

Technology

Zero Revenue. Four Staffers. 1.75 Million Users

Instagram
co-founders
Mike Krieger (left)
and Kevin Systrom

▶ In the hyper-competitive world of photo sharing, Instagram leaps ahead

▶ "People are now sharing their lives as they happen"

Over the past decade, the market for photo-sharing services on the Internet has come to resemble a relay race, with one service after another rising to prominence and then passing the baton of buzz and leadership to a more innovative newcomer. Photo upload sites such as **Ofoto** and **Shutterfly** dominated the field in the late 1990s as people uploaded digital pics to the Web primarily so they could have them printed. Flickr emerged in 2004 and was acquired by **Yahoo!** the following year, giving serious photographers a place to publish and show off high-resolution images. Other sites such as **Google's Picasa**, **Myspace's Photobucket**, and more recently **Facebook** have each taken a turn at the head of the pack.

Now the digerati are showering attention on a new photo service-cum-social network for the iPhone called **Instagram**, which in four months has managed to attract more than 1.75 million users who are uploading 290,000 photos a day.

The software—accounts are free of charge—allows members to snap pictures with their phones and add visual effects that give images the classic look of photographs captured on traditional film and developed with chemicals. Then users can post their shots to their Instagram accounts or to social networks such as Facebook and **Twitter**. They can also comment on other people's pictures and browse collections of prolific photographers. "You post, and a community gives you instant feedback," says Scott Beale, an Insta-

Instagram user Snoop Dogg has 2,000 followers and has posted 14 pictures, mostly of himself



Early Bird

Instagram filter that gives photos an antique look without too much sepia

gram user and founder of Web hosting company Laughing Squid. "It's a quick way of seeing what everyone is up to with minimal effort."

Instagram represents a new kind of Web startup: one whose skyrocketing popularity, thanks to platforms such as **Apple's App Store**, has largely preceded its evolution into a real company with accouterments like financing, office space, and a permanent Web address. Despite its rapid growth, Instagram has all of four employees; its twentysomething co-founders, Kevin Systrom and Mike Krieger, work with two colleagues in a former confer-

ence room adorned with vintage Polaroid Land cameras in a San Francisco office once home to Twitter. They say they haven't created a single PowerPoint slide explaining their money-making plans (which are hazy, but will apparently involve advertising). And they've only recently purchased the Web address Instagram.com from a cybersquatter in China. (When they launched the service, they used a clunkier Internet address with the country suffix for Armenia: Instagr.am.)

Systrom and Krieger have yet to create a website that mimics the app's functionality or a version for

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phones running Android—so far Instagram has been iPhone-only. That, however, is about to change. On Feb. 2, Instagram announced its first major round of funding: \$7 million from Silicon Valley venture capital firm **Benchmark Capital** and a list of high-profile investors including Jack Dorsey, a Twitter founder, and Adam D'Angelo, co-founder of another suddenly fashionable Web service, the question-and-answer site **Quora**. Systrom and Krieger will use the funds to hire engineers, build an Android app, and add features. Instagram "enables people to tell their story through a visual dialogue in a way that feels very intuitive," says Matt Cohler, a partner at Benchmark, who will join Instagram's board and apply lessons learned about fast-growing Web services at a past employer: Facebook.

Systrom, who was a product marketing manager working on Google's Gmail

just two years ago, says his creation benefited from luck and good timing. "There's this new wave of folks that are obsessed with mobile phones and obsessed with taking photos of the little but beautiful parts of their day, like sunsets," he says. "People are now sharing their lives as they happen." Also helping Instagram is the emergence of handsets such as the iPhone 4 that take decent photos, and of wireless networks fast and reliable enough that people don't mind uploading pictures as they take them.

The startup has some influential friends. When Instagram first released its application in October, Dorsey, Twitter's chairman, tweeted about it to his million-plus followers. A few days later, Apple made Instagram the featured app of the day on the App Store, and soon after Apple marketing executive Phil Schiller signed up and started posting photos to the service. Last month the rapper Snoop Dogg became an Instagram user. He has 2,000 followers on the service and has so far posted 14 pictures, mostly of himself.

Instagram will need all the friends it can get. If Twitter introduces its own photo storage and sharing function—that may seem unlikely, given the Dorsey connection, but it's been rapidly adding features as it grows—that would diminish the need for a separate social network for mobile photos.

Then there are a few well-funded competitors, including **Mixed Media Labs**, which raised \$5 million from the venture capital firm **Andreessen Horowitz** and built an application similar to Instagram called PicPlz. Dalton Caldwell, Mixed Media's chief executive officer, says he believes that he can catch up to Instagram by moving more quickly.

PicPlz already has a fully working website, applications for Android as well as the iPhone, and a grand total of eight employees.

By the standards of Silicon Valley's hot mobile startups, that's almost adulthood. —Brad Stone

The bottom line Four-month-old iPhone app Instagram became a hit before it got real office space. Now it has \$7 million in venture capital.

Alternative Energy

A European Shadow on China's Solar Industry

► Mainland producers are boosting output just as Europe cuts subsidies

► Capacity "is way ahead of what the market can take"

Last year was a good one for **Yingli Green Energy Holding**. The Chinese company makes photovoltaic solar-power modules, which convert sunlight into electricity. With global demand up, Yingli doubled production capacity and ran its factories "365 days a year, 24/7," says Bryan Li, the company's chief financial officer. "We sold everything." Almost all the modules went to Europe, where governments provide generous subsidies for solar-energy producers.

Yingli plans to expand production another 70 percent this year, and it isn't alone: Other Chinese solar companies, including **Suntech Power Holdings** and **LDK Solar**, plan double-digit production boosts in 2011. "All of the major Chinese producers are engaged in massive, very aggressive capacity-expansion programs," says Paul Leming, an analyst with Soleil Securities in New York.

Their timing might be off. As the Chinese ramp up, austerity-minded governments in Europe are scaling down their solar subsidies. Germany plans to reduce its feed-in tariffs, which guarantee above-market rates to solar power producers, as much as 15 percent by July. France, Spain, the Czech Republic, and other European countries are reducing their support as well. "The amount of capacity being added is way ahead of what the market can take," says Finlay Colville, senior analyst with market research firm Solarbuzz.

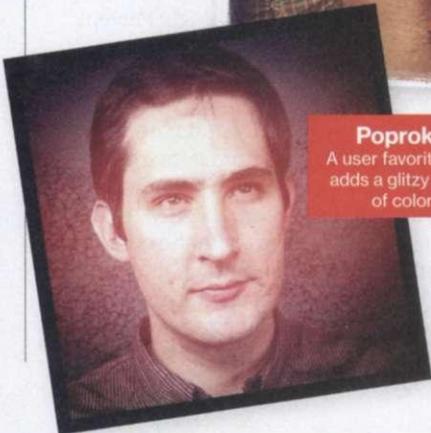
Europeans are cutting subsidies because of record-high budget deficits as well as political pushback against policies that some say primarily benefit foreign manufacturers such as Yingli. In France, which cut its feed-in tariffs twice last year, most new solar panels "were made in China with a highly questionable carbon footprint," Environment Minister Nathalie Kosciuszko-Morizet told Parliament in Decem-



1977
Inspired by Polaroid instant photography of the 1970s



Lord Kelvin
For a vintage look with hand-painted-looking borders



Popokit
A user favorite that adds a glitzy burst of color



A solar power plant in China's Gobi desert

ber. The country's environmental policies must "create jobs in France, not subsidize Chinese industry." That month the French government imposed a three-month freeze on solar projects while it crafts new investment rules.

The new priority for Chinese manufacturers is diversifying their customer base. Today, they're extremely reliant on European demand—more than 60 percent of Yingli's revenues last year, for instance, came from Germany. Suntech aims to reduce its reliance on European sales, which made up 74 percent of total revenue in 2009, by expanding in the U.S. and other markets, says Chief Commercial Officer Andrew Beebe. The company opened a 117,000-square-foot panel plant in Arizona last year and is doubling its U.S. head count to 150 people.

Others are looking at the home market. China's power companies are investing billions in infrastructure so they can transmit electricity across long distances, a prerequisite for moving power from far-off solar and wind farms to energy-hungry cities. Local governments have started providing more support, too. On Jan. 6, **China Sunergy** signed a deal to install 7 megawatts' worth of solar modules on the roof of the Nanjing South Railway Station. On

Jan. 10, **CNPV Solar Power** in northeastern China completed a \$25 million project that will generate 7 megawatts of solar power. Yingli's Li says the company's domestic sales were "minimal" in 2010 but could grow this year to 10 percent of revenue.

Total Chinese solar demand was only about 400 to 480 megawatts last year. That's more than double the previous year but still well below the size of markets such as Germany's, which bought between 8 and 9 gigawatts' worth of solar modules in 2010. (A gigawatt is a billion watts or 1,000 megawatts.) "It will be a very difficult time," says Jun Ying, an analyst in Beijing with Bloomberg New Energy Finance. Even under the most optimistic scenario, Chinese demand won't top 860 megawatts this year. "If you look at the production capacity" Chinese companies are adding, he says, "that's tiny."

The pressure for consolidation of the overcrowded industry will build, and that may force the government to bail out some companies and prevent a bloodbath, says Soleil Securities' Leming. "Whether we see consolidation or companies hunkering down and borrowing from Chinese state-owned banks is one of the big questions of the year," he says. —*Bruce Einhorn with Tara Patel*

The bottom line Chinese solar-panel manufacturers may be caught with excess capacity as European governments cut subsidies.

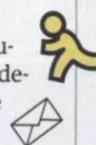
Messaging

You've Got Mail! Except When You Don't

- ▶ A service outage affects hundreds of thousands of AOL e-mail users
- ▶ "Horrible things can happen to AOL e-mail and nobody even notices"

If AOL's e-mail system crashes and no one tweets about it, does it make a sound? One day in late January, Kurt Andersen, the novelist and host of public radio show *Studio 360*, tried to check his AOL e-mail account. He was redirected to an error page. Curious whether the problem was widespread, he jumped on **Twitter**, the micromessaging service that has become a soapbox for stranded travelers, disappointed gadget buyers, and other angry consumers. Andersen typed "AOL" into the social media site's search engine. Radio silence.

Andersen was far from alone. AOL was actually in the midst of a severe e-mail service disruption affecting hundreds of thousands of users. Yet the forums that typically fill up with breathless tirades during even the slightest Internet-related glitch were quiet. Tech blogs largely ignored the subject. **Facebook** did not rage. **Twitter**



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February 7 — February 13, 2011
Bloomberg Businessweek

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Can Whitney
back up her
predictions?
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barely stirred.

The collective yawn was a reminder of just how far out of favor AOL's e-mail service has fallen, particularly among tech-sawy consumers.

"It's become so out of fashion that horrible, horrible things can happen to AOL e-mail and nobody even notices," says Rob Beschizza, the managing editor of Boing Boing, a popular technology and culture blog that made no mention of the meltdown. Danny Shea, senior media editor at the Huffington Post, says that outages on popular services quickly earn their



own hashtag—a way to mark tweets relating to a specific event—and a spot on Twitter's list of popular topics. "If it were Gmail, the #GmailFail hashtag would be trending immediately," says Shea.

The service problems began on Jan. 24, when a maintenance procedure went haywire. That day, thousands of users found that their mailboxes were mysteriously incomplete. Parts of some e-mails, folders, and contact lists were suddenly AWOL from AOL's servers. According to a company spokesperson, the failure affected roughly 1 percent of the e-mail service's users.

AOL executives quickly set up a support website and claim to have now fixed more than 99 percent of the accounts affected. "We're glad we were able to recover everything reasonably quickly," says Brad Garlinghouse, AOL's president for consumer applications. Nonetheless, frustrated users continued to post complaints on the support site on Feb. 2. Many vowed to leave AOL for **Google's** e-mail service, Gmail.

They wouldn't be alone. AOL, which was once the dominant e-mail provider in the U.S., is now the fourth-most popular service, according to comScore, with 25.2 million unique visitors in December 2010, trailing behind **Yahoo!** (93.9 million), Gmail (51.2 million), and Hotmail (45.7 million). The site continues to shrink. Since December 2009, AOL has suffered a 19.5 percent drop in unique visitors.

"When you see somebody who has an AOL e-mail address, you think, 'haven't you heard of Gmail or Yahoo or other Web-based e-mail?'" says Daniel Sieberg, a technology reporter for CBS News, ABC News, and MSNBC.

"You think, 'Please, come into the 21st century.'"

"There's an echo chamber in the Twittersverse and a certain arrogance that is sometimes associated with the tech elite," says Garlinghouse. "There are 25 million very active, very happy users of AOL mail. That's something we're proud of." AOL is putting the finishing touches on Project Phoenix, a major overhaul of the company's e-mail system due to be unveiled in the next few months. "We're absolutely aiming to reinvent the inbox," says Garlinghouse.

In the meantime, some AOL e-mail users continue to embrace their old-timey accounts, service disruptions and social stigma be damned. "It's like driving an Edsel or some weird old thing—there's some appeal to it," says Andersen. —*Felix Gillette*

The bottom line AOL is overhauling its e-mail service, which is so out of vogue that a January disruption went largely unnoticed.

Cybersecurity

Is WikiLeaks Hacking For Secrets?

- ▶ A security company says the site is actively hunting for classified data
- ▶ WikiLeaks may be "doing searches [itself] on file-sharing networks"

In April 2009 the whistle-blower website WikiLeaks published a secret U.S. military document detailing technological capabilities of the U.S. Navy's Pacific Missile Range Facility on Kauai. In an online post explaining how it obtained the information, WikiLeaks indicated only that it came from "a source." It was another coup for WikiLeaks and its founder, Julian Assange, who describes the far-flung organization—it has no fixed domicile—as a secure digital drop box for disaffected insiders. He has repeatedly said WikiLeaks doesn't actively obtain classified documents but rather provides a platform for others who have confidential information to reveal for the public good.

Except that WikiLeaks, according to Internet security company **Tiversa**, appears to have hunted down that military

document itself. Tiversa says the group may have exploited a feature of file-sharing applications such as LimeWire and Kazaa that are often used to swap pirated copies of movies and music for free. If, for example, a Pentagon employee were to log on to such a peer-to-peer network (an array of disparate computers with no central hub) to download a movie, he could possibly expose every last e-mail and spreadsheet on his PC to prying eyes. That's because some peer-to-peer, or P2P, applications may scan users' hard drives for shareable files. Not turning that feature off, or specifying which parts of the hard drive may be searched, leaves the door wide open.

In the missile-range case, Tiversa's systems noticed unusual activity coming from a cluster of computers in Sweden, where until December WikiLeaks had some of its key servers. The cluster was furiously searching P2P networks around the world. It hit pay dirt in the form of a file blandly labeled BPL_HI.pdf, available for download from a computer in Hawaii. The Swedish computers downloaded the document, and two months later it was posted on WikiLeaks.

Executives at Tiversa, which is hired by governments and corporations to use the same loophole to find exposed documents and figure out who might be accessing them, say the Hawaii incident wasn't an isolated case. Its technology has detected the mysterious Swedish computers downloading gigabytes of data, much of which soon appeared on WikiLeaks. "WikiLeaks is doing searches themselves on file-sharing networks," says Robert Boback, Tiversa's chief executive officer. "It would be highly unlikely that someone else from Sweden is issuing those same types of searches resulting in that same type of information." A spokesman for WikiLeaks declined to discuss the sources of its secrets or its policy for verifying information it receives. Mark Stephens, WikiLeaks's London attorney, called the claim "completely false in every regard."

Dozens of P2P networks sprang up in the wake of Napster a decade ago. Teenagers use them to get Justin Bieber songs; grown-ups download episodes of *Mad*

Men. The networks are especially popular with soldiers in Iraq and Afghanistan, who use them to swap music and porn. Boback says it's an open secret among researchers, financial fraudsters, and intelligence agencies that many of these networks are rich sources of confidential documents the networks' users accidentally share—pirates can easily be pirated, as it were. According to Tiversa, in 2009 a Maryland defense contractor got on a P2P network and exposed the designs for Marine One, the Presidential helicopter; that data wound up on a computer in Iran. To sift through one network, all an intruder needs is a basic understanding of P2P, says Boback. To conduct a massive search of networks around the world, huge amounts of computing horsepower and bandwidth are required.

Tiversa has plenty of both. In a secure room at the company's headquarters in Cranberry Township, Pa., banks of servers create a minute-by-minute map of what is effectively a global treasure trove of secrets. In a brief demonstration of what's out there for the taking, a Tiversa analyst taps a few keys, and up pops the cell phone number of actress Lucy Liu along with the pseudonym she uses to check into hotels—attached to a production company document clearly labeled "not to be made public." There are several draft chapters of a book by white supremacist David Duke, as well as a spreadsheet of all the donors to his cause. Assange has told interviewers that his group has damaging information on pharmaceutical, energy, and financial companies; Boback confirms that confidential corporate documents are readily accessible.

In November 2009, WikiLeaks published a spreadsheet detailing potential terrorist targets in Fresno County, Calif., compiled by state and federal security officials. The document noted locations of bomb-grade fertilizer caches, large gasoline and propane reserves, and the coordinates of key military and law enforcement sites and their functions. Tiversa found the spreadsheet was inadvertently exposed by a California state employee using the FrostWire peer-to-peer network in August 2008, more than a year before WikiLeaks posted it. Army intelli-



FROM TOP: JIN LEE/BLOOMBERG; ALASTAIR GRANT/AP PHOTO

Anúncio

Innovator

Roger Curtis

Technology



The Michigan International Speedway is idle most of the year. Its chief wants to make it a testing ground for next-generation vehicles

In August 2006, Roger Curtis was two months into his job as head of the Michigan International Speedway and sitting in a helicopter hovering over the race-track's parking lot. Nascar fans trying to exit had created a five-hour traffic jam that snarled below him. Curtis worked with state transportation officials to add lanes and change the flow of traffic, ultimately cutting the delay to 15 hours in time for the following race season.

Curtis, 44, now wants to turn the speedway into a test bed for transport innovation. The next generation of roads and automobiles will be more intelligent, talking to each other and wireless-data networks to help keep people safe and traffic flowing smoothly. A smart intersection, for instance, might be able to detect a vehicle about to run a red light and warn other cars, preventing collisions.

Such smart systems must work with all kinds of autos from different manufacturers, so Curtis says they'll need a neutral site for planning and testing, and that

the 1,400-acre speedway is ideal. The site has 7.8 miles of roadways that go mostly unused outside Nascar season, 26 miles of fiber-optic cable to pipe in high-speed Net, and Wi-Fi. Curtis is also developing movable intersections so researchers can simulate various driving conditions, including rural highways and busy urban grids.

The site in Brooklyn, Mich., about 100 miles west of Detroit, has already hosted a handful of tests, giving the speedway a new income source. The U.S. Army Tank Automotive Research, Development, and Engineering Center conducted a four-day experiment using intelligent systems to guide convoys. Five carmakers have looked over the property, and two may be back this year to test smart systems, says Curtis, though he wouldn't identify the companies. The racetrack also has hosted emissions-related research, including final tests for the Progressive Automotive XPrize, which awarded \$10 million to teams that built a vehicle capable of achieving 100 miles per gallon. "We're on the map now," says Curtis.

Richard Wallace, a director at the Ann Arbor (Mich.) Center for Automotive Research who specializes in intelligent vehicle communications, says that "having a test facility like this is very valuable. These systems all have to be able to talk to each other."

Curtis says his position in auto innovation is an unlikely one. For most of his 18 years in motor sports administration, he focused on marketing, which is what the Terre Haute native studied at Indiana State University. He hopes opening the speedway to researchers is one way to persuade auto companies to keep their research and development spending in Michigan, his adopted state. "When the time comes for the floodgate for really testing connected vehicles and connected roadways, we'd like to be sure that it's done right here." —*Jf Green*

gence documents posted by WikiLeaks in 2009 that included reports on Taliban leaders and their movements were accidentally leaked by a P2P user eight months earlier. For a list of every **Chevron** property in the U.S. and Canada, the gap was two months—from March to May 2009, Tiversa says.

Could those Swedish computers belong to other hackers, who then deposit the documents in WikiLeaks's drop box? Highly unlikely, says Boback. "There are not that many whistle-blowers in the world to get you millions of documents," he says. "However, if you are getting them yourselves, that information is out there and available."

A federal grand jury in Virginia is examining WikiLeaks's publication of U.S. diplomatic cables, a case unrelated to file sharing. The possibility that the site is systematically ransacking computers may offer prosecutors an alternate path to get the group and its founder into a U.S. courtroom. "There is a difference between being given information that may have been obtained in violation of some agreement or law, vs. the media itself violating the law or an agreement in order to obtain information," says Sandra Baron, the executive director of the Media Law Resource Center in New York. "The media is not allowed to steal."

The case law is murky. A federal prosecutor in Seattle successfully argued two cases recently involving individuals who retrieved financial information through LimeWire "in excess of authorization." (LimeWire's parent company ceased operations in December, although the network lives on.) Other federal courts have found that law enforcement searches of private computers through LimeWire and other networks were perfectly legal.

More likely is that WikiLeaks's legions of fans among professional journalists will have to rethink their view of WikiLeaks and its founder as the Second Coming of Woodward and Bernstein. That duo famously cultivated Deep Throat as a source for articles that exposed the Watergate scandal. "This," says Mark Jurkowitz, associate director for the Project for Excellence in Journalism, "would be more akin to wiretapping Deep Throat's phone." —*Michael Riley*

The bottom line WikiLeaks, which says it's a passive drop box for whistle-blowers, is accused of searching hard drives for classified documents.

First Challenge ▶ Unsnarling a five-hour traffic jam

Selling Point ▶ The speedway has 7.8 miles of roads and strong Wi-Fi

Experiment ▶ The U.S. Army's tank researchers tested intelligent convoys