Short history

- Based on: http://www.levenez.com/unix/
- 1978 – BSD (Barkeley software distribution) Based on unix system developed by Bell.
- 1991 – 386BSD – BSD port to Intel (Based on 4.3BSD).
- 1991 – Linux based on Minix.
- 1993 – FreeBSD and NetBSD Based on 386BSD.
- 1995 - OpenBSD splits from NetBSD.
- 2001 – Apple's Darwin, based on FreeBSD.

- Latest releases: 5.3, 4.11.
- The most popular of the *BSDs.
- Historically aimed for maximum. performance on X86. Now supports most of the popular hardware platforms.
- Biggest installations: Yahoo servers, ftp.cdrom.com, www.netcraft.com.

- “Of course it runs NetBSD”
- Last version: NetBSD 2.0.
- Aims for supporting as many architectures possible.
- Portable design.
- 40 supported architectures.

- www.openbsd.org
- Current version: OpenBSD 3.6.
- “Try to be the #1 most secure operating system“.
- “Secure by default”.
- Based on Canada – is not restricted by US export laws.

- developer.apple.com/darwin/projects/darwin/
- The operating system behind Apple's MAC OS X.
- Based on FreeBSD.
- Apple's cool GUI, on top of a reliable Open source unix.
- Runs on PowerPC based Macintosh.
- Version for X86 is also available.

Licensing Issues

- Linux – GPL
  Must publish your source code if your code is based on a GPLd software.
- *BSD - BSD license.
- Do what ever you want, just give us credit.
- Poul Henning Kamp - Beerware license
  Do what ever you want, just buy me beer when we meet.

FreeBSD – The people behind

- FreeBSD Core Team – The board of directors.
- FreeBSD Committers – The programmers.
- Release Engineering Teams
- Documentation engineering team
- Port management team.
- Donations Team.

FreeBSD – The people behind cont’

- Technical Review Board.
- Security officer.
- Security Team.
- Bugmeisters and GNATS admins.
- Core team secretary.

Funding

- Donations raised by the FreeBSD foundation (can be of money or hardware).
- Very well organized site with donation want list, and list of received donations.
- Dontations raised by individuals.
- Selling CDs and merchandise.

FreeBSD Base System

- Linux is a kernel.
- FreeBSD is a whole system (much like a linux distribution).
- The base system is developed under one administrative control.
- All needed applications are integrated into FreeBSD.

FreeBSD Ports

- Collection of utility and application software that has been ported to FreeBSD.
- All ports are found in one central CVS.
- Upgrade downgrade mechanism (much like apt-get and rpm).
- Today - 12326 ports.

Release Engineering

- Current version – up to date code.
  “Real hackers run current on their laptop”.
- Stable version – stable code.
- Release version – code of a formal release based on the stable at that time.
- Very organized release process.

Getting FreeBSD

- http://www.freebsd.org/where.html
- Purchase a 4 CD set.
- Download ISO files.
- Download sources via CVS and compiling.
- Installing using install floppies and a network connection.

FreeBSD CVS

- cvsup – keeping up to date with a chosen branch.
- anoncvs – getting small pieces of code on demand.
- CTM – getting patches by mail.
- Web interface – looking at a certain file, and checking diffs between versions.

Reporting Bugs

- Very organized problem report (pr) submission mechanism.
- Web searchable list of all reported problem reports.
- Bugmeisters responsible for perliminery classification of the bugs, and handing them over to the developers.
- Trying to put the bug fixing in top priority.

FreeBSD documentation

- http://www.freebsd.org/doc/en_US.ISO8859-1/books/faq/index.html
- http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/
- http://www.freebsd.org/doc/en_US.ISO8859-1/books/developers-handbook/
- http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/eresources.html#ERESOURCES-MAIL
- www.google.com/bsd

Kame Project

- http://www.kame.net/
- Joint effort of 6 Japanies companies.
- Aims to provide IPv6 and IPsec (for IPv4 and IPv6) for all BSD variants.
- Provides much more than it aimed for.
- Integrated into the formal releases.

- One floppy version of FreeBSD.
- Based on old 3.0 version.
- Need at least 386SX with 8M RAM.
- 4 available versions – Dialup, Router, Networking and Dial-in server.
- A custom version of FreeBSD on a floppy can also be built.

Linux compatibility mode

- Full binary compatibility for linux as long as the application doesn't "overly use i386 specific calls".
- Linux_base port contains Linux libraries.
- /compat/linux dir contains Linux config files.
- http://www.linuxinfor.com/english/FreeBSD/linux emu-advanced.html
- No performance degradation.

Who's Better? – Testing Performance

- Results of MySQL test I found on http://software.newsforge.com/article.pl?sid=04/12/27/1243207&from=rss
- With small files that can be cached easily, on one CPU, NetBSD seemed best, before Linux, and way before the others.
- When switching to 2 CPUs Linux took the lead.
- On bigger files, Linux was best, before FreeBSD. NetBSD was way behind.

Testing performance (cont')

- http://bulk.fefe.de/scalability/
- Tests system calls like socket, bind, fork, connect and mmap.
- Tests also HTTP request latency.
- Does not test network traffic load.
- Conclusions are that Linux 2.6 is best, FreeBSD 5.1 and Linux 2.4 (except for mmap and fork) do very good. Others fall behind.