

Watching the Alpha Geeks

ApacheCon

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Tim O'Reilly

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"The future is here, it's just
not evenly distributed yet."

-William Gibson



Technology Evolution

- Hackers push the envelope
- Entrepreneurs make things easier for ordinary users
- Dominant players integrate into a platform, and either:
 - Raise barriers to entry ("I'll take all the mashed potatoes")
 - or
 - Build a healthy ecosystem
- Hackers and entrepreneurs move on, looking for new frontiers



The History of the Personal Computer

- Hackers: Homebrew computer club
- Entrepreneurs:
 - Apple, Osborne, Columbia, Compaq, Kaypro...
 - Software Arts, Lotus, Microsoft.
- Platform: The Wintel duopoly
- New Frontier: the Internet



Understanding Paradigm Shifts and Disruptive Technologies

- Thomas Kuhn: *The Structure of Scientific Revolutions*
- Clayton Christenson: *The Innovator's Dilemma*
- The consequences of failing to understand the shift: The PC vs. the Mainframe
 - IBM vs. Dell
 - IBM vs. Microsoft



"I started thinking about long term trends, because I'm an inventor, and an invention has to make sense in the world where you finish building the invention, not the one in which you start building it."

--Ray Kurzweil



Lessons from the future

What are the hackers actually telling us?



Assume Network Connectivity AND Cheap Local Storage

- MP3.com vs. Napster
- "We have all the songs" vs. "Why do I need all the songs. My friends have them. I just need to point to them."
- This is what I mean by a "paradigm shift"



Ubiquitous wireless and portable devices

- 1.5 mm wireless cards sold per month
- Hackers building their own wireless community networks, extending the range with homebrew hardware - antenna shootout
- The beautiful but empty terminal room at the Mac OS X conference sends a message about the future that hackers are already living in
- (I like "no cat" better than "wi-fi")

Web services are already a reality to hackers

- Web spidering and screen scraping
- Custom interfaces
 - AmaBooks, car pooling app
- Ultimately, web-facing databases are software components

How Are the Entrepreneurs Responding?

- Integration of MapQuest and Yahoo Finance data feeds into Mac OS X's Sherlock 3 a good example of the progression from hacker tool to integrated application
- Google and Amazon web services APIs a direct response to hacker spidering--make things easier.
- iTunes, Rendezvous, and Apple's "Digital Hub"



Paradigm Shift In Process

- Open source commoditizes operating systems and traditional office applications
- The killer apps of today are *all* network apps: web, mail, chat, music sharing
- What is the "application"? The web browser, or Amazon, Google, MapQuest, EBay...?
- Realizing the implications of ubiquitous connectivity: applications must be designed to rendezvous



A Platform Strategy Beats an Application Strategy

- Why MapQuest and AIM are doomed.
 - The "bag of drivers"
 - "It's just like GUI. Nobody owns it."



Example: IM as Platform Component

iChat-AIM integration really good news--
AOL is opening up a bit

- But need to think of IM as platform functionality, not just an app
- As transport as well as application
- JD Adams: Jabber, SAP and cellphone
- Buddy lists and shared data sets
- IM Bots

Building the Internet Operating System

- That's the deeper trend behind the things I've been talking about
- Conference this past spring in Santa Clara
 - What kind of OS do we want to create?
- Integration with edge services vs. centralization of services

Architecture is Politics

- Windows/Mac Cathedral vs. Unix/Internet Bazaar
- Kernighan and Pike: *Unix Programming Environment*
- Jon Postel and the Robustness principle: internet end-to-end



THE
UNIX
PROGRAMMING
ENVIRONMENT

Brian W. Kernighan
Rob Pike

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Further Lessons

- Adhere to standards
 - Apache vs. Netscape
- Keep things small and modular
 - Apache, Jakarta, etc.
 - Perl and CPAN
 - GNU/Linux
- Document as you go - man pages and RFCs



Final Takeaways

- As developers, you have to think platform, not just application - build in extensibility and interoperability
- Think network, think open
- Play well with others and have fun



What We Do At O'Reilly

- Books
- Conferences
- Online publishing
- Market research and technology advocacy
- Seed investing and technology incubation



What We Really Do

- "Big Hairy Audacious Goal": Changing the world by capturing the knowledge of innovators
- That is: Find interesting people and technologies and try to amplify their effectiveness by spreading the information needed for others to follow them.
- Keep finding new, transformative technologies that we can catalyze.



Core Competencies

- Knowing what's cool and important and evangelizing it
- Recognizing "alpha geeks" and leveraging their expertise
- Reducing the learning curve and enhancing the depth and quality of information about new technologies
- Listening to and speaking up for the interests of user and developer communities
- Brokering dialogue between competitors in the interest of open standards
- • Common sense



Our Editorial Filters

- It's network related
- A real need for information
- Grassroots support
- Inspires passion
- Has deeper social implications
- Has professional practitioners
- A possible business ecology



More Editorial filters

- The technology is disruptive
- The technology enables other technologies
- The technology is at the right point in its lifecycle
- The technology uptake is accelerating



Questions?

- Need not just be about the talk
- What else is on the horizon...?
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