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THE MAGAZINE OF USENIX & SAGE

October 2002 volume 27 • number 5

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OPINION

Chalup: Vive la Révolution! Now Get Over It!

USENIX & SAGE

The Advanced Computing Systems Association &
The System Administrators Guild

vive la révolution! now get over it!

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Let's consider the small-appliance manufacturing industry. I sincerely doubt that anyone goes into that industry expecting to comfortably retire a few decades early by dint of hard work and picking the right company. I also doubt anyone there expects to be lionized in glossy self-referential magazines or considered an "industry elder statesman" for the supreme achievement of starting a can-opener or toaster company and managing not to go out of business for several years.

We need to abandon the fiction of the high-tech industry as "the future." It is not the future. It is merely part of the future, yet another tool in the growing plethora of tools developed by civilization. The revolution is over. Technology won. As technologists, we won. We just may not have realized it yet.

After Enlightenment, Carry Water, Chop Wood

Now you turn to me with incredulity and say, "How can you say that we 'won' the computer revolution?! For Turing's sake, more people than ever are using Windows, the Internet is full of spam, Congress is passing all these ridiculous laws about stuff they clearly don't grok, and SAGE is still chafing under the iron yoke of USENIX! Okay, maybe that last one isn't the big deal some people make it out to be, but what about the other stuff?!"

To this question I must pose another: what happens when you win a revolution? There are several large-scale effects, of which two are most noteworthy. Firstly, the patriotic militia now must lay down its arms and go back to being shopkeepers, farmers, and draymen. Think of the American Revolutionary War (or Rebellion, with a cordial nod to our neighbors across the Pond). The minutemen who survived went back to what was left of their shops or farms and got back to work. Not very glamorous.

Secondly, and perhaps more applicably, when society-at-large accepts the validity of a general concept, that acceptance is far from complete and universal; it is often without full comprehension and always comes with some highly vocal dissenters. In sports terms, players take the ball and run with it – but probably out of bounds and often along a playing field that looks nothing like what the game's originators imagined. General societal adoption of technology takes "our ball" and goes off to play with it according to larger rules: in particular, with adaptation of technology into more specialized tool sets and re-purposing of technology and technological infrastructure for previously unfeasible uses – including those which we, as de facto technocrats, may feel lack a certain elegance or relevance.

Which Came First: The Goose or the Golden Egg?

To make matters more confusing, our technological revolution has largely become conflated with a minor economic "revolution" – in the old-fashioned sense of "a turn of the wheel." The economic boom cycle came to be considered part and parcel of the technological progression. The success of the technology boom cycle was the widespread normalization of an unprecedented level of technological sophistication. Today's high school kids tweaking their Doom skins have more power to do graphics visualization than the entire MIT astrophysics department had in 1981. Wow. The guy on the street doesn't think twice about this anymore. Double wow. To us it seems to matter that the kid may be running Windows instead of Linux, but in the larger context, the victory is that he or she is using a sophisticated tool and not thinking about

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OS or hardware issues at all. Let's not forget the forest as we argue about which trees are better, and which types of woodlot management are best.

Did you know that not only your box-o-hardware but your OS and your applications are now commodity items? Why do you think Microsoft wants to turn on system auditing with mandatory updates in Windows 2000 (SP 3, read the EULA) or application licensing in XP? Commodity, commodity, commodity. Applications are just conduits for file formats, which in turn are just a convenient box with handles around *content*. "Ptht!" you say. "Content is king? Been there, done that, no market in it." Not quite true – there's no content market with pie-in-the-sky valuations that will catapult a company to stardom. What there is, instead, is a vast and insatiable long-term income stream. The big companies are spending millions twisting our legislative structure to support this income stream, this multi-billion-dollar market for those who aggregate intellectual property rights and copyrights to content.

Day-to-day technology is rapidly becoming merely a conduit to deliver content to those who require it. This mirrors the business world, where technological applications have been largely harnessed to make existing business processes easier. Everyone who has used it has a Meeting Maker™ horror story, yet for the corporation overall it still makes a positive difference. The success of the PDA is largely rooted in synchronization, and could not come to fruition until there was enough electronic infrastructure carrying out business processes that there was something on the other end to synchronize *to*.

I Will Gladly Pay You Tuesday for a Hamburger Today

This brings us to another key point. What many of us in the technology field tend to forget is that technology has everyday value only when it is *applied*. Further, Moore's Law gives technology something of the nature of a perishable good or even a service. This may seem counterintuitive, given the tangible nature of a rackmounted box stuffed with hard drives and application servers. The economics of perishable goods and of services are rather well understood. Empty hotel rooms are not bankable. The high prices with which we are familiar, and upon which empires were built, came largely from relative scarcity of technology applied in the right place at the right time. When you just *had* to have a 100GB RAID 5 file system to support your e-commerce application, and the server box only had so many disk drive slots, a 10GB 9600 rpm drive was priceless. Especially when time to market was perceived as *the* most critical factor, and a dozen other dot-com companies were trying to pry the same pallet of in-stock drives out of your local vendor's warehouse. What if there weren't a dozen other companies trying to buy the same drives? Or fast-forward six months to a year, when the same dollars buy you a 30GB drive. Those 10GB drives sitting on the shelf still cost the same to produce but their dollar value has dropped. Yet we consistently see business plans that insist that the price should have nothing to do with the current situation, and that the "value" of the drives is \$whatever.

This is an understandable, yet common, mistake. I had hopes that an MBA and a little bit of history would have proven more of a deterrent. Most of us think of technology prices as intrinsic rather than situational. The cost of manufacturing technically does not include research and development, despite our vendor's sales team's assurances to the contrary. Hence the thriving clone markets and the profitability therein. They're not building empires, but they're paying salaries and staying in business. It's a brave new world to the people who entered the workforce in the late '80s, but it's "back to reality" for the rest of us. In my most cynical moments I think that the industry will

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resist normalization until everyone who remembers the glory days of IBM and DEC retires from positions of responsibility. We may have to broaden that to include Sun, Microsoft, and Oracle. The time of empires has passed. When the market was smaller, you could corner it. Who has cornered the market on butter? On best-selling novels? On gasoline?

It's the End of the World As We Know It . . .

Much of the technology sector is waiting for investors to "come to their senses." Sorry, they already have! Except for random islands of scarcity produced by the market equivalent of "lift pressure," the high flying days are over. Plenty of successful companies are making can openers. They don't have stock with valuations reflecting obscene P/E ratios. After all, they're making can openers. Welcome to the commodity marketplace.

In many ways the burst of the dot-com bubble was like Watergate. Its worst aspect was not the individual investments or reputations destroyed, but the damage to the societal perceptions of the institutions behind them. There are still many things that we can do with the new technologies, but the man-on-the-street perception in much of our society today is that *all* technology is over-hyped and that there's nothing out there but Web site pyramid schemes and pop-up ads.

There are still good technology stocks out there. They're the kind that will help fund your retirement in 40 years, not the kind that will buy you a house in five years. The familiar proverb is missing a key modifier – it's not that "there's no such thing as a free lunch"; it's "there's no such thing as a *consistently* free lunch." If you're used to having Peets or Starbucks in the break room, "Office Caterer House Blend" seems like a deep pit rather than a return from the mountains to sea level.

. . . And I Feel Fine

Do you remember life before Post-it™ Notes? A lot of us can't imagine being without them. Their invention didn't "make" 3M, nor did they become 3M's flagship product against which all other products were measured. Their inventor didn't leave 3M and try to start his own company to propel himself into stardom and riches. There is still a lot of potential out there. It's just *traditional* potential, which can feel a lot like "nothing" in contrast with the excitement of the past couple of decades.

So where is this all going? Is the high-tech sector dead? Should we all just take up dog walking or open a hot dog stand? I think that the end of the Age of Empires in high tech has a lot of potential for us as a profession. Work can still be fun, which is good because you won't be retiring at 35. Opportunities are out there, and while they aren't as glamorous, they may not demand as high a personal price in unpaid overtime and ulcers.

There are still next-level paradigm jumps out there. They may not make you rich, but who cares? As the late Michael Dertouzos said at a futurism forum in 1999, "We haven't really invented the bulldozer yet. We're just out there with platinum, diamond-encrusted shovels." I think that there's the potential for a New Internet that looks a lot like the Old Internet, a place where innovation was exciting and people did it for fun, and innovators weren't punished with a four-digit surprise bandwidth bill from their ISP. New advances might make hardware hobbyism possible on a level that would remind old-timers of the heady days of the '70s when "home computing" meant breathing solder fumes. Details, details, you say. But that's the next column. See you next issue!