

Cites & Insights: Crawford at Large

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Trends and Quick Takes

Comdex Encapsulated

Ever hear of Comdex? It's a computer conference gone berserk, with some 200,000 people in Las Vegas. The perfect summary of Comdex appeared in the "Cheat Sheet" column of the November 27, 2000 *Industry Standard*. I quote in full:

"This Just In! We interrupt Cheat Sheet for this breaking Comdex news: Bill Gates blah blah Ellison blah blah post-PC gadgets blah blah taxi lines yada yada cell phones blah blah blah."

That about covers it.

Zapped: ZapMe

Remember ZapMe? The company offered Internet-equipped computer labs to schools for free. All the schools had to do was guarantee that students would use the computers a lot, and put up with targeted ads on the computers. Oddly enough, consumer groups and concerned parents weren't thrilled.

A brief article in the November 27, 2000 *Industry Standard* includes the brave assertion of a ZapMe director that "the model might have worked in the longer term." Perhaps—but in the short term, reason prevailed. With losses of \$76.5 million and second-quarter revenues of \$7.3 million from four sponsors, ZapMe is abandoning promised installations and looking to sell off current installations. The company will become a "provider of broadband services for the automotive, food service and medical industries." Final word—after years of pundits telling us that Everything's Free in the Internet Economy? ZapMe CEO Lance Mortensen: "There's no more free lunch. That model is dead."

Free Lunch, Free ISP?

Last month I noted that two of the big free ISPs had gone out of business. Unsurprisingly, it's a trend. On December 5, AltaVista announced that its free Internet service would end December 10—because

1stUp, the company actually providing the service, was going under. At first glance, you can feel sorry for AltaVista: the company just signed up with an unreliable supplier.

Not so fast. CMGi owns both AltaVista and 1stUp. They are, in effect, divisions of the same overall corporation. That corporation saw its pipe dreams of world domination through Internet-company incubation go up in smoke as reality set in, and free Internet access is one of the first things to go (along with 25% of AltaVista's staff). The customers will be taken care of: Microsoft will give them three free months on MSN—followed by ongoing service at a rock-bottom \$21.95 per month.

The same day brought news that Bluelight.com, Kmart's online division, has purchased Spinway. Who's Spinway, and why is this interesting? Spinway is (was) another free ISP provider, offering free access to some customers of Bluelight, Barnes & Noble, Costco and Spiegel. Spinway was also going bankrupt: "give 'em everything free but put on ads" just wasn't working. Kmart wasn't willing to lose its customers just before the holidays, so they took over. The service will be free through the holidays—which probably means that fees will start right around the time this issue is posted.

A report in *The Industry Standard* for December 18, 2000 (p. 63) fleshes out the Bluelight situation. Kmart signed up more than five million customers for BlueLight; 2.4 million of them were using the free ISP by September 30, 2000. Spinway "buckled under the weight of its users—and an unworkable advertising-based model." The summary notes that Target plans to offer a "low cost" Internet service in conjunction with AOL—"around \$20 a month." Walmart may do the same. So if you go through Target, you can get the Internet with training wheels for the same price as most regular ISPs. Such a deal.

Interactive DVD: Will It Ever Arrive?

Philip De Lancie poses the question in a seven-page *EMedia* article (July 2000): "Where's interactive

DVD?” He notes that the mid-1990s were “heady days for interactive multimedia,” with *Myst* and *Encarta* “proving that the CD-ROM could be a viable consumer product” and notes that there are already 8 million set-top DVD players and 30 million DVD-ROM drives. “But only a seeming handful of the more than 5,000 DVD titles in commercial release really exploit DVD’s interactive potential.”

The article goes on to offer views from several DVD professionals; not surprisingly, none of them see much DVD-ROM activity on the horizon, particularly outside the game field. Supposedly, Multimedia 2000 distributes a handful of DVD-ROMs, but I’ve only seen one of the titles on the list (and it’s a second-rate encyclopedia).

The views become a little odd at times. One authority thinks that DVD-Video makes more sense than DVD-ROM for interactivity because you don’t need a computer. “This is particularly beneficial for titles that do not specifically target 15- to 24-year-old males.” I, for one, was not aware that the home PC market was dominated by that demographic—although the *gaming* market may very well be. There are at least three times as many DVD-ROM drives as DVD-Video drives in use: apparently that doesn’t count for much.

There’s a lot of chicken-and-egg material here. There aren’t many DVD-ROMs, so retailers won’t allocate space to the category—but without a separate DVD-ROM section, consumers won’t be able to tell DVD-ROM from CD-ROM.

When you put all the experts together, you get two branches. One group equates “interactive” with “gaming,” and notes that the Internet and CD-ROM seem to satisfy gaming desires pretty well. The other group thinks of interactivity in terms of features added to DVD-Video: if you don’t have that Hollywood quality, nobody will care.

The need for Hollywood production values helped to doom title CD-ROMs, in my opinion: production costs for titles were so high that nothing short of a blockbuster could turn a profit. If DVD-ROMs go the same route, they’ll have the same economic future: a succession of failing companies and a discouraged marketplace.

Net Backlash?

An unusual item came across ZDNN last December 6. A study by Cyberdialogue says that, in 1999, 30 million people in the U.S. “no longer used the Internet, describing themselves as ‘former users.’” One researcher commented that Web commercialization may be turning people off. Other surveys also seem to show falling use. One-third of the “defec-

tors” are younger than 25, and there may be two pieces to that. On one hand, surveys suggest that lots of teenagers have given up on the Internet. On the other, graduating students who relied on institutional access may be unwilling to pay for their own Internet accounts.

The ZDNet story closes with an odd connection: “The suggestion that our love affair with the Net is coming to an end comes at a time when hundreds of dotcoms are collapsing. Last month author Stephen King pulled the plug on his online novel *The Plant*.”

I’m going to guess that experts may be overestimating the extent to which people give up on the Internet, just as experts consistently overestimated the rate at which people would sign on and devote ever more time to the Web. Expect to see the “backlash” hyped, although not as much as the Web Conquering Everything was (and is) hyped—after all, there’s very little money in the backlash (except for real-world stores, libraries, restaurants, and communities).

My own experience has been that an initial burst of Web enthusiasm fades into lower levels of everyday use. That’s different than dropping Internet access altogether—but if you’re on a tight budget, \$20 each month may be a lot to pay for e-mail and Web sites that you don’t care much about. While I wouldn’t be surprised if the “30 million” figure overstated the case, neither would I be surprised to find solid evidence of slowing Web use.

I don’t see the connection to *The Plant* at all. You could make a connection between that and the continued dismal track record of e-books, but even that connection is vague. I think *The Plant* is a special case, quite possibly unique—and quite possibly a clever move by Stephen King to make a fair amount of money from the long-abandoned beginnings of a novel that he may never have intended to finish. That’s cynical, and I apologize, but the dropoff in contributions was predictable, the quality of the chapters wasn’t that great (according to quite a few comments), and the whole operation seems awfully convenient. According to one report, King took in more than \$500,000 for portions of a novel that he may never complete. That might be ten times as much as any other author has ever made from a *completed* e-book.

Two or three years ago, I would have argued (as I still do) that the Web does not, in fact, change everything—that the influence of the Internet was badly overstated. Now, I’ll argue that the Web is not dying or becoming irrelevant. Neither extreme makes much sense.

PC Values: Changing the Rules

As promised last month, I've revised the set of points used to create the "value ratio" (VR) used in this ongoing study. My original intention was to create a new set that offers a reasonably accurate picture of real-world prices and values, using numbers that would reduce the January 2000 top-vendor midrange system to roughly 1.00.

In mid-December 2000, I looked at incremental costs for component changes on Dell and Gateway's Web sites as one guide to real-world price differences for bigger hard disks, more memory, DVD-ROM instead of CD-ROM, and so on. I also reviewed prices in ads from well-known component vendors in the January 2001 *Computer Shopper*. After working with these numbers and my sense of the real-world worth of various changeable aspects of a PC, I developed a new set of points that is much simpler (and much easier to calculate) than the 1997 points. In the end, the top-vendor midrange system from January 2000 shows a VR of 1.28 using the new scale; the top-vendor budget system for November 2000 has a VR of 2.00, and I planned for January 2001 midrange systems to be somewhere around 2.0 (a goal that wasn't quite achieved). I'm no longer tracking power systems from other vendors: most months, there aren't any such systems in *PC Magazine* and *PC World* ads.

The New Point System

Overall, the Value Ratios were deflated by roughly a 10:1 ratio from the 1997 set to the 2001 set—but it's not that simple. Different components have changed prices in radically different ways, and some components are more valuable than others. Consider the major categories:

- The baseline number used to be 1000, which covered the box, keyboard, mouse, 2GB hard disk space, CD-ROM, and Windows. The new baseline is 500, which includes the box, keyboard, mouse, 10GB hard disk space, CD-ROM, AGP graphics, wavetable sound and no-name speakers, and a V.90 modem.
- CPU points varied from 5 per MHz to 7 per MHz, the figure used for all contemporary CPUs (Pentium-II, Pentium-III, Celeron with L2 cache, Athlon Thunderbird). The new number is a flat one point per MHz.

- System RAM was 25 points per megabyte, with 40 points per megabyte for display RAM. All RAM now counts 2 points per megabyte.
- Hard disk space was 250 points per gigabyte (above the 2GB baseline). This is the number that's changed the most: the figure is now four points per gigabyte (above 10GB, with a deduction of 10 points per gigabyte for any hard disk smaller than 10GB), except that disks stated to be 7200RPM or faster score five points per gigabyte. That's a reduction of 62.5:1 (or 50:1 for high-speed disks).
- Displays have come down in price, but not all that much. Formerly, I gave 750 for a 13"-viewable (so-called 14") display and an additional 250 points for each additional viewable inch. Displays that small aren't acceptable in current systems. The smallest plausible display (14"-viewable) is now 300 points, with 100 points for each additional viewable inch. LCD displays receive a 50% bonus.
- Other point changes also reflect real-world stability. Name-brand speakers, subwoofers, and surround-sound systems all earn small bonuses; most substitute and add-on drives earn about half what they did in the past.

Here's the table, which I hope to use for the next four years (with additions as needed):


Category	Points
Baseline	500*
CPU	1/MHz
RAM	2/MB
Disk	4/GB**
7200RPM	5/GB
Display	300 for 14" viewable
larger	100 per inch
LCD	50% more
Speaker Extras	cumulative
Name brand	100
Subwoofer	100
Surround	200
Works Suite	200
Office or equiv	400
DVD-ROM	150
CD/RW	400
DVD-RAM,RW	500
Zip250	250
Zip100	150
Networking	100
Printer	200
Scanner	200
Dig. Camera	200


* Includes system with 10GB hard disk, CD-ROM, wavetable sound, speakers, AGP graphics, V.90 modem, Windows, keyboard, and mouse.


** Size above 10GB. If smaller than 10GB, deduct 10 points per missing gigabyte.

January 2001 Values

January's standard configuration includes 128MB SDRAM, 24x or faster CD-ROM, AGP (128-bit) accelerator with 32MB SGRAM, V.90 modem or Ethernet adapter, a 15.9-16" viewable display (usually called 17"), and wavetable sound with stereo speakers. The top vendors offered better values than other vendors at all levels.

 **Top, Budget:** Gateway Essential 866: Pentium III-866, 10GB HD. *Minuses:* 64MB RAM, no dedicated display RAM. *Extras:* MS Works Suite 2001, Boston Acoustics speakers, Canon inkjet printer. \$999, VR 2.50 (+52% since 10/2000, +37% since 7/2000).

 **Top, Midrange:** Micronpc Millennia Max XP: Athlon-1200, 20GB 7200rpm HD. *Pluses:* DVD-ROM, 64MB display RAM. *Extras:* MS Office 2000 SBE, Altec Lansing 3-piece speaker system, CD-RW drive. \$1,999, VR 1.89 (+24% since 10/2000, +32% since 7/2000).

 **Top, Power:** MicronpcPC Millennia Max XP: Athlon-1200, 80GB 7200rpm HD (2 40GB disks with RAID controller). Similar to Midrange, but with 18" display, Ethernet card. \$2,699, VR 1.64 (+9% since 10/2000, +56% since 7/2000).

Coda: The Rest of the Story

The final "perspective" in *Crawford's Corner* (*Library Hi Tech News* 17:10, p. 29) may have seemed disjointed. That's because, without my knowledge or that of the editor, MCB University Press chose to delete all but the first paragraph and last two paragraphs of the farewell. It is the absolute right of a publisher to decide what it will and will not publish. I may feel that the unilateral decision was tacky, but it was legal and certainly wasn't censorship.

Here's the rest of the story, omitting the portion that already appeared—but noting, for context, that the first paragraph mentioned that *Crawford's Corner* for December 2000 was the 59th set of informal essays I wrote for *Library Hi Tech News*.

[The Missing Section]

Fifty-nine is an awkward number, not like the even 50 articles I wrote for *Library Hi Tech*. If you had asked in early 2000, I would have guessed that I'd aim for 100: that I'd keep doing these until at least January 2006. Circumstances change. I no longer find it reasonable to do "Crawford's Corner" in *Library Hi Tech News*. The details, which have to do with personal loyalty, subscription pricing, and timelessness, don't belong here.

For those who find this section to be a waste of paper, you can look forward to whatever replaces it. For those who still want to read what I have to say, a few notes:

- For now, I'm still doing three "PC Monitors" each year in *Online*.
- If you enjoy my essays on content and media, look to *EContent*: that's my focus in "Crawford's disContent," which replaces "CD-ROM Corner" beginning in February 2001.
- I hope to appear in *American Libraries* three or four times a year, when I'm able to prepare articles that meet their standards.
- I'm supposed to be working on another book (on media). If all goes well, expect it from ALA Editions sometime in 2002. The delay is mine, not theirs: the book isn't written yet. Once it's written, edited, formatted, and indexed—that is, once I've done my part and dealt with editorial feedback—it should be out as a printed book six weeks later. Don't believe everything you read about massive delays being inherent in print publishing.

Replacing Crawford's Corner

What will happen to the kind of material that's appeared here? As I write this (early September 2000), I'm not entirely sure—but I do have a plan. Here's how I think it will work, and how you can check for yourself:

- If you care about the "objective" parts of "Crawford's Corner"—PC Values, Review Watch, Press Watch 1: Articles Worth Reading, and occasional CD-ROM reviews—and if the three-month delay between deadlines for the sections and when you read them doesn't bother you, then have I got a deal for you! My current plan is to make that material available *for free* on a section of my personal Web site, probably as a PDF file, with roughly the same delay. You'll have to download the material, and I'll probably only maintain the current edition online, but you can't beat the price.

- If you care about my essays, snarky notes about new product ideas, and the mini-essays that now make up Press Watch 2—and if you want to read this material and the “objective” stuff with almost no delay—there will be a fee, roughly the cost of my portion of *Library Hi Tech News* (if you get it in print). I anticipate producing a series of digital newsletters through MightyWords, probably using the title “Crawford At Large.” Those newsletters (if they happen) will cover an even broader range than “Crawford’s Corner.” If I do them, the first (preview) issue—covering material for September through November 2000—will be posted in early December 2000.
- These plans may change. By the time you read this, I should know what’s happening. The easiest way for you to find out is to go to my personal Web site (<http://home.att.net/~walt.crawford>), click on “Professional activity,” and look for a link that begins “Out of the Corners.” If that link appears, click on it: the resulting page will tell you what’s happened. If the link does not appear, you can always check “Coming events” in the “Professional activity” section.

Unfortunately, the replacement for this section probably won’t benefit from Ken Wachsberger’s professional editing; it will be the worse for that lack. Ken has been a consistent pleasure to work with.

Beyond the Coda

Those plans *did* change, thanks in part to changes in MightyWords’ business model, resulting in what you see here. You still can’t beat the price, and now you get *all* the material without an artificial delay. “Crawford’s disContent” is now just “DisContent.” Will I aim for a hundred total newsletters? That requires 39 more after this one; I’d say the odds are better than even.

Press Watch I: Articles Worth Reading

Napier, Mark E., and Kathleen A. Smith, “Earth’s largest library—panacea or anathema? A socio-technical analysis,” <http://www.slis.indiana.edu/CSI/wp00-02.html>.

The most widely read item on my personal Web site (at least prior to *Cites & Insights*) was “Gutting America’s Local Libraries,” a rant based on Steve

Coffman’s article “Building America’s Largest Library” and later articles and Web items suggesting that this bad idea hadn’t simply faded away. Coffman dismissed “Gutting” as a rant, which was a lot easier than dealing with the specific arguments raised in my lengthy rejoinder: then, as now, I’ve seen no evidence that Coffman *hears* any shortcomings in his earth-shattering notions, much less that he’s willing to deal with them. I’ve seen evidence in recent state library conferences that the Coffman Road Show is alive and well.

Note the word I used in the previous paragraph. My Web commentary *was*, to some extent, a rant. I was upset and it showed in the commentary. While that doesn’t negate the calculations or criticisms, it makes them easier to ignore: “Oh, Crawford’s just venting; he doesn’t have anything to add to the conversation.”

Here’s what you do. Go to the Web site above. Read the paper. On my system, it resulted in 14 print pages, so you’ll want to print it out. It’s worth a careful read (and may have been updated since the May 2000 version I read). The husband and wife team of Napier and Smith prepared this paper for a course. It’s a fine piece of work.

Rereading the section of this article that comments on *my* comments—“Walt Crawford as an anti-utopianist”—I am hard-pressed to disagree with Napier & Smith’s criticisms. I was *absolutely* guilty of sloppy research and argumentation; that was one of several reasons that I never seriously considered submitting “Gutting” for formal publication. I would probably remove it from my Web site, replacing it with a calmer and better-researched version, but as a library person I’m trying not to falsify or distort the record—which means leaving the bloody thing up, sloppy thinking and all.

If you ever hear anything more said about Earth’s Largest Library or America’s Largest Library or any other version of the Coffman Crusade, *go read this article*—and look for anything else Napier & Smith have written.

Metz, Cade, “The perfect PC,” *PC Magazine* 19:21 (December 5, 2000), pp. 156-61.

There’s no such thing as a single ideal PC for every use. This year’s version of *PC Magazine*’s periodic attempt to define “perfect” characteristics for various uses seems better than usual. Most library uses probably fall into the corporate PC category (and it’s hard to beat the typical \$800 price), with multimedia workstations needing slightly different configurations. Read the article but don’t take the recommendations as gospel.

Perine, Keith, "Taking liberties," *The Industry Standard* 3:49 (November 27, 2000), pp. 94-5.

It's useful to see an outside view of library issues. This article is good journalism about the urge to force libraries to filter Internet computers. It may not toe the ALA line precisely, but neither does it overstate ALA's omnipotence or follow the pro-filtering party line. Noting that NetNanny and SurfControl executives don't favor federal filtering requirements, the article ends with a comment from Bennett Haselton of Peacefire.org. If you know anything about that site, you know which side got the last word.

Isaacson, David, "Discriminating librarians," *Library Journal*, November 15, 2000, pp. 40-1.

This small gem is well worth reading. Isaacson is Humanities Librarian at Western Michigan University and finds himself grappling with the musical question: "Is it porn?" His comments should make you think—and might cause a few people to reconsider absolutist positions on access.

In a few settings, I've asked public and academic librarians the following question: "If your library had unlimited space, funds, and processing time, would you buy *everything* that was published—or at least everything that even one person showed any interest in?" So far, I've heard two public librarians assert that they would indeed: that the only reason for selection is lack of money and space. I find that hard to believe even in an academic library, much less in any but the largest public libraries.

What's your answer? How do you deal with the case made in this article? I tend to be fairly absolutist about free speech and I'm well aware that Web filters probably do more harm than good. Still, as I read this article, I didn't find myself belittling Isaacson or his concerns—and do note the heading at the top of this section.

Lessig, Lawrence, "The rules of law," *The Industry Standard* 3:50 (December 11, 2000), pp. 51-2.

Cites & Insights is about technology, media, libraries, hype, and all that good stuff. It is not a political journal and my politics are my business. I have not commented on the 2000 elections until now, and see no reason to break that record. On the other hand, if you have ready access to back issues of *The Industry Standard*, you should read this column—and pay close attention to the date. It's fair to suggest that the U.S. Supreme Court surprised Lessig (a liberal Stanford law professor who at one point was a clerk for Antonin Scalia)—but not the way he predicted it would.

"What broadband revolution?," *The Industry Standard* 3:50 (December 11, 2000), pp. 120-54.

This set of related articles brings some hard truths to the hype of universal high-speed access. Along with good writing and reporting, the contributors do something rarely done in technology journalism: they quote industry predictions from a few years ago. For example, in 1996, Will Hearst, then CEO of @Home, predicted that @Home would provide service to a million homes by the first quarter of 1997. The company—now Excite@Home—reached that level in December 1999. But then, Excite@Home is the biggest *success* story in broadband: it now has more than two million subscribers, more than half of all cable Internet users and nearly half of *all* home broadband Internet connections.

The reporters provide enough rope to let industry leaders tie themselves up in contradictions. The xDSL picture seems hopelessly confused. Entertainment sites founded on the promise of broadband access have either gone under or found other approaches. Naturally, the people in surviving companies assure us that it will all work out.

Gates, Dominic, "Waiting for the Net to get real," *The Industry Standard* 3:51 (December 18, 2000), pp. 88-9.

Maybe I should capitalize "real" in the title, since this article reports on RealNetworks and the big plans of CEO Rob Glaser. RealNetworks makes money, unusual enough for an Internet media operation—but Glaser's views and comments are more interesting. Naturally, he plans to "dominate media delivery over the Web"—just as every dot-com company expects (or expected) to dominate some category or other. Glaser believes that streaming audio is deeply meaningful: "There are deep transformational things going on with the Internet," and he does mean RealVideo and RealAudio.

Here's a direct quote that, if accurate, reflects some remarkably narrow blinders: "Today, plus or minus 70 percent of online content is audio, the balance video. For traditional media, it's the reverse." That's from CFO Paul Bialek—but Glaser didn't step in to note that *text* continues to dominate "online content" by any rational measure. For that matter, given total revenues for newspapers, magazines, and books, it's hard to make the case that text is so tiny a portion of "traditional media" that it's not worth considering. I believe what's happening here is that "media" and "broadcast media" are treated synonymously.

There's more here; the article is worth a look.

Beyond the PC: Web Appliances Ad Nauseum

[*Introductory note:* some essays take shape over several months—and with a topic as volatile as Web appliances, that can mean dramatic changes midstream. I've left some course reversals in this essay, as I think they add to the story. The moral for libraries: if you think that “thin clients” and “Web appliances” offer great value to replace your Internet and catalog PCs—those values will only remain if the industry succeeds on a broader scale. So far, the odds don't look all that good.]

The Industry Standard 3:34 (September 4, 2000) has a charming writeup on the current state of Web appliances: “It slices, dices, blends—and surfs.” The last sentence of the first paragraph notes, “The variety of these new devices is testament both to human ingenuity and to wishful thinking.”

Quite a few companies (including my favorite PC company) seem ready to enter this market, even though IDC projects total shipments of only 1.5 million units by 2002. (Or do they? A November 2000 *Computer Shopper* article claims that IDC says that, by 2002, Internet appliance shipments will hit 42 million units, going on to surpass PC shipments by 2004.) Too many players in a relatively small market isn't the biggest problem, however. The biggest problem: these devices may not make economic sense.

Netpliance offers the iOpener (or I-opener?), a sleek LCD display with built-in speakers and keyboard. Plug it into a power outlet and phone line and you're ready to go. As of late August 2000, 44,000 users have signed up for the \$22-per-month Web access, without which the iOpener is a statue. But at \$399, Netpliance takes a loss on every iOpener it sells—and the company has done “well” enough to lose \$168 million so far. The big profits come when iOpener users sign up for “extra software services and Internet apps.” If they don't—if the iOpener is treated as nothing more than a Web surfer and e-mail unit—Netpliance is in trouble.

EPods, with its “elegant tablet-style appliance with a touch screen,” never reached IPO. Its \$199 (plus \$25 per month) ePodsOne is for sale in one Seattle department store chain, but the company is down from 90-odd employees to two dozen and has no clear path to success.

Those are the *neat* Web appliances. After that, the picture gets peculiar. CMi offers the \$699 Ice-

box, a bulky device built by Samsung that looks like a small TV—which is what it is. The device includes a DVD player and the company claims it's like bringing a juicer to market—assuming you have a \$699 juicer, that is.

Meanwhile, Compaq and Microsoft push the iPAQ Home Internet Appliance, another \$199 flat-screen unit that costs considerably more to make than the selling price. Intel has a Linux-based Dot.Station that's “as bulky as a PC—only dumber.”

The IDC research director for device technology comments, “The information-appliance market will get creamed. People are dreaming.” It's hard not to agree—although it does beg the question of that optimistic *Computer Shopper* estimate. (The same *Computer Shopper* item says that Dataquest projects sales of 20 million Internet appliances *in 2000!* Right.)

But there's another article in the same issue: “Take my device, please.” Virgin Megastores was *giving away* 10,000 WebPlayers, flat-panel displays with keyboards and Web access. You get Internet service free for the first year, \$50 per year thereafter. Your fixed home page is at Virgin, and Virgin gets commissions whenever you buy from a linked site. If you don't spend at least ten hours a month on the device, you have to return it.

The article uses these figures to suggest that the WebPlayers could “pay for themselves in less than a year.” Online retailers saw an average \$72.95 income per *new* customer in the last quarter of 1999, while *repeat* customers provided \$199.28 average. The WebPlayer costs Virgin around \$400. But there's a gotcha here, at least for most stores: those are *income* figures, not *profit* figures. If Virgin sells its records and DVDs at a 25% profit, that income difference comes down to about \$30 per quarter, which means three years to pay for the device.

Virgin isn't the only company giving away consumer electronics to gain loyalty. Fidelity Investments offers free pagers to some of its online customers; eBay offers devices at a deeply-discounted rate to alert auction participants when they've been outbid.

Oddly, these site-specific devices might make sense—but only up to a point. As the article notes near the end, “Most people won't want to carry around several devices from different Web sites.” See “Here they come...there they went” below!

“The PC and Beyond”

Two articles and a column in the October 2000 *PC World* provide more perspective on Web appliances and other “post-PC” devices. The articles (clustered under the heading above, pp. 119-42) evaluate some

“new-wave PCs” and Net appliances, then offer some typically bizarre expert predictions for the computing landscape of 2010.

The summary evaluation of five “legacy-free” PCs (designs that abandon PCI slots and all ports except USB and FireWire), two Net appliances, and one hybrid appears early on: “Despite the hoopla, we found that they wouldn’t inspire us to abandon our plain old computers.” For that matter, even the “trend-setting” design of the iMac may be as much a special case as Apple in general. In a reader survey, 72% of respondents don’t care about the shape of a PC and 74% don’t care about the color. (My PC is under my desk. Why do I care what it looks like?) Dell introduced a snazzy WebPC—and later dropped it, since it wasn’t selling. Compaq’s iPAQ is cute enough, but nothing special.

Hypesters are always with us. One industry pundit claims that legacy-free PCs “will be more reliable, easier to use, and have more features.” The first two claims could make some sense—but I can’t see how omitting features can result in more features. Most of the current “legacy-light” and legacy-free systems are more compact than typical PCs. That may look good, but it makes them harder to work on and much more difficult to expand.

The case for Net appliances gets more confusing. One analyst loves them because people who won’t pay \$1,000 for a computer might fall for a recurring monthly charge instead. Another says that appliances are more secure: “You don’t have to worry about leaving personal data on the machine, because it can’t hold any.” Instead, your personal data is stored by some corporation somewhere else—and we know that means it’s completely secure, with no possibility of intrusion or damage. Don’t we?

I’m bemused by the suggestion that doing *all* your computing attached to remote sites, with all your files stored remotely, is *more* secure than having your own files on your own (not always connected) PC, backed up on your own Zip files or CD-Rs. I must be missing something here, such as the contemporary definition of security.

Cidco’s \$100 MailStation has a small LCD screen (6x2.5”) in an 8x6” slab connected to an undersized keyboard. You pay \$100 a year for ISP service, but all you get on the ISP is e-mail (and maybe some headlines later on): forget the Web.

I’ve mentioned the hybrid unit before: Aqcess’ \$2,999 Qbe Cirrus. It’s a 7.4lb. panel with a 13.3” touch-screen LCD covering a Pentium II-400, 12GB hard disk, 128MB RAM, and pop-up video camera. A full set of slots along one side let you plug in peripherals, and if you don’t care for handwriting recognition there’s another undersized keyboard and

mouse. The unit lacks a screen cover and is too heavy, too fragile, and too expensive for its power to make sense as a notebook replacement. It could make sense in certain situations where someone needs to be walking around a lot making notes and looking at information. Still, anybody constantly hefting a page-size 7.4lb slab in one hand while using the other to control the unit should worry about long-term effects on their wrist.

The second article is amusing and a little silly. IBM folks think we’re going to *wear* our computers. That’s nothing new, although the insistence that “computing has got to become a pleasurable and delightful part of our experience” is unusual for Big Blue. (The return of Charlie Chaplin?) One of IBM’s designers has this wondrous vision of the near future: “When your computer is built in to your glasses or your watch, when it is actually participating in your social life, it will matter more.” When my computer starts participating in my social life, I plan to pull the plug.

A manager at Xerox PARC believes that “the PC will go away” and that “tomorrow’s computers, like today’s telephones and TVs, will become unobtrusive appliances.” An odd choice, that. How many readers consider telephones and TVs “unobtrusive” when they’re in use? A photo shows this person admiring an offshoot of an absurdist reading device that I saw at San Jose’s Tech Museum: a 3x3-foot table that you tilt to scroll around large documents (projected on the table). It’s good for a laugh.

Dave Winer can safely say that “in 10 years, the operating system won’t matter,” as it becomes apparent that “there is one virtual computer on the planet and we’re all users of it.” Gaia computing: wow, man, that’s heavy!

A sidebar notes a few of *PC World’s* past predictions and how they worked out. While I suspect the sample may be biased, they do admit to a few miscues. In 1985, they predicted “the robot may become the next big consumer item.” In 1994, they looked five years ahead (to 1999) and saw us turning on the PCTV, receiving our personalized electronic newspapers, and getting “video highlights of President Schwarzenegger’s State of the Union address.” And in 1995, they made this prediction to come true by 2000: “batteries that last a year...will power [personal digital assistants.]” True, if you consider a digital watch to be a PDA. Otherwise—well, for a color PDA, figure four to eight hours.

The most refreshing part of this cluster is on the last page of the issue: Stephen Manes’ “Full Disclosure,” titled “The PC is Dead? Long Live the PC?” He offers the primary reasons PCs aren’t likely to

disappear—and, in a rare burst of complex thinking, recognizes the reality of the situation:

“The PC need not die for the competition to flourish. Let a thousand flowers bloom! Bring on a pocketable unit that combines a Web-connected cell phone with an organizer and a detachable wireless keyboard! Bring on digital TV and electronic picture frames and e-books! But don’t imagine that they’ll kill off the PC anytime soon.”

More Web Appliances

PC Magazine 19:17 (October 3, 2000) includes a full page write-up of Compaq’s “\$199” iPAQ Home Internet Appliance IA-1. That price includes a \$400 rebate from MSN for committing to that ISP for three years at \$21.95 a month. The unit consists of a little CPU module with V.90 modem, mono speaker, and a 10.1" 800x600 LCD color display—not an active-matrix display, and high color (16-bit) rather than true color. A battery-powered infrared wireless keyboard is separate.

The unit runs Windows CE on its AMD K6-2 CPU; it has 32MB SDRAM and 16MB flash memory, and comes with Internet Explorer 4.01. It’s small enough to fit on a kitchen counter and the screen is adjustable; you can connect a printer, mouse, or stereo speakers—but the only supported printer is Epson’s Stylus.

The unit does support most image formats and some audio and video formats, and it handles cookies, but you’re stuck with a small screen and dial-up speeds. Neither QuickTime nor any of the Real formats are supported, and advanced Web facilities are limited. But if all you need is e-mail and decent Web browsing, the price may be right.

Here They Come...There They Went!

Most silly ideas disappear—but few well-funded bad ideas disappear *rapidly*. Virgin’s WebPlayer falls into that rare category. A November 10, 2000 story from *WSJ Interactive* (the Web arm of the *Wall Street Journal*), as picked up by ZDNN, lays it out clearly (Erin Schulte wrote the story). “The 10,000 Web users who agreed to let Virgin Entertainment track their every click in return for a free Web-surfing device and three years of cheap, unlimited service will be facing a blank screen next week.”

The company that was providing the appliances and Internet service is dropping out of that business. WebPlayers can’t be reconfigured to work with any other ISP. The company claims that the success (or failure) of WebPlayers had nothing to do with their decision to lay off 40 percent of their staff and “focus on providing software and technology programs

for distributors”; they just realized that direct-to-consumer business was too difficult.

Add it up. Somebody—Virgin Entertainment or Internet Appliance Network (IAN)—laid out somewhere between \$3,000,000 and \$5,000,000 for the devices and an additional sum for Internet access for the subscribers. Virgin expected to gather enough personal data on these users to make it worthwhile—but the company has said it will destroy the personally-identifiable information and not use the overall information. Virgin is giving WebPlayer users \$25 gift certificates, while IAN sends out prepaid UPS labels for *voluntary* return of the players.

A few thousand Virgin shoppers either keep high-tech doorstops, send them back to IAN to use for parts, or find hackers who can convert the WebPlayers to PC peripherals. Some New Economy players lose a few million dollars. Single-function Internet appliances take another hit in the credibility department. Life goes on.

Press Watch II: Commentary

Lasky, Michael S., and Dennis O’Reilly, “A few of our favorite things,” *PC World* 18:12 (December 2000), pp. 116-30.

Some days you feel like a geek. Some days you realize that you’re not even in the same league as true “tech aficionados,” the apparent audience for this shopping guide. “We looked over dozens of high-tech products, and these are the ones—we admit it—that we coveted for ourselves.” The article includes 21 pictures and descriptions, with the descriptions even including a “geek factor.” But then, they say you’re “high geek” if you “can actually program a VCR,” but “medium geek” if you still use a 1999 graphics card. Hmm. I use the graphics support that came with my PC in 1999, and I can actually *program* a VCR, not just punch in Gemstar codes. What does that make me? Consider just a few of the highlights—and how items compare to one another.

Item #2 is AG Neovo’s \$949 Flat-Panel Display, a 15" LCD display. The description tells us that CRT flicker (which LCDs lack) is a constant irritation (even at 85Hz?) and that “book lovers” will be much more inclined to read for pleasure on an LCD panel. The negative comment on the unit is “Good-bye, bank balance,” because the unit is so expensive. A little later, #5 is Eizo Nanao’s \$949 FlexScan

L3300, “the LCD for the rest of us.” This 15" LCD is “one of the new exceptions” to the rule that LCD monitors demand “a gym bag full of cash.” I looked for an explanation as to why \$949 for one 15" display is so reasonable that it’s the LCD “for the rest of us” while another \$949 15" display is “expensive and worth every penny.” For now, I’ll keep my 18"-viewable CRT, which probably sells for \$550 at this point: it offers 44% more viewable space, truer color (a notorious weakness of LCD panels), and I’ve never been able to detect a flicker at the settings I use (typically 1280x1024, 85Hz, 16-bit color—there’s that 1999 graphics card).

Never mind. How about #4, the \$349 Cambridge SoundWorks Model 88CD table radio/CD player. I don’t doubt that it’s a fine table radio (for \$349, it should be), but they tout it as a “compact subwoofer-powered PC speaker set.” Which you would put exactly where, to get anything like decent near-field stereo? Unless you set your monitor directly on top of the radio, I don’t see how this works—and if you do, it had better be one of those LCD displays or you’ll crush the CD player. Of course, you’re also raising the display beyond the best ergonomic height, but so what?

How about a PDA built into a watch? That’s #6, Casio’s \$129 PC-Unite BZX-207SCR. It can store 24KB of data, which you can see on a 16-character display if you have the dexterity to work the ten tiny little buttons. I think “Geek factor: high” considerably understates the case.

A \$2725 computer desk has a low geek factor, but that’s still a lot of money to pay for a flat desk with a wide sliding keyboard tray, even if it is solid cherry wood. Then we get #9—and you knew something like this was coming. Franklin’s \$130 (and up) EbookMan isn’t actually on the market yet, but they’ve supposedly tested it (how?) and love it. It has a “generous 240-by-200-pixel” screen for comfortable reading—why, that’s almost one-sixth the size of the lowest-resolution notebook or desktop screen! But it’s also got a built-in speaker, microphone, and headphone jack for audio books and MP3 music—while the AAA battery holds out.

There are some interesting items here, to be sure—but also a certain amount of confusion and some supreme geekdom.

The Penultimate Grok

Grok first appeared in September 2000; brief notes on that issue appeared in last month’s *Cites & Insights*. Two days before posting that issue, I learned that *The Industry Standard* was giving up on *Grok* after February 2001; I managed to insert that post-

script. Neither the October nor November issue had anything that I felt the need to comment on.

The December 2000/January 2001 issue, “Focus on retail,” is interesting reading in its entirety, even if it is padded in much the same way that other *Grok* issues fleshed out a 50-page special report to fill a 144-page magazine. This issue includes 87 editorial pages (which is a bad sign, since that means it’s 60% editorial as opposed to the usual 36-46% of *The Industry Standard*), but only some 60 of those pages represent core material.

Why should librarians care about a magazine all about retail shopping on the Internet? Because it offers useful comments about customer service, but also because the doomsday future in which public libraries vanish along with populous cities is based on the overwhelming success of “e-tail.” Read carefully, this issue is a breath of fresh air.

Some notes along the way:

- The CEO of MySimon, one of the few remaining comparison-shopping sites, notes that fewer than 20% of MySimon users sort the returned listings by price. Apparently, most of us factor more than pure price into our buying decisions. I use MySimon, and I look to see which of the returned listings are from merchants I’m willing to deal with. Apparently, I’m not alone. *Moral:* Reliability and user service matter.
- A listing of the “50 most important online stores” is as important for what it leaves out as for what it says. Amazon, with \$1.64 billion in 1999 sales (and \$1.5 billion in cumulative losses), is an online “behemoth”—but Dell and Gateway, both of which do *much* more business on the Web, *aren’t even listed*. In “Computers/software,” the top listing is Buy.Com with around \$600 million in revenue; fourth on the list is NECX Direct, now a relatively small *division* of Gateway. (Amazon doesn’t break out book sales, but it’s fair to assume that the outfit never did reach the \$1 billion mark in books; Barnes & Noble does seven times that much business, even though the online group is a \$202 million second-placer.) It’s worth noting that these 50 “most important” operations included sites such as Furniture.com with \$11 million in sales (will it still be here tomorrow?), Fogdog Sports with \$7 million, and far too many “not disclosed” sales figures.
- If all goes as well for e-tailers as anyone predicted for 2000, total online purchasing will amount to one percent of U.S. retail spending.
- Big dreams continue unabated. WebVan so far manages to lose lots of money delivering groceries (in the second quarter of 2000, the firm

took in \$28 million and lost \$74 million), but the Big Idea is that “50 percent of retail is going to be on the Internet within 10 years” and that WebVan will be *the* delivery mechanism: “Think of the volume that FedEx is doing now and multiply by about 20.” And, of course, only two or three companies will have a share of this mammoth Internet-based market, unlike the scores of real-world retail companies. Why? Because that’s the New Economy—and the only way that WebVan becomes profitable.

- The article “Season of hope” on pages 94-98 offers a sobering ten lessons for online retailers. For example, “E-tail is e-xpensive,” “The eyes don’t have it” (just getting attention won’t ever make you profitable), and “Sofa, not so good” (will it *ever* make sense to buy major furniture online?). The same article notes *why* MySimon is one of few remaining comparison shopping tools: Yahoo bought one service and restricts its use to Yahoo member stores; Excite bought Jango and shut it down; Amazon bought Jungle—and discontinued comparisons.

There’s more. Not essential reading, but an interesting issue.

The future is...When?

Howard, Bill, “2001: The future is now,” *PC Magazine* 20:1 (January 2, 2001), p. 99.

It’s always interesting to note near-term predictions; unlike those of the Grand Futurists, they can be checked—and some writers even look back at their hits and misses. In summary form, here are Bill Howard’s ten predictions for 2001; we’ll see how things work out.

He expects that Microsoft’s “Whistler” OS (which replaces both Windows 2000 and Windows ME) won’t be locked down by labor day, meaning that next year’s holiday PC buyers will either get an IOU or stick with existing software. Sensible people will recognize that the Internet on a cell phone (WAP) is mostly silly, but two-way pagers may be big in the short term. Desktop PCs might be twice as fast at the end of the year as they are now, while 17" LCD display might break the \$1,000 mark.

He looks for a \$99 Palm OS device and skyrocketing sales, “convergence” in the form of a “personal recorder” that handles MP3 and video on a hard disk, and RealNetworks streaming video of big sports events. He does not expect significant sales of Internet appliances or big breakthroughs in ease of use and does expect some corporations to start controlling employee use of PDAs on the job.

This is one of the more sensible sets of predictions I’ve seen. I don’t know enough to comment on some of these, but I suspect he’s right about Whistler and Internet appliances, and hope that people are sensible about WAP use; I hope he’s right about 17" LCDs that cost a mere twice as much as 18" CRTs; and I think the “convergence” note is a fine example of how words get redefined. We shall see.

MP3 Watch

“You can tune into radio stations without going near a radio. You can wear 30 minutes of music on your wrist. And you can buy a CD on the Web and start listening to it within seconds.” Thus begins a *PC World* piece on new MP3 players—and MP3.com’s “slick” My.MP3.com service.

The first sentence is true (if you redefine “tune in”) but its use in this article reflects a failure of common sense. To wit, two new portable MP3 players include FM radio tuners—and that’s what the writer means by tuning into radio stations “without going near a radio.” But an MP3 player with an FM tuner built in *is a radio*, just as a Walkman with AM/FM tuning as well as cassette playback is a radio—it’s not a cassette player that magically lets you hear the radio! That’s like saying that a car radio lets you hear music *without speakers*—just because the speakers are built into the car, they’re still speakers. Building a radio into an MP3 player doesn’t make it not a radio. (The piece was written by Jim Heid, an experienced writer who should know better.)

How can you listen to radio stations without going near a radio? By Heid’s analogy, you could claim to do that by adding a tuner card to your PC—but that’s ludicrous (as are such cards, in general). On the other hand, there is “Internet radio”—streaming audio from hundreds of radio stations delivered over the Internet. It’s a great way to listen to specialized and overseas stations if you have the bandwidth, you’re at your PC, and the music won’t drive those around you crazy. It has nothing to do with MP3, and it would be a bizarre use of wireless Internet connections if you did it with any portable device.

Then there’s My.MP3.com. RIAA wanted it shut down, and it did seem to be a classic case of copyright infringement. My.MP3.com is simple enough. You put a CD in your CD-ROM drive or buy a CD from an MP3.com partner; in either case, the CD is recognized and matched against the 80,000 that MP3.com purchased and converted to MP3 form. Now you can listen to streaming MP3 versions of your CD’s cuts immediately—before the purchased

disc arrives and after you've removed "your" CD from the drive.

Note the quotation marks. Once MP3.com has seen that CD in your PC one time, it assumes that you own the CD. If ten friends each put the CD in their PCs, all ten are registered at My.MP3.com as owners—and, by the way, Jim Heid found it reasonably trivial to download the "streaming" MP3 tracks so they could be copied. (For that matter, if I borrow a dozen new CDs from my public library and mount each one in my PC for a minute or two, I'd then be registered as the owner—able to listen to all twelve whenever I like, even while someone else is using the library's copy.)

On one hand, streaming MP3 quality will be nowhere near as good as CD quality—and there's strong evidence that people who like music that they hear will eventually buy the CDs. On the other hand, for once I'd have to agree with RIAA: this seems pretty blatant. Not quite as blatant as Napster, perhaps, but I think this pushes fair use considerably too hard.

The section above was written before MP3.com settled with four of the recording industry's big five, and then lost the lawsuit to Universal Music Group. MP3 negotiated a settlement with Universal as well. The company legally restarted My.MP3.com—but it costs \$50 per year if you want access to more than 25 CDs, and unless enough people sign up, it's hard to see how MP3.com can pay the settlement, which totals more than \$150 million.

What about wearing 30 minutes of music on your wrist? *The Industry Standard* for June 26, 2000 reviews Casio's \$249 WMP-IV Wrist Audio Player, and it's pretty clearly a toy for gearheads. It's a watch, but it's roughly 50mm on a side and 19mm thick: figure 2" across and almost 0.75" thick, weighing about 2.5 ounces. Sleek it ain't—but it does include 32MB of memory to hold half an hour of "near-CD" music or an hour of "FM-quality" tunes. The software doesn't work very well, apparently, and it only runs on Windows 98. You get four hours playback from the watch battery—or a glorious two months of pure timekeeping. Replacing your watch's battery six times a year: ain't progress wonderful?

Breen, C. (2000), "Steal this song," *Macworld*, August, pp. 68-74.

What is it with PC magazines and regard for *other people's* intellectual property? This cover story, with a cover saying flatly "Say good-bye to your CD collection" and "CD R.I.P.," combines a detailed discussion of MP3 with some questionable legal advice, erroneous history, questionable claims, and (in my opinion) absurd conclusions.

The questionable legal advice: "Although sharing music with friends is considered to be personal use and is legal." From everything I've heard—and I'm not a lawyer—that doesn't extend to "sharing" in the form of copying music. Lending a CD to a friend: legal. Taping from a friend's CD: almost certainly not legal, but probably not an enforceable violation. Thus we get the bland statement in the article that using a Napster clone (Macster) to locate and download someone else's MP3 copy of Chad and Jeremy's *Painted Dayglow Smile* "may be illegal." I'd put that "is almost certainly illegal."

Breen sidesteps the quality issue by saying that MP3 with 10x compression maintains "a high level of quality," which is vague enough to be unarguable. Less arguable is his assertion that Macrovision copy protection on DVDs "comes after" DeCCS, the program written to let Linux users view DVD movies. That's nonsense: most Hollywood DVDs have had Macrovision encoding (which scrambles VHS copies of DVD, in this case) since the medium originated. A little later, Breen accepts Liquid Audio's claim that its software embeds an "inaudible digital watermark" without comment—although most knowledgeable audio professionals question whether any persistent digital watermark can actually be inaudible.

The greatest nonsense comes in the final paragraph. Breen essentially says that the music industry may as well forget selling CDs and "seek alternative means of compensation" such as advertising, offering bonus material for purchase, or streaming music on a pay-for-play basis. That is a jarring contrast to the claims of MP3 aficionados and Napster apologists that Napster copying is unlikely to damage sales of CDs to any serious extent—claims that I regard as probably true. (I think the RIAA is being pigheaded as usual, and I'm certain that the big music companies have conspired to keep CD prices about twice as high as they should be—but that doesn't mean we're all going to abandon our personal ethics as a result. Most people don't steal because they consider it wrong. Do you steal whenever you're certain you won't be caught?)

Review Watch

These notes cover *comparative* reviews that seem worth noting, primarily from magazines in the personal computing field. I have certain constant grouses that I might just as well state here and have done with. *PC World* bothers me because they arbitrarily select the Best Five or Best Ten of a field, offering explicit notes only on that "best" group.

Macworld's absurdly brief comparative reviews don't offer enough information to allow informed decision-making. Both magazines also offer worthwhile roundups; I just wish they'd do better.

Desktop PCs

Broda, Rick, "The PC dream team," *FamilyPC* 7:13 (December 2000), pp. 148-54.

Supposedly, this review includes the "best-of-breed dream systems" for seven PC makers (the six largest, plus Tiny). That's a little hard to believe. Apple sent the iMac DV Special Edition, which may be the top iMac but is far from "best of breed" for Macs. Gateway sent a Select rather than a Performance system, left out a CD-RW drive, apparently didn't use their top display, and—uniquely for Gateway, in my experience—did not preinstall the software. Even IBM's system seems considerably below the "best of breed" in what's left of their consumer lineup.

There's another problem with this review, one that makes it difficult to trust the evaluations. We get raw numbers but no breakdown of evaluations by category. That turns ratings into a "trust us" game. For the record, Tiny comes out on top with what had to be the second-slowest system; every other system except the Gateway gets a Recommended rating, and the low rating for the Gateway doesn't make a lot of sense. This is one of the weakest sets of ratings and reviews I've seen in *FamilyPC*.

English, David, "Revving the Pentium engine," *PC Magazine* 19:22 (December 19, 2000), pp. 30-4.

The Pentium III wasn't much of an improvement over the Pentium II. This brief roundup claims that the Pentium IV is the real thing: a significant architectural improvement. To some extent, that improvement is reduced by measures taken to increase clock speed—because all we understand is raw clock speed. The new 1.4GHz and 1.5GHz Pentium IV processors handle slightly fewer instructions per clock cycle (10 to 20% fewer) than the Pentium III—but they handle integer operations more than twice as fast and some other operations much faster.

To get the most out of the new CPU, as with every other Pentium upgrade, software needs to be revised—and that rarely seems to happen. Still, the new machines do offer the highest desktop speeds you can get. In this group of early systems, Gateway's \$3,089 Performance 1500 earns the Editors' Choice for top performance, good configuration (albeit with limited expansion room), and front-panel USB and IEEE 1394 ports. The major impact of

1.5GHz systems is to lower prices on 1.2GHz Athlons and 933MHz Pentium IIIs.

(As a counterpoint, *PC World's* first reviews of Pentium 4 systems in the January 2001 issue came up empty. A Micronpc Millennia Max Athlon-1200 performed better than the three Pentium 4-1500 systems tested, with the exception of the Gateway's better video encoding speed. Different magazines use different benchmarks.)

"High-end PCs," *PC Magazine* 19:21 (December 5, 2000), pp. 163-82.

What makes a high-end PC? The article preceding this 14-computer roundup defines "perfect" PCs in various categories. For the high end, the article specifies a minimum of 1GHz CPU, 128MB RAM, 40GB hard disk, 64MB graphics RAM, Ethernet or cable adapter, DVD-ROM and CD-RW drive, a 15" LCD display (but they accepted an 18"-viewable CRT instead), and surround-sound speaker system.

The single Editors' Choice among these name brand and no-name units, costing \$1,849 to \$3,750, is Micronpc's \$2,699 Millennia MAX XP. It has one of the first 1.2GHz Athlon CPUs and adds today's fastest mainstream video processor (nVidia GeForce2 GTS Ultra), two 30GB hard disks with RAID support, and MS Office. The system was fastest on all tests.

Honorable mention for those on a budget goes to Micro Express' \$1,899 MicroFlex TB1100, but you should also consider the other four-dot reviews: ABS Multimedia System 1, Gateway Select 1100, and HP Pavilion 9706A T-1100.

Howard, Bill, "Home PCs: help yourself," *PC Magazine* 19:22 (December 19, 2000), pp. 176-201.

Many of today's home-oriented PCs now include special software to help identify and diagnose problems. It's not possible to make a PC foolproof (in this case, "PC" most definitely includes Macs), but many problems don't entirely disable the unit. If there's life at all, the unit *should* be able to help its owner solve problems—or at least help the vendor see what's wrong. Dell, Compaq, Gateway, and HP all include such software; IBM has slightly less useful utilities.

This roundup includes systems in two classes: "value systems" costing \$900 or less and full-featured systems costing \$1,800 or less. Editors' Choice awards go to Compaq's \$1,589 Presario 7000 in the full-featured category and Dell's \$899 Dimension L800r among value units. Honorable mentions go to Dell's \$1,768 Dimension 4100 and Gateway's \$899 Essential 667c.

My only qualms about this article come from *PC Magazine*'s slightly hypocritical attitude toward their own surveys. Compaq gets three dots for service and support—but the magazine's latest survey gave Compaq a rock-bottom "D" grade. Apparently, because Compaq's "Web-based buying aids and support tools are as good as any of the direct PC sellers," the survey showing that their support stinks doesn't really matter. Indeed, the review scorecard avoids survey results—a striking omission.

Digital Cameras

Freed, Les, "Pro-level digital SLRs," *PC Magazine* 19:21 (December 5, 2000), pp. 32-4.

If you're *serious* about digital photography, this "first look" may be worthwhile. It covers three digital cameras with roughly half film's resolution (three to four megapixels) and the special qualities of single lens reflex cameras. SLRs view through the lens, so you see exactly what the camera will see. The optical equipment necessary to do that makes SLRs bigger and heavier than other 35mm cameras; on the other hand, SLRs typically accept different lenses for special projects (unlike most non-SLR cameras).

SLR cameras have never been cheap, either in the optical or digital domain: the three units reviewed here cost \$2,000 to \$4,000, and the only one under \$3,500 doesn't accept different lenses. That said, the Olympus Camedia E-10 gets a perfect five-dot rating—as does Canon's \$3,500 EOS D30.

One caution for these cameras: because the image sensor is smaller than a 35mm film frame, lens focal length is about 50% longer than for film cameras. Thus, a 20mm extreme wide-angle lens for a regular camera becomes a modestly wide-angle 30mm lens on a digital SLR—but telephoto lenses also become 50% more effective.

Grotta, Sally Wiener, "Cheap shots," *PC Magazine* 20:1 (January 2, 2001), pp. 202-4.

This brief comparison rounds up six digital cameras priced between \$90 and \$200. Most take minimalist 640x480 pictures, but two offer one-megapixel (1280x960) resolution. UMAX' \$200 AstraCam 1800 gets the Editors' Choice; it's an unusual vertical camera that lacks an LCD viewfinder, auto-focus, and zoom, but takes the best pictures in the group. None of the other units earn four dots.

Pogue, David, "DV camcorders," *Macworld*, January 2001, pp. 82-4.

The five digital video recorders in this brief review all work well with FireWire-equipped Macs, all record on mini-DV cartridges with twice the resolu-

tion of VHS, and all cost less than \$2,000. Otherwise, it's quite a range; a *complete* review would be fascinating. *Macworld* awards four mice and buying recommendations to three of the five. Canon's \$999 ZR10 is tiny (2x3x5"), sleek, and relatively cheap, with good features for its class. Canon's \$1,799 Optura Pi offers an optical stabilizer and will capture noninterlaced still images. Sony's \$1,399 DCR-TRV11 offers fine images and generally good value, with one special feature: it will convert analog videotape to a digital signal for computer editing as a one-pass process (without recording to DV tape as an intermediate step).

Thornton, Carla, "Sharpshooters," *PC World* 18:12 (December 2000), pp. 150-64.

This review covers a variety of digital cameras costing less than \$1,000, divided into those that cost less than \$500 and more expensive (and capable) units.

I don't know about their claim that the three-megapixel cameras costing \$800 and more produce "8-by-10 prints virtually indistinguishable from a 35mm film camera's output." Three megapixels is still less than half the resolution of 35mm film, and the color gamut of digital cameras is different than that of film. The review does include tiny comparative pictures, including a control picture from a Leica 35mm camera. The accompanying text says that "some [of the digital shots] rivaled the 35mm camera." I showed the page to my wife, who's a good amateur photographer as well as a librarian. She looked at the so-called best image and the rest of the images (one of them so bad it was ludicrous) and commented that—even at the one-square-inch print size—there was a *substantial* difference between the Leica and any of the others. I would agree—but I also agree with *PC World*'s judgment as to the best image of the lot.

That image came from Kodak's \$707 DC4800, but *PC World*'s weighting gave the Best Buy for over-\$500 cameras to Epson's \$899 PhotoPC 3000Z for battery life, ease of use, and special features. (The Epson produced the second-best image; the Kodak came in second place overall.) Among less expensive cameras, Olympus' \$299 D-360L gets the Best Buy award, but it has very short battery life. Incidentally, one camera deserves special mention of a different sort. The \$129 Agfa Ephoto CL18 is small, light, has great battery life and can double as a Webcam—but it took truly awful pictures.

Displays and Graphics

Jones, Leigh Anne, "Dream screens," *PC World* 19:1 (January 2001), pp. 119-28.

Fifteen-inch LCD screens still cost too much, but at least some of them are stylish. As with most roundups of LCD screens, this article contradicts itself in attempting to make these pricey gems look more reasonable. One paragraph says that "the average price of a 15-inch LCD monitor these days has dipped to under \$1000." Two paragraphs later we learn that "the average street price of all the monitors we tested was \$1042," which is only under \$1000 using economic systems I'm unfamiliar with. Similarly, one paragraph says flatly that LCD screens are "better for your eyes than CRT monitors," while later discussion claims only that CRTs with refresh rate set too low can cause eyestrain. Is there any evidence that CRTs with fast refresh rates are bad for your eyes? Not that I'm aware of, and none is cited here. I can't see paying \$600 extra to avoid adjusting the refresh rate on a CRT display; it just isn't that hard in Windows.

Typically, the testing covered 15 displays but the discussion includes the Top Ten: that's *PC World*. Surprisingly, there's only one Best Buy; with ten units, I'd expect two. That Best Buy is the \$949 Eizo Nanao FlexScan L330, with excellent text and graphics but no pivot and swivel features. Tied for second place are two other \$949 units: Philips' Brilliance 150P and AG's Neovo M15, one of the classiest designs in the roundup. Perhaps the classiest design is Sony's SDM-N50PS, but it's expensive (\$1,299) and so light (five pounds) that it could be knocked over easily.

Salvator, Dale, "Where's 3d now?" *PC Magazine* 20:1 (January 2, 2001), pp. 170-81.

In case you're wondering, the teaser says it all: "3-D is where it's always been—in gamer's hands." The chips just keep getting faster, but business applications (promised for years) have yet to materialize. Maybe that's just as well; I've seen data visualization software, and while it looks like a wonderful way to disguise bad information it requires a whole lot more "visual literacy" than I'm blessed with.

After a worthwhile introduction, this group review covers 16 graphics cards in two groups: high-speed cards primarily useful for gamers, and somewhat lesser cards that cost around \$150 and offer more than enough power for business use. A sidebar covers three cards that add TV tuners and output capability.

The Editors' Choice for no-holds-barred performance is Hercules' \$400 3D Prophet II GTS Pro, using the nVidia GeForce2 Pro chip and 64MB of double-data-rate (DDR) SDRAM. If you're one of those old hands who remembers that Hercules disappeared some years back: the new Hercules is a brand name of the Canadian firm Guillemot.

Editors' Choice for business use is ATI's \$150 Radeon 32MB SDR. The model name tells you most of what you need to know: the chip is ATI's own Radeon, an advanced processor that isn't quite up to nVidia's top chips, and it comes with 32MB of "regular" SDRAM. Its performance isn't too far below that of the best gaming cards and the price is right. Honorable mention goes to Matrox' \$150 Millennium G450, which does use DDR SDRAM and comes ready to support two monitors (showing different information on each one).

How strong is nVidia's hold on the high-end graphics market? Eleven of the 16 cards in this roundup use nVidia GeForce2 chips (several different models); the only exceptions are from ATI, Matrox, and 3dfx, all using their own chips. Since nVidia's buying (or has bought) 3dfx, the picture is even simpler.

Internet Access

"Warp speed Web access," *PC World* 19:1 (January 2001), pp. 92-106.

Three related articles discuss ways to get high-speed Internet access, what to do with it, and inexpensive routers for home networks. The article on high-speed access is just frank enough to be enormously amusing unless you're desperate for that wide pipe at home. A table seems to favor xDSL over cable for power users, but it's not entirely clear why. Fixed wireless gets a surprisingly high rating given that it's not widely available—but then, promises and pilot projects always work better than fully propagated real-world systems.

I found the list of "best broadband sites" a surprisingly weak argument for broadband. NBC news footage, odd little independent films, peculiar animation, and art sites that shouldn't need broadband: that's it?

The router roundup doesn't say that much about each tested unit but includes useful background and reasons that a separate router may make sense for home networks. The Best Buy is Asanté's \$208 FriendlyNet FR3004LC.

Printers

Long, Ben, "Color workgroup laser printers," *Macworld*, January 2001, pp. 79-80.

The claim here is that even the best color lasers don't produce output as good as that of a cheap ink-jet. That's not my experience, but maybe *Macworld's* definition of "cheap" is different. Meanwhile, if you need high-speed color with reasonable cost per page, you might want one of these. Two printers tie for top rating with four mice each. HP's \$5,549 Color LaserJet 8550N offers workgroup paper capacity (two reams), automatic duplexing and the best image quality (despite having the lowest maximum resolution). NEC's \$1,999 SuperScript 4650N holds a mere 250 sheets and the image quality isn't as good—but it's a whole lot cheaper, earning *Macworld's* recommendation.

Utility Software

Hill, Alice, "Log on for a tune-up," *Computer Shopper* 21:1 (January 2001), pp. 166-70.

Does this review cover software, services, or Web sites? Maybe—and it's worth looking at, even if you decide not to try any of the services discussed. Four Web sites offer ways to see whether your PC can or should be tweaked, updated, or upgraded. PC Pit-stop (www.pcpitstop.com) runs diagnostics on your system and summarizes the results, using racing flags to show cases where tweaks might improve performance. Cnet's Catchup.com (catchup.cnet.com) looks for possible software upgrades and offers to download them for you. ZDNet's Updates.com (updates.zdnet.com) looks at possible hardware upgrades as well as software updates. Finally, Macafee.com clinic (www.mcafee.com), the only service here that comes at a price (\$29.95 per year), offers a range of applications including optimization, antivirus, and firewall applications, primarily aimed at Windows 95/98/ME users. None of these services work on the Mac. A sidebar includes specialty sites for the Mac, the Palm OS, and pure Internet issues.

Web Search Engines

Sirapyan, Nancy, "In search of..." *PC Magazine* 19:21 (December 5, 2000), pp. 186-98.

Never mind the obligatory comparison of directories to "a library's card catalog"—we already know that technology writers apparently never use public libraries. Never mind the naïveté of any general-interest search engine survey as compared to the careful work done by Greg Notess and others in the

library community. This survey article reaches almost twenty times as many people as any library-specific publication, and it's not bad.

Each site gets an individual writeup based on a wide range of searches (unfortunately not listed), with dot ratings for simple searches, complex searches, and overall quality. Interestingly, the editors didn't award a five-dot rating for complex searches to any site. The only four-dot ratings for complex searches go to two of three sites with five-dot ratings for simple searches, which also receive the overall five-dot ratings and Editors' Choices.

You can guess which two sites those are: Google and Northern Light. Google's results are the best in the business; Northern Light scores points for its blue folders (which I still don't quite get, but that's my problem). The third five-dot rating for simple searches comes out of left field: MSN, despite its nasty habit of featuring sponsored pages first.

I'm not sure I understand the other rankings entirely. MSN scored five dots for simple searches and three for complex searches, but only three overall; Direct.Hit, HotBot, and Oingo each scored four dots for direct and three for complex, but four overall.

Perhaps the most amusing set of ratings comes at the bottom. AOL.com, Ask Jeeves, GoTo (with its pay-for-ranking model), iWon, and LookSmart all receive two-dot overall ratings.

The Details

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