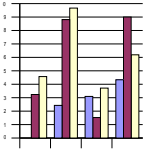


Why Open Source Software / Free Software (OSS/FS)? Look at the Numbers!

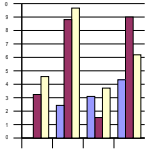
David A. Wheeler
dwheeler@dwheeler.com

Based on
http://www.dwheeler.com/oss_fs_why.html



What is OSS/FS?

- Open Source Software / Free Software (OSS/FS) programs have licenses giving users the freedom:
 - to run the program for any purpose,
 - to study and modify the program, and
 - to freely redistribute copies of either the original or modified program (without royalties, etc.)
- *Not* non-commercial, *not* just free-of-charge
 - Often supported via commercial companies
- Synonyms: Libre software, FLOSS
- Antonyms: proprietary software, closed software

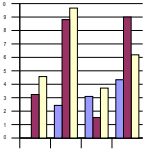


Outline

Quantitative measures showing that you should consider using OSS/FS software

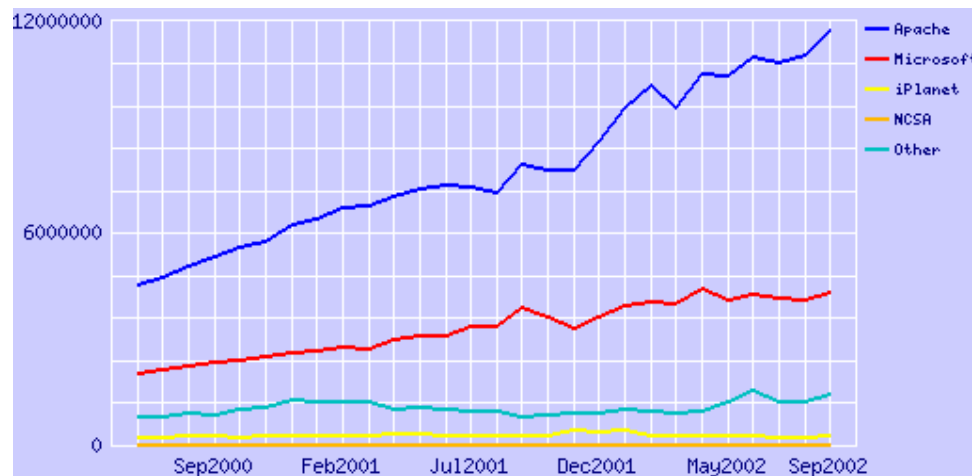
- Market Share
- Reliability
- Performance
- Scalability
- Security
- Total cost of ownership
- Non-quantitative

Numbers won't show OSS/FS always technically better

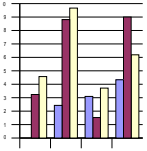


Market Share: Web Servers

- Apache 66.04%, IIS 24.18% Active Sites in Sep02 (counting by name; 35.7M sites)

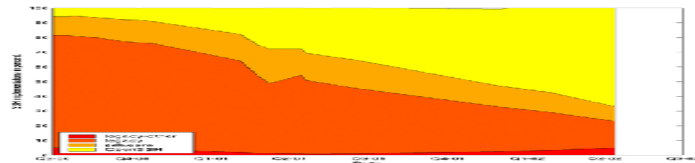


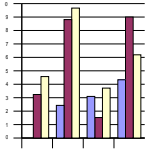
- For SSL, Apache 53.97%, IIS 34.85% Sep02



Other Market Share Examples

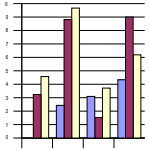
- GNU/Linux #2 webserver OS Jun01
 - GNU/Linux 29.6%, Windows 49.6%, BSDs 6.1%
- GNU/Linux #2 server OS sold 99, 00, 01 (24%, 27%, 25%)
- DNS: bind supports 95% of reverse-lookups
- PHP #1 server-side scripting language
- Sendmail #1 Email server
 - Sendmail 42%, Microsoft Exchange 18%
- OpenSSH #1 SSH (66.8% Apr02)
- Trivial desktop share
 - But usable OSS/FS apps just became available in 2002





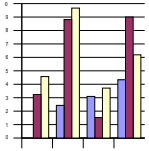
Reliability

- Fuzz studies found OSS/FS applications significantly more reliable
 - Proprietary Unix failure rate: 23%
 - OSS/FS: Slackware Linux 9%, GNU utilities 6%
 - Windows: 45%; 100% for random Win32 messages
- GNU/Linux vs. Windows NT 10-month study:
 - NT crashed every 6 weeks, GNU/Linuxes, never
- IIS web servers >2x downtime of Apache



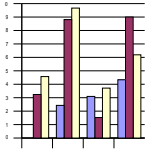
Performance

- TPC-C: GNU/Linux faster than Windows
- PC Magazine: GNU/Linux with Samba faster fileserving at Windows' own file protocols
 - Nov 2001, top end, 130MB/sec vs. 78MB/sec
 - April 2002, performance 2x; 4x many clients
- Sys Admin: GNU/Linux faster than Solaris on Intel, FreeBSD, Windows 2000 (all untuned)
 - Email: 1.3M emails/hour, 1, 0.9, 0.9
 - Disk I/O: 542s, 3990, 2398, 613



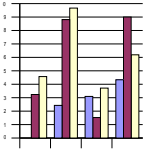
Scalability

- GNU/Linux and NetBSD support more hardware platforms & performance ranges
 - PC hardware, PDAs, mainframes, clusters, supercomputers
- OSS/FS can develop large software systems
 - Red Hat Linux 7.1 had 30million SLOC
 - Represents approximately 8,000 person-years
 - To re-develop proprietary, \$1 Billion USD



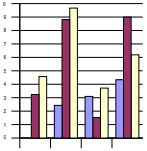
Security

- J.S. Wurzler hacker insurance costs 5-15% more for Windows instead of Unix or Linux
- Windows websites disproportionately defaced
 - Defaced: 66% Windows, 17% GNU/Linux
 - Systems: 49.6% Windows, 29.6% GNU/Linux
- Bugtraq vulnerability: Smallest is OpenBSD, Windows largest (**Don't double-count!**)
- Worst vulnerabilities: Apache 0, IIS 8 (Jun98-Jun01)
- OSS/FS *not* invulnerable!



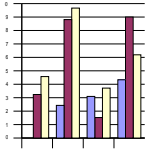
Total Cost of Ownership

- OSS/FS costs less to acquire
 - E.G., Web server, Windows \$3610 vs. \$156
- Other facts lower costs
 - Lower upgrade costs, can use cheaper hardware
 - Avoids license management/suits/litigation
- Cybersource: TCO 24%-34% less w/OSS/FS
- InfoWorld: 60% CTOs >\$50K/yr savings;
32% CTOs > \$250K/yr savings



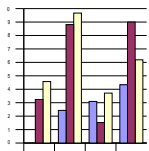
Non-Quantitative

- To many, non-quantitative advantages of OSS/FS are more important
 - Social/ethical/moral reasons
 - Avoids risks of single source solutions
 - Avoids security risks of monocultures
 - Avoids license management and litigation
 - Supports domestic IT infrastructure
 - Many believe it encourages innovation
 - Greater flexibility

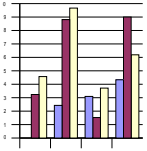


Conclusions

- Many, many cases where OSS/FS programs have a measurable advantage over proprietary competition
- Consider using OSS/FS software when acquiring software

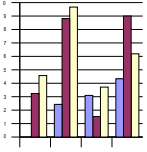


Backup Slides



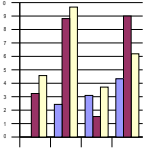
GNU/Linux on the Desktop?

- GNU/Linux: 1.7% or 3.8% client OS, 2002
 - Useful OSS/FS basic applications were unavailable
 - GNU/Linux+proprietary basic apps has no advantages: still proprietary, can't run most apps
- Situation Changed in 2002:
 - *Useful* OSS/FS basic applications became available in 2002 (Open Office, Mozilla,...)
 - Microsoft raised prices (76% cost up 20%-300%)
 - Governments re-emphasize want open systems
- If GNU/Linux ran Windows apps, 58% switch immediately + 25% switch within a year [ZDNet survey]



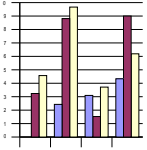
Unnecessary Fears

- Proprietary software better supported? No.
 - Non-traditional support (email, etc.)
 - Pay for traditional support, and can compete it
- Proprietary more legal rights? No.
 - Who do you sue? Nobody, in either case
- OSS/FS economically viable? Yes.
 - Many business models
 - Customers can band together



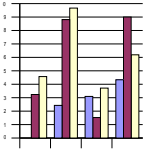
Unnecessary Fears

- Will programmers starve? No.
 - Estimated 95% software not developed for sale
 - Companies hire programmers to make changes for themselves
- OSS/FS compatible with capitalism? Yes.
- OSS/FS mean no competition? No
 - KDE vs. GNOME, emacs vs. vim



Unnecessary Fears

- Will OSS/FS destroy intellectual property? No.
 - Usually, complaint is about GPL
 - GPL trades you the right to freely incorporate their code into your software in exchange for the right to freely incorporate your code [which incorporates their code] into theirs
 - Intellectual property traded for other intellectual property
 - Microsoft sells GPL'ed software



Unnecessary Fears

- Viewing and changing source code valuable for non-programmers? Surprisingly, yes.
 - Would you buy a car with the hood welded shut? If not, what do you know about modern engine technology?
 - Consumers demand this so they can have control over their products, instead of dealers
- Anti-Microsoft campaign? No.
 - Jun02, 831 projects Visual Basic; 8867 projects work on Windows
 - Microsoft sells GPL'ed software