Economics of Open Source Software

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Outline

- What is Open Source?
- Why you should know about it (and care)
- Open Source Economy
- Can/Should other fields adopt these principles?
- Future
You've Heard of Open Source?

• It's been in the news

• Many misconceptions, though
  – not sustainable, pure giveaway, done for fun, detrimental to economy, anti-intellectual property, anti-Microsoft, altruistic

• But big companies are investing in it

• "Much stronger ties to the phenomenon of capitalism than you may have appreciated" -- Bruce Parens
What's Available as Open Source?

- Linux
- Apache
- Mozilla / Firefox
- OpenOffice
- MySQL
- PHP
- JBoss
What is it?

• Short, simplistic definition: software for which the source code is, and must always be, even in derived works, available to all

• There are some differences between the free software movement (fsf.org) and the open source movement (opensource.org)
  – The latter grew out of the former
  – Differences are minor, but basic philosophies the same
Characteristics

- According to the *Open Source Definition* (v1.9) users of open source software have the right to
  - obtain and utilize the source code
  - freely give away or sell it (bundled or not)
- But they must
  - clearly mark which modifications are their own
  - not place further restrictions on a redistribution
  - not restrict its use
Other Characteristics

- Open source software is *usually*, but not necessarily
  - worked on by volunteers
  - owned by no one
  - copylefted as opposed to copyrighted
  - free as in speech as opposed to free as in beer (libre not gratis)
Advantages

- You can always get the source code so you can fix problems yourself.
- Someone else can fix problems faster (no waiting months for a next release or patch).
- Benefits of dozens or hundreds of eyes.
- Developers are also users.
- Security (from massive peer review of the source).
Disadvantages
Economics

- Why do people do this?
- Are they sharing? Giving stuff away?
- Can't they get paid for their time and talents?
- Aren't their time and talents scarce resources?
Basic Idea

- Software is rarely THE product (it usually is for Microsoft, though)
- Less than 30% (5% ??) is sold as product
- Usually it's developed for a customer
- With open source, customers participate in the development - they're not subject to vendors without competition that sell products that aren't exactly what the customers want (and crash too often)
Giving Software Away?

- Might or might not matter
- Software is really just an enabler (cost-center, not profit center)
- Understand Differentiating vs. Non-Differentiating Technologies
- Don't give away differentiators, but collaborate on non-differentiators (to spread out cost and risk)
- Disincentive to "sit on a patch"
Non-differentiators

- Available to anyone (all retail software is in this category)
- Works "behind the scenes" as far as the customer is concerned
- Examples: word processors, spreadsheets, browsers, mail clients, web servers, operating systems, databases
Economic Paradigms

- **Retail** - massive upfront investment (& risk), requires mass market, not customer-directed
- **In house/contract** - customer in control, good for differentiators (unless your contractor keeps rights and resells)
- **Closed Source Consortiums** - history of "titanic failures"
- **Open Source** - started by one group, released early, end-users contribute (no marketing costs, no mass market required, no stock-market investment, distributed cost and risk)
Contributors (1 of 2)

- Volunteers
  - Want to gain prestige
  - Want to learn about new technologies
  - Want to catch a potential employer's eye
  - Want to gain reciprocity and trust from cooperation
Contributors (2 of 2)

- Companies
  - May offer two licenses: (1) personal use (unrestricted), (2) commercial ($$) to allow inclusion in derived works
  - May sell training and services
  - May sell extra products (IBM sells DB2 on Linux)
  - Hardware companies like open source operating systems and software (hardware hard to duplicate; software is a commodity)
Commoditization

- When the price of X goes down, demand for Y goes up
  - X = flights to L.A., Y = price of hotels in L.A.
  - X = cars, Y = mechanics
  - X = software, Y = hardware, services, accessories
  - ...

Open Source is like Capitalism

- No central controlling agency
- Marketplace for software weeds out the useless stuff (many open source products never get used at all)
- Only the best contributions stay in
Applicability to Other Fields

- Software is soooooo easy to share
- What else is?
  - bandwidth (SETI)
  - music (peer-to-peer)
  - research information
  - biological databases
Outside of Information Technology?

- Carpoools
- What else?
Future

- Room for both open and closed source? Which will dominate?
- Open source seems to be the only viable economic approach; how long can retailers survive?
- Is Microsoft sending gamers to the Xbox?
- Maybe the idea will catch on elsewhere: social sharing may be a "third mode of economic activity" -- Y. Benkler
For More Info

- http://www.opensource.org/
- http://perens.com/Articles/Economic.html
- http://www.catb.org
  - Eric Raymond's Essays: The Cathedral and the Bazaar, The Magic Cauldron, ...
- http://www.fcw.com/article90919-09-26-05-Print