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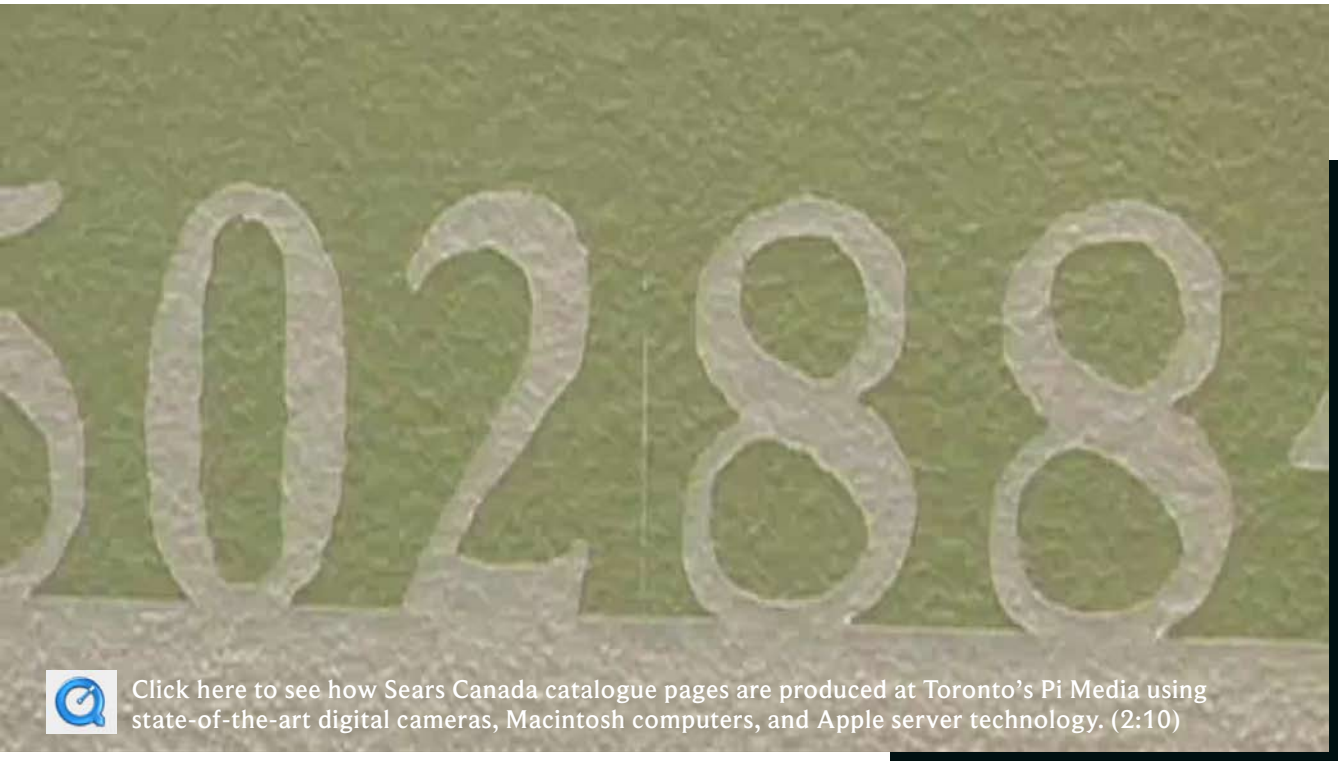
From design, copywriting and photography to print production, website management, and interactive catalogues — Pi Media's Mac-based cross-media content engine generates more digital pages than any other company in Canada. And they're ready to show their model to the world.

By Dan Brill

With annual sales of more than $6 billion (CDN), over 2,200 merchandise pickup locations, and 50,000 employees, Sears is the biggest retailer in Canada. To support its stores, catalogue sales, and online promotions, a multi-channel merchandising operation of this size depends on millions of catalogues and flyers delivered to Canadian households (including over 60 million product catalogues alone), as well as thousands of pages of print advertising.

About 6,500 pages are designed and produced annually for Sears Canada catalogues, culminating in the mammoth 1200-page Christmas Wishbook. Another 4,000 pages are created for Sears flyers and newspaper ads—more than 10,000 pages per year which must go to press. Added to this workload are weekly web pages for Sears' expanding online store, plus the production of ever-changing in-store displays and signage.

Up until 2002, creating this high volume content required Sears Canada to maintain a large in-house art and production department, which worked with various outside suppliers. But in 2003, Sears made the bold decision to delegate responsibility for all its retail, catalogue, website, and signage programs to a single "Content Partner of Choice". That partner is Pi Media, the content creation division of Toronto-based St. Joseph Corporation. Sears continues to exercise control over high level creative and branding, but day-to-day control of the retail giant's print and online content is now entrusted entirely to one company.



Click here to see how Sears Canada catalogue pages are produced at Toronto's Pi Media using state-of-the-art digital cameras, Macintosh computers, and Apple server technology. (2:10)

MACS DRIVE THE WORKFLOW

With this transfer of responsibilities came important decisions for St. Joseph about workflows, technologies, systems, and approval processes for handling the massive volume of digital photography captures, file transfers, image processing, prepress, and website management.

It will come as no revelation to creative or print professionals that Apple is the platform of choice in Pi Media's design and prepress departments. However, what may be a bit surprising is that

"It was time to move up to the right systems in order to create high volume content for 10,000 catalogue and retail pages a year. The integration of Sears' Macintosh-based programs and ours was a natural solution."

~ DOUG TEMPLETON, EXECUTIVE VICE PRESIDENT AND GENERAL MANAGER, PI MEDIA

"At first glance, you might say that a PC clone would have a less expensive shelf cost than a Mac. But we started adding up the soft costs, the support costs—not only on ease of use and setup, but even the lifespan of the machine—and we found that we could keep Apple technology around longer, and there was less downtime and repair and maintenance."

~ DAVE BALLANTYNE, VICE PRESIDENT TECHNOLOGY, PI MEDIA

Click here to see Pi Media's workflow in action from start to finish. (3:16)

almost every other area of the company is driven by Apple technologies as well. Customer service, photography studios, traffic management, executive offices, administrative departments, and even the IT department all operate on Macintosh computers.

"We're able to get two or even three times the productivity out of our IT support staff than we would if we were running a Windows environment," says Pi Media's vice president of technology, Dave Ballantyne. He cites industry averages of 30 to 40 "desktops" per IT staff, then contrasts that with the half dozen bodies who look after Pi Media's 650 desktops, spread across two facilities—Pi Media Networks, which is almost completely dedicated to Sears Canada work, and Pi Media Partners, which services the company's other high profile clients. According to Ballantyne, this high CPU-to-IT ratio of over 100-to-one is due to the simple fact that Macs are easier to maintain and upgrade. A wholesale migration to Apple solutions began in early 2003, and he estimates that Pi Media operations are now about 95% Mac-based.

The flow of digital data between Networks and Partners and their clients also relies on Apple technologies. In 2004, Networks replaced a gaggle of Windows servers with four new Apple Xserves, which now control virtually every digital document that makes the business run—including e-mail, image file storage and transfers, internal memos, sales orders, print pages, and web pages.

But how did Pi Media justify the cost of switching its whole operation to Macs?

Ballantyne explains, "We realized, after comparing the prepress and design workflows, which were always Mac-based, against the service that we had to give in other areas, that it was a lot less expensive to support Apple technology than Windows.

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that we could keep Apple technology around longer, and there was less in the way of downtime and repair and maintenance. And when we did have repair and maintenance issues on the Mac, they were a lot easier and quicker to resolve than on the PC/Windows side. It turned out that it was just much cheaper to own Macs in here than PCs."

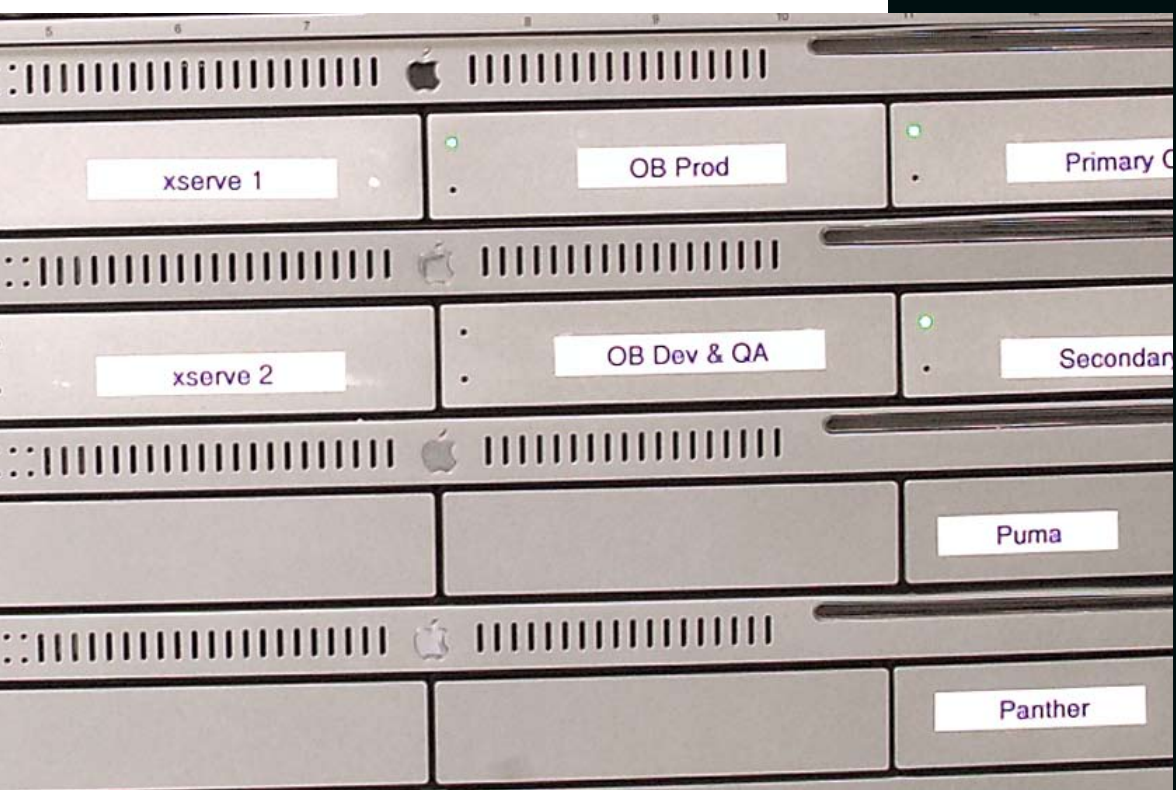
Converting from Windows servers to Apple Xserves took even less deliberation. Scott Bradford, senior production system support manager, says, "We started by trying to upgrade our mail—we were using the NT Exchange box—and the cost was extraordinary. [With] the old system, it was going to cost more than $8,000 just to upgrade the mail server alone—and it wasn't worth it. Then we looked at Apple and found that, for less [money], and for an unlimited number of users, we could do the mail server, the FTP server, and the DNS server—and with more functions."

Until late 2003, Networks had one server just for mail, one proxy server, another for FTP, another for its Blue Chip digital asset management system, yet another for DNS, a pair of development servers, one more for print spooling—an assembly of at least seven or eight various Windows servers, just looking after these functions. By May 2004, all of these had been replaced by a single Xserve G4 running OS X Panther (v10.3).

A second Xserve, still running Puma (OS 10.1), is used strictly as a file server for the digital photography departments. This machine is now serving up one terabyte of digital images per month. But with three terabytes of storage on-board, Bradford figures that the new Xserve RAID will let them keep those images live for at least two months before they have to start being archived.

He also makes the point that Apple servers include support for Linux, Unix and Windows right out of the box—and that "[Xserve] just runs…there's hardly any maintenance to it.

"Our Windows clients have been more impressed than our Mac clients at how well the mail has been running for them. And the number



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of things we can do with this box isn't even comparable to a Windows box."

So, how many times have the new servers crashed since they were installed?

"They *haven't* crashed," Bradford responds, "and the old servers crashed almost monthly."

DIGITAL PHOTOGRAPHY RULES

Inside Pi Media's photography studios, mobility and flexibility are the keywords, as upwards of fifty portable digital camera station setups are in use at all times. Each unit, custom-built in the company's carpentry department, packs a Power Mac G4 or G5 with integrated keyboard rest, monitor, and a LightPhase digital camera back on a Hasselblad or Mamiya body.

These compact trolleys are on wheels so that photographers can move them around according to the configuration of the studio. And each can be hooked up to the network through fast Ethernet—although Ballantyne looks forward to the day when those long cables can be eliminated entirely.

"One thing we're looking at doing is converting some of them over to AirPort," he says. "We've done some testing with AirPort and AirPort Extreme, and they're just about there, speed-wise. We're just waiting for that next speed bump to bring it up to 100

megabits. At that point, we'll jump all over it, and convert every one of our digital photography stations to AirPort-based so we can have complete freedom of movement through the network."

Pi Media had experimented with early Sony and Leaf digital cameras for its commercial work since 1989. However, extensive testing began in earnest about four years ago with the introduction of a new generation of digital camera technologies.

Pi Media's fashion photographers, who do a substantial portion of the studio work, resisted the technology change until this year, but in March 2004, the last of the analog cameras were replaced with digital backs. Every photo shoot is now digital, including location work, where photographers carry PowerBooks and portable LightPhase cameras.

"And as cellular networks get better," Ballantyne continues, "we want to test Bluetooth connectivity from PowerBooks to Bluetooth phone, so that we can immediately send the images from a location shoot directly back to the server—whether it be here in town or down in Florida when we're doing winter shoots."

Pi Media's Mac-based digital photography setups rely on lightning-fast FireWire connections from digital camera to computer. FireWire allows photographers, art directors and models to view the shots on screen right away, adjust poses and lighting, or experiment with different angles.

"We don't have to shoot Polaroids and check them—we have an instantaneous image. So you know exactly what it is that you're setting up to start with," says senior fashion photographer Luis Raposo. "When you work with models, you can shoot twenty or thirty shots, stop, go back, review it, actually show it to them—and they can see how they're doing, and go back to it. In other words, it's like a different take, as if you're shooting a motion picture. I think most of them find it quite helpful, because we don't have to translate what we want—they can see it right away."

It also gives photographers more latitude.

"Not having to worry about the expense of shooting film, you can shoot 60 frames or 100 or 200, because you can always delete the bad ones," Raposo observes. "Digital photography is a great

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tool to work with. We know the capabilities of it. We can judge by reading the histograms or exposure warnings. You're not guessing what might happen in a lab, you've got all the controls right here. I think it's extraordinary."

THE FINAL RETOUCH

Once a photo session is finished, high res images are transferred across the network to Pi Media Networks' servers, where up to fifteen terabytes of data can be stored at a time. This includes files from Pi Media Partners, which is hooked up through a dedicated T3 line. Even though the two facilities are many miles apart, they essentially operate as one unit through their network.

There were concerns that the addition of terabytes of fashion photos might slow down the processes, but the Macs have met the challenge.

Image quality control coordinator James Hylands says, "We're shipping quite large raw files across the network, averaging thirty megs per file before conversion, and we're getting twenty captures per image, on average. The speed of the G5 is making it almost a seamless transition from when we were working with files that were already processed. Before, we would only get two selects as opposed to twenty raw captures. Now we're dealing with a lot more files and a lot more megabytes. I believe that the G5 is the computer by which all computers are going to be measured."

Before final page assembly, all images must be checked by Pi Media's colour centre. In a workflow that demands quick turnaround, producing final colour images can be a stubborn bottleneck, especially if they're 300MB life-size image files for in-store display and sign production. When these images have to be ready in time for next week's cross-Canada in-store sales promotion, every minute spent waiting for retouching is precious.

The colour centre is where retouchers work on the fastest dual processor Macs running the latest version of Photoshop—and it is also not uncommon to see any of these Photoshoppers surrounded by portable clothing racks or boards covered in fabric swatches. When it comes to colour, a trained eye is still the best throughput device.

QUARK TO INDESIGN, WITH A SONG

With images and copy ready to go, rough layouts are sent to the electronic page makeup department, where a phalanx of operators produces final pages. At Pi Media Networks, where all the Sears catalogue and flyer production is done, it takes a full-time staff of more than fifty associates working on as many Mac workstations just to keep up with the workload.

At Pi Media Partners, which looks after magazine production and other commercial jobs, most designers have switched from QuarkXPress to Adobe Creative Suite in Mac OS X over the past few months. Networks, however, has moved more slowly, and most Sears pages are still being done the "traditional" way, using QuarkXPress in Mac OS 9. However, Ballantyne says that plans are in place to begin the migration to Adobe InDesign CS and to OS X.

Apple's presence among the company's production staff isn't restricted to computers. On any given day, a visitor to either location can wander past operators at colour and layout workstations wearing headphones and nodding in time to their favourite iTunes as they work.

As senior colour retoucher Bruce Hanna says, "With iTunes, my productivity definitely goes up. It's nice to have iTunes available—it definitely helps. On certain projects, you'll have to do a lot of clipping paths, and sometimes that will get a little boring. But if you have iTunes going, with the right tune on, it can help get you through that stage of the retouching."

Then he adds, "I went and purchased an iPod about a month ago, and I absolutely love it—can't live without it. It's a great toy to have."

Even PC diehards like production coordinator Daniel Lapadula seem to be satisfied with the platform switch.

"I've just been working with a Mac for the past few weeks," says Lapadula. "It's a lot nicer, it's easy to work with—it's very simple. I've been on PCs for a long time, and I know that unless you know a lot about a PC, you can't make it run well. With a Mac, you don't have to know as much—you just get into it, and you're up and running. I'm actually thinking now about purchasing a Mac for photography. That way I don't have to worry about viruses and definitions and all that. Macs are definitely very simple."

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APPLE AT THE CORE

Apple's presence throughout St. Joseph Corporation extends well beyond just Pi Media's studios. As Dave Ballantyne points out, "Every single area of the operation is now using Macs, not only within Pi Media but all through St. Joseph. Everything's touched by a Mac at some stage of the game—even accounting information. While a lot of our accounting is done on PCs, most of the cost collection happens on the shop floor—like people's hours and time—and it's all done through Macs."

Apple tools have piqued the interest of even Pi Media's most senior management. A sly grin slides across Ballantyne's face as he confides, "Our executive vice president and general manager is a weekend musician, and the other week I was showing him GarageBand—he's pretty much hooked, and now he's started borrowing his executive assistant's PowerBook..."

But although Macs provide the technology base, the real secret to Pi Media's success has been understanding its evolving role as a content service provider.

"Our business is content creation, and that's really where we're focused," Ballantyne concludes. "In the old days, a company like ours would have seen ourselves as a prepress shop, but that has changed like crazy over the past three years. We've really become everything—graphic designers, copywriters, editors, layout artists, photographers, distribution and logistic experts, and software solution experts enabling collaboration with our customers. But all of this is centred around content—digital content.

"That's our core competency—building content—and that's been the key to us taking control of our own destiny."