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7 Hot Technology Trends for 2012

By Jeff Vance

The thing I like least about prediction stories is the lack of accountability. Controversial whack-job predictions drive page views, but few of them pan out. Moreover, the writers who make crazy predication are rarely called on to account for their lunacy. Few of us ever hunt around for last year's stories to see whether or not the prognosticator is any good at this racket.

For my part, when I write my annual predictions column for CIO Update I go back and assess how I did last year. Lucky for me, my 2011 predictions were pretty good. Let's hope my 2012 ones follow suit.

Last year, I predicted that governments would make noise about regulating the Internet, but other than countries like China and Iran, most would not. This could end up being a swing and the miss if the horribly misguided Stop Online Piracy Act (SOPA) legislation ever goes through, but I'm going to predict that it won't.

When I turned my sights on social media, I guessed that Facebook would finally have to face its privacy problems. Facebook's settlement with the FTC cost them a bunch of bad publicity, yet earned them no fine. I'm not really sure how to rate myself on this one.

This is less than a slap on the wrist and the U.S. government isn't terribly good at protecting consumers from corporate overreach, so I doubt that the settlement will ever amount to much. In fact, it may well be counter-productive from a privacy standpoint since Facebook has the appearance of having solved its privacy problem, while facing only a $16,000 per day fine per incident if they screw up. Chump change for a company with a $50 billion valuation.

I stand by the accuracy of my other predictions from last year -- predictions about state-sponsored attacks, smart grids, tablets, Android becoming the new Windows (on phones, that is) and mobile and the cloud stressing IT's ability to keep up -- but I'm not going to dissect them all right now. That's not why you're reading this article.

Now, onto my predictions for 2012:

1. SOPA will never make it out of Congress but it will spark a major backlash if it does - Yes, online piracy is a serious issue, but so is all of the corporate malfeasance that goes unpunished each year. Consumers have been getting ripped off by entertainment companies for years (remember all of those $16 CDs you had to buy for one good song) and in a down economy consumers won't have sympathy for industry attempts to strong-arm them into good behavior.

This is an election year, and, after Citizens United, average voters are waking up to the fact that our politicians have been bought and sold over and over again. Some politician will do some polling, decide they need the youth vote to win in 2012 and will prevent SOPA (Stop Online Piracy Act) from getting out of Congress.

Those who stand to benefit the most, the recording and movie industries, are pitted against companies like Facebook, Google, the Huffington Post and Twitter. Which side of that fight do you think will have the most influence when it comes to regulating the Internet?

However, no matter what happens with the law, expect the major players, the studios and distributors, to start losing, while consumer-focused entertainers who decide to focus on value and use the Internet to bypass various middlemen will start to win big. The fact that Louis CK's $5 comedy special download has generated more than a million dollars is big news this year. In coming years, this won't be news. Well, it'll be news in the way that box office returns are news.

Of course, Louis CK is following what Radiohead did a couple years back. What will be different going forward, though, is that consumers and activist groups will start fighting back when corporations overreach.

Now, I'm not saying that it's right to pirate movies and music. It is not. But when the bad deeds of the Wall Street and corporate insiders who wrecked the economy went unpunished, don't expect the little guy to just bend over and take it if they get pinched for a few illegal downloads.

2. Small headaches turn into major migraines as cloud adoption spikes - I'm a big believer in the cloud, and I think it's foolish when fearful CIOs try to put the brakes on the inevitable migration of mission-critical apps to the cloud.

That said, I believe 2012 will be the year of major cloud growing pains. One of the main problems won't be something you can really blame on the cloud, rather it will center on cloud wannabes.

"As established IT vendors have rushed their standby products to be 'cloud ready,' they are creating Frankenstein solutions for customers by bolting on cloud capability to platforms that were never intended to be cloud ready," said Eric Thacker, senior director of marketing at Panzura, a cloud storage provider.

Many vendors have legacy investments that they can't bring themselves to abandon, so they slap the "cloud" label on them and hope that no one notices that the products aren't a good fit for cloud architectures.

Another problem will be the potential for a new era of vendor lock.

"The cloud was initially conceived to be a more flexible, scalable and accessible IT environment. In order to stay aligned with that model in 2012 and beyond, restrictive cloud providers will need to strip away their limitations on resources, deployments and user control," said Robert Jenkins, CTO of CloudSigma, an infrastructure as a service (IaaS) provider.

Many cloud providers, especially IaaS providers, closely manage their clients' deployments and data. This approach locks customers into agreements that limit their data access, and they may even be charged a fee to remove their data. "With flexibility demands on the rise, in 2012 providers will have to accommodate companies' desire for complete data portability where they have access to and control over all of their data," Jenkins added.

3. Mobile Commerce will threaten credit card giants - According to Nielsen, 50 percent of all American mobile phones will be smartphones sometime in Q1 2012. More and more smartphone models are incorporating near field communications (NFC) technology into handsets, which means much more mobile commerce (m-commerce) in the coming year.

When Google Wallet launched in May of 2011, many retailers rushed to accept NFC payments at select locations. Meanwhile, m-commerce is already a mainstream practice overseas. According to CorFire, the m-commerce business unit of South Korean-based SK C&C, the company currently processes more than 30 million m-commerce transactions each day in South Korea.

This represents a huge threat to credit card companies. Don't be surprised if carriers get into the credit game. Major banks and credit card companies are almost universally loathed after the recent economic collapse.

Consumers are fed up with odious fees, high interest rates and practices like lowering your credit limit after you've made a major payment, which, of course, lowers your credit score after you've done something that should have actually helped it.

"Unless the four credit card giants engage in innovative leadership with a universal application, they will lose more than 30 percent of their market share by the end of the decade," said Kenneth Weiss, CEO of Universal Secure Registry, a mobile payment security technology company. (Weiss is better known for co-founding and serving as CEO of RSA.)

"As is common with mature corporate cultures, an attitude prevails to not innovate or take risk but wait to see what develops and then climb on the bandwagon or purchase the prevailing technology. In this financial arena, this strategy will not succeed. Just like the permanent decline and marginalization of icons like Sears, Roebuck & Co., K-Mart, Blockbuster, and Kodak, the credit card giants will cause their own irreversible loss of market share because of entrenched management and risk-adverse and non-innovative corporate cultures," Weiss added.

This is a major opportunity for carriers. In many ways, carriers are in a better position to judge consumers' credit-worthiness. They already have a contract with you; they have a track record of your payment history and insight into some other telling behaviors (how often you get hit with data overage fees, for instance, without tweaking your plan).

Of course, consumers don't exactly love carriers, but carriers don't generate the volume of scorn that credit card providers and major banks do. Moreover, consumers get warm and fuzzy feelings each time they get a new free phone (which of course isn't remotely free, but even people who know this seem to conveniently forget it when their cell contracts are up).

2012 may be a bit premature for this prediction, but I predict that within the next year or two (or three) that a carrier or a tech giant like Google or Facebook will acquire one of those credit card giants or vice versa. Depending on which company does the acquiring, m-commerce could even be challenged by sm-commerce (social media commerce).

4. Big Data undermines BI, ERP and predictive analytics - Big Data is being hyped by plenty of analysts and tech giants as a major problem for 2012. True enough, but what's missing is the fact that out of control data growth and sprawl (call it Data Kudzu) undermines the value of valuable apps like BI, ERP and predictive analytics.

According to Gartner, enterprise data will grow 650 percent in the next five years. A Unisphere Research survey found that in many organizations stored data is reaching or has already crossed the Petabyte threshold, and according to IDC, the world's information now doubles every year and a half and that rate will accelerate.

"The number of records requiring secure management is increasing across all business types. This data explosion will continue to slow efficiency, complicate decision making and increase the complexity of businesses all over the globe," said HK Bain, president and CEO of Digitech Systems, a provider of enterprise content management solutions.

With the influx of tools like BI and predictive analytics suites over the years, many CEOs, CIOs and other top-level executives now believe that they have knowledge that they don't really have. Those that are aware of this problem admit that they aren't as confident in their decisions as they could be because they can't access data they need.

According to an IBM study, one in three business leaders confessed to making decisions based on information they either didn't have or didn't trust. Fifty percent of the business leaders surveyed admitted that they didn't have working access to the information required to do their jobs well and with confidence.

Until big data is tamed, BI, ERP, predictive analytics and a range of other applications could give executives a false sense of confidence in their decisions, especially when easily accessed data conflicts with data hidden from view.

5. M2M will become more important, but won't contribute to Big Data issues - Several of the Big Data predictions I've read lately zero in on machine to machine (M2M) communications. With all of these sensors and nodes communicating, information will explode.

Well, maybe not. M2M is going to become increasingly important, and will fuel many predictive technologies and modeling software, but most of those communicating machines don't really need to generate all that much data to be effective.

"If you take 90 percent of cellular-connected M2M applications in the world today, they probably move less than a MB of data, collectively, in a month. In fact, if you dial back to look at 80 percent of the application universe, it probably doesn't create more than one-half of a MB per month," said Alex Brisbourne, president and COO of KORE Telematics.

Most organizations embracing M2M applications will quickly realize that they don't need to collect and store the majority of the information gathered.

"Do we really want lots and lots of data coming from these devices, or do we simply want them to report exceptions to certain sets of rules?" Brisbourne pondered. "Rather than devices constantly pounding out information saying, 'I'm feeling fine, thank you,' the only data that really matters is that which describes events where a business, or a consumer, needs to make a decision."

6. Google+ carves out a niche as a business tool, threatening LinkedIn rather than Facebook - While Google initially seemed to want to challenge Facebook with Google+, it really hasn't worked out that way. Facebook is adding many of the features, like circles (smart lists on Facebook), that originally differentiated Google+.

What's different about Google+, though, is that it can serve as a powerful business tool on search engines. On Facebook, unless you are a consumer-focused, buzz-generating business, your fan pages probably don't give you much value. On Google+, however, one of the major hidden values is search engine optimization (SEO).

"While Facebook is the tool for sharing, Google+ will find its primary niche as a search engine optimization tool for business as public posts are seen quickly on the Google search engine," said Paul Holmes, founder of Social Media Camp, a social media conference.

It's probably too early for LinkedIn to start feeling any negative effects now, but since Google makes so many valuable applications available for free to help boost the value of their ad sales, LinkedIn's subscription-based business model will be threatened soon.

7. Social media will help swing the 2012 election but not how you think - In 2008, then-candidate Obama's ability to engage voters via the Internet gave his campaign a huge edge over Hillary Clinton and then John McCain.

What is predictable for 2012 is that campaigns will more effectively connect with and engage voters through social media than they did in past years. This prediction isn't about the positive effects of social media, but rather the negative ones: In 2012, a politician will so badly mismanage social media that, depending on timing, it'll contribute to either knocking that person out of the race or costing them the election.

Candidates in the Republican Party are the ones most likely to suffer. I'm not going out on a limb saying this, obviously, since despite its long laundry list of flaws, the Obama team is extremely savvy when it comes to leveraging the Internet and social media.

Let's look at how this prediction is already playing out. Newt Gingrich failed to register newtgingrich.com, so a liberal PAC picked it up and redirected visitors to various unflattering stories about Newt. The pack offered to sell the domain on Craigslist for $1 million. No word on whether anyone bought it, but when I clicked on the site recently, it redirected to Rick Santorum's site. You wouldn't think there were many new ways for Gingrich to embarrass himself. Yet, here is a big one.

Update: it looks like the Gingrich team on Friday either ponied up the money to buy what should have been its own domain from the start, or they filed a Uniform Domain Name Dispute Resolution Policy (UDRP) or Anti-Cybersquatting Consumer Protection Act (ACPA) and won. My last couple of clicks on newtgingrich.com now redirect to newt.org.

Rick Santorum is even worse at the Internet game than Gingrich. If his staff had even a spider monkey's grasp of SEO, the "frothy mix" Santorum site would have been off of the first page of search engine returns long ago. It still is not.

After the primaries sort themselves out, and we have the inevitable Obama versus Romney clash, the gaffes won't be as obvious. However, don't be surprised if one campaign's major misstep catches fire via social media and hurts them on Election Day. The next Swift Boat firestorm could well find fuel for its flames primarily on Facebook, YouTube and Twitter.

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