" said Charles Fertig, publishing systems manager at The Sun of Baltimore. In a previous life, Fertig helped design and install a complete pagination solution for the News-Press & Gazette in St. Joseph, Mo., a 42,000-circulation morning paper. It was based on the Mets off-the-shelf system marketed by Freedom System Integrators of Wichita, Kan.

Fertig asked three questions specific to the off-the-shelf environment:

- *How do you end up with a system [that's] more than a collection of networked parts?*
- *How do you support it over the life of the install?*
- *What is the cost of ownership?*

At The News & Observer — the 151,000-circulation morning daily in Raleigh, N.C. — Bradley Zohn, director of newsroom computer systems, offered answers based on his experience. Quark Publishing System (QPS) — the epitome of an off-the-shelf solution — played a large role.

"Obviously, there were technical rough spots that would have taken place regardless of whether we used an off-the-shelf solution," Zohn said. "Now, there's stuff we've just learned to live with. With a proprietary solution, we might have gotten the vendor to accommodate our needs."

One of the first papers to adopt the pioneering product DewarView was The Herald in Everett, Wash. The 54,000-circulation morning paper had the Dewar company install its basically off-the-shelf system in 1993 and has been producing the paper with it ever since.

Lisa Friedman, the paper's systems project manager, concedes that the biggest problem she's encountered has been in the software that links Word and QuarkXPress. A proprietary solution would have done a better job of integrating the writing and layout and design functions, Friedman said.

Another paper to venture onto new turf with an off-the-shelf system was the Star Tribune of Minneapolis. After more than a decade of paginating with Atex News Layout, the 387,000-circulation morning paper decided in 1995 to adopt Press2Go.

"Our pagination project turned into an informal co-development when we hit the main rough spot," said Daniel Barnes, the newsroom technology director of the Star Tribune. "The product we purchased was far rougher than we had thought."

The supplier provided some of its own rough spots as well, Barnes recalled.

"Atex's seemingly permanent state of reorganization and the resulting on-again/off-again commitment of resources to Press2Go" were big problems for Minneapolis, he said.

"These scenarios have played out many times in our industry," involving both proprietary and off-the-shelf solutions, Barnes said. Consequently, he said he doesn't feel that the choice of one direction over the other "really makes any difference."

Training issues

Whether they're using off-the-shelf, proprietary or anything in between, for many papers the biggest systems issue isn't hardware or software. It's training.

"Early on, we told [top management] that we needed training to go beyond the implementation of the system," said Jeff Adams, who was the systems editor at the Dayton Daily News in Ohio when it began installing a proprietary editorial front-end that included pagination from Digital Technology International. "They didn't believe us, but they now understand that training is an ongoing process. We now have a full-time trainer in the editorial department."

Everett's Friedman certainly finds training easier in the world of an off-the-shelf system.

"No one ever says, 'Oh, good, I'm glad we're going to SII because I use that at home,' which is what they say about Word," Friedman said.

Barnes agreed.

"Mac training and Quark training are ubiquitous and cheap," he said. "Training for the Press2Go XTensions is not difficult once Mac and Quark are in hand."

Conversely, the perspective of the manager of a newly installed proprietary system is that a proprietary system makes training easier.

"We were offering editors more shortcuts because of the customization," said Tim Benjamin of the San Jose Mercury News, where a CCI Europe NewsDesk and Layout Champ system was installed a few years ago.

Falling squarely in the middle is Raleigh's Zohn.

"It's somewhat easier in some areas and more difficult in other areas," Zohn said. "Someone coming to [QPS] from an old editorial system will experience a little bumpiness. Some people have a stronger aptitude in learning the graphical user interface. Some people who have to type anything, they're going to have difficulty."

Supporting pagination

The experience in Dayton seems to be typical of many paginated newspapers. Support, Adams said, "is harder than my bosses thought."

Not understanding the issues of client/server technologies, top management assumed the paper could run the extensive DT system with the same scale of support staff that had been used to run its Atex predecessor. "We now have added additional support staff," Adams said.

The 290,000-circulation morning Mercury News also finds its proprietary system

hard to support.

"Every time we get in a new version of the software, we fix two things and break one thing that worked before," Benjamin said of his CCI system.

This is not to say that off-the-shelf solutions are easy to support.

"There are so many things that can go wrong," DewarView user Friedman said. "But many of them have to do with the ability to add lots of new and different applications to the PC."

However, she said, adding Netscape Navigator to a PC that's already running DewarView, e-mail, Word and other applications can be painful. And that's not to mention those little surprises.

Friedman asked, "What about when someone brings in a new game from home? Is [a crash] the fault of the editorial system?"

The fact the paper is using desktop computers — as opposed to proprietary terminals — "causes most of our headaches," she said.

The "sprawling" nature of the Star Tribune's Press2Go system gives Barnes some problems.

Although "it's hard to avoid relying on single individuals for in-depth knowledge of some system components," he said he believes overall support is easier. "The openness of the off-the-shelf components — QuarkXPress, the MacOS and AppleScript, Unix — makes it easy for us to add enhancements on our own," Barnes said.

Supporting a system like QPS has its advantages, said Zohn of The News & Observer.

"If you encounter some weird problem, there is usually somebody out there who's encountered it before and you can get a solution," he said. "Ninety-nine percent of the time we fix it here ourselves. We don't even have a [supplier] support arrangement for QPS."

In his job as prepress superintendent in Missouri, Fertig said, support would be a "joint discovery process" between the newspaper and the supplier.

"We would gather raw data at the site, winnow at the chaff and let the vendor deal with the coding and bug fixes," he said, "while continuously publishing, of course."

Few kind words for suppliers were heard among the publishing-systems personnel. "Early on we looked to the vendor for solutions, but they didn't have the answers," said one executive. "They ... don't understand fully how we work."

Friedman said, "Overall, I've had lousy support from all types of vendors."

Would you do it again?

Reservations aside, all the executives interviewed said they would again follow their chosen path — be it proprietary or off-the-shelf.

"I haven't heard anyone in the editorial department wish that we could go back to the 'old days,'" Dayton's Adams said. "We are now fully paginated and benefit a great deal from a digital newsroom."

The News & Observer also is very happy with its solution, Zohn said. "QPS is

only one piece of that solution, but we'd probably do it again," he said.

At The Herald, the question isn't whether they would do off-the-shelf again — "I think we would," Friedman said — the question is which product.

"Whether we'd choose DewarView today is a whole other matter," she said.

"We made the right technology choice to support the business needs," Barnes said. The Minneapolis paper achieved its goals — to efficiently put more color in the paper while supporting a redesign on a tight schedule, remodeling the building and reorganizing the staff.

"It was more difficult than we hoped and we might have looked harder before we leaped," he said. "But given the options we had at the time, it was the right technology for the mission."

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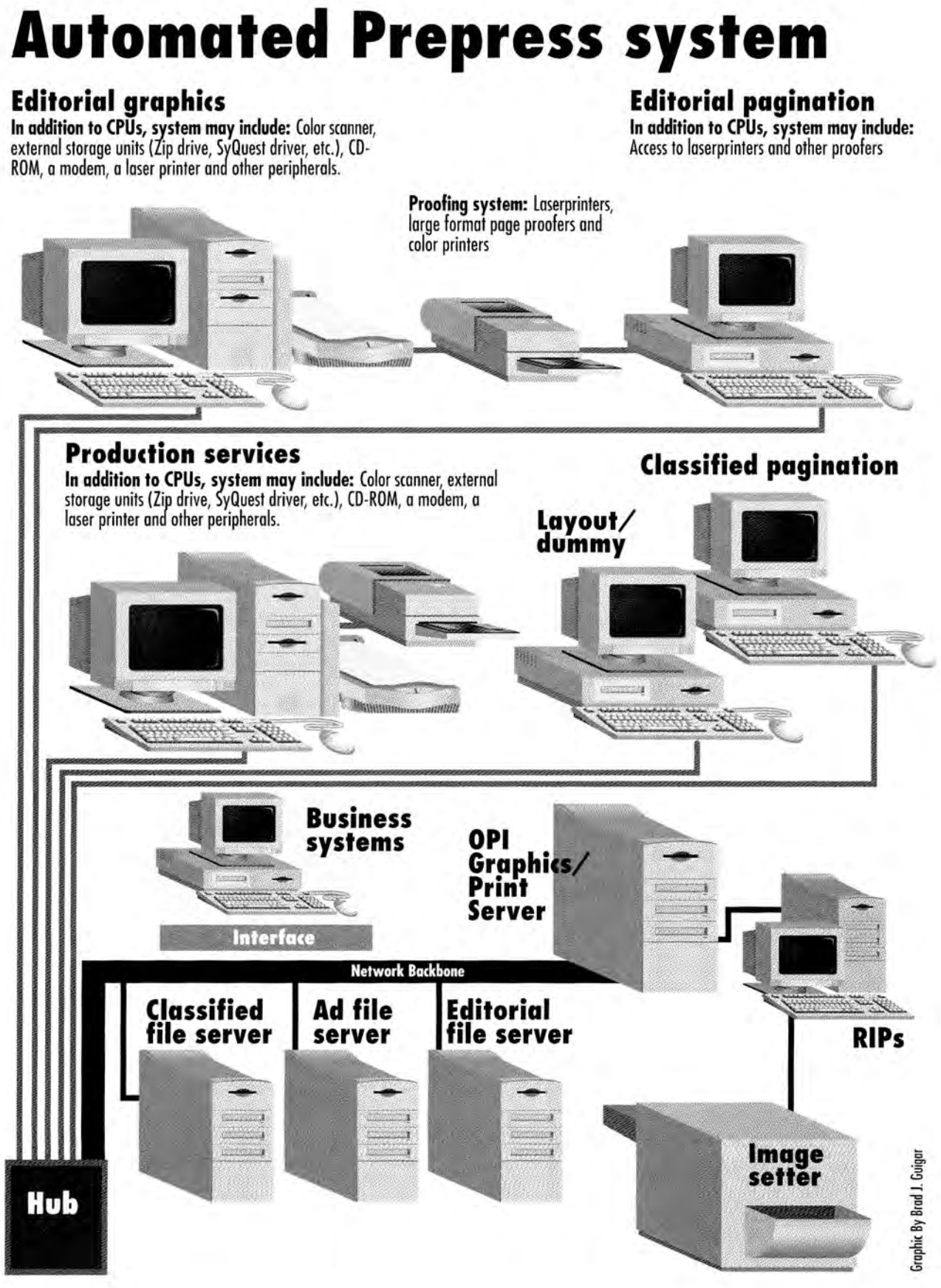
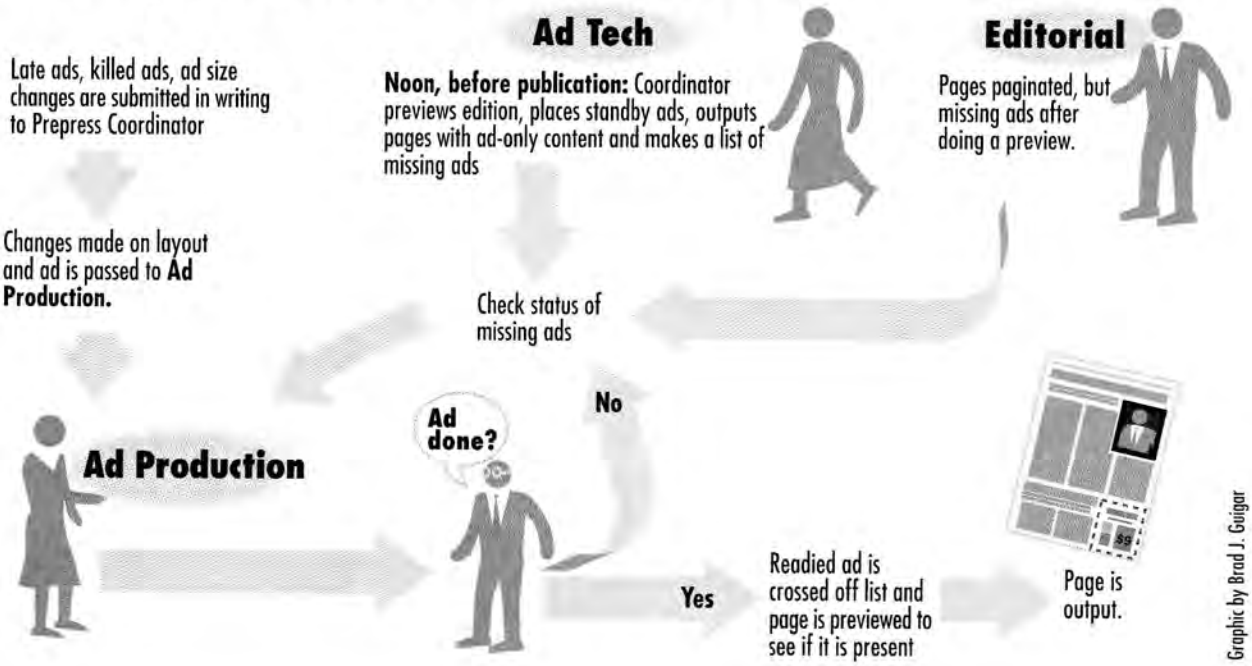
Automated Prepress system



Graphic By Brad J. Guigar

Prepress Coordinator



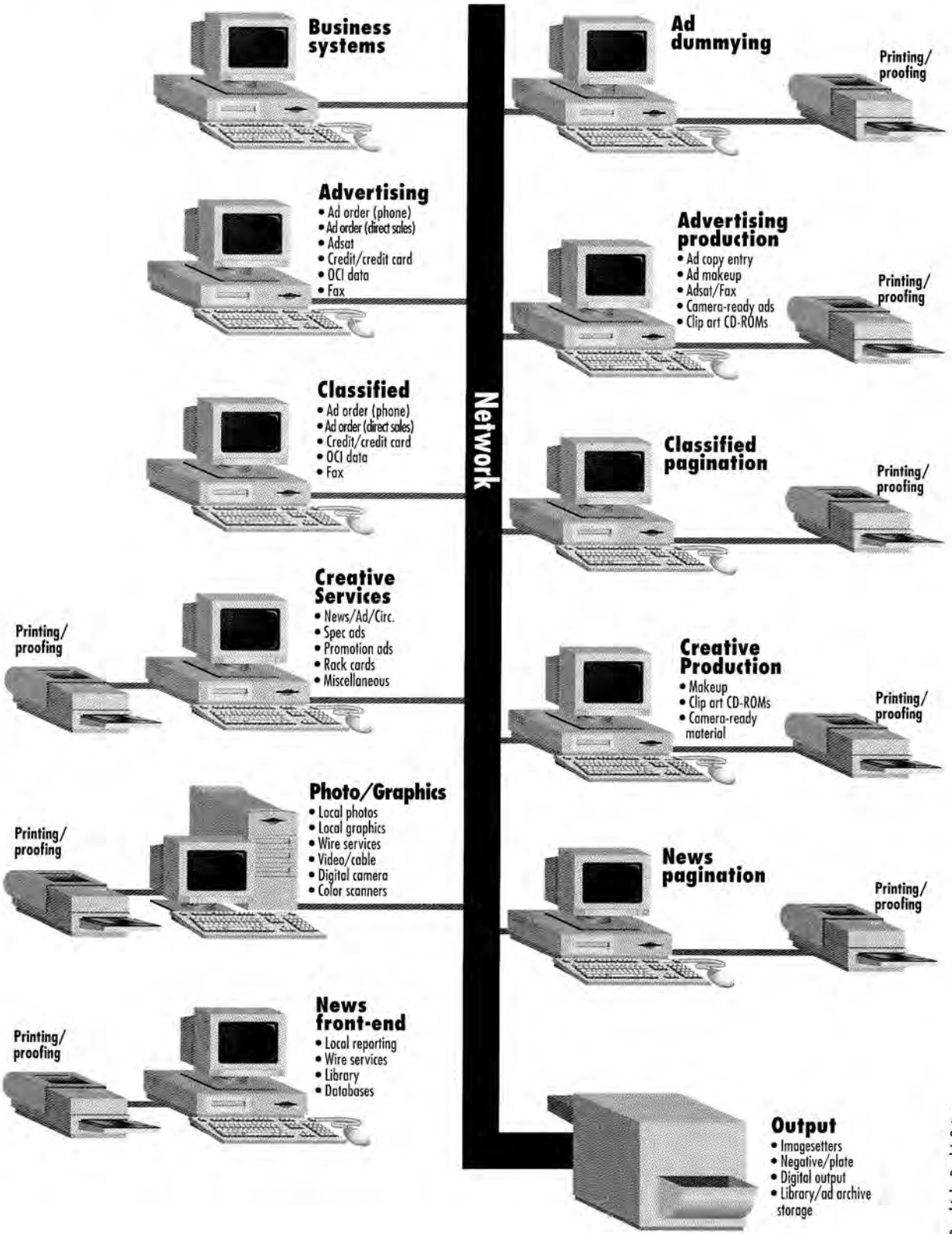
Graphic by Brad J. Guigar

Examples

How you and your systems should work together

Brad J. Guigar
Graphic Artist, Philadelphia Daily News

Automated Prepress system



Graphic by Brad J. Guigar

Scanner Central

For Advertising

Art for ads to be produced

Art scanned and numbered according to **Ad Poet's** directions.

Scanned art output for Macintosh use

Scanned art output for 2100 use

Camera-ready ad

Ad is scanned, given a unique number and published

Advertising

For Editorial

Hard-copy text scanned

File moved into Newsmaker according to editorial routing

Hard-copy photos scanned

File moved into 2100 according to editorial routing

Editorial

Graphic by Brad J. Guigar

Ad Tech

White scheduling slip filled out and brought to prepress (Ad Tech)

Ad is logged into PBS system and information is passed on to Layout 8000.

Yes, ad is done

Blue scheduling slip is filled out and brought to prepress (Ad Tech)

Wait for blue scheduling slip

Ad copy and art is attached with blue slip. If art is on a CD, the name of the CD and the art number is written on the layout. Spec ads arrive in Ad Tech with complete copy of ad. Proof requests are also included. **Red** for proof requests that go back to the advertiser. **White** for proof requests that go back to the salesperson.

Ad is logged in Macintosh database. Layout and text is placed in an envelope with a log number. Any art that must be scanned is placed in an envelope with the same number as the copy, appended by the letter "A."

Ad Poet

Edition dummied on Layout 8000, double-checked by both advertising and editorial. Layouts printed and sent to 2100.

Graphic by Brad J. Guigar

Ad Production

Ad correction
after publication

Prepress

Old ad is killed from database on 2100 if it is a Macintosh ad

Ad Tech

Spec ads
Go to **Ad Central** for exporting

Logged envelopes with copy and art

Ad is corrected, given a unique number and exported (if done on a Macintosh) or marked ready (if done on the 2100)

Red to the advertiser

White to the salesperson

None to the pre-press proof reader

Proofs made and directed according to proof request

- **Ad Poet** determines which system ad will be produced on.
- **Envelope with ad copy** is marked with a System ID (Mac or 2100).
- **Envelope with ad** is marked with a system ID (Mac or 2100).
- **Spec ads** are marked with yet another system ID (Spec).
- **Camera-ready ads** are marked with a system ID

Art for ads to be produced and all camera-ready ads

Copy (text) sent to Newsmaker for input

Scanner Central

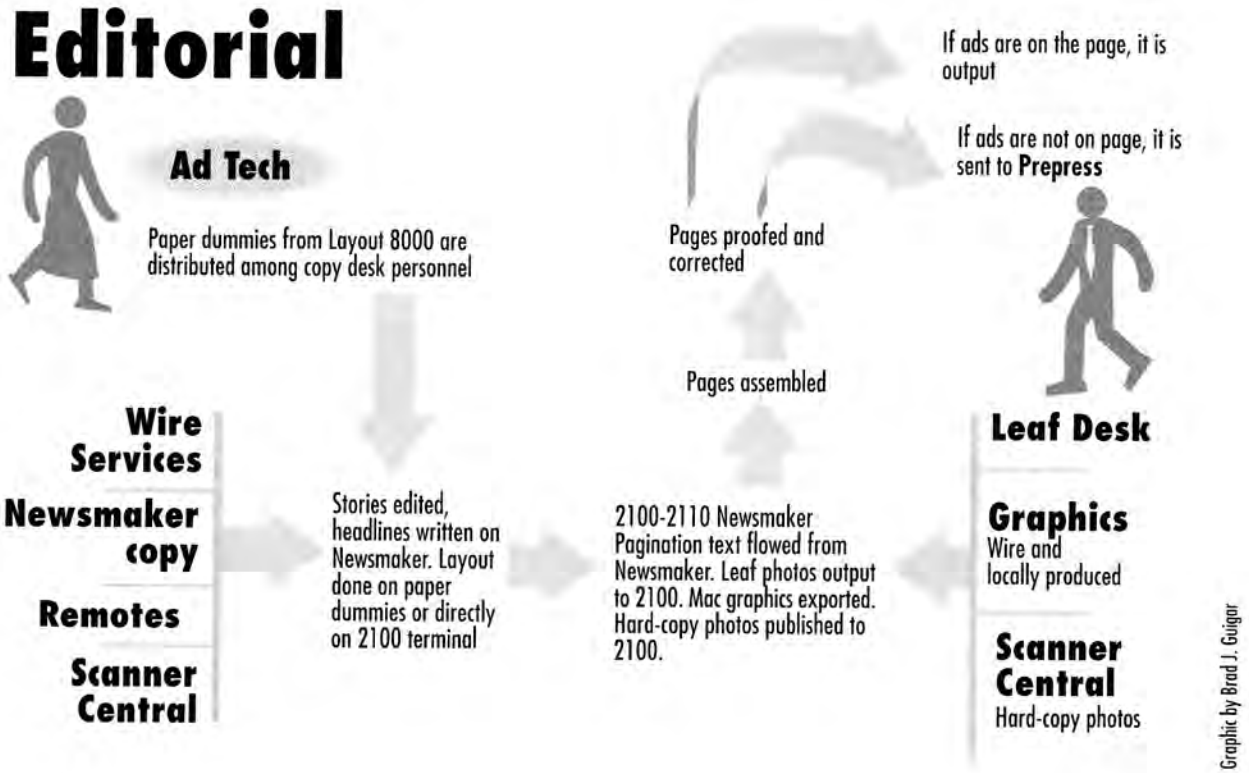
Editorial
Photos for ads scanned on Leafscan 35

Scanned files sent to 2100

Hard copy printed through Leafscan or images

Advertising

Graphic by Brad J. Guigar


Editorial
Ad Tech
Paper dummies from Layout 8000 are distributed among copy desk personnel
Wire Services
Newsmaker copy
Remotes
Scanner Central
Stories edited, headlines written on Newsmaker. Layout done on paper dummies or directly on 2100 terminal
2100-2110 Newsmaker Pagination text flowed from Newsmaker. Leaf photos output to 2100. Mac graphics exported. Hard-copy photos published to 2100.
Pages assembled
Pages proofed and corrected
If ads are on the page, it is output
If ads are not on page, it is sent to Prepress
Leaf Desk
Graphics
Wire and locally produced
Scanner Central
Hard-copy photos
Graphic by Brad J. Guigar

Shopping for a system

The Hardware

It may be costly, but the alternative costs more

David M. Cole
Editor and Publisher, The Cole Group/The Cole Papers/News Inc.

"An army marches on its stomach."
— *Napoleon Bonaparte*

It's difficult to accomplish the task at hand if you haven't prepared correctly.

Napoleon's observation about military logistics can be applied to a variety of endeavors, but within the world of late 20th-century newspapering, nowhere does this stand out quite as much as on the battlefield that leads from paste-up to pagination.

The experiences are clear: If you don't devote the time and energy to properly document your workflow, you will not be successful in implementing full-page output with all the elements in place. A lack of understanding about workflow is the biggest mistake North American newspapers have made during the past few years in making the transition to digitized makeup.

But the second biggest mistake is that of underconfiguring hardware. Although industry experts have preached their concerns about understanding the production process — how a photograph, for instance, gets from the assignment to the page — newspaper executives want to focus instead on hardware and software.

As a consultant, I get frequent phone calls and e-mail from newspapers asking extraordinarily specific questions about hardware and software.

"*We want to use this application and that box,*" say the missives. "*What else do we need?*"

My usual answer: *How about a plan*?

Don't skimp

It frequently turns out that once a plan is in place, the workflow documented, the software chosen and the system budgeted, the finances begin to fall apart. Whether it's bad planning on the part of the newspaper or just a bunch of unforeseen expenses, publishers moving toward pagination frequently end up with the need to tighten the budget somewhere.

And that somewhere is almost always hardware.

There are certain trials and tribulations that newspapers go through to get pagination up and running, and skimping on hardware is frequently chosen as the place to make up a budgetary shortfall.

"Our biggest problem wasn't skimping on the server hardware; they just didn't want to buy enough workstations," said Tim Benjamin, manager of publishing systems at the San Jose Mercury News in California, where a new pagination system from CCI Europe was installed in 1997. "We couldn't convince them that we needed some extras for training and systems."

The fortunate surprise, Benjamin said, was that once the paper ran out of workstations and was forced to buy 10 more, it found that its software suppliers — System Integrators Inc. of Sacramento created the editorial front-end, while CCI Europe of Marietta, Ga., and Højbjerg, Denmark, supplied the pagination system — were willing to license the workstations for less money than anticipated, because they were not going to be used in production.

"The price was right," Benjamin said.

Other papers apparently do try to skimp on the server hardware.

"I had one site that had [Apple's personal file] sharing enabled on every ad [composition] station so the users could get to each other's machines," rather than buying a machine to use as a server, said Jack Rosenzweig, editorial product manager at Baseview Products Inc. of Ann Arbor, Mich. "We showed them how much faster it was with that turned off, but they refused to budge. So you have users that hate the system because it is slow all the time when it doesn't have to be."

Rosenzweig said pieces of a system that inevitably don't get purchased are digital audio tape (DAT) machines for storage backups and universal power source (UPS) devices for handling power outages and brownouts.

Output is another area where systems can be underconfigured.

"We feel we were undersold on the OPI/ad-tracking system and we've had to throw a lot more money than we'd planned at it to get to the system we thought we were buying," said Gary Ward of The State in Columbia, S.C.

"We're still not there."

In asking around the newspaper industry about specific instances of poor configurations of pagination hardware, we heard a couple of stories we'll repeat, but only using that hoary Dragnet convention of "changing the names to protect the innocent."

We believe these stories in their entirety; we just can't tell you names or places, lest someone lose a job.

Apocryphal story No. 1

The publisher of two small adjacent dailies decided to combine production at one plant a few years back and to paginate both papers for the first time.

"We got prices to do the job right," said the former production director.

"Then we got our capital equipment budget."

Since the budget just did not provide enough money, the former production chief said, "we had to totally eliminate the most important part — the ad-building machines."

They cobbled together some Macintoshes for the task. "Do I even have to tell you about the IIcx we were building color car ads on? We had to start printing the ads at the end of the day and hope they had printed by the next morning."

The paper ended up buying underconfigured Macs for the newsroom and classified advertising, the erstwhile production director said, because they were "being unloaded by MacWarehouse" at a cheap price.

What he typified as "the worst thing that happened" was the purchase of a $1500 35mm scanner incapable of doing the job the paper needed.

"Naturally, the photos were terrible," he said.

Rather than returning the scanner and spending another $500 to get a good machine, the Powers That Be decided it would be better to pay to have color prints made outside and scan them in on a flatbed scanner.

The former production director said the bulk of the capital equipment budget ended up going toward imagesetters and a Windows NT server.

"Of course, [a few] years ago servers cost about three times what they cost now — and today you get way more power," he said.

When the former production director was all done?

"The publisher wanted to know when I was going to fire half my staff because I had gone electronic," he said.

Today, our hero helps publishers with workflow problems.

"The first thing I tell publishers is that fixing things and getting paginated costs money," he said. "You can be cost-effective, but you can't evade the fact that moving to total pagination is expensive, with a long-range return on investment."

Apocryphal story No. 2

Described as a potential "urban legend kind of tale," our second skimpy-hardware story concerns a medium-sized newspaper that purchased a bunch of AP Leaf Picture Desk equipment from the Associated Press of New York.

In the early days of the Leaf Desk, the only AP Leaf system connectivity option available was a double Token Ring requiring coaxial cable using a special type of connector called a "BNC."

The cable was quite expensive, and the newspaper's Powers That Be balked at the cost.

Although AP had delivered the equipment, several weeks were to pass before AP

technicians could arrive to install it all. So, some self-elected Techno Whiz at the paper took it upon himself to go down to the local Radio Shack and, after browsing in the adapter section, returned with a series of adapters that, when hooked to one another, enabled the BNC connectors to be physically hooked up to standard telephone wire with RJ-11 connectors.

(Technology digression: Token Ring networking requires a shielded coaxial cable to work. If there is no shielding — standard two-strand telephone wire doesn't have any — then interference, such as radio waves or even electrical waves from power supplies in fluorescent lights or computers, will prevent a Token Ring network from working.)

In spite of this, the paper wired the whole newsroom with two-strand telephone cable and its Techno Whiz's custom-rigged RJ-11-to-BNC adapters. Then the techies proceeded to connect up their AP Leaf edit stations and server with their brilliant wiring workaround.

Much to their surprise, it did not work.

The Powers That Be then complained bitterly to the AP. It took some weeks to convince the newspaper that mere physical connection did not guarantee a technically robust connection. For the longest time, the newspaper thought it was all another deep dark plot by the AP to extract more money from a member.

This same site also balked at paying extra money for "plenum-grade" wiring — special fire-retardant wiring required by all building codes when placed in ceilings or open ducts; you can use non-plenum cable as long as it's in its own conduit. Apparently sensing yet another plot designed to extract extra dollars from their budget, the Powers That Be ordered the installation of standard cable.

All told, this newspaper ended up spending about four times what it should have, when you add up the wasted time and money for three cabling jobs:

- Standard telephone cable.
- Non-plenum coaxial cable.
- The correct plenum-grade coaxial cable.

Not long after this technical success story, the urban legend goes, the individual who devised the Radio Shack solution and the non-plenum solution was promoted — with a substantial raise in pay.

As Mark Slackmeyer of the comic strip "Doonesbury" says, "It coulda happened."

Heeding 'Moore's Law'

Well, so what if you're sitting there with the boss breathing down your neck about picking hardware. How do you make sure you haven't skimped?

One of the problems with personal computing technology is something called "Moore's Law." Devised by Gordon Moore, the former chairman of chipmaker Intel Inc. of Santa Clara, Calif., the law suggests that every 18 months the power of a semiconductor chip doubles and its price drops by half.

So, in the world of integrated circuits (the brains behind PCs) and random

access memory chips (the memory of PCs), things just keep getting more powerful and less expensive.

What hardware should you buy?

(*Important: These words are being written in February 1999; the recommendations for hardware will hold for less than a year. If you are reading this in 2000, attempt to figure out the equivalent machines of your era.*)

After chatting with the writers and consultants of The Cole Group, we can make some nearly unanimous recommendations:

◆ PC recommendations

— A power-user's workstation:

There are probably only one or two people in the shop who need something like this, but you should be prepared to deliver it. We're a little leery of Pentium IIIs right now (the farther from February 1999 you read this, the less leery we'd be), so we'd recommend a 450 MHz Pentium II, with 132 MB of random access memory, a disk drive that holds 6-8 GB of data, a built-in cartridge hard drive, a graphics board and a 17-inch color monitor. For those who are running Windows NT, make that two Pentiums, please (see below).

— A reporter and content editor's workstation:

A 400 MHz Pentium II, with 96 MB of random access memory, a disk drive that holds 2-4 GB, and a 14-inch color monitor.

— A copy editor's or paginator's workstation:

The 400 MHz Pentium II machine, with 96 MB of random access memory, a disk drive that holds 6-8 GB, a built-in cartridge hard drive, a graphics board and a 20-inch color monitor.

— A photo-enhancing workstation:

Same as the power user's workstation, but one of our number suggests purchasing a PC with the potential to run multiple processors and Windows NT. "Take it from me — [Adobe] Photoshop is a whole new program on a dual processor machine," he advises.

One overarching recommendation: Buy all machines with built-in CD-ROM drives. As another of our staff pointed out, "It's how software is installed these days."

◆ Macintosh recommendations

(*In early 1998, we were not particularly happy with the Mac situation. The cloning business had just been shut down by Apple Interim-for-life CEO Steve Jobs, and Apple didn't have much in the way of new equipment. What a difference a year makes.*)

— A reporter's workstation:

There are those among us who will pale when they see this recommendation, but we're saying iMac here. "Not fast enough," grumbled one. "Costs too much for what you get," groused another. Nonetheless, we think that the iMac makes a perfect reporter's workstation; the things it's missing — a serial port for printing and a floppy drive — make it an excellent choice for a newsroom.

We'd suggest that you up the random access memory — is there a manufacturer out there who understands how real people use RAM? — to something livable like 96 MB.

— A copy editor's workstation:

At least one of our number has suggested that you equip the paper with the same Macintosh central processing unit — the G3 — everywhere; we can't necessarily agree, but it's an interesting idea. Unfortunately, the G3 rubric covers a variety of machines — a couple of desktops and a couple of minitowers — so pick the configuration that works the best for you.

The fastest machine is the new "ice-blue" G3; make it a 400 MHz machine with 160 MB of random access memory and the full 1 megabyte of what's called "backside cache."

We'd suggest a good 17-inch multi-resolution monitor with a .28mm or better dot pitch. Our Mac expert said, "I'd go for a .26mm or .25mm monitor — the type is crisper." We bought such an animal for the newsletter in December 1998 for $400. That's not a misprint.

—A paginator's or photo-enhancing workstation:

For these hunkier requirements, we'd go with at least double the memory needed by a copy editor — at least 320 MB. The G3s all can go up to 768 MB, and people using Photoshop need lots and lots of memory and memory is cheap; buy as much as you can for these machines.

What's it all mean?

There are so many pitfalls to building a pagination system, whether you are buying from a system supplier, have hired an integrator or are doing it on your own. We could never list all the possible places where you could trip and fall flat.

But we can go back to Napoleon's theory about soldiers and eating. You can't build a newspaper system — whether it's pagination, circulation or some combination — without planning.

The lessons of these tales are apparent:

- After you've checked your budget, check it again. Make certain that the supplier really wants to charge you what you're putting into the budget.
- If you don't understand the technical reasons for a specific line item in the list

of products your supplier or integrator proposes, find out why it's there. Sometimes suppliers have been known to specify the wrong component; sometimes suppliers have good reasons to ask for specific items.

◆ Build some "it would be nice to have" items into the budget that can be sacrificed if necessary (not backup tape drives or power filtering systems). Don't forget a "fudge factor" or a contingency fund.

◆ Don't let top management dictate the amount you can spend and then allow it to expect super results. If during the budget process the publisher says, "We don't need that," challenge him or her. The biggest problems in technological arenas seem to occur when nontechnical people start making technical decisions.

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Notes

Acceptance Criteria

Must-haves for your specific system

Anne Saul
News Systems Editor, Gannett Co. Inc.

Specific systems must meet specific acceptance criteria.

◆ **For editorial front-end systems, make sure:**

—The system will keep as many as five versions of each file throughout the editing process.

—Spell Check with a thesaurus will be provided for each user. A fully customizable user dictionary also should be available in addition to the main dictionary.

—The headfit function will be accurate to one point of its actual length.

—The H&J function will justify a story within one line of its actual length.

—The system will automatically save stories to the local hard drive at intervals specified by the user.

—The system will prompt the user to save a story if the story is closed after changes are made.

—System queues can be purged either manually or automatically, and each queue can be configured by the system manager.

—The system will allow searches by slug line in less than five seconds.

—The system will allow global searches by slug line in 15 seconds or less.

—The sort order of directory files can be changed by the user based on any of the directory fields.

—The system will contain an internal messaging system.

—The system will route all elements — graphics, art, text, pages and any

item appearing on any page — to an archive queue to quickly facilitate archiving of the complete newspaper each day. System-generated copies of these elements — instead of originals — are acceptable.

—Any changes in stories made while in pagination will be recorded in the history log.

◆ **For pagination systems, make sure:**

—The system will send compatible, machine-readable stories from the front-end system to the pagination system in a manner that preserves the style of the editorial formats.

—The system will fully paginate, incorporating text, photos, graphics and ads from either Macs or PCs.

—The system will be able to flow ads onto a paginated page once editorial is finished editing. This way, ad space reservation will remain intact during editorial pagination.

—The system will provide an indication of over/under line count when flowing copy into a text box.

◆ **For communication, make sure:**

—The system allows two-way communication with workstations at remote sites.

◆ **For wire service, make sure:**

—Wire retention time can vary depending upon the wire category.

—The system will notify assigned users of priority stories from the wire.

—The system will properly format AP wire copy and financial, sports and weather agate.

◆ **For security, make sure:**

—The system will prompt all users for a password upon attempting to log on. If password is not found on the system, log on will be aborted.

—The system will allow users to access files that have already been paginated.

—The system will have levels of access so that some files can be secure from view by the general population of the Customer.

◆ **For training, make sure:**

—The vendor will provide in-house and off-site training as agreed upon in the training schedule.

—The system manager will be trained to define security levels to access

system and fields independently.
—Complete system training will be provided for maintenance of system.
—Additional training, if needed, will be provided in critical operations to ensure full understanding of the process.
—Sufficient training will be provided for all future upgrades upon request at then-current rates.

◆ **For support, make sure:**
—The vendor can successfully dial into the network and provide support for the system via modem and phone lines.

◆ **For operations, make sure:**
—The system will interface with the OPI for seamless operation by paginators.
—The software will work — without unreasonable lockups— while running on the hardware platform configuration agreed on by the vendor and the newspaper.
—All system extensions to Quark and Word will work properly with the current versions at the time of purchase and during the system's warranty period.
—All system-management functions such as security, configuration files, rate tables, wire routing and sorting tables can be edited while the system is running. Workstations may have to log off and back on for charges to take effect.

◆ **For documentation and registration, make sure:**
—Documentation will be provided for all system software.
—The standard system documentation will be provided in the form of online help and as a Microsoft Word document. The customer newspaper may modify the document to provide custom documentation for the users.
—Applicable documentation for third-party programs and hardware supplied by the vendor will be supplied to the customer newspaper.
—The vendor will supply all applicable third-party registration forms to the customer newspaper or will fill out and submit them in the customer's name.
—The system will provide software tools to allow the customer newspaper to create and modify an online guide using Microsoft Word.

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The Trade Show

Finding the perfect system

Anne Saul
News Systems Editor, Gannett Co. Inc.

There are a number of trade shows throughout the country each year, many of which are valuable to newspapers — particularly if you are proposing to purchase a new system.

The major U.S. trade shows are:

NEXPO

The granddaddy of U.S. newspaper trade shows, NEXPO is held in mid- to late June and is sponsored by the Newspaper Association of America (NAA). The site rotates between New Orleans, Orlando, San Francisco and Las Vegas.

Registration: (703) 902-1880
or e-mail nexpo@naa.org or www.nexpo.com

America East

A smaller version of NEXPO, this show is held each March of in Hershey, Pa.

Information: (717) 703-3069
or www.america-east.com

Seybold

This show is held twice yearly, San Francisco in the fall and Boston in the spring.

Information: (888) 800-8922
or www.seyboldseminars.com

MacWorld

Although not directly newspaper-related, this show — held twice yearly — has products that could have newspaper applications. The vendors don't always know that, so the secret is finding something that will solve a particular problem at your newspaper.

Getting the most out of a show

Hundreds of exhibitors display their products at these shows, which take place over a 3- or 4-day period. The array can be mind-boggling to the uninitiated, so preparations are critical if you are to get the most out of them.

The shows usually include workshops and exposition time; the latter is generally more valuable to the newspaper shopping for a new system.

Before the show:

◆ Go through the list of vendors (available from E&P or Newspapers and Technology) and make three lists:

—Vendors whose products you absolutely must look at.
—Vendors whose products you should look at once the A List is complete.
—Vendors whose products you would like to look at if there is time. (The reality is you will never get to this list, but in the event you have an hour or two to kill, it's better to visit one of these vendors than to wander the floor.)

◆ Make appointments ahead of time and with vendors, particularly those on the A List. This will ensure that you have their undivided attention and that you're not stuck sitting in on another newspaper's demo.

—Allow at least two hours for these demos. Less won't provide you with enough time to look at the system; more will put you into information overload. Although the exhibition doesn't open until a designated hour, you can arrange for a pre-show demo. Don't try to fill every hour! Your body and mind will go into overload at about 3 p.m. Give yourselves chances to unwind.
—Insist on one-on-one demos. Some vendors like to do "theater" demos so they can reach a larger number of people. The problem with theater demos is you have to share the time with people from other newspapers, and there isn't enough time or opportunity to ask questions specific to your operation.
—Be specific about what you want to see — a classified system, an editorial system, a pagination system, etc. If you are looking for a total system, you may need to schedule separate demos for the various components. If you have a lot of vendors on your A List and several people from your newspaper hate attending these shows, you

should divide up the appointments rather than having the entire group participate in each session.

At the show:

◆ Wear comfortable clothes — particularly for shows. The days are long and the floors are hard.

◆ Bring your checklist to the demo to make sure the vendor covers the items that are important to you.

◆ Take notes. If you don't, by the time you've sat through several demos you'll forget which system had which features or limitations.

◆ Ask questions and offer constructive criticism. Vendors use shows for customer feedback. They also show products that are still in development. Find out:

—Which newspapers currently use this system and to what extent? (Is it just installed, fully operational, etc.?)

—Is it a released or a Beta version?

—If the vendor tells you the product is in Beta testing, ask where it is being tested, how long it has been tested and when it will be released. (If a product is still being Beta tested after two years, that's a sign there are problems.) Add six months to the release date you're given. Vendors often are more optimistic than realistic. If the revised release time doesn't meet your installation schedule, you should reconsider whether the product is right for your newspaper.

◆ Don't be fooled. If a system appears to work very fast at the show, remember that the vendor's database is much smaller than the one at a real newspaper. On the other hand, if the system is sluggish at the show, it will be even slower in real life.

After the show:

◆ Have your participants write up their notes while the demos are still fresh — the sooner the better. Designate someone to compile and organize the notes from each session and share them with all members of the technology committee.

◆ Using your checklist, review the notes to determine which systems best meet the requirements of your newspaper.

◆ Prioritize the systems in order of those that best meet your needs.

◆ Arrange for visits at newspapers using the specific systems that are high on your list.

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The Vendors

What you should find out

Anne Saul
News Systems Editor, Gannett Co. Inc.

Ask questions.

When considering new vendors and/or substantial acquisitions from familiar vendors, there are four primary areas of concern:

- **Products**
  - —What is the product line?
  - —What is the product's basic function?
  - —Has the product line been expanded or upgraded lately? Has is ever been expanded or upgraded?
  - —Have performance and/or performance specifications been established, if appropriate?
  - —What are the quality-control provisions for the product?
  - —What are the warranty provisions? What are the costs and availability of continuing maintenance and upgrades?
  - —What other equipment/supplies are necessary by use of the product?

◆ **Finances/Personnel**

—Is the company privately held or public?
—What is the company's net worth; annual sales; last year's profit?
—If a current supplier, what was the annual sales volume for your newspaper company last year? What is five-year history with your newspaper company?
—Are cash terms applicable against billing?
—What inside personnel handle complaints, expediting, service, billing?
—How many people are employed by the company? How many in service or R&D, if areas are important to the product?
—What is the history of the sales personnel assigned to the account?

◆ **Equipment/Facilities**

—What types of machinery does the supplier use in the manufacturing process, if appropriate?
—How old is this equipment? Is it owned or leased?
—How many sales and/or service, distribution offices exist and where are they located?
—What is the vendor's R&D practice (staffing, labs, strategies)?

◆ **Other Customers**

—Who are the vendor's other customers?
—How long have they been customers?
—What industries do these customers represent?

In addition to these questions, you should familiarize yourself with the vendor's competition. If the purchases requires contractual agreements, how does the vendor's document compare with your newspaper's or newspaper organization's standard contract?

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Vendor Questions

Fill this out for each vendor you visit

VENDOR: _____

SERVER HARDWARE/OS: _____

WORKSTATION HARDWARE/OS: _____

DATABASE OS: _____

H&J ENGINE: _____

WIRE SOFTWARE: _____

SECURITY: _____

EDITING/WRITING SOFTWARE: _____

PAGINATION SOFTWARE: _____

1. Is your system Y2K compliant?

2. What hardware configuration would you recommend for a 150-workstation installation?

3. What are the software requirements for each workstation? Does every workstation need Quark (or any pagination client) for accurate H&J?

4. In a Word/Quark environment, how accurate can an editor expect H&J to be?

5. Our Atex (or current XXX) system features user keys and exchange to help edit complicated items such as baseball box scores, horse-racing agate and other wire agate. How would you handle these types of files in your system?

6. If a non-Quark pagination system, how would you interface to our GMTI archive system?

7. Do you utilize your own OPI and/or can you interface to a foreign OPI (Monotype/MGS)?

8. Is any format writing required? Style sheets?

9. Security is always a potential problem with open systems. What scheme does your system use to prevent problems in this area?

10. How do you get the ad stacks on the page? Layout 8000?

11. Can the pagination software (Quark or proprietary) work within a custom template (bar codes, etc.)?

12. How does a designer lay out a page?

13. How does a reporter H&I?

14. How does an editor headfit?

15. Does your editor support notes mode?

16. Can several editors work on a single page concurrently? Can more than one story on a page be handled at the same time?

17. How would you handle zoning (multiple copies of the same page with or without changes)?

18. How many staffers do you have supporting systems (in the U.S.)? Is 24-7 telephone support available?

19. Do you offer a production-tracking package?

20. Do you offer a temporary interface with our current XXX system?

Vendors at a glance

A newspaper systems resource guide

Anne Saul

News Systems Editor, Gannett Co. Inc.

Company Name	Product	Description	Phone
American Computer Innovators (ACI) *http://www.aci-openpages.com*	Editorial System	Uses Object Oriented SQL database. Windows NT server and NT workstations. MS Word with Quark Pagination.	(413) 256-1147 (voice) (413) 256-3125 (fax)
Adobe *http://www.adobe.com*	OPI /PrePress Products	Photoshop most notably. File management utility for the Mac, Adobe OPEN. OPI is Color Central.	(206) 343-4248 (voice) (408) 536-6000 (voice) (408) 537-4031 (fax)
Agfa *http://www.agfa.com*	Imagers/ Scanners/ Supplies	Imagers and scanners. Also offers file and workflow management product called Mainstream. They make film and paper as well.	(201) 440-2500 (voice) (201) 440-8186 (fax)
Advanced Publishing Technology (APT) *http://www.advpubtech.com*	Classified Editorial	System running in Windows using Quark APT Xtentions, MSWord editor. Windows-based GUI for ad taking as well. Full WSYWIG capability.	(818) 557-3035 (voice) (818) 557-1281 (fax)
Archetype *http://www.atype.com*	OPI/File and workflow management	File management servers on InterSep product line. Output manager, OPI and MediaBank (database management server).	(617) 890-7544 (voice) (617) 890-3661 (fax)
Atex Media Solutions *http://www.atex.com*	Classified Editorial	Enterprise classified system running SQL database on and RS/6000 with Windows clients. Editorial system is DewarView. Class. pagination is proprietary API.	(800) 433-ATEX (voice) (617) 275-2323 (voice) (617) 276-1254 (fax)
Advanced Technical Solutions (ATS) *http://www.atsusa.com*	Editorial System	Offers migration strategies to move off Atex 111 systems. Also has standalone product line built around Agile Inc.'s WorkBase. Windows-based, Word and Quark solutions.	(508) 692-4998 (voice) (508) 657-6500 (voice) (508) 657-6543 (fax)

Company Name	Product	Description	Phone
Autologic Information Intern'l *http://www.autologic.com*	OPI/Output/File management	Autologic and Triple-i merger. Core products are OPI/Imagers and file management.	(805) 498-9611 (voice) (805) 499-1167 (fax)
BaseView *http://www.baseview.com*	Classified Editorial	Macintosh-based classified and editorial system. Uses Quark Xtensions to facilitate pagination and its own editor. Class system is ClassManager. Company is a division of Harris.	(313) 662-5800 (voice) (313) 662-5204 (fax)
Baydel *http://www.baydel.com*	Storage/RAID	High-level fault tolerant RAID solution.	(510) 516-7825 (voice)
Binuscan, ColorPro *http://www.binuscan.com/colorpro_us.html*	Color	Automatic color correction and separation software. It works.	(214) 517-6876 (voice)
Binuscan, Inc. *http://www.binuscan.com*	Color management	Software-based solution to scanning productivity. Helps operators to automatically scan and tone photographs.	(212) 681-0600 (voice) (800) 881-2352 (voice)
Cascade *http://www.cascadeinc.com*	OPI File & workflow management Archiving	Former Hyphen owner spin-off. OPI, RIP and DataFLow software for workflow management. Electronic archiving.	(508) 749-7000 (voice) (508) 749-7199 (fax)
CCI Europe *http://www.cci.dk*	Editorial Pagination	Proprietary editorial, pagination system. Also interfaces well with SII front-end.	(770) 579-9371 (voice) (770) 579-0659 (fax)
CE Engineering *http://www.ceengineering.com*	SII Emulation	DECADE/33 Mac or Windows interface to the Tandem/ SII Coyote editor.	(800) 526-5752 (voice) (916) 652-5264 (fax)
CKP Newspaper Systems *http://www.ckp.com*	Editorial Classified	Editorial, classified systems called Millennium.	(603) 472-5825 (voice) (603) 472-3082 (fax)
Ciprico *http://www.ciprico.com*	Storage/RAID	High-level fault tolerant RAID solution.	(919) 832-9492 (voice)
Clariion *http://www.clariion.com*	Storage/RAID	High-level fault tolerant RAID solution.	(508) 898-6300 (voice)
Colorize, by DS Design *http://www.dsdesign.com/colorize.htm*	Display Ad	Software designed to colorize line art. Cheap and works fairly well.	(800) 745-4037 (voice)

Company Name	Product	Description	Phone
Colortron, by LightSource *http://www.ls.com*	Color	Densitometer for about $1K. Will help in setting up a color management system.	(415) 925-4200 (voice)
Computerease Software Inc.	Pagination	Developer of Mac, Windows, DOS pagination software and Quark Extensions. Distributes Pongrass news layout, ad entry, classified pag. software.	(401) 245-1523 (voice) (401) 245-1850 (fax)
Computer Network Integrators (CNI) *http://cni4you.com*	Integrator Editorial Classified	Integrates and installs DewarView, Agile, CNI OPEN, OPS and others. Network expertise. Resells Managing Editor's ClassPag. Works with PPI classified.	(617) 244-5546 (voice) (617) 244-0952 (fax)
CompuText *http://www.computext.com*	Classified Editorial	CompuClass Ad system. Windows NT/Sybase platform. CompuText is Windows-based editing system.	(281) 480-3494 (voice) (281) 480-3559 (fax)
Ctext *http://www.ctext.com*	Classified Editorial	Sybase SQL Database workstations are OS2/based PCs. Uses Word/Quark for Editorial system.	(313) 677-4700 (voice) (313) 677-4747 (fax)
Cybergraphic *http://www.cybergraphic.com.au*	Classified Editorial Editorial Pag	Windows clients running from DEC Alpha servers and SQL database. CyberNews and CyberSell are the main systems. Editorial pagination is NewsLayout by Cyber.	(781) 221-0077 (voice) (781) 221-0070 (fax)
Digital Equipment Corporation *http://www.digital.com*	Integrator Hardware	PCs, servers, printers. DewarView integrator. Purchased by Compaq in 1998.	(603) 884-3382 (voice) (603) 884-2760 (fax)
Digital Technology International (DTI) *http://www.dtint.com*	Classified Editorial Display Ad makeup	Mac-based proprietary front-end vendor. Provides fully integrated system with own software. New system will use Adobe's K-2 pagination product.	(801) 226-2984 (voice) (801) 226-8438 (fax)

Company Name	Product	Description	Phone
DK&A *http://www.dka.com*	Editorial Pag. Color	Publishing software applications. Imposition is premier product for imposing Quark files. Also sells Trapper color-trapping software.	(888) 488-8118 (voice) (619) 488-8118 (voice) (619) 488-9418 (fax)
ECRM *http://www.ecrm.com*	Imagers	Manufacturer of imaging engines. Known for the Autokon and the Pelbox. Sells though distributor.	(508) 851-0207 (voice) (508) 851-7016 (fax)
Foley, Torregiani & Assoc. (FTA)	OPI/Imaging	Supplier of typesetters, OPIs and translation interfaces to integrate legacy systems to PostScript.	(603) 434-5100 (voice) (603) 437-9132 (fax)
Freedom System Integrators (FSI) *http://www.fsi-ipa.com*	Editorial Classified	Former Mycro-Tek company provides Mac-based editing and pagination through Quark. Also has Class system with Quark-based pagination.	(316) 722-8100 (voice) (316) 722-8708 (fax)
Gannett Media Technologies Inc. (GMTI) *http://www.gmti.com*	Display Ad Archiving	AdLink RealEstate software, DiGiCol text, photo archive system that runs on Windows or Mac clients; MASS mobile ad system.	(513) 665-3777 (voice) (513) 241-7219 (fax)
Grand Junction	Network	Maker of ethernet switches and network solutions.	(703) 716-4638 (voice)
Graphic Enterprises *http://www.geiohio.com*	OPI/Output	A leader in plain paper devices. Also has GUSS OPI. Windows NT platform.	(216) 452-2033 (voice)
Harris Publishing Corp. *http://www.harris.com/hpsc*	Classified Editorial	Closed system based on NewsMaker product line. Workstations are PCs under Windows. Sun servers.	(407) 242-5000 (voice) (407) 242-4220 (voice) (407) 242-4074 (fax)
Howtek *http://www.howtek.com*	Scanning	Proprietary competition for PhotoShop with robust family of scanners and software.	(603) 882-5200 (voice) (603) 880-3843 (fax)
I.M.A.G.E. Inc. *http://www.imageinc.com*	Integration	QPS integrator.	(212) 843-8700 (voice) (212) 843-8799 (fax)

Company Name	Product	Description	Phone
John Juliano Computer Services *http://www.jjcs.com*	Interface	Maker of SII and ATEX interface software to bridge them to QuarkXPress.	(404) 377-9450 (voice) (404) 377-9931 (fax)
Konica *http://www.konica.com*	Scanning/ Imaging/ OPI/Film	Supplier of Drum Scanners. Also OEM for ECRM imagers, and GUSS OPI and film.	(410) 544-6405 (voice)
LEXIS-NEXIS/NewsView Solutions *http://www.newsviewsolutions.com*	Archiving	Windows text, photo archiving system with Web interface.	(937) 865-6800 (voice) (937) 865-1780 (fax)
Mactive *http://www.mactive.se*	Classified	Mac-based classified, class. pag., ad layout systems.	(407) 254-5559 (voice) (407) 254-5252 (fax)
Managing Editor *http://www.maned.com*	Layout Class pag	Ad layout system. Mac-based. Receives info from billing system and will layout the paper. Ad Director, Page Director, classified pagination. Hooks well with Quark.	(215) 886-5662 (voice) (215) 886-5681 (fax)
MediaStream, Inc. *http://www.krmediastream.com*	Archiving	Save text archiving. Presslink online photo delivery.	(215) 587-4404 (voice) (215) 587-2148 (fax)
Miles 33 *http://www.miles33.com*	Editorial Classified	British Company. QuarkXPress, MS Word, NT SQL Server for medium to large newspapers.	(203) 656-1800 (voice) (203) 656-2400 (fax)
Mission Critical *http://www.futuretense.com*	Fax back	Maker of ADFAX to receive classifieds sent via fax, performs OCR and routes the ad for makeup.	(978) 263-5480 (voice)
Monotype Systems, Inc. *http://www.monosys.com*	Supplier	Maker of Sun-based MGS3 OPI and RIPS. OEM for multiple imagers including Agfa. "Express" line of products.	(847) 427-8800 (voice) (847) 427-8860 (fax)
Pitman *http://www.pitmanco.com*	Supplier	Full graphics systems supplier. Imagers, scanners, OPI, direct to plate.	(201) 812-0400 (voice) (201) 812-1815 (fax)

Company Name	Product	Description	Phone
Pre Press Solutions *http://www.prepress.pps.com*	Imagers/Rips OPI	Former Tegra/Verityper group. Maker of Panther series imagers and Mac RIPs. OEM for Color Central.	(800) 631-8134 (voice) (800) 631-8611 (fax)
PrimeSource *http://www.primesource.com*	Integrator	Will integrate QPS and many other publishing applications. Can help with entire system design.	(202) 408-7031 (voice)
Publishing Connections Inc. (PCI) *http://www.pcipage.com*	Integrators/ Consultants	Can implement QPS. Also offers extensive business services for consulting on technology direction.	(301) 951-1014 (voice) (301) 951-0927 (fax)
Publishing Partners International	Classified Pagination	Windows-based classified and ad order entry system. Capable of generating invoices. Purchased TECS2 editorial system.	(603) 644-3339 (voice) (603) 623-6017 (fax)
Q Integrators *http://www.qint.com*	Integrator	QPS integrator.	(519) 473-6227 (voice)
Quantum 2000 *http://www.quantum2000.com*	Classified Advertising	Windows classified system, ad layout system using QuarkXPress.	(972) 501-9766 (voice) (972) 501-9768 (fax)
Quark Publishing System (QPS) *http://www.quark.com*	Editorial Pagination	Maker of popular layout software has own publishing system. Mac-based system sold through certified QPS Integrators. For a full list,contact Quark, Inc.	(800) 788-7835 (voice) (303) 894-8888 (voice) (303) 894-3399 (fax)
RunShare	Network	Network acceleration software for Mac and servers	(201) 529-4600 (voice)
Saxotech A/S *http://www.saxotech.dk*	Editorial Pagination	Proprietary text editor. QuarkXPress pagination. Can run on Windows NT or Mac clients.	45 981 63100 (voice) 45 981 63644 (fax)
Scitex *http://www.scitex.com*	Scanning / Image processing	Full range of products for image handling, from scanning to color correction to colorizing line art.	(800) 929-9209 (voice)

Company Name	Product	Description	Phone
Screen *http://www.screenusa.com*	Imaging/Scanners/RIPS	Full range of imaging and scanning products. Offers both Adobe and Harlequin RIPs.	(847) 870-7400 (voice) (847) 870-0149 (fax)
Software Consulting Services (SCS) *http://nscs.fast.net*	Editorial Classified Layout	Reseller/Integrator of Tera's GoodNews editorial/pagination system. Also has ad tracking system and newspaper layout system 8000.	(800) 568-8006 (voice) (610) 837-8484 (voice) (610) 837-8080 (fax)
Stauffer Media Systems	Archiving	Provides Voyager, a database library supporting digital image and text, and Quadrant , an Internet classified publishing program.	(417) 782-0280 (voice) (417) 782-1282 (fax)
Systems Integrators (SII) *http://www.sii.com*	Editorial Classified Layout	Coyote 3 for Windows front-end system. Developing new system using Lotus Notes, Adobe's K-2 pagination product.	(916) 929-9481 (voice) (916) 928-0319 (fax)
Tecnavia, SA *http://www.tecnavia.ch*	Archiving Photo processing	Windows-based photo archive system.	41-91-993 21 21 (voice) 41-91-993 22 23 (fax)
T-One Inc. *http://www.t-1.com*	Archiving	Merlin Photo archiving. Runs on Windows or Mac clients. Trax electronic photo assignment systems.	(617) 328-6645 (voice) (617) 328-9845 (fax)
Tektronix Inc. *http://www.tek.com*	Imaging Networking	Color printers	(800) 835-6100 (voice) (503) 682-2980 (fax)
Ultre *http://www.ultre.com*	Editorial Advertising Production Archiving	Editorial, advertising, production, archiving management software. ViewXPert provides automatic routing mechanism, which sends elements from production database to archiving.	(305) 828-8202 (voice) (305) 828-2924 (fax)
Unisys Corporation *http://www.unisys.com*	Editorial Pagination	Editorial, pagination system for medium to large newspapers.	(972) 541-8059 (voice) (972) 541-8178 (fax)

Notes

The Expense
How to justify a new system

Anne Saul
News Services Director, Gannett Co. Inc.

In addition to enhancing the quality of your newspaper, a new system also can provide significant financial savings.

In the case of adding pagination where none currently exists, savings can be substantial enough to pay for the new system before it is fully depreciated. Although there may be some offsetting additional expenses related to the new system, the overall financial benefits should outweigh these costs.

A new system could save you money by:

◆ Reducing personnel in the production department. (Don't forget to consider benefits savings for the eliminated positions.) Eliminated positions might include:

—Composing room paste-up personnel.

—Personnel who manually strip color photos and graphics into black plate negatives.

◆ Eliminating service contracts for the old system.

◆ Reducing or eliminating materials — such as paper or chemicals — needed with the old system. For example, if pages were previously output to negative film, there will be savings in Velox paper with the new system. If pages currently are shot on full-page cameras, there will be savings in film for these cameras and chemicals to process the film.

◆ Avoiding future costs. What are the additional costs if the system is not replaced? For example, what will it cost to upgrade the old system with a new software version — particularly if you no longer have a service contract or that contract doesn't include software upgrades?

◆ Reducing repair costs. What is paid annually to repair hardware on the old system (keyboards, monitors, CPUs, etc.)?

A new system could cost you money by:

◆ Generating buyouts. Will there be buyout offers for production personnel whose positions will be eliminated as a result of the new system? Some positions can be eliminated by attrition, but there might not be enough attrition to eliminate all positions in the time needed.

◆ Necessitating additional hours on the copy desk, if pagination is to be added. Despite what some vendors say about the efficiency of their systems not requiring additional newsroom personnel, the basic truth is that while electronic page layout is quicker than manual paste-up, the newsroom is doing additional work that previously was done in production.

Determining how much work is difficult because newspapers are different. Some consultants suggest a 20-percent staff increase on the copy desk; others attempt to work out a formula based on the amount of time it takes to paginate a page. Unfortunately, because all copy desks operate differently, there is no industry-wide formula for determining how many additional hours will be needed.

◆ Necessitating additional hours in the systems support department. While the systems department will no longer have to support the old mainframe system, the newer systems require a higher level of expertise and include support of PCs and Macs, as well as of several software programs.

◆ Requiring new service contracts. Servicing the new system will incur additional expense.

◆ Adding film expenses. Additional negative film will be needed if pages are to be output to negative.

◆ Requiring staff training. While the vendor's proposal will include training on the new system, there are related costs such as travel and expenses. In addition, the vendor's training may be limited to a particular component of the system. It might not include basic Macintosh, PC, Windows, Word or QuarkXPress training, which you will have to provide — and pay for. Ask the vendor for a breakdown of all training provided.

◆ Increasing overtime. Budget extra overtime for training and during startup of the new system. Training should be provided during normal work hours, but the newspaper still has to get out, so staffers will have to work longer hours. By the same token, working with the new system will take longer at first; you may need to build extra hours into each day's production to accommodate the learning curve — and still make deadline.

Be realistic

When projecting savings, additional revenue and additional costs, be realistic about when the project will start and end. Consider the time it will take for the proposal to be reviewed and approved, the time it takes to negotiate and finalize a contract and the time it takes to order the equipment.

By the same token, it usually takes longer to complete pagination than you think, so be careful about eliminating too many hours in the composing room or stripping department too soon. While it can decrease your return on the investment, it's better to build in too much time for installation than not enough — particularly if your expense budget anticipates savings or increased revenue as a result.

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Notes

Redesign

Graphics
Adapting to the new system

Brad J. Guigar
Graphic Artist, Philadelphia Daily News

There are only two things that will make a newspaper graphic artist panic: pagination and redesign.

Clinical tests have shown that the mere mention of redesign has been proven to cause hairs on an artist's head to spontaneously wither and gray. Hearing "pagination" in a sentence can cause debilitating palpitations and severe nervous twitching.

Okay, maybe I'm exaggerating. But not much.

Pagination affects the graphics department in a unique way. What follows will be a discussion of issues that arise that are unique to a graphics department. Where these issues present problems, I've offered possible solutions. As each pagination system and configuration is unique, so are the advantages and disadvantages. Therefore, some of the following will apply to you, and some of it will not.

Typical pagination system

Here's what to expect from the run-of-the-mill pagination configuration:

At the center of the operation is a central file server(s) used to house all of the elements (copy, photos, graphics and ads) that go into a page. The central storage unit used for photos and graphics will probably be an OPI (Open Prepress Interface) server. An OPI works like this: Photos and graphics are submitted to the OPI which, in turn, stores them and creates a low-resolution image (a.k.a. lo-res, preview, viewfile, sample or FPO). The page designers will access the lo-res images and use them in designing pages. When they print their pages, the OPI substitutes a hi-res image for each lo-res

image. Translation: A page with a couple of 10MB or 20MB images takes a couple of minutes — instead of a half-hour — to print because the designer's computer isn't dealing with the hi-res images. The designer prints the page and is off to work on another project while the OPI server handles the imaging of the page.

Slugging conventions

Macintosh is the language spoken in most graphics departments, but your pagination system very well could be a PC-based product. Mac and PC files can work on a cross-platform basis, so compatibility shouldn't be a problem. However, this cross-platform environment can affect how you slug your graphic.

In the Mac environment, you can name a file with several words and more than a few dozen characters. Most departments take advantage of this and file their graphics using multi-word slugs, which include the publishing date and a few keywords. A graphic about medical insurance in Ohio that runs on Nov. 12 might be slugged "11-12 Ohio Medical Insurance." To find the graphic later, simply launch Fast Find or Find File from your Mac hard drive and use it to list all the files with the word "insurance" in the file name. This graphic — and others — would turn up. In a deadline situation, the artist can execute a routine search of the archives using a few keywords. If there are similar graphics in the archive, they can be accessed and their data or images can be used in the new graphic.

In some pagination environments, you may be asked to give up such a system. The person instituting pagination at your newspaper may be of the following school of thought: "Anyone should be able to walk in and find the graphic on the graphics database. That means homogenous slugging."

These newsrooms require the artist to use a derivation of the reporter's story slug. This way, when the page designer is looking for a graphic that goes with a story, he or she knows automatically what the slug will be. For example, if the reporter's story slug is 12INSR, your graphic might be slugged 12INSRG ("INSR" for the reporter's story slug — a contraction of "insurance" — and "G" for graphics). For designers, this system is very easy; for the graphics department, it results in considerable difficulty finding archived graphics in deadline situations.

You may be able to make both systems work together by keeping your filing system the same and incorporating the pagination slug into how you process the graphics. For example, you could note the story slug on the graphic and use it only when exporting the graphic to the OPI server. This system is in place in several newsrooms and works well.

Your salvation lies in more technology and a little more effort on your part. Applications such as "Fetch" or "Presslink Explorer" can be used to organize your graphics archive. The extra effort on your part means that each graphic to be archived will be entered along with several keywords that will help you find it later. It's an extra step, but without it, you'll have little chance of finding graphics that are more than a couple months old— unless you have a photographic memory.

EPS files

In all likelihood, you will submit your graphics to the OPI server as EPS files. These will encapsulate all of the data that constitute your graphic (such as visual elements, fonts, etc.).

Sending EPS files to the OPI server can be difficult. Some applications' EPSs actually work better on OPI servers than others'. Personally, I've had tremendous luck with QuarkXPress 3.3. After I create a graphic in another application (Adobe Illustrator, Adobe Photoshop, Macromedia FreeHand, etc.), I save it as an EPS or TIFF. I import the EPS or TIFF into Quark and choose Save Page As EPS from the File menu. I mentioned Quark 3.3 specifically because in one pagination environment, we found that an EPS from QuarkXPress 4.0 conflicted with the pagination system. You'll want to experiment for yourself to see what works.

Quark also makes it easy to process graphics for OPI input. Some OPI servers equate the size of the document to the size of the graphic. In these systems, you could not put a 12-pica x 3-inch pie chart on a letter-sized document and send it to the OPI; the OPI would crunch the letter-sized document down to 12p x 3". The chart would end up the size of a pin-point. If the graphic is 12p x 3", the document used to submit the graphic to OPI should be as close to those dimensions as possible without cropping the graphic. (See the graphic that accompanies this chapter for a step-by-step guide to this process.)

QuarkXPress could be a necessity in submitting graphics to the OPI server if the server requires a DCS file for color images. A DCS file format is a five-part CMYK file — one file for a lo-res image, one for the Cyan plate, one for the Magenta, one for the Yellow and one for the black (K). If your FreeHand or Illustrator cannot create a DCS EPS file, you'll want to use Quark. In Quark, select Save Page As EPS from the File menu. On the right-hand side, near the bottom, you'll see a toggle box that says Format. Click and hold this; it will reveal several options, among them Mac DCS.

Fonts

This one's an easy hit; it's also a common problem. The OPI server may have to be loaded with the fonts your department uses regularly. Make a list of every face of every font that regularly appears in your graphics. Include the fonts used by your wire services as well. Give this list to the person in charge of configuring the pagination system. You will want to send some tests to the OPI server immediately and check the output to address font complications early.

If you have font issues that haven't been addressed yet — for example, they haven't been loaded yet and you're going live tonight ... and, yes, that has happened — here's a little troubleshooting tip for that first week of pagination: Photoshop is your friend.

Here's what to do:

- Get the graphic into Photoshop. This can be done one of two ways:
  - —If you're working in later versions of Illustrator or FreeHand, you may

be able to copy and paste the graphic directly into Photoshop.
—If the first method doesn't work out, save the graphic as an EPS, launch Photoshop and open the EPS from Photoshop.

◆ Once the graphic is in Photoshop, you're dealing with pixels, not fonts. The good news is: No more font conflicts. The bad news is that you'll have to go back to Square One when someone brings in a type correction.

◆ Save the Photoshop document as an EPS or TIFF file.

◆ Close Photoshop and use Quark XPress to process the file.

It sounds like a lot of extra steps — and it is. Also, the type is not as readable as it should be — especially below about 12 points. But if it comes down to a decision between a Photoshopped graphic and a graphic dotted with Courier type, I know which I would pick.

Test, test, test

I can't stress enough the importance of testing the system before the system goes live. Now you know some of the warning signs and that knowledge will help you to build some useful test documents. Test, test and test some more. Test graphics and sigs and illustrations. Test graphics that incorporate photos. Test like crazy. If you see some of the problems I've mentioned, maybe my advice can set you in the right direction — or at least serve as a Band-Aid until you solve it yourself.

Finally, don't underestimate the importance of research. Find out which other newspapers are using the same pagination system. Contact their graphic artists and pump them for information. One thing is certain about newspaper people, and news artists in particular: You can be sure you won't get the company line. They'll let you know about every fumble and foible. You'll have a complete list of warning signs and trouble spots. Have tissue handy — it may get emotional. But, if it ever gets you down, if it starts to look gloomy and hopeless, let this be your guiding thought: Once you have the pagination system in place, a redesign can't be that far away.

Sorry, couldn't resist.

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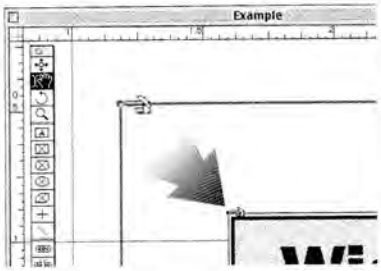
Using QuarkXPress to submit graphics to OPI

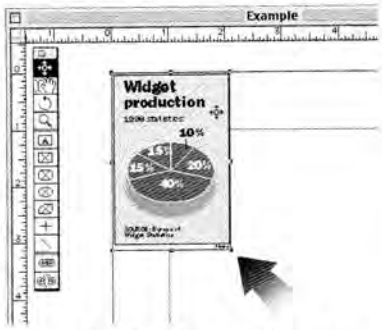
Once you've created your graphic in any application and saved it as an EPS or TIFF, you can use this process to send it to the OPI server.

1 Open QuarkXPress and import the graphic into a picture box.

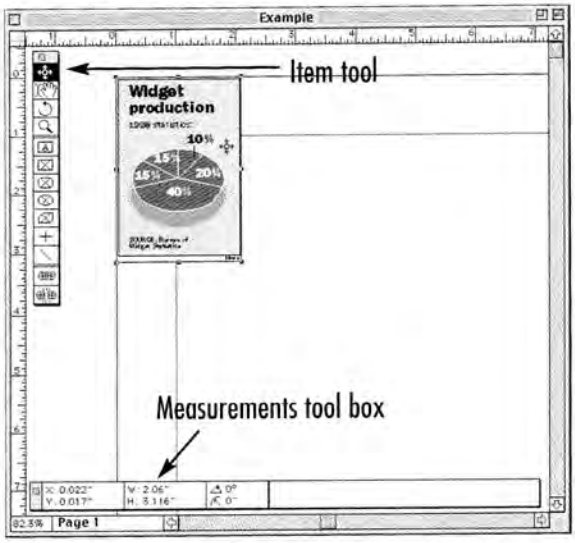
2 Pull in the sides of the picture box so they are as tight as possible around the imported graphic without clipping or cropping the graphic.



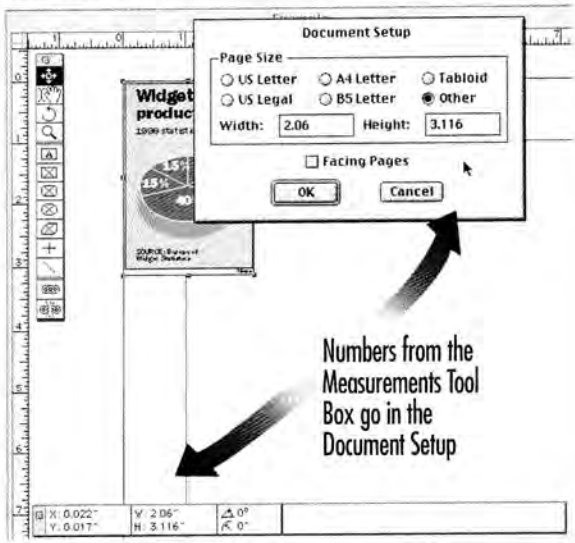
3 Place the graphic at the top right-hand corner of the document.



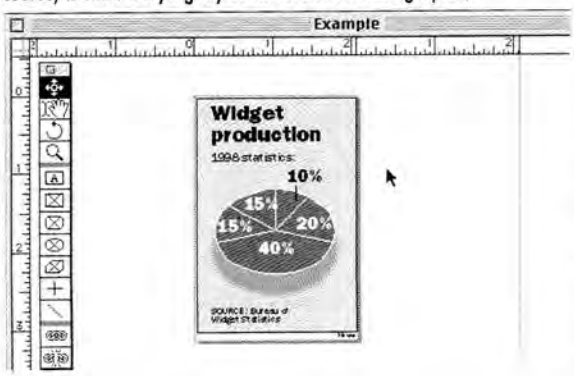
4 Select the picture box with the Item tool and the width and depth will appear in Quark's Measurements tool box.



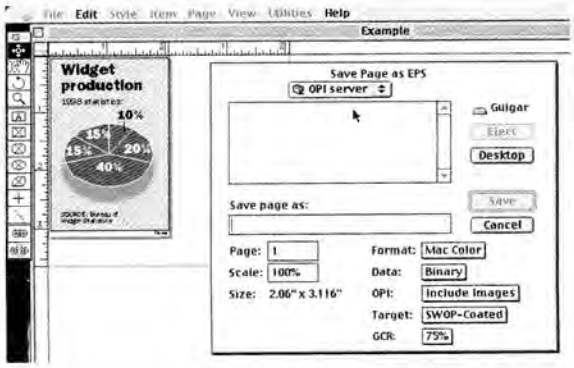
5 Choose Document Setup from the File menu and enter the dimensions of the picture box for the width and depth of the Quark document.



6 OK this dialogue box. The Quark document is exactly the size of the picture box that holds the graphic (which, of course, is sized very tightly to the corners of the graphic).



7 To create an EPS, select Save Page As EPS from Quark's File menu.



Notes

The Redesign

Finding beauty in form and function

Mary Peskin
Design Director, New York Times Regional Newspaper Group

New technology is transforming newspapers by giving newsrooms greater control over production and new tools for design. Technology may not always make our jobs easier, but it does make them different.

Today's newsrooms must be concerned with producing the newspaper as well as with reporting and editing the news. Most editors understand the tools of storytelling, but how many understand the new tools of news production?

The arrival of electronic layout systems have been the impetus for many a redesign. But please take your time. Redesign projects stretch people, resources and technology. Good tools are essential, but so is a good plan.

By definition, design means to find beauty in form and function. It is a process, a plan, a solution. The properties of a design are form, workability, strength and durability. The goal is a product that is functional, efficient and beautiful.

Although every redesign is different, most newspapers with successful projects have shared many similar steps in the process. To facilitate a successful design:

Consider the community.

A good newspaper always reflects the community it serves. Start by listening to readers. Market research allows us to test our instincts; it also helps us look for new opportunities.

Clean house.

One of the healthiest activities of the design process is a good housecleaning. A design committee within the newspaper can review the market research, analyze the newspaper and brainstorm for new ideas. The committee should represent all of the newspaper and be prepared to go through a couple of weeks of the paper, page by page.

Keep it practical.

A design plan must be practical and feasible, easy to use and easy to produce. The design is not an end in itself; it is a vehicle for information. With the content and the news-gathering process planned, the next step is to organize the newspaper in a way that best presents that content, keeping in mind news hole, press configuration and deadlines.

Maintain a structured freedom.

The strength of a good design is determined by the soundness of each of its components. The organization, grid, typography and graphic elements should look as though they came from the same design, but each of these components should be malleable. They become tools to tell stories to readers.

Keep it logical.

Good design does not call attention to itself but rather is a platform for presenting the news. Readers notice the appearance of a newspaper before they appreciate its content. If there isn't a logical flow to the information or if they can't find the story they are looking for, they will give up in frustration.

Staffing, time and equipment are always key components in every redesign process, but particularly so when new technology is part of the mix. Even without a redesign, new technology will offer design opportunities and challenges. To keep the transition smooth:

Reorganize operations.

Newspapers must do more than plug technology into their newsrooms and turn it on. Take a look at reorganizing the news operation with regard to the strengths and weaknesses of people and equipment. For example, some copy editors are better at words and others are better with layout. Strive to reach the potential of each person, but don't try to exceed the limits of time, equipment and talent.

Make a guide.

Set up a design stylebook. Record typographic styles and formats. Show examples of page layouts, graphics and icons. The guide is a handy reference for formats and styles and a reminder of style rules. It also serves as a good training guide for new employees.

Design a color palette.

This is an easy way to achieve visual consistency throughout the newspaper. Choose colors for section headers, graphics, icons, maps and tint blocks from the same pre-determined color families. Art elements will have a consistent look, and the possibility of colors clashing on a page will be avoided.

Establish a graphics stylebook.

Determine typographic style, color usage and line weights. By following the guidelines, all graphics in the paper will have a consistent, planned look of authority.

Remember, durability is measured by the capacity to last in spite of hard wear and frequent use. Certainly, newspapers provide both tests. In addition to maintaining the integrity of content and design, a newspaper must continually look for ways to grow.

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Notes

The Right Stuff

Redesigning for today's news market

Ed Kohorst
President, Society for News Design
Design Editor, The Dallas Morning News

"Today, the word redesign has a much different meaning than it did 10-15 years ago,"
says George Benge, executive editor of The Asheville Citizen-Times in Asheville, N.C.
"Then, it was almost a craze, a phenomenon. You weren't with it if you weren't redesigning your newspaper."

You're considering fine-tuning or maybe redesigning the presentation of your newspaper's content. Now come the questions. What do you want to accomplish? Can you do it with the existing staff? Do you need a consultant? What will it cost?

If you decide to bring in an outside expert, you'll find no shortage of qualified people who will rush to your side. But how do you find the right suitor — one who is sensitive to your needs and who can understand and calm your fears?

Consultants have done this before. This might be your first time. It's OK to be a little nervous and apprehensive.

The relationship between you and the person you hire will become intimate. Dark secrets will be revealed. Quirks and ticks will be exposed. It's important to get the right fit.

"If you don't have the basics, a redesign could make things worse. Don't cover up fundamental weaknesses of content with a veneer of new type faces and design techniques."
— George Benge

According to Benge, today's smart editors are looking at market needs, along with their paper and their readers, to determine what has to be done to make the con-

tent clearer and more coherent. Many presumed redesigns become unnecessary when the content is sharpened and more depth and clarity is added — when the basics are done well.

Evaluate your newspaper's content. If it's solid but presentation is still weak, build a design that supports the strength of that content. If the content is weak, don't look for the redesign to fix it. Design the project to strengthen the content and then let the improved content drive the redesign.

In architecture, form follows function. In information, content dictates design.

"Don't forget production, systems and advertising. Bring these people into the process early — give them a sense of ownership in the project."
— *Craig Klugman, editor of The Journal Gazette in Fort Wayne, Indiana.*

Before selecting a person to drive the project, it's important that you don't ignore your staff. Bring together people that are currently responsible for the presentation of the content. Include others that are essential or interested.

Form a team.

Klugman suggests forming an in-house design team. Assign a point person — one that knows how to get things done in and out of the newsroom — and empower that person to make decisions.

Draft a mission statement.

Use the statement to gauge the worth of each idea. Help the group to develop a personality that encourages creative thinking and the freedom to willingly exchange ideas.

Don't hire a decorator.

Decorators are easy to spot. The first thing they want to do is to toss out all of the furniture and replace it with plastic, chrome and imitation leather — things your readers could never be comfortable with for any length of time. Many current designs can be modified within the present structure. It isn't always necessary to start from scratch. Unless your paper is seriously outdated, consider first the possibility of fine-tuning the existing design.

Avoid the formulaic redesign.

Watch for signs that the consultant is applying a formula to repair the injured part. Not all newspapers need Times headlines with contrasting Franklin Gothic decks. Retrofitting — bringing back pieces of a successful past — is a popular solution, but it's not applicable to everyone. There may be a set of design principles that govern com-

mon problems, but each newspaper is unique — in audience and in voice.

Avoid gimmicks.

Don't be distracted by bells and whistles. A design that depends on cutouts and art type lacks originality and will be short-lived. It soon will lose appeal as it runs out of options to support the content. A good design is simple and intended to move the reader into a comfort zone where there is familiarity and ease of access to information. A good design keeps in reserve the forces that alert the reader and deploys them when the content is extraordinary.

Discuss priorities.

A designer's job is not to make the paper pretty, but rather, through design, identify for the reader what the editors have chosen as newsworthy. The design should be the vehicle the reader uses to navigate the paper. How well does the design recognize and point out the editors' priorities to the readers? What are the mechanisms that your consultant is proposing to build consistency, familiarity, readability and most of all, credibility?

Don't just scratch the surface — go beyond it.

Look at the entire process. If pagination is to be part of the project, it's imperative that you address and settle on workflows and responsibilities. Pagination offers a whole new set of problems and solutions. You'll want a consultant who has technological expertise and can provide your staff some training.

Write a stylebook.

With desktop publishing, define the parameters to control design techniques, which sometimes can run wild. To do this, write a stylebook to record what you have created. This is a most important document for current and incoming staff. You might even consider a video or CD that visually records the style and the rationale that backs it up. The video is a good way to introduce new hires to the paper's presentation philosophy.

"There's a lot of expertise — with a wide variety of price tags — out there for the asking."
— George Benge

The cost for an outside expert depends upon the level of your ambition.

The best don't come cheap and for good reasons, Benge says. Presentation involves much more than fonts, labels and logos. Now, it's content, staffing, training, workflow, some counseling and even the environment we work in.

Shop around. Solicit bids. Bring potential consultants to the site and have them spend time with your design team. They'll be working together, and while they don't

need to become the best of friends, they must form a synergy to get the best results. Friction makes fire; harmony makes music.

"It might seem rudimentary, but you have to ask want you want your paper to be. This information will drive the entire project."
— Craig Klugman

Introduce the consultant to the community. Help them to get a sense of place. Discuss what's important to your readers. If there are sacred cows, talk about them. Explain why you are doing the project and go into detail about what you expect to achieve. Analyze the mission statement.

Make sure the design is in the real world — something that your staff can produce every day with a high degree of consistency, Klugmann says.

Test your ideas.

Make up the "new" paper using real deadlines. Learn where the problems are and make adjustments.

Consider involving your readers. Focus groups can provide valuable feedback.

Don't get stuck. Mount momentum and ride it to the finish. Don't beat to death the right typeface or where to place the jumps. Get a consensus and move the project forward. There's no magic time as to when you're done. Depending on the scope of the project, it could take anywhere from 1-6 months.

Don't spring the design on readers.

Give them some notice and sell the new design on the idea that the change is for them — to give them a better source of information and entertainment.

Once the design has been published, give it some time to gel. Like any new thing, it will have bugs.

Nourish your "newborn" with fresh visual thinking and solid content, and it will develop a strong voice to report on your community and beyond.

And if you need to, call me.

◆

The Future

Embracing change

Howard Finberg
Director of Technology & Information Strategies, Central Newspapers, Inc.

It is Thursday, October 1, 2020 and Kate Oakley, an editor at The Arizona Republic, is about to start work. Kate, however, doesn't work in the office. She works at home.

Firing up her monitor with a verbal "log on" command, Kate gets ready for the daily meeting with her fellow editors and a managing editor at The Republic.

Almost instantly, her monitor is on the "virtual network" and eight images of her co-workers start to appear. Three are at home; two are at remote or shared offices. One is on the road with his team covering a live event. The rest are at the paper's headquarters building.

After discussing reports from the teams that worked the previous "info cycles" — each cycle is four hours and there are teams working around the clock — Kate and her fellow editors start the business of producing material for The Republic.

She doesn't have a computer in her house, only a 27-inch flat-screen that is about one inch thick and connected to The Network. Everything is on The Network: broadcast entertainment signals, written communications and voice messages.

As a senior editor, Kate's responsibilities are varied. She not only oversees the junior members of her team but also is responsible for part of the "info package" that will be created this news cycle.

Using only voice commands to open and access various collections of information, text, images, video, audio and references to other databases, she starts the process of assembling her "infopack." Because it is a relatively quiet "info day," there

wasn't much debate during the meeting as to what are the most significant stories. The artificial descriptions of hard or soft news have long since disappeared from the language of editors.

The most difficult part of Kate's day will be looking at the trend data from the previous info cycles to decide how much other information should be included in this package. Feedback from customers is almost instantaneous, regardless of the medium used to deliver the package.

Finally, with her content selection complete, she starts the process of editing, rewriting, refining and writing headlines for the material. Despite the improvements in The Network's contextual editing and fact-checking system, Kate still likes to fine-tune the package herself so it has a smoother flow that will be more interesting to her customers. She briefly thinks about the rumors that some part of her compensation soon will be tied to how well her packages "sell."

Fortunately, these are just rumors — for now.

While developing the infopack, Kate also has kept a watch for some of the visual elements she will use to entice customers. The Network formats much of the package to templates; this allows her lots of time to add these design touches.

Using a pen-like device and her handheld design pad, she sketches her concepts. As she touches the pen to screen, she creates a virtual layout. Instantly, elements flow into the places she is considering. If the package doesn't look right, a quick "erase" voice command allows her to start over. In the background, The Network keeps a watch on color schemes and adjusts background and accent colors. Of course, all the colors were pre-approved by the template design group.

Kate has a good sense of visual layout, but she isn't a "trained" designer or an artist. There are few of those visual journalists left at The Republic, and they are mostly in senior management. They "coach" editors like Kate in ways to present appealing packages of information. Although Kate was trained as a word or content journalist, she had to pass both a content-gathering test and a presentation test to graduate from the university.

Almost finished, she takes one more glance at her "alert screen," which has been running in the upper left-hand side of the monitor. The screen tracks the most recent news stories and other information that has entered the database. It is blank, so she releases the package to the network and to the managers at The Republic's HQ. The senior editors take a final look and, if they don't have suggestions for Kate, send the package to be "published."

Truth meets fiction

While this is a fanciful look at newspaper work in the not-too-distant future, the technologies are already being developed as part of a "third wave" of pagination systems:

◆ The speech recognition software is available today. It will only get better in the future.

◆ The flat-screen-display is available today. These screens will only get lighter, thinner and less expensive in the future.

◆ The "rules-based" software for automatic production is available today. It will only get faster, smarter and easier to set up and use.

◆ Even the more futuristic-sounding "context-editing software" exists today, and pieces are already being used to search databases for information. This new generation of software conducts searches based on phrases and ideas, not just words. Its results are brought back in manageable form.

The 'infopack'

Did you assume our fictional Kate was putting together a print or website package? Perhaps she was doing neither; perhaps both.

In my vision, packages of information will be delivered through a number of devices and technologies in the next 20 years. Some will be very familiar, such as totally recycled newsprint. Others seem nearly unimaginable, such as a device in the home that outputs material that looks and feels like paper, but which can be "erased" after it is read and used to print the next or latest edition. Some call this electronic paper.

By 2020, flat-screen monitors the size of books, with the ability to display type and images with the clarity of ink on paper, will be widespread. One will always have the latest information available because this device will always be connected to The Network.

All these devices will need the infopacks, which will be prepared by the editors from reliable sources of news and information. Reliable information sources on The Network will be valued commodities in the next century. Our editor, Kate, actually will prepare one type of package and The Network will adjust and adapt her work to fit the delivery device mode her customers need to access her infopack through their choice of information delivery device. In the future, news and information companies will build upon their ability to gather, edit and put into context events and activities for their time-starved customer.

That pesky Information Age

Although many traditional companies are coming to grips with the challenges facing them in a world that is less dependent upon newspapers, a larger number just wish this whole "Information Age" thing would go away. I had a conversation with a publisher of a large newspaper in February 1999. The publisher, whose newspaper is not paginated, was on a road trip to learn more about technology and pagination.

What are the challenges, I asked her:

◆ Money?

No, she will have capital funding for the project.

◆ Technology?

No, there are several very good solutions for a paper her size.

The challenge, it seems, is the newsroom. Her editors aren't sure they want to install pagination, because they fear it will change their culture.

Damn right it will, I said — and it should.

While her editors' fears need to be addressed, their continued unwillingness to embrace change is probably the most important reason why she should push pagination along as fast as possible. As an industry, we have little time left to change an isolationist newsroom culture and deploy our resources of time, people, and money to cope with the challenges ahead. Without a system to manage its assets — the words, pictures, knowledge of the newsroom — how will these editors ensure the survival of their newspapers? If the world is changing how it accesses information at an increasing rate, newspaper companies must change even faster.

Riding the 'third wave'

Now, what about this "third wave" of pagination?

I do not believe that we will see much in the way of pagination system improvements during the next five years. What we will see is an increased awareness of the need to develop databases of information that are "delivery neutral." That means the content is separate from the instructions needed to display the information. Whether these systems use XML or NMT or some other "alphabyte" soup designation does not matter. In the foreseeable future, what the information looks like at the point of delivery to our customers print, Web, pager headline will be separate from the information itself.

The importance of such database/data delivery systems can already be seen as newspapers try to take their printed material, with all of its typesetting instructions, and display it on their websites. For most, this is a major programming task. As new technology on the Web develops, these programmers must scramble to adapt and modify their code.

Searching for smarter, not necessarily newer

Over the longer term, I see a very bright future for those organizations willing to adopt new ways of getting reliable and valuable information to their customers. Most importantly, by the second decade of the 21st century, the newspaper industry — if it still is called that — finally will have stopped talking and writing about "pagination." Pagination will be a word relegated to history's dusty corners, much like "paste-up" and "hot metal." The industry's "Holy Grail" of pagination will have been captured, and we will focus on things that are really important: content and retaining our readers and finding new ones.

As an industry, we have been obsessed with finding a technological solution to a production process that, in the long run, means little in terms of improving our companies so we can survive the challenges of the information age. Instead of looking for new technical methods to do the same old processes, we need to be pushing for smarter and more flexible systems and redoing how we organize our workforce.

New ways of producing our news and information will give us an opportunity to make other organizational changes because we no longer will be trying to replicate the paste-up process of the previous century. It will allow newspapers to evolve into stronger information and community-building organizations.

Some of my bolder, out-on-a-limb predictions:

◆ Design as a unique job function in newspapers will slowly dissolve into other editing responsibilities.

◆ Editing will encompass more than the technical aspects of copy editing and take on more responsibilities for the entire infopacks.

◆ Computers will automatically handle most of the routine production responsibilities, freeing editors to do just what we have always wanted them to do — make journalistic choices on behalf of their readers and the community.

◆ Most, if not all, maps and charts will be produced by software. There will be fewer artists at newspapers doing "art work."

◆ The presentation of information will be of such importance for the organization that the senior editor with such responsibilities will report to the publisher.

Newspapers are on the verge of freeing themselves from the limitations of their production equipment. While I would not predict the end of newsprint as we know it, the era of print-centric delivery is coming to an end. We need to look beyond technology to find the solutions to organize and motivate our workforce for the new millennium. If we are successful, this is the last pagination book you will ever read.

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Notes

Appendices

Dictionary

Computer-related terms

Anne Saul
News Systems Editor, Gannett Co. Inc.

A

Accelerator board — An electronic circuit board that is added to a computer's basic circuit board to assume some functions of the CPU. Most commonly used when referring to graphics display boards.

Access time — A measurement of performance of a computer component indicating the time needed to physically move to a required data location.

ANSI — American National Standards Institute. An independent organization formed to establish standards for data processing in the United States. Often refers to a data-formatting code that supports color graphics.

API — Application Program Interface. The system that provides programmers the framework for performing certain computer functions.

APM — Advanced Power Management. A specification coordinated between Microsoft and Intel to extend battery life for portable computers. Also refers to energy conservation programs in "green" computers.

ARQ — Automatic Repeat Request. A system of error-control protocols for error detection and automatic retransmission of bad data blocks.

ASCII — American Standard Code for Information Interchange. A nearly universal standard for text transmission employing 7-bit code. The ASCII character set of 128 items covers letters, numbers, punctuation and some special characters. Extended ASCII, using 8-bit code, covers from 128 to
255 characters and adds mathematical, graphics and foreign-language characters.

AUTOEXEC.BAT — The essential startup file employed by DOS computers during boot.

B

BAT — File extension for "batch" file, an executable file that automatically performs a series of routine functions.

Baud — A measurement of the data transmission rate through a modem.

BIOS — Basic Input-Output System. Often used interchangeably with ROM. The basic instruction set that governs the flow of information in and out of the central processor.

Bit — A single binary unit usually depicted as numeral 1 or 0, but more realistically, an electrical charge — either plus or minus.

BMP — Bitmap. A file extension used to denote a graphical image composed of individual pixels.

Boolean operator — A logical instruction to a computer database that describes a choice pattern for sorting data. Usually employs alternatives like "either/or", "true/false", "and/but not".

Boot — Term used to describe the process by which a computer prepares itself for operation. Originates from the phrase "to pull oneself up by one's own bootstraps."

BPS — Bits per second. The unit of measurement of data transmission speed through phone lines. Often incorrectly equated with baud.

Byte — eight bits.

C

Cache — A storage place for recently used data or data that a computer algorithm determines might be used soon. The concept is to cache data in RAM or in the processor rather than wait for the slower access to the hard disk.

CD-ROM — Compact Disk Read Only Memory. A storage medium for programs and data that employs an optical reading system. Information can only be read, not written or edited, unless the CD-ROM drive is rewritable.

CISC — Complex Instruction Set Computer. Refers to traditional PCs that employ Intel architecture 80x86 chip sets. Large, complex instruction sets may require multiple execution cycles to complete, hence the emphasis on high processor clock speeds.

Clone — A copy of a proprietary computer design. Once referred to as IBM clones, the majority of home computers now are called PCs.

CMOS — Complementary Metal-Oxide Semiconductor. A low-power chip that is used to maintain clock and system configuration information in a PC.

CONFIG.SYS — An executable file that runs on startup of a DOS computer after AUTOEXEC.BAT to configure the machine. Performs such tasks as loading of device drivers, setting DOS parameters such as buffers and files, etc.

CPU — Central Processing Unit. The basic "chip" that performs data manipulation in your computer. Examples are Pentium, 486DX33, 68040.

CRC — Cyclic Redundancy Checking. An error-checking technique used by modems during data transfer. The sending modem sends a code indicating the results of its transmission. The receiving modem compares the code with its own count of the received data and acknowledges either a good transfer or requests a repeat.

CRT — Cathode Ray Tube. The picture tube of your monitor.

D

DAT — Digital Audio Tape. A cassette tape used for storing digital information. Also referred to as 4mm tape. DAT tapes can hold up to 8 gigabytes of data.

DDE — Dynamic Data Exchange. A Microsoft program device that allows for interchange of information and commands between two applications.

DEBUG — A utility program in DOS used to correct program errors, trace program execution, alter memory locations and perform other tasks.

DIP Switch — A tiny switch on a computer board or peripheral used to adjust configuration to adapt to a particular system during installation.

Dithering — A process used in graphics to create more colors or shades of gray than the original file contains.

DLL — Dynamic Link Library. A Windows program module that is loaded and unloaded based on demand of the basic program.

DMA — Direct Memory Access. A circuit that allows high-speed data transfer between a device and memory, reducing the burden on the CPU.

DOS — Disk Operating System. Generically, the operating system of PCs. Often used interchangeably with MS-DOS, the Microsoft version of the PC operating system.

Dot Pitch — A measure of the width of the dots that make up a pixel. Smaller dot pitch equals sharper images.

Dot Matrix — A type of printer that employs impact on a block of printing pins to form images of letters and shapes. Early versions used 9-pin blocks. Most now use 24-pin.

Dpi — dots per inch. A measurement unit for printed output resolution.

DRAM — Dynamic Random Access Memory. The most common type of RAM.

E

EIDE — Enhanced Integrated Drive Electronics. A spec for computer hard drives that allows faster transfers and larger capacities than IDE.

EISA — Extended Industry Standard Architecture. An improved data bus for AT and later computers. Largely replaced today by VESA and PCI.

EMS — Expanded Memory Specification. A spec to allow DOS computers to access memory beyond the 640kb of basic DOS. Used by XT/AT computers and now largely replaced by extended memory (XMS).

EPROM — Erasable Programmable Read-Only Memory. A ROM chip that can, with special equipment be rewritten to update.

F

FAT — File Allocation Table. The table of contents of a computer disk that tells what sectors are used for what file.

FDISK — The DOS utility that allows for disk partitioning.

FIFO — First In/First Out. Data storage method. Often related to modem data processing.

FTP — File Transfer Protocol. An application to allow exchange of data files between remote computers. Allows for access to the directory structure of another computer. Can allow remote deletion and renaming of files. Related to Internet.

G

GIF — Graphics Interchange Format. A file extension/format popularized by CompuServe for compressed transfer of 256 color graphics.

Gigabyte — One thousand megabytes. Specifically, 1,073,741,824 bytes.

GUI — Graphical User Interface. The operating system interface that allows users to input commands by pointing or selecting graphical icons rather than text commands.

H

HD — High Density. A category of floppy disks usually indicating 1.44 MB capacity on the 3.5-inch diskette and 1.2 MB on the older 5.25-inch diskette.

Hexadecimal — Number encoding in base-16 employing letters A-F and numerals 0-9 used for designating memory addresses in RAM.

HMA — High Memory Area. The first 64 KB of extended memory controlled by the HIMEM.SYS driver.

Hz — Hertz. A frequency unit of measurement equal to one cycle per second.

I

IC — Integrated Circuit. A complete electronic circuit contained on a single chip.

IDE — Integrated Drive Electronics. A type of hard drive with the controller circuitry built in.

Interlacing — A scanning method for video displays that draws alternate lines of pixels with each sweep. Generally considered inferior to non-interlaced scanning.

Interleave ratio — A ratio of the number of hard-disk sectors passing the read head to the number actually read. The ratio is established in low-level formatting and is not usually controllable by the user. Most modern drives now use 1:1 interleaving.
Internet — A popular name to describe the networking of computers world-wide through telephone access. Originally formed from government, industry and university servers, now including commercial providers and individuals.

IRQ — Interrupt Request. A software-initiated action to take control of some hardware aspect. For PCs, this refers to a system of 16 IRQs that, dependent upon the employed bus architecture, may be exclusive or shared.

ISDN — Integrated Services Digital Network. A phone system that allows simultaneous analog and digital sharing of phone lines for data, voice and video transmission.

J

JPEG — Joint Photographic Experts Group. A compression standard used to format both still and video images for PCs. Employs file extension .JPG.

K

Kermit — A file transfer protocol for exchanging data between microcomputers and mainframes. Named for the Muppet.

L

LCD — Liquid Crystal Display. A flat-screen display type used primarily in portable computing devices such as laptops, palmtops and PDAs.

LED — Light Emitting Diode. A small circuit that displays light when a current is applied.

M

Magneto-Optical (MO) — A type of data storage drive employing both magnetic and optical properties.

MB — Megabyte. One million bytes in general usage. More specifically, one thousand kilobytes, with each kilobyte equal to 1024 bytes.

MCA — Micro Channel Architecture. An IBM proprietary bus system introduced with the PS/2 series of computers.

Megabyte (MB) — A unit of storage equal to 1,048,576 bytes.

MIDI — Musical Instrument Digital Interface. Format for connecting a musical instrument to a microcomputer.

MIPS — Million Instructions Per Second. Measurement unit for computer speed.

Modem — MOdulator-DEModulator. The device that converts digital signals from your computer into analog signals to be transmitted over phone lines to another computer.

Morph — A slang termed derived from "metamorphosis." Used to describe the computer process of blending images in a smooth transition.

MPEG — Moving Pictures Expert Group. A data compression format for motion-video. Associated with file extension .MPG.

MSDOS — Microsoft's Disk Operating System.

N

Nanosecond — One billionth of a second. A measurement for RAM access speeds.

Nonvolatile Memory — RAM that employs a supplemental power source such as a battery to maintain information when normal power is turned off. Often called CMOS.

Null Modem — A cable that allows the transfer of data between two computers across the serial port.

O

OCR — Optical Character Recognition. Software programs that analyzes bitmap shapes and replaces with ASCII characters. Used to convert scans or faxes to editable text.

OEM — Original Equipment Manufacturer. A manufacturer who sells its product to a reseller.

OLE — Object Linking & Embedding. An enhancement to DDE that allows edit of data created in one application from a document created in another application.

OPI — Open Prepress Interface. A central storage unit for photos and graphics.

OS/2 — IBM's 32-bit graphical user interface operating system for PCs.

OS — Operating System. A collection of programs for operating a computer. May include input/output, file-management, and maintenance utilities.

P

Parallel Port — A port, often called a printer port, that transmits data in parallel, simultaneous channels (eight paths for 8 bits at a time).

Parity — A method of error checking for binary data transmission.

Partition — A hard-disk section usually restricted to a single operating system. Often used synonymously with "volume," or "logical drive."

PCMCIA — Personal Computer Memory Card International Association. Organization that established the standard for portable computer removable accessory modules. Now used to identify credit-card-sized devices used for memory, fax/modems, network adapters, hard disks and other devices.

PDA — Personal Digital Assistant. A pocket-size computing device used for maintaining calendars, contact lists and simple notebooks.

PIF — Program Information File. A small program containing necessary data to run non-Windows programs under Windows 3.1x. Called Property Sheets in Windows 95.

Pixel — Abbreviation for Picture Element. The individual illumination units that make up your computer monitor screen. An image is composed of pixels that are illuminated or dark.

PnP — Plug-and-Play. A hardware/software specification that allows automatic configuration of switches, jumpers, DMAs and IRQs in a PC.

Port — A connection between a computer adapter card and a peripheral device. In PCs, one of two printer (parallel) ports or four communications (serial) ports.

POST — Power-On Self Test. A series of tests run automatically during bootup. Errors are signaled by a beep code. Completion of POST is signaled by a single beep.

PostScript — A page description language developed by Adobe Systems. Used by some laser printers and high-quality desktop-publishing programs.

PPP — Point-to-Point Protocol. Standard protocol now used for Internet connection over standard telephone lines with high-speed modems. Replaced SLIP.

Protocol — A system of rules or procedures governing communication between two devices.

Q

QIC — Quarter Inch Committee. The standard-setting group for tape-backup units employing quarter-inch-wide tape as the storage medium.

QPS — Quark Publishing System.

R

RAM — Random Access Memory. The part of your computer in which active information such as programs or operating system instructions is stored. Instantly accessible by the microprocessor. Usually expressed in megabytes.

Raster Graphics — A technique for creating images as a matrix of dots. Commonly seen as "bitmaps." Forms the basis for "paint" programs.

RISC — Reduced Instruction Set Computer. A system employing fewer instructions to accomplish tasks more quickly than CISC.

ROM — Read-Only Memory. A set of computer instructions designed into your computer that cannot be changed. Critical boot instructions for startup of your computer are written here.

Root Directory — The main, usually unnamed, directory of any disk.

S

SCSI — Small Computer Serial Interface. A protocol for attaching peripheral devices to a computer bus. Allows for a series of connections — or "daisy chain" — of multiple devices such as drives, printers, scanners, etc.

Serial Port — A port that transmits data from the computer to a peripheral device sequentially, as opposed to in parallel. Generally considered slower than parallel ports.

SIMM — Single In-Line Memory Module. An array of memory chips on a single unit for easy installation in a computer board. Currently 30- and 72-pin SIMMs are used for RAM.

SLIP — Serial Line Internet Protocol. Method of connecting to the Internet from a PC using standard phone lines. Largely replaced by PPP.

T

TCP/IP — Transmission Control Protocol/Internet Protocol. A system of protocols to link dissimilar computers and allow the exchange of data. Essential for PC communication on the Internet.

TIFF — Tagged Image File Format. A digital graphics file format developed by Aldus Corp. Supports black/white, half-tone and grayscale images.

Token Ring — A local area network system that controls data transmission through data packets called "tokens." Considered superior to other LAN configurations because its data control eliminates collisions and conflicts between data packets. Employs "twisted pair" wires rather than coaxial cables.

True-Color — Also called 24-bit color, allows for as many as 16.7 million colors in image depiction on a CRT.

TSR — Terminate-and-Stay-Resident. A program that performs a function then remains in RAM until called upon again.

Twisted Pair — A type of wire in which small copper conductors are twisted around each other to minimize interference. Most common in telephone wiring.

U

UART — Universal Asynchronous Receiver Transmitter. A chip that controls serial data transfer in a PC. Originally 8250 in XT machines. Now 16550A in machines that employ high-speed modems.

UPC — Universal Product Code. A 10-digit computer-readable identification label. Often called "bar code."

V

V.xxx — The letter V followed by a two-numeral code (and often an alpha extension) is used to denote compliance with communications standards in modems. For example, V.34 indicates a modem capable of 28.8 kbps transmission.

Vector graphics — An object-oriented means of graphics depiction in which shapes are defined mathematically as single units. Employed commonly by "draw" programs.

VESA — Video Electronics Standards Association. Often synonymous with VL-bus (Video Local bus). Describes a PC architecture that supports direct connection of high-speed adapters to the local processor bus.

VGA — Video Graphics Array. A PC video standard for color monitors at 640x480 resolution in 16 colors.

Virtual Memory — A technique to increase apparent RAM by writing information repeatedly to the hard disk. Often called "swap file."

Virtual — Term to describe a software simulation of a hardware item.

VRAM — Video Random Access Memory. Special DRAM chips that allow for simultaneous access by both the PC processor and the video-card processor to speed data exchange. Often called "dual-ported" RAM.

VxD — Virtual Device Driver. A special Windows software module that allows high-priority data exchange between the processor and Windows programs.

W

WORM — Write Once-Read Many. A storage device, usually optical, that allows for one-time-only recording but repeated access to data that has been written.

X

Xmodem — An early file transfer protocol with error checking designed for 128-byte block transmissions over 300/1200 bps modems. Was updated to 1k-Xmodem, which increased block size to 1024 bytes.

XMS — Extended Memory Specification. A means of accessing memory beyond the 640kb conventional memory specification of DOS.

Y

Ymodem — An upgrade to Xmodem that employed 1K data blocks and allowed for "batch" transfers of pre-designated groups of files. Upgraded to YmodemG, which eliminated transfer-error checks in favor of hardware-error detection in most high-speed modems.

Z

ZIF — Zero Insertion Force. CPU sockets that employ movable contacts rather than pressure-fit ones. Allows easier interchange without damage.

Zmodem — A file transfer protocol offering high-level error detection and capability to resume an interrupted transfer from the point of break.

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Notes

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