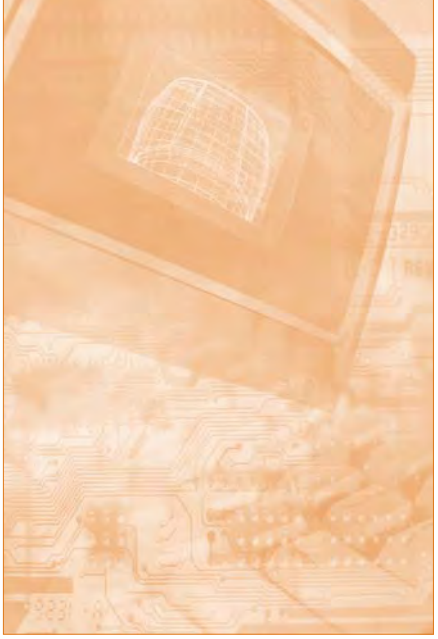
Beyond Hype: The Real Deal About Linux



Created a dozen years ago by a curious student, the Linux operating system has exploded in popularity and market share. What exactly is Linux, what's all the talk about, and how can it save your printing business big bucks?

By Charles Pickett

Linux has become a cheap, stable, and reliable alternative to expensive proprietary operating systems, specifically Unix and Microsoft server products. Once accessible only to über-computer geeks, Linux has matured in sophistication and simplicity so users from major corporations to home Web surfers can enjoy its benefits.

A record of reliability, strong performance, a lower total cost of ownership, and anti-Microsoft sentiment in many quarters are fueling large growth spurts in deployment of this Unix-like operating system.

Free Distribution

Linux can run on a number of different computer hardware platforms, and most distributions are absolutely free. Even Wal-Mart offers Linux as an option on some new computers. For many uses, inexpensive Linux is "good enough."

Linux is not for everyone, however. Support can be spotty, local expertise lacking, the software confusing, and it is missing a number of mainstream and print-specific applications. Using it means learning a new operating system that is best controlled from the shell prompt (which looks like DOS).

That said, Linux could save your printing company lots of cash.

A Bit of History

Created in 1991 by Linus Torvalds, a University of Helsinki computer science student, Linux has far surpassed its humble beginnings. In his quest to discover how to write an operating system from scratch, Torvalds built one that could run on readily available. Intel 80386 and 486 IBM PC clones.

He freely distributed his early work and solicited other newsgroup posters for feedback. Torvalds wrote in a now-historic post, "It is still small enough to understand, use, and modify, and I'm looking forward to any comments you might have."

Since its creation, hundreds of independent programmers have hacked, rewritten, challenged, and coded scores of iterations of the source code. Linux is relatively new on the block (Unix was first developed in 1969 and PC DOS was released in 1981), but the system is considered by some to be a shining star of the open-source movement.

Any exploration of Linux must include a look at open-source software. The quickest way to define open source is to describe what it isn't: proprietary. The source code of proprietary software is highly protected against duplication and is privately owned and controlled.

Open-source software, on the other hand, is available to the general public free of charge for use and modification. There are literally thousands of open-source software projects being bandied about the Internet by hobbyists and programmers. Some see the open-source movement as a response to the dominance of corporations and their proprietary software.

Minimizing the Risk

For many users and business owners, open source software maintained by tinkering hobbyists was too high a risk despite the cost savings, especially for server operating software. If there is a problem, whom do you call?

Fortunately, when it comes to Linux, much of that has changed in the past few years. Leading Linux distributions are made by large and mid-sized corporations that offer corporate-class, enterprise solutions and long-term support options.

For example, market leader Red Hat (*www.redhat.com*) is a publicly traded company with 600 employees worldwide and a range of support options. Other popular distributions include SuSE (*www.suse.com*), Man-

Quick Tip

Learning a Unix-like operating system does not sound like much fun. If you are new to Linux, wade into the waters by spending a few bucks and getting a boxed set with manuals. Buy an additional big, fat book that will walk you through the Linux distribution you have purchased. Consider going with the market leaders (Red Hat, SuSE) and, remember, Linux will run on most PCs (and some Macs).

drake (*www.mandrakesoft.com*), Slackware (*www.slackware.com*), and Debian (*www.debian.org*). Yellow Dog Linux (*www.yellowdoglinux.com*) can run on a PowerPC Mac.

Gauging a Trend

To gauge a technology trend, researchers may reference market share and revenue reports. Gartner (*www.gartner.com*) and IDC (*www.idc.com*) are two preferred sources of market-share statistics that say basically the same thing: The Linux server market in the U.S. is growing rapidly. IDC reports Linux has become the world's fastest growing server operating system, but that's not without a little debate.

While proprietary software market share is relatively easy to estimate based on number of units shipped or revenue, measuring open-source software is an inexact art. Since it can be downloaded for free and installed on any number of machines, its market share, including that of Linux, may be based on downloads, surveys, and number of units shipped, depending on who's counting.

IDC's Worldwide Quarterly Server Forecast (Sept. 2003) predicted the worldwide Linux server market to grow 34% over the previous year to $3.1 billion. The report also forecast the Windows server market to grow 8% to $15 billion. Who is losing? IDC reported the Unix server market has declined more than $12 billion between 2000 and 2002, losing about two fifths of its value.

Because gauging market share for open-source software is difficult, some have argued that the Linux market share is much, much bigger. Witness a jolting report from Gartner Dataquest, which pegged Linux server revenue up 90% in the fourth quarter of 2002 compared to the previous year's quarter.

Linux commands a very small percentage of the desktop market, however, which is dominated by Microsoft Windows, with other desktop operating systems (including the Apple Mac OS) trailing far behind. In September, Gartner released a report cautioning that, while Linux is a wise choice for some central computer servers, many businesses are better off merely upgrading to newer versions of Microsoft Windows.

> *"The biggest costs in using Linux may be support and training."*

Cost is the paramount reason fueling the Linux server trend, with anti-Microsoft sentiment and increased performance vying for second.

Whatever the reason, printers and businesses in general want their server operating systems to be reliable, secure, fast, and cheap.

Total cost of ownership (TCO) represents how much it actually costs to own technology such as a computer or software. When figuring out the TCO for a technology, remember to include the original cost of the computer, software, maintenance, technical support, training, and hardware and software upgrades. Keep in mind that, while Linux OS will run on Intel x86 machines, software for Windows won't run on Linux, so expensive applications may have to be repurchased.

Many Linux distributions are free. Those that offer more services (such as upgrade notifications and service plans) cost more. The biggest costs in deploying Linux may be technical support and training.

Expressing Concerns

Interviewees quoted in *The Linux Tipping Point*, a March 2003 white paper from Cambridge, Mass.-based Forrester Research, Inc.(*www.forrester.com*), gave a number of reasons for not deploying Linux, including lack of applications, operating system immaturity, and version fragmentation. Topping the list of concerns was a lack of enterprise (commercial) support. This concern may already be dwindling with large distributors Red Hat and SuSE offering enterprise support, and ►

(continued on page 7)

Linux In the Marketplace

Scan the business press and you're sure to find examples of companies and organizations using Linux. Here's a sampling:

- The U.S. Postal Service uses 900 Linux-based computers for an OCR (Optical Character Reading) system developed by Pacific Northwest Software. The system was deployed in 1997 in all the USPS major processing centers.
- Siemens Business Services uses SuSE Linux to help process payrolls for more than 170,000 employees worldwide.
- Starting in 2000, the Walt Disney Company, Burbank, Calif., moved to Linux for digital animation work.
- The large-volume trucking division of FedEx deployed 15 Linux servers to host its customer service application in late 2002. FedEx has dabbled with Linux for years for file servers and information kiosks.
- Ford Motor Company announced in late September, 2003, that it is looking at the Linux operating system to replace some of its Unix-based servers because of the potential cost benefits.

document management that are on the market.

Here are some of the most recent developments from four major DAM technology providers:

- According to Canto Inc. (*www.canto.com*), its recently introduced Cumulus Internet Client Pro digital asset management package enables site visitors to sort, select, and download items; catalog new assets; assign assets to new categories; edit and update stored metadata; or check assets in and out for local processing. Cumulus is easy to integrate with an existing workflow due to its open-software architecture.
- Stellent Inc.(*www.stellent.com*), a global provider of content management solutions, earlier this year acquired the assets of Ancept Inc., a leading provider of digital asset management solutions. The strategic move enhances the existing digital asset management component of Stellent's Universal Content Management architecture, which also includes document management, collaboration, Web content management, and records management functionalities.
- Prinexus (*www.prinexus.com*), a provider of marketing services and solutions, has selected for its new outsourcing service for digital asset management the TEAMS solution from Artesia Technologies (*www.artesiatech.com*). The new offering will allow clients to take advantage of Artestia TEAMS' functionality for managing rich media and other digital assets and will be fully integrated with Prinexus' other services spanning the entire lifecycle of marketing collateral development, production, and distribution.
- WebWare Corporation (*www.webwarecorp.com*) announced the introduction of WebWare ActiveMedia Access™, which the company touts as the first enterprise-ready digital asset management system for under $50,000. ActiveMedia Access enables enterprise workgroups, creative agencies, video post-production facilities, and similar environments to create a digital library for a variety of rich media, including key graphics, layouts, illustrations, slide presentations, and video.

The system allows authorized users worldwide to access, approve, track, audit, and transform key product and marketing content instantly and securely over the Internet.

As business continues to covert to digital, digital asset management will evolve from an optional service to an essential element of doing business and serving clients. ■

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Linux

Continued from page 5

trusted vendors such as Dell, HP, and IBM in the mix.

The level of available local support should also be factored into the equation. With Windows NT/Server, most people can fudge through a restart. Try that while staring at the unforgiving and unfriendly shell prompt on a Linux box.

Some distributions of Linux now have powerful graphical desktop environments (such as X Windows) that make computing easier, but the shell prompt still offers the better administration environment.

So how much will it cost to train or buy local (or in-house) Linux expertise? Can your local troubleshooter provide periodic maintenance? In a worst-case scenario, can he or she strip down the Linux server and build it back up so it is fully operational again?

The need for local support also extends to custom installations of software or integration into the LAN. Hiring Linux expertise to do a custom install or software programming can be extremely cost prohibitive and a concept killer.

Going for the Goal

Improving plant productivity and reducing internal costs are two goals that printers, like all manufacturers, should constantly strive to achieve. Before replacing racks of Unix or Windows 4.0 NT boxes with Linux, printers should instead step back, define some goals, discover limitations, seek solutions, and then develop tactics.

After a careful review, you might come to the conclusion that your network runs great and just requires a few tweaks. If, however, you are faced with replacing thousands of dollars of legacy hardware running proprietary Unix or Windows NT/Server software or are looking to improve on automation, it may be a good idea to do some shopping around.

A Better Idea

Sacrificing functionality to save a few dollars or installing server software that can't be supported are both bad ideas. When searching for limitations, make sure the press, prepress, and server software (OPI, fonts, archive, etc.) you use run on Linux.

If preserving Mac resource forks are important to the workflow, HFS+ file server volumes and not Linux may be in your future. Don't overlook UPS (uninterruptible power supply) software or device drivers. Not all vendors have ported their software to this upstart OS and some may never do so.

Investigating the options and weighing the costs/benefits will help you decide which operating system is the best choice for your company. ■

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Low-Cost Ways to Get Started in VDP

From dealing with dirty data to investing in expensive equipment, testing the variable data printing waters can be daunting. With some forethought and the right tools, however, printers can find cost-effective ways to enter this value-added service arena.

By Charles Pickett

Variable data printing (VDP) can offer printers a way to add value for their customers and capture more of their marketing dollars. The key, however, is to make VDP a *profitable* venture, something not all printers have been able to do.

The tools are not cheap. Neither is the training. What's more, many customers still don't see the value in the customized marketing opportunities enabled by VDP. But, as the success many printing companies have had with VDP illustrates, the service has enough revenue and profit potential to warrant consideration.

Getting Comfortable

A good way for printing companies to get started in variable data printing is to cut their teeth on one of the cost-effective desktop VDP software products on the market before making a heavy investment in a server-based VDP solution. Then, as the printer's employees—and customers—become comfortable with manipulating data for basic VDP print jobs, the company can upgrade to more sophisticated equipment and systems to handle more complex jobs.

There's a wide range of VDP solutions on the market, including complete end-to-end workflows. Printers who are just "testing the waters" can consider starting with these relative inexpensive desktop tools:

- **Microsoft Word:** The mail merge feature of word-processing applications provides the most basic VDP technique: Instead of printing the recipient's name and address on a mailing label, the address block is printed directly onto preprinted shells. Not very glamorous, perhaps, but definitely a low-cost VDP method using a desktop computer, the Word mail merge feature (Tools>Letters and Mailings>Mail Merge), and an inexpensive ink jet printer.

When it comes right down to it, all variable data printing applications are sophisticated mail merge tools. Using the ubiquitous Microsoft Word can be a very inexpensive stepping stone to more complicated and profitable VDP jobs.

This basic VDP technique also exposes printers to what may be the paramount issue with VDP: cleaning up client data. From incomplete addresses to client-supplied files that can't even be opened, fixing unmanageable client data is a top concern for all VDP-service providers. For beginners, it's the first and biggest hurdle.

- **Personalizer-X:** Significantly more sophisticated than a word-processing program, this Agfa developed QuarkXPress XTension is now available from Techno Design B.V. For a relatively inexpensive VDP tool, it is easy to use and offers some advanced features. It can use QuarkXPress tags and BitStream Barcode fonts and can employ AppleScript for automation.

Unfortunately, it is only available for QuarkXPress 4.1.x and 5.x (not Quark 6.0). A fully working version that can be checked out for a limited number of days can be downloaded from *www.technodesign.com*, where a single user license costs $1,199. Optional digital printer drivers (IntelliStream, PPML and PPML/VDX) are available at additional cost.

- **DL Formatter:** Available for Mac and PC platforms, version 2.0 of DL Formatter by Datalogics (*www.datalogics.com*) was released in July. The desktop version of the DL Formatter family, the DL-100, costs $3,300, plus an annual maintenance fee of $650, mandatory for the first year according to one of the company's distribution partners. The company's server offering, the DL-1000, is priced at $33,000, with the non-printing DL-10 as a front end.

Bevy of Features

Although some functionality has been lost from the legacy DL Formatter Classic, the DL-100 has a bevy of features that include automatic generation of tables and charts. DL-100 supports InDesign 2 and CS and Quark 4.1 and 5. Layouts created in QuarkXPress or Adobe InDesign are exported to Adobe Acrobat, where the variable text and image frames are set up.

- **Darwin:** Formerly from Scitex, now from Creo (*www.creo.com*), the recently updated Darwin 6.1 is a Mac OS X native QuarkXPress XTension that supports XPress 6. There are two flavors of the data-driven graphics application on the market: Darwin Desktop ($2,995) and the more robust Darwin Pro ($4,795).

Both require a USB dongle with a unique license. Data must be imported in a tab-delimited, DBF, or space-delimited format. The Pro version offers dynamic chart creation.

- **DesignMerge:** Now back in the Meadows Publishing Solutions camp, DesignMerge Pro ($3,495 with recommended $600 annual maintenance fee) outputs to any PostScript device and has a number of optional drivers (PPML, Creo VPS) and optional modules (barcode, AppleScript).

Although the application is not OS X native, the Quark 6/OS X version is in beta and should be available before fall 2004, with an InDesign version forthcoming. A demo copy is available at *www.meadowsps.com*.

- **PrintShop Mail:** A standalone application developed and marketed by Atlas Software BV (*www.printshopmail.com*), Printshop Mail is an advanced mail merge program (but purportedly runs much faster than many other mail merge programs). It supports Dbase, delimited ASCII format and has open- database-connectivity (ODBC) support on both Windows and Mac platforms.

The software solution includes free bar code fonts and is available as a demo (designer mode). The standard, single-user version (200,000 records) costs $1,395. A production version costs $4,995. Atlas offers a support contract for $695.00 per year.

Now Mac OS X native, with support for Adobe Acrobat versions 5.x and higher, PrintShop Mail offers more features on the PC platform including SQL Server connections, text overflow, and automatic printing. A USB hardware dongle is required.

On the Windows operating system, a copy of Adobe Acrobat must be installed (Mac OS X handles both PDF printing and displaying at the system level). ■

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DIGITAL PrePress

Client-Supplied PDFs Can Be Bane or Boon

Widely accepted for proofing, the Portable Document Format (PDF) is also being used by a growing number of customers and printers for final output file exchange. Here are some tips for helping your clients produce printable rather than problem PDF files.

Accepted as a file format for information exchange globally, Portable Document Format (PDF) has become ubiquitous in electronic publishing since its introduction in 1991. PDF has been at the vanguard of the desktop publishing revolution and fostered the widespread acceptance of soft proofing.

Now, in what's becoming a relatively new, but increasingly common, role for the file format, more and more customers are submitting PDF to their print suppliers for final output. When prepared properly, PDF files are wonderful for prepress departments to work with and can form the basis for printers to implement an efficient PDF-based workflow throughout their organizations.

What's the Problem?

The problem is, however, that many of the PDF files submitted as "print ready" are not at all ready for print—a difficulty prepress departments historically have encountered with native desktop publishing files.

NAPL did a spot check of printers currently accepting PDF for final output, all of whom touted the benefits of receiving properly designed PDFs. The flip-side caveat to that, however, is that the respondents said that a whopping 70% to 95% of submitted PDFs are not properly made. "We generally—secretly—dread customer-supplied PDFs. They add time and risk," one printer noted, echoing sentiments expressed by a number of respondents.

Some of the problems printers commonly encountered with customer-submitted PDFs are:

- Fonts that are not embedded or included with PDF, causing font substitution.
- Wrong color space (images and objects are RGB, not CMYK).
- No bleed, margin or incorrect pages size.
- The "unprintability" of the transparency feature offered in Adobe products.
- Problems with spot color.
- The relative difficulty of editing PDF (compared with native files) when customers have changes.

"A lot of designers still have no idea what PDF/X is."

PDFs can be so problem-ridden that some printers prefer receiving native applications files from customers despite having a PDF workflow. One such printer is PrintingForLess.com, Livingston, Mont., which has been implementing a total PDF workflow internally for more than five years.

"The reason why we don't want customers to make PDFs is because they rarely do it right," notes Boyd Badten, co-founder.

"Some printers take the strategy of rigorously trying to train their customers to make PDFs correctly or in other respects to prep their files better," he says.

"That might work for printers who have a few hundred relatively high volume customers. We on the other hand, have tens of thousands of customers and we gain dozens of new customers per day. Therefore, training customers isn't a very efficient strategy for us," he notes.

Rigorous Training

Instead, PrintingForLess.com rigorously trains its employees on how to fix troublesome desktop publishing files (including PDF), offers extensive online information (specifically about correct file preparation, accepted document sizes, etc.), and strives to make the whole process easier on the customer.

There are a number of companies that have had success with receiving and sending properly prepared PDF files for final output. One such company is Cincinnati, Ohio-based magazine publisher ST Media Group International, which both receives and submits final-output PDFs as part of its workflow.

"I send all my files to my printer as PDF/X, and in the past year, I have been stressing to my advertisers that I want to receive their ads as PDF/X-1a files," says Tricia Houston, production director of ST Media.

Houston credits much of her company's success with PDF to its print-service provider, R.R. Donnelley, which, says says, "gave us excellent guidance and the proper tools and education on how to create our pages so that we would give them the files exactly as they wanted them.

"We received a driver and a set of job options that we loaded into our system—and other than a couple of snafus over the past two years, it has worked great," Houston notes. *(See article on R.R. Donnelley's PDF-education program, p.8).*

Houston takes a similar approach with her advertisers, a strategy she describes as "education, education, education. I spend copious amounts of time on the phone and in e-mail helping them to understand what a PDF/X file is, and how to properly create one to our specifications.

"A lot of designers and agencies still have *no* idea what PDF/X is," she points out, "so I try to help them understand. I have a set of PDF/X job options on our web upload site that I direct them to so they can load those settings."

No Silver Bullet

Although there isn't a silver bullet for minimizing the hassle—and costs—associated with handling poorly prepared PDFs, there are some things printers can do to both increase the quality of the PDF files they receive from customers and rectify problem files more efficiently, including:

- Customer and employee education.
- Establishing and clearly communicating specifications for PDF for final output.
- Posting specs, print drivers, and job options on the printers' website.
- Deployment of preflight and postflight tools.

As part of a customer education program, develop detailed specifications for PDF files and consider making PDF/X-1a your preferred PDF version for final output. Considered by GRACoL (General Requirements for Applications in Commercial Offset) to be the format of choice for final output file exchanges, the properties of PDF/X-1a eradicate several of the more prevalent prepress problems (missing fonts, RGB images, etc).

Establishing clearly defined parameters for document size and communicating them to customers can help printers avoid receiving incorrect document and bleed sizes.

A good practice is to send customers that need extra guidance a blank document in the desktop publishing application of their choice (e.g., Quark, InDesign, etc.), or post templates of common products and sizes (a business card template, for instance) on your company website for clients to download.

"All signs point to PDF becoming the format of choice."

There are server-based PDF workflow solutions, but it's generally not necessary for printers to make that investment unless their volume demands it or they are restructuring their prepress workflow.

A number of the prepress professionals we contacted said they have achieved excellent results from some of the desktop versions on the market, including Markzware FlightCheck for preflighting and Enfocus Pitstop Pro for postflighting.

All signs point to PDF becoming the format of choice for final output file exchange. Printers who proactively work with their customers to make that file exchange as efficient and trouble-free as possible will reap the benefits of a more efficient workflow. ■

—Charles Pickett

GUTTER TALK

Dealing with Creep

Educating your customers on how to deal with creep will save your prepress department time and effort. Creep is the term used for the way the inner pages of a signature or the inner signatures of a saddle-stitched book stick out from the outside edge of the book block.

On jobs in which the designers did not compensate for creep, some of the inner page's text may be lost to the trimmers, cautions graphic arts publishing and design expert Christina Kim, co-author of *Designer's Prepress Companion.*

Kim explains that designers should compensate for creep by:

- Using ideal margins on middle pages.
- Having the printed area closer to the trim edge on outer pages.
- Having the printed area closr to the binding edge on inner pages.

The compensation amount generally need not be much more than 0.125 in., she notes, suggesting that, as an example that illustrates this concept for customers, printers compare the inner margins of a center magazine spread with those of outside pages.

In books with large signatures, such as a dictionary which may have signatures of 64 pages, the creep adjustment is more noticeable. Once the book is trimmed, however, the outer margins will all be the same, so the only way to evaluate the creep adjustment is by the inner (gutter) margin, Kim points out.

DESIGNER TIPS

Working With Images

These tips on dealing with digital images from Jessica Berlin, co-author of *Designer's Prepress Companion,* can help designers submit cleaner files:

- **Image manipulation:** Any image change, even cropping or rotating, must be done in a raster or bitmap program such as Adobe Photoshop. Making such changes in other kinds of software will cause problems in the RIP.
- **Clipping paths.** There are two methods of creating clipping paths, which outline selections within an image by using anchor points—the magnetic lasso tool and the pen tool. The pen tool provides the most control and is easiest to edit. Save a file with an embedded clipping path as an EPS, DCS, or PDF file.
- **Flattening images.** Keep two versions of each image—a flattened image (for positioning in a layout program or to make proofs) and one that includes all the layers. If you need to make changes, open the layered version and save a new flattened version.
- **Sharpening images.** When an image is imported into a raster or bitmap program, either with a scanner or digital camera, a certain amount of detail is lost, requiring some sharpening. The two main methods for sharpening are the Unsharp Mask filter in RGB or CMYK mode, and the Gaussian blur in L*a*b* mode. Sharpening can be done right after the image is imported or before the file is sent to the press. Remember: Sharpening has limitations. It can't make an out-of-focus image become in focus or add detail that isn't there.

Soft Proofing: From Concept to Contract?

PDF and email have significantly reduced the need for printed proofs at all stages of the design and prepress process. But can soft proofs eventually replace hard copies as contract proofs for all kinds of jobs, even complex color ones?

A proof is a key link in the print production cycle, and the relative reliability of that link directly affects the printer/customer relationship. Proofs offer both printer and client peace of mind and provide valuable documentation should anything go amiss with the job.

As workflows become more digital, traditional printed proofs are being eliminated or substantially reduced during many phases of the design and prepress process in favor of soft proofs (viewing a proof on screen instead of on paper).

> *"Soft proofs will be accepted as contract proofs for more jobs."*

For instance, instead of requiring a printed color proof midway in the process, many (if not most) customers now are willing to accept a PDF sent via email.

Timely Alternative

And a growing number of clients will accept a PDF as their prepress contract proof, especially for black-and-white or two-color jobs. Indeed, many customers are even demanding less-expensive soft proofs as a more cost effective and more timely alternative to hard proofs.

The growing demand for faster turnarounds, the ongoing need to trim costs, and improvements in computer monitors are all driving the trend toward soft proofing, which can range from basic ("Come here and look at this Quark page") to sophisticated, highly structured workflow solutions.

Indeed, a prepress department that doesn't have the capability to email a PDF to a customer is probably no longer a viable competitor for many types of print jobs.

A Notable Exception

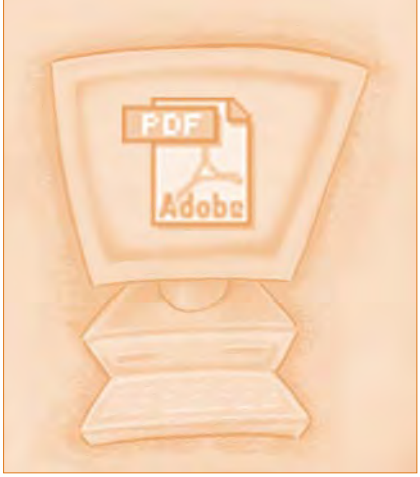
Critical-color jobs remain the exception, however. Most buyers of this type of work still request a hard proof—especially for contract proofs. When the lipstick in a major cosmetics company ad must be exactly the right shade, a PDF just won't do—a hard print proof is still required.

Many experts believe, however, that as technology marches on and the perceived risk from not getting a physical proof diminishes, even buyers of high-end color jobs will begin to seek the cost- and time-savings provided by soft proofs.

Nonetheless, the number of critical-color jobs handled by printers is small compared to jobs that require "good enough" or "pleasing" color. As soft proofing technology (monitors, calibration, color management) improves, soft proofs will be accepted as contract proofs for more jobs.

There are, however, certain issues with soft proofs for color that must be addressed.

For instance, transmitted light from monitors and reflected light off a proof are totally different, since RGB (screen) and CMYK (four-color, hard prints) have different gamuts.



Also, even with improving technology, no two monitors will display exactly the same colors no matter how carefully they are calibrated.

Here are some ways to keep these issues in check:

- If you're using a color management system (CMS), evaluate its performance. Make sure monitors are properly calibrated and check for drift—the shift over time in how monitors, printers, scanners, and other devices render color.

It's also important to perform profiling—enabling your system to calculate the difference between what a calibrated device is producing and the ideal values and then compensating to produce the ideal values.

If you're not using CMS, consider doing so. CMS and its associated tools have come down in price and gone up in performance over the past few years and have become much more user friendly.

- Remember to control ambient lighting conditions (windows and glare) that can distort actual color. Adding an achromatic gray monitor hood improves contrast, decreases glare, and reduces eyestrain.
- Evaluate Specifications Web Offset Publications (SWOP)-certified products and services (*www.SWOP.org*).

And be sure to be even more finicky than your customers are when it comes to color. Check and then recheck. Having the right tools and techniques in place helps earn their trust and loyalty. ■

—Charles Pickett

Proof Progression in the Printing Process

Generally, everyone who is a stakeholder in the job will want to see a proof at some stage of the print production process. To gain an understanding of when soft proofs may be appropriate, it helps to take a look at when and why most proofs are generated in today's print workflows:

- **Image proofs:** Single or multiple sheets of images and illustrations that designers can reference to see what they have available for the job and which images, if any, need to be edited.
- **Concept proofs:** Typically a rough first draft giving stakeholders a quick look at the direction of a design.
- **Comprehensive proofs or "comps":** A cleaner second draft that is relatively close to what the final design will look like, often using for-position-only (FPO) images.
- **Laser or working proofs:** Typically, this is the stage at which copy editors are most involved. Edited text is inserted and captions and images are added. At this point, there may be several rounds of editing and other modifications. Generally, everyone who must "sign off" on the proof at the customer company does so at this stage before continuing with the job.
- **Shipping, color, or "final" proofs:** Depending on the stage at which a service bureau, a prepress shop, or a printer enters the job cycle, these proofs can be generated by the customer company or the service provider. Generally, however, they are the last proofs generated before the file is sent out by the customer to a prepress house or printer.
- **Prepress proofs.** In film-based workflows, these proofs are generated by the film used for making plates. Brand names include Cromalin and Matchprint. In computer-to-plate (CTP) operations, these proofs are generated by non-film output devices and PDF files.
- **Bluelines.** A relatively inexpensive photographic proof from negatives where all colors are shown in shades of blue (or another color). The negatives used for the printing plates are exposed to a photo-sensitive paper to produce the image on the blueline.
- **Press proofs.** Typically generated only for high-end or critical-color print jobs, these proofs are run by the printer using the same substrate and inks to be used in the actual print run.
- **Contract proofs.** Generally a color proof that is regarded as a contract between the printer and the client, this is the final proof before going to press. Traditionally, a printed prepress, press, or color proof is designated as the contract proof. Increasingly, however, some clients will accept high-end digital proofs or PDFs as contract proofs for certain jobs.

Newest Weapons in The Anti-Spam War

Email is the "killer app" of the Internet and an integral part of the graphic communications workflow. But the onslaught of spam onto companies' computers is killing productivity and draining resources. Here's how to fight back.

By Charles Pickett

Spam—junk mail in the email age—is a rapidly growing problem for graphic communications companies. It takes up the time of employees who have to sort through and delete it, clogs email servers, exposes computer users to indecent and fraudulent marketing material, taxes the resources of Internet Service Providers (ISPs), bogs down public networks, and can cause users to mistakenly throw away legitimate email.

The result: Unsolicited commercial email could cost U.S. companies $874 per employee a year in lost productivity, according to a study by Nucleus Research (*www.nucleusresearch.com*).

Spam represents more than a costly and time-consuming nuisance. It can devastate unsecured networks and personal computers by ushering in a dangerous assortment of email-borne computer viruses, worms, and Trojan horses.

So what's a company to do? Unfortunately, there is no silver bullet for dealing with spam. It's hard to combat, tricky to avoid, and difficult to legislate against. For instance, according to most reports, the *Controlling the Assault of Non-Solicited Pornography & Marketing (CAN-SPAM) Act of 2003* that became effective Jan. 4, 2004, has had little effect on the torrent of unwanted and often offensive email.

And the proposed Do-Not-Spam registry is predicted not to work nearly as well as has the national Do-Not-Call registry. For instance, FTC Chair Tim Muris has expressed reservations about such a registry, noting that "our studies have shown that almost all spammers are already violating various laws."

And spammers are relentless in their methods. According to anti-spam software vendor MX Logic, nearly 50% of all spam has been "bugged" by spammers, creating "spam beacons," which signal the spammer when the end user reads or previews an email message, thereby validating the address.

Companies are far from helpless, however. One basic thing they can do is set up the anti-spam features that are bundled free with their email software, something too many graphic communications companies don't take the time to put in place.

Limiting Exposure

Always-on broadband connections (such as DSL and cable modems) increase a company's exposure to email-borne viruses and to "attackers" that automatically scan for available and vulnerable networks. Printers can guard against this by making sure their networks are secured with a firewall.

Printers seeking to purchase anti-spam solutions will find a growing number of new tools and techniques for combating the daily deluge of unsolicited email. Nearly all the tools on the market use one or a combination of the following anti-spam techniques:

- Blacklisting—banning known spammers.
- Whitelisting—accepting email from known senders, designated as "friendlies."
- Bayesian filtering (screening "flag" words, such as Viagra.)

Because computer viruses these days are more likely to be transmitted via email than by removable media (such as CDs), many vendors, including Brightmail, Postini, and Tumbleweed, and a host of others, are combining anti-viral and anti-spam tools.

An increasingly popular trend entails taking anti-spam control efforts from the desktop and moving them upstream to mail servers. This

The Cost of Spam

These statistics paint an alarming picture of the bigger and bigger threat spam poses to a company's resources:

- In March 2004, a whopping 63% of total Internet email was identified as spam, up from 48% the previous year, according to a study by anti-spam software vendor Brightmail.
- Spam costs U.S. businesses at least $4 billion dollars a year in lost productivity, according to research firm The Yankee Group, which characterizes this figure as a very conservative estimate.
- Email users at average-sized firms devote 10 minutes daily to dealing with spam, according to information technology market intelligence firm IDC.

approach is considered more efficient, since it negates the need to purchase, install, and support spam-control software on individual personal computers, seeking instead to stop the problem well before it reaches users.

Investigate available options for a mail-server solution. Many providers, including Comcast, Earthlink, AOL, MSN, and Verizon, use anti-spam and anti-virus software and actively develop and refine new spam and virus-control technologies. If your ISP doesn't offer such solutions, consider switching to one that does.

Buyer Beware

In choosing a server-based product for a mail server that your company maintains itself, beware of turmoil caused by potential consolidation among vendors, as well as hidden costs (time needed to apply anti-spam updates, for instance).

Another option is routing mail to a service provider that offers anti-spam services. While re-routing email is relatively easy (changing the MX record with your domain registrar), the cost is relatively high.

A major advantage of this approach, however, is that the managed service providers consistently maintain and upgrade their servers and anti-spam/anti-virus software to combat the ever-more-sophisticated techniques used by spammers to evade spam filters. This level of protection may be worth the cost.

Eliminating all spam is virtually impossible with current technology. The goal of a company's anti-spam efforts, therefore, should be to reduce the amount of spam as much as possible. To do that most effectively, use multiple layers of defense and stay aware of new techniques being used by spammers, as well as new developments in anti-spam technology. ■

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