

**Worth It**

# **Open Source Technology in Clinical Research**

**What is open source?**

# closed source software is ...

- software that ships when marketing says it should
- poorly specified, under designed, & minimally tested
- software that you cannot control
- like a car with the hood welded shut

# open source software is...

- software to which the source code (the engine) is accessible
- ready when it's ready
- developed by individuals the world over
- peer reviewed endlessly
- everywhere
- free

# free as in speech

- not public domain; copyrighted & licensed
- the General Public License that governs most open source software *grants the user freedoms*
  - freedom to use the software as you see fit
  - freedom to modify the software
  - freedom to copy & redistribute the software
  - freedom to redistribute your improvements
- these freedoms cannot be revoked

# free as in beer

- others view open source simply as a better way of creating software
  - “Many eyes make for shallow bugs.”
- akin to the scientific method
  - “I have stood on the shoulders of giants.”
- easily acquired, tested, built upon, leveraged, fixed, refactored, etc.
- the developers are the users

# technical benefits of open source

- more functional
- more reliable
- better performing
- more secure

if you would like these claims backed up  
with facts, visit:

[www.dwheeler.com/oss\\_fs\\_why.html](http://www.dwheeler.com/oss_fs_why.html)

# reduced risk

- no vendor lock in
  - competing suppliers
  - no surprise licensing changes
- CIOs want a 25 year plan
  - "In the long run, the utility of all non-free software approaches zero."
- protected from license litigation
  - remember freedom 0

# reduced TCO

- costs less to acquire
- costs less to upgrade and maintain
- cost less to scale
  - no per-client/per-cpu costs
- reuse existing hardware
- technical benefits result in lower TCO

[www.ibm.com/linux/RFG-LinuxTCO-vFINAL-Jul2002.pdf](http://www.ibm.com/linux/RFG-LinuxTCO-vFINAL-Jul2002.pdf)

[www.cyber.com.au/cyber/about/linux\\_vs\\_windows\\_pricing\\_comparison.pdf](http://www.cyber.com.au/cyber/about/linux_vs_windows_pricing_comparison.pdf)

## consider that ...

- for you, software is a cost center
- for you, software is an enabling technology
- for you, horizontal software does not differentiate you
- if you can reduce IT costs, while enabling your business with robust software services, you have differentiated yourself

# but isn't all this created by hippies and pinkos?

- in some cases, yes, and teenagers, and women, and Frenchmen, and the disabled, and businessmen, and professors, and musicians, ...
- closed source vendors do not have a monopoly on smart people
- closed source development:
  - top-down, structured, rigid resource allocation
- open source development:
  - horizontal, loosely structured, resources drift to where they're needed, free market of ideas

# how do they make money ?

- money is not the only motivator
  - philosophical, prestige, resume, fun
  - "scratch an itch"
- money is not the only form of exchange
  - "I contribute a network driver, they give me a world class operating system."
- buy-side companies contribute software
  - donating software
  - employing developers
- academia and government also big contributors

# commercial open source

- not an oxymoron
- companies developing or funding open source:
  - IBM, Sun, HP, Oracle, Novell, Apple, AOL, Red Hat, CA, SAP, AMD, Intel, Cisco, Nokia, Ericsson, Fujitsu, Hitachi, Alcatel, NTT, Toshiba, many more
- sell packaged, tested & integrated solution
- sell support, training, and services
- use free software to sell hardware
- dual licensed

# who's using open source ?

- you are!
- the Internet is open source!
  - TCP/IP, the Web, Email, DNS
- Google, Amazon, Yahoo, Federal Express, Intel, Oracle, Merrill Lynch, L.L. Bean, Citigroup, CSFB, BP, DreamWorks, Wells Fargo, Ford, Chrysler, NYSE, ...
- virtually every company, government, and organization on earth

# open source projects you should know about

- desktop software for Windows and \*nix
  - browser: Mozilla/Firefox
  - email: Mozilla/Thunderbird
  - office suite: OpenOffice/StarOffice
- complete desktop solutions
  - Novell, Red Hat, Sun, Apple, Mandrake
- complete server solutions
  - IBM, HP, Red Hat, Novell, Apple, Dell

# open source projects you should know about

- operating Systems: Linux, "the BSDs"
- databases: PostgreSQL, MySQL
- web servers: Apache
- mail servers: Postfix, Exim, SendMail
- application servers: JBoss, Spring, JOnAS
- web development: PHP, Tomcat, Jetty
- content management: Plone, Zope
- development: Perl, Python, Ruby, Mono, Eclipse, Junit, gcc, Bugzilla, CVS