

Death of the PC

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Bye-Bye, PCs

By TIERNAN RAY | MORE ARTICLES BY AUTHOR

As the PC era wanes, Dell and HP will fade from view. Tablets, smartphones, and big data will drive Apple, Google, and EMC.

When Microsoft introduces its long-awaited Windows 8 operating system Friday, it will be the first Windows rollout to face real competition since, well, forever. Today, smartphones and tablets do almost all of the day-to-day tasks a PC does -- including sending e-mail, surfing the Web, and editing photos -- and do some of them better. Already, tech investors, long accustomed to a lift from Windows, are primed for disappointment.

At the same time, big data -- massive data centers that can marshal tremendous computing power -- is upending the traditional network, pushing information-processing into the palm of your hand. And it's happening faster than almost anybody expected, as last week's spooky earnings surprises at Microsoft (ticker: MSFT) and chip makers Intel (INTC) and Advanced Micro Devices (AMD) made clear.

So who are the winners and losers in a post-PC world? Apple (AAPL), Google (GOOG), and Samsung Electronics (005930.Korea) certainly stand to gain, and EMC (EMC) will be a winner in the big-data world. Obvious losers include PC makers Hewlett-Packard (HPQ) and Dell (DELL). Intel and Microsoft, which straddle both the PC and post-PC worlds, are tougher calls. Their high dividends and cheap valuations make them hard for investors to rule out.

On-demand computing, which is to say, the cloud, will benefit Amazon.com (AMZN), and Salesforce.com (CRM). And arms merchants to cloud providers, like storage giant EMC (EMC), also will prosper.

There are new challengers, as well. Workday (WDAY), Splunk (SPLK), and Qlick Technologies (QLIK), recent IPOs all, bear watching by investors. Promising startups that have not yet hit the public stage, such as equipment vendor Ruckus Wireless, also could be game-changers down the road.

SEPARATING GOOD INVESTMENT IDEAS from bad, however, isn't as easy as picking winners in the marketplace. Companies such as Salesforce and web-hosting outfit Rackspace Holding (RAX) may be essential to this sea-change, but their valuations are scarily high. Salesforce, at about \$149, fetches 99 times fiscal 2013 earnings estimates, while Rackspace, which operates massive data centers for cloud services, trades at 86 times. Are their opportunities really that much greater than those at Apple, which fetches 11 times estimates, or at Microsoft, which trades at 10 times?

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Ann Cutting for Barron's

Probably not, argues Barron's Roundtable member Fred Hickey, publisher of the High-Tech Strategist. "Companies like Rackspace and Salesforce are classic story stocks," he says, "and it is very dangerous to own such stocks when everything they might produce in the way of earnings and cash flow is already priced in." Also in that boat, he argues, is Amazon.com, which stands to prosper if its Kindle Fire can elbow its way into the tablet computer market. But at 104 times earnings, that's a big if.

The table "Who Wins, Who Loses" sifts through both opportunities and valuation, to find the best bets for investors. Google's earnings flub last week notwithstanding, that company is still on our list of likely winners, which are few and far between.

IT'S A WHOLE NEW WORLD FOR Microsoft. Smartphones were still relatively primitive when Windows 7 was introduced in 2009, and tablet computers didn't even exist. Now, as the charts "Game On!" illustrate, they threaten the PC hegemony. Neither Microsoft, HP, nor Dell is a force in smartphones or tablets.

"It is becoming a mainstream idea that your PC is not the center of everything," says Kevin Landis of Firsthand Funds, who has owned Microsoft, off and on, for years -- and is nervous every time he does.

That said, Microsoft is putting its vast resources behind its Windows 8 operating system for phones and tablets. And at 12 a.m. Friday, it will begin selling a tablet computer of its own, known as the Surface, setting up a midnight madness event. So we'll know soon how the excitement stacks up against iPhone and iPad madness.

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On Thursday, Microsoft reported flat year-over-year revenue, led by a 9% drop in the division that contains Windows. The numbers included pre-sales for Windows 8. Excluding them, sales in the Windows unit dropped by a third. At nine times next year's expected profits, Microsoft shares are very inexpensive, considering the strengths of the company's other businesses, including server software, databases, and collaboration. But unless Microsoft can show that Surface and all the other Win 8 devices will turn the tide for that part of the division, its stock will continue to suffer. Microsoft closed the week at \$28.64 and yields 3.2%. (For more on last week's earnings mishaps at Microsoft, Google, and AMD, see Tech Trader.)

THE INEXORABLE SHIFT AWAY from PCs is causing havoc for manufacturers. This year, worldwide sales of personal computers are projected to drop about 2%, to 357 million units, according to IDC's David Daoud. In dollars, they will fall 5% to 6%. More telling: Smartphone sales are expected to surge 42% this year, to \$294 billion, topping PC sales for the first time. And sales of tablets are expected to rocket 65%, to \$59 billion.

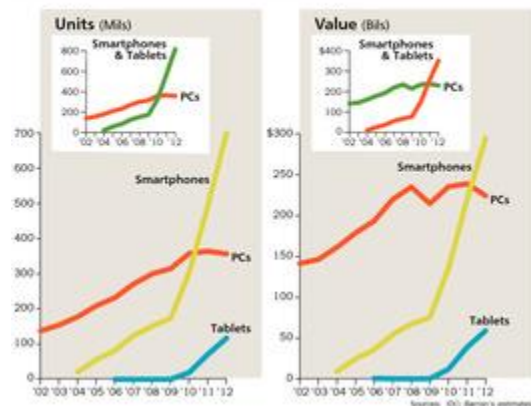
To Dan Niles of Alpha One Capital Partners, this sounds very familiar. He worked in the 1980s at minicomputer titan Digital Equipment Corp., whose founder, Ken Olsen, famously said there was no reason anyone would want a computer in his home. DEC was later acquired by Compaq Computer and vanished without a trace.

Smartphones and tablets are similarly underestimated now, Niles asserts. For that reason, he's inclined to avoid Intel and Microsoft. "Go ahead, gamble they can make the leap to this new world," he says. "I don't want that bet."

[Enlarge Image](#)

Game On!

From out of nowhere, smartphones have passed global PC sales in units and in dollars. Smartphones will climb 42% this year and tablets will surge 65%. PC unit sales will dip 2%, with dollars falling even faster.

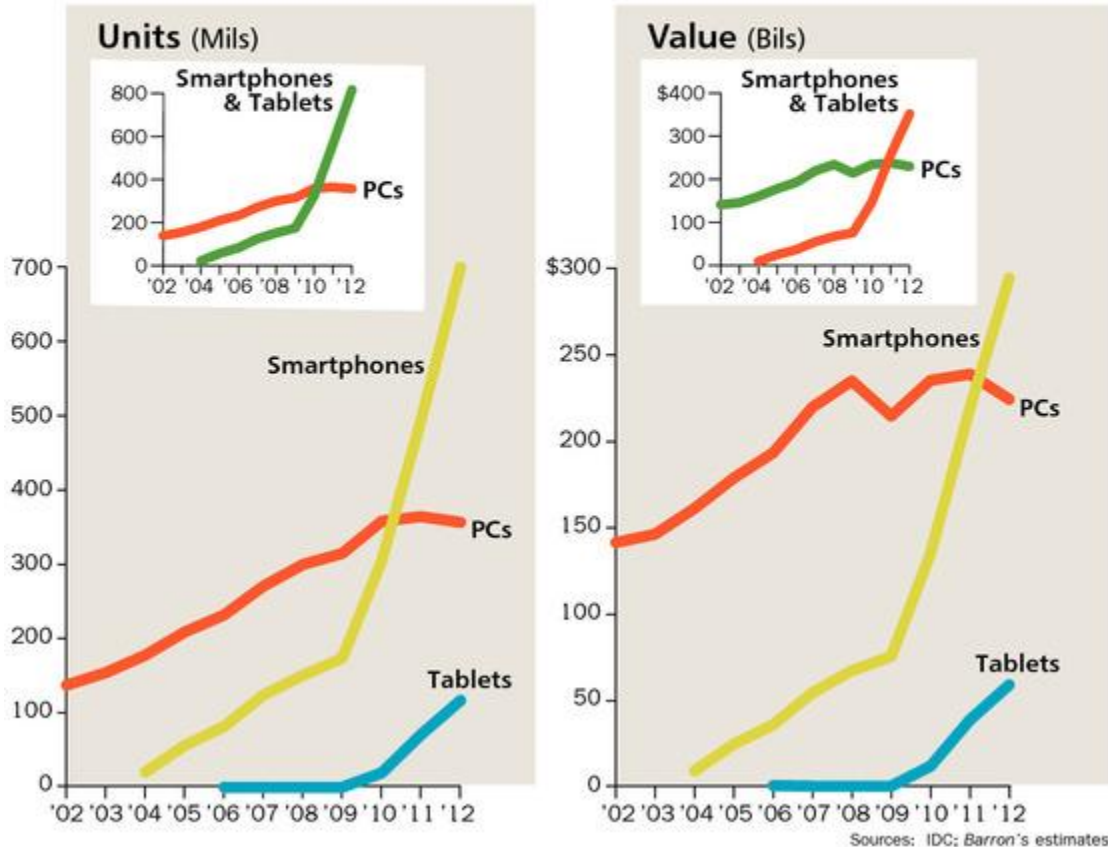


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As the PC market fades, Intel is trying to maintain its lead in server chips, while becoming a force in phones and tablets. Last week, it reported that PC growth had slowed last quarter and this quarter to half its usual seasonal rate, disappointing investors waiting for spiffy new "ultrabook" laptops to make a splash. At the same time, CEO Paul Otellini said Intel's new Atom chip would be in 20 tablets this quarter, including the Surface.

The problem is that Intel has more to lose from the PC decline than to gain from selling cheaper chips for tablets and smartphones. The company's shares, which closed the week at \$21.27, trade at nine times next year's estimates and pay a rich 4% dividend. While Intel may never be a growth company again, it probably won't hurt investors who own it.

Apple, trading at 9.1 times this year's projected profits, after backing out \$117 billion in cash and investments, is priced quite reasonably, given its expected 24% growth in revenue this year. Even as one of the world's dominant phone makers, it has just 7% of the mobile-phone market, according to Gartner, giving it ample room to grow.

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Samsung, the dominant global phone producer, shows no sign of stopping its gains at the expense of smaller companies. Its stock is also undemanding, at 7.5 times next year's earnings' estimate. The Korean-listed shares traded Friday at 1.302 million won, about \$1,200; its unsponsored American depository receipts are thinly traded.

THE OTHER SIDE OF THE POST-PC world is the cloud. On route 101 in Silicon Valley, Wal-Mart has posted signs reading "WALMART DATA," offering jobs to engineers in its San Bruno labs. That's a sign of just how mainstream it's become for companies to sift through enormous amounts of information.

Wal-Mart's quest, and others like it, are changing the very nature of data, says Paul Saffo, a tech pundit who runs Discern Analytics, a big-data outfit in Silicon Valley.

Big data ultimately will redefine the database. To track customer information and behavior in real time, and to respond to it instantaneously, companies are turning increasingly to databases that put information in the random-access memory chips of a computer, rather than on the disk drive, as has been done traditionally. Database-giant Oracle (ORCL) is fending off new competition from SAP (SAP), which sells just such an "in-memory" database. And start-ups also are targeting the database market. Among them: MemSQL, a Silicon Valley company started by former Facebook engineers.

For the moment, Oracle's traditional databases are benefiting from the surge, but that could change by this time next year.

Google is a player par excellence in big data. Sales of smartphones using the Android OS don't make the company any money upfront—it doesn't charge for use of the system -- but ultimately, all the activity on those phones is sending back to Google real-time data from the world that makes its searches more valuable to advertisers.

Enlarge Image

Who Wins, Who Loses

Microsoft, Intel, and AMD reported disappointing numbers last week, as the PC sector declines general strength. Smartphone and tablet companies are more than picking up the slack, with Apple and Google the biggest beneficiaries. Big data and cloud computing will also gain. Winners include EMC and, again, Google.

Company	Ticker	Recent Price	YTD Change	EV/ EBITDA	P/E	Stock Outlook	Commentary
Advanced Micro Devices	AMD	\$2.18	-65%	2.5	5.6	★	Failed to grasp the speed of the PC decline
Amazon.com	AMZN	242.30	39	-1.2	152.7	★	High valuation, but high growth, including opportunity
Apple	AAPL	959.89	51	2.2	11.1	★	Cheap shares, combined innovation and growth
Ball	BALL	9.52	-66	9.2	9.9	★	Empirical evidence that PC is dead
EMC	EMC	26.58	14	1.7	12.3	★	Opportunities ahead in enterprise market
Facebook	FB	15.33	+20%	3.1	27.2	★	Challenged to make mobile pay off
Google	GOOG	581.79	9	3.4	14.4	★	Expanding smartphone business in the cloud
Harvest Producers	HPCO	14.88	-84	2.4	8.2	★	Patrol manufacturing despite low oil prices
Intel	INTC	27.27	-12	1.9	16.9	★	Strong smartphone solutions, strong PC software
Microsoft	MSFT	28.94	16	1.7	8.8	★	Windows 8 supports the edge on a long-held base
Oracle	ORCL	32.48	19	2.5	15.3	★	Big data opportunity, but high valuations challenge
SAP Technology	SAP	20.55	-13	3.4	46.1	★	Key tool for big data, but in big valuation
SanDisk	SNDK	84.76	51	5.3	80.8	★	Cloud pressure to get more than steady
Sony Electronics	SNEE	149.27	47	4.3	74.9	★	Cloud pressure, but Workday credited by PricewaterhouseCoopers
Samsung Electronics	SANM	1,352,200	23	9.9	7.9	★	Smartphones, tablet gains, strong valuation
Splunk	SPLK	\$21.51	85%	10.9	8.6	★	Trade for cloud data centers, profitability for years
Workday	WDAY	55.25	82%	1.4	5.6	★	Heading strong in the cloud payroll market

Source: Reuters

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Company	Ticker	Recent Price	YTD Return	EV/Sales*	P/E*	Stock Outlook	Comment
Advanced Micro Devices	AMD	\$2.18	-60%	0.5	N/A	▼	Failed to grasp t
Amazon.com	AMZN	240.00	39	1.2	102.7	▼	High valuation c
Apple	AAPL	609.84	51	2.2	11.5	▲	Cheap shares, c
Dell	DELL	9.55	-35	0.2	5.4	▼	Enterprise prom
EMC	EMC	24.58	14	1.7	12.5	▲	Opportunities a
Facebook	FB	19.00	-50**	5.1	31.2	▼	Challenged to r
Google	GOOG	681.79	6	3.4	14.4	▲	Exploiting smar
Hewlett-Packard	HPQ	14.48	-44	0.4	4.2	▼	Painful restruct
Intel	INTC	21.27	-12	1.8	10.4	◀▶	Rising smartpho
Microsoft	MSFT	28.64	10	1.7	8.8	▼	Windows 8 pros
Oracle	ORCL	30.48	19	2.9	10.5	◀▶	Big data opport
Qlik Technologies	QLIK	20.55	-15	3.4	46.1	▼	Key tool for big c
Rackspace Hosting	RAX	64.75	51	5.3	60.6	▼	Cloud pioneer is
Salesforce.com	CRM	149.01	47	4.9	74.8	▼	Cloud success,
Samsung Electronics	005930. Korea	1,302,000 KRW	23	0.8	7.5	▲	Smartphone , ta
Splunk	SPLK	\$31.51	85**	10.9	N/A	▼	Tools for cloud c
Workday	WDAY	55.25	97**	1.4	N/A	▼	Next big thing in

N/A=Not Applicable. * Based on next fiscal year's estimates; EV = enterprise value. ** From IPO price.

Google CEO Larry Page said on last week's call that the company was on pace to generate \$8 billion a year from mobile devices. And some day, Google's self-driving car will bring the company real-time readings of traffic conditions -- another way to feed Google's rapacious appetite for big data.

And what of Facebook (FB), which, like Google, is building its own computers from scratch to redesign the data center? Facebook defenders take a typical Silicon Valley attitude, trusting it will try a number of ways to monetize the increasing use of mobile technology and eventually hit on a solution. Firsthand's Landis, who's owned the stock since before its IPO and confesses that he's sitting on a loss, says, "Even if they hit one out of 10 products right, that's enough."

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Maybe so. But all of that experimentation could cause the company to step up spending next year, says Loomis Sayles tech analyst Tony Ursillo, who also co-manages the Saratoga Advantage Trust Technology and Communications Portfolio. And that could shock the Street, which is projecting roughly flat operating margins for the company.

Amazon.com is one of the most striking players in the post-PC world. Its Kindle Fire, starting at \$159, is a truncated tablet -- little more than a means for users to feed at the Amazon trough. Two weeks ago, CEO Jeff Bezos told the BBC that the company breaks even on the hardware, preferring to "make money when people use our devices, not when people buy our devices."

Amazon has overcome many doubters over the years, but with a triple-digit P/E ratio, there's still a lot of doubt to overcome.

Salesforce.com is another cloud company with a heart-stopping valuation, trading at 40 times trailing cash flow. Salesforce has new competition, in the form of Workday, which went public Oct. 12 and popped nearly 70% out of the gate. While Salesforce's software for managing customer relations is important, Workday's focus on human resources—benefits and payroll administration -- is perceived as far more critical to companies.

Hickey predicts that Workday could lure away some Salesforce investors, calling it "the real deal" in cloud computing. But Workday is projected to lose money through fiscal 2015.

EMC is a less expensive way to play the cloud, says Ben Reitzes of Barclays Capital. "EMC's focus is on the hybrid cloud," he says. It has products that help enterprises shift parts of their data-processing into the cloud, reaping greater efficiencies, while maintaining full control of their critical data.

Another company to watch is Ruckus Wireless, which makes equipment that helps carriers offload cellular traffic onto public Wi-Fi hotspots. That is important because the faster connections of the latest smartphones and tablets will cause a surge in bandwidth usage, taxing the precious spectrum. Craig Mathias with Farpoint Group calls CEO Selina Lo "one of the smartest people I know" and a skilled entrepreneur. Ruckus recently filed documents for an initial stock offering.

AS THIS FATEFUL YEAR for the personal computer grinds on, some investors probably will bottom-fish for stocks. One that might be worth a look is Seagate Technology (STX), which trades at four times next year's earnings, less than one times sales, and pays a 4.6% dividend. Seagate has a chance to shift from the PC world to the post-PC world, by selling devices for the cloud and tablets. Unlike HP, which has a similarly cheap valuation, Seagate has a strategy for this and the means to implement it.

A factor that's important for all technology stocks is what happens after November's elections. Any progress on tax policy could unleash massive amounts of cash held by tech companies overseas. That, says Paul Wick, portfolio manager of Columbia Seligman Communications & Information fund, could lead to increased share buybacks and higher dividends. It could also encourage mergers and acquisitions, putting some beaten-down names in play.

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But unless that happens, expect PC names to struggle as they adjust to a world in which smartphones and tablets are increasingly seen by consumers as capable of providing most, if not all, of the computing power they need.

In short, the traditional economic engine of the personal computer has broken down, and it's unlikely to get back in gear.

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October 22, 2012

In Mobile World, Tech Giants Scramble to Get Up to Speed

By [CLAIRE CAIN MILLER](#) and [SOMINI SENGUPTA](#)

SAN FRANCISCO — [Intel](#) made its fortune on the chips that power personal computers, and [Microsoft](#) on the software that goes inside. [Google](#)'s secret sauce is that it finds what you are looking for on the Internet. But the ground is shifting beneath these tech titans because of a major force: the rise of mobile devices.

These and other tech companies are scrambling to reinvent their business models now that the old model — a stationary customer sitting at a stationary desk — no longer applies. These companies once disrupted traditional businesses, from selling books and music to booking hotels. Now they are being upended by the widespread adoption of smartphones and tablets.

“Companies are having to retool their thinking, saying, ‘What is it that our customers are doing through the mobile channel that is quite distinct from what we are delivering them through our traditional Web channel?’” said Charles S. Golvin, an analyst at Forrester Research, the technology research firm.

He added, “It’s hilarious to talk about traditional Web business like it’s been going on for centuries, but it’s last century.”

The industry giants remain highly profitable drivers of the economy. Yet the world’s shift to computing on mobile devices is taking a toll, including disappointing earnings reports last week from [Google](#), [Microsoft](#) and [Intel](#), in large measure related to revenue from mobile devices. Investors are in suspense over [Facebook](#)’s earnings to be disclosed Tuesday, for much the same reason. Yahoo’s new chief, Marissa Mayer, said on Monday that Yahoo had failed to capitalize on mobile and must become a predominantly mobile company.

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Demand for Intel chips inside computers — which are much more profitable than those inside smartphones — is plummeting. At Microsoft, sales of software for PCs are sharply declining. At Google, the price that advertisers pay when people click on ads has fallen for a year. This is partly because, while mobile ads are exploding, they cost less than Internet ads; advertisers are still figuring out how to make them most effective.

Since its initial public offering, Facebook has lost half its value on Wall Street under pressure to make more money from mobile devices, now that six of 10 Facebook users log in on their phones.

Making money will now depend on how deftly tech companies can track their users from their desktop computers to the phones in their palms and ultimately to the stores, cinemas and pizzerias where they spend their money. It will also depend on how consumers — and government regulators — will react to having every move monitored.

Facebook is already experimenting with ways to use what it knows about its users to show ads when they are using other mobile apps. Google can link what a logged-in user does on the computer and phone, to show someone a cellphone ad based on what they have searched for on a computer at home, for instance. But just last week, [European regulators warned Google](#) to amend its privacy policy that allows it to gather information about people across diverse Google products, from Gmail to YouTube.

In addition, Nielsen found that only one in five smartphone users described ads on phones as “acceptable.”

Today almost half of Americans own a smartphone, according to comScore — an astoundingly fast adoption since [Apple](#) introduced the [iPhone](#) just five years ago. The amount of time people spend on their phones surfing the Web, using apps, playing games and listening to music has more than doubled in the last two years, to 82 minutes a day, according to eMarketer; the time spent online on computers will grow just 3.6 percent this year.

“What has caught people off guard has been acceleration of the multitude of things that you can do with a smartphone,” said David B. Yoffie, a Harvard Business School professor who studies the technology sector.

“The Web started in 1993, ’94,” he added. “It didn’t disrupt everything for a decade and a half. The smartphone revolution started a half decade ago. Because of the existence of the Web, it allowed the phone to have a disruptive impact in a shorter time frame.”

Still, mobile provides huge opportunities for these businesses, industry analysts say. That is largely because people reveal much more about themselves on phones than they do on computers, from where they go and when they sleep to whom they talk to and what they want to buy.

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Consumers may be put off by the intrusion of marketers into their daily lives, but companies say the trade-off can be worth it — an unprompted calendar alert, say, that tells you whether you'll be late for a meeting or a coupon when you are near a shop.

“We're really starting to live in a new reality, one where the ubiquity of screens really helps users move from intent to action much faster and more seamlessly,” Larry Page, Google's chief executive, told analysts last week. “It will create new opportunity in advertising.”

Companies are addressing the challenges in different ways. Despite the disappointment in its recent earnings report, Google says it is on track to earn \$8 billion from mobile ads, apps and media in the coming year, and has activated half a billion devices running its mobile operating system, Android. Google earns the majority of mobile ad dollars.

It is offering location-based ads, like a T-Mobile campaign that sent users ads when they were near stores. Some mobile ads already make more money than desktop ads, said Google's chief financial officer, Patrick Pichette.

But one of Google's biggest challenges is tracking whether people make a purchase after they see a mobile ad. Unlike online, where Google knows if someone buys a camera after searching for it, the company does not know if someone searches for a Thai restaurant nearby and then eats there. That is why it is trying to follow people into the physical world, with services like Wallet for payments and Offers for coupons. Facebook is trying to use what it knows about its billion users to serve up ads on other applications they download on their phones. For instance, a soda brand that wants to target men in Los Angeles who like the Lakers could show them ads not only when they are logged into Facebook's mobile app, but on other apps as well.

“We think that showing mobile ads outside of Facebook is another great way for people to see relevant ads and discover new apps,” the company said in response to an e-mail inquiry.

Not wanting to watch from the sidelines as people abandon computers for smartphones, Microsoft on Friday is introducing a version of its Windows software tailored for touch-screen devices and a new tablet, the Surface.

But Microsoft executives told analysts last week that the slowdown in computer technology was because of other factors besides mobile, like tough economic conditions and companies waiting to buy software until its new software, Windows 8, arrived.

Microsoft's chief executive, Steven A. Ballmer, called Windows 8 “the beginning of a new era at Microsoft.”

Intel is playing catch-up by making chips for more than two dozen smartphones and tablets coming to market. The shift to mobile has also created a new market for Intel: Its chips are in the huge servers that power the cloud, where much mobile data is stored.

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“As the market for smartphones and tablets evolved, the company historically didn’t have a presence,” said Jon Carvill, an Intel spokesman. “This year, that’s started to change.”

For other tech companies, mobile has been a boon from early on. Apple became the most valuable company in the United States selling the iPhone and iPad. Recently, Apple built its own mobile maps to replace Google’s maps on the iPhone in part because it wanted to keep valuable information about users’ location searches to itself and away from its competitor.

Nvidia and Qualcomm are making processors for mobile devices. Amazon and eBay are selling people things even on small screens. And mobile phone owners have found some services — like Zillow for real estate, Yelp for local businesses and OpenTable for restaurant reservations — better on phones than on computers, and revenue has followed.

For investors and others trying to solve the riddle of making money on mobile users, Marc Andreessen, the venture capitalist, extolled the virtues of the mobile era this way: “We’re going to know a tremendous amount about people.”