FreeBSD at 30

1962 — Timeshare OS

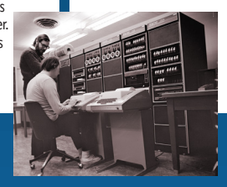
Timesharing systems started appearing in the early 1960's, with one of the first being the Atlas supervisor (designed by the Manchester Project in England) for the Atlas brand computer. A timeshared system in that era meant that two people would be sharing the same system, many times setting up a hourly schedule for when they could take over the computer.

1964 — Multics

Initial planning and development for Multics started in 1964 in Cambridge Massachusetts. Originally it was a cooperative project led by MIT (Project MAC with Fernando Corbató) along with General Electric and Bell Labs. It was developed on the GE 645 computer, which was specially designed for the operating system; the first full system was delivered to MIT in January, 1967.

1969 — Unix

Before Bell Labs left the Multics project, Dennis Ritchie and Ken Thompson got a taste of what Multics could be capable of. They secured funding from the Bell Labs Legal department to purchase a more powerful PDP-11/20 machine. In 1969 Ken Thompson, Dennis Ritchie and others started working on a new program that utilized the full capabilities of the more powerful computer. This program was called Unics (Uniplexed Information and Computing Service).



1972 — Unix Code Migrates to C

Dennis Ritchie decided they needed a high-level assembler for UNIX, one with statements that would translate to two or three instructions. This led to his development of the C programming language. The fourth research edition of UNIX was rewritten in C. This made it portable and changed the history of OS's forever.

1974 — Unix Brought to UC Berkeley

In 1974, Professor Bob Fabry of the University of California, Berkeley, acquired a UNIX source license from AT&T. Bob Fabry had previously seen UNIX 4 at the ACM Symposium (Association for Computing Machinery) on Operating System Principles in 1973 and was interested in bringing it to the University. The Computer Systems Research Group started to modify and improve AT&T Research Unix. They called this modified version "Berkeley Unix" or "BSD".

1978 — 1BSD Release

Berkeley Software Distribution (1BSD) created based off of UNIX. 1BSD was an add-on to Version 6 Unix rather than a complete operating system in its own right. About 30 copies of this release were distributed.

1979 — 2BSD Release

The Second Berkeley Software Distribution (2BSD), released in May 1979, included updated versions of the 1BSD software as well as two new programs by Bill Joy that persist on Unix systems to this day: the vi text editor (a visual version of ex) and the C shell. This was the last version of BSD that Bill Joy worked on for the PDP-11. About 75 copies were shipped.

1980 — DARPA Funding

In early 1980, DARPA was looking for an operating system that could help with current military projects. A paper by Bill Joy about the capabilities of UNIX systems (specifically BSD) caught their attention. They started funding work at Berkeley in June 1980.

1983 — 4.2BSD Release

The official 4.2BSD release came in August 1983. It was notable as the first version released after the 1982 departure of Bill Joy to co-found Sun Microsystems. It also marked the debut of BSD's daemon mascot in a drawing by John Lasseter that appeared on the cover of the printed manuals distributed by USENIX. This release led to over 1,000 distributions representing a huge number of computers.

1988 — 4.3BSD-Tahoe

As developers moved away from the aging VAX platform, 4.3BSD-Tahoe was released for the Power 6/32 platform (TAHOE). This release proved valuable, as it led to a separation of machine-dependent and machine-independent code in BSD which would improve the system's future portability.

1991 — 386BSD and Net/2

Keith Bostic started a project to reimplement most of the standard Unix utilities without using the AT&T code. The result was the release of Networking Release 2 (Net/2), a nearly complete operating system that was freely distributable. Net/2 was the basis for two separate ports of BSD to the Intel 80386 architecture: the free 386BSD by William Jolitz and the proprietary BSD/386 (later renamed BSD/OS) by Berkeley Software Design (BSDi). 386BSD itself was short-lived, but became the initial code base of the NetBSD and FreeBSD projects that were started shortly thereafter.

1992 — USL Lawsuit

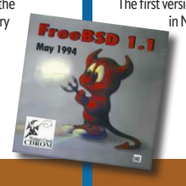
BSDi soon found itself in legal trouble with AT&T's Unix System Laboratories (USL) subsidiary, then the owners of the System V copyright and the Unix trademark. The USL v. BSDi lawsuit was filed in 1992 and led to an injunction on the distribution of Net/2. The lawsuit was settled in January 1994. Of the 18,000 files in the Berkeley distribution, only three had to be removed and 70 modified to show USL copyright notices.

1993 — FreeBSD Created

The development flow of 386BSD was slow and after a period of neglect, a group of 386BSD users decided to branch out on their own and create FreeBSD so that they could keep the operating system up to date. On 19 June 1993, the name FreeBSD was chosen for the project. The first version of FreeBSD was released in November of 1993.

1994 — FreeBSD Ports

The FreeBSD Ports and Packages Collection offers a simple way for users and administrators to install applications. The ports collection now offers over 34,000 ports, they started appearing in 1994 after Jordan Hubbard committed "port make macros" to the FreeBSD CVS repository to compliment his package install suite "Makefile".

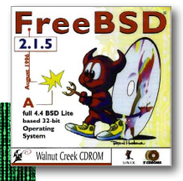


1994 — ipfw

The ipfirewall packet filter was introduced with FreeBSD 2.0-RELEASE, the "first match" firewall has been a staple of the operating since. ipfw was notably used as the built-in firewall for Mac OS X.

1996 — FreeBSD 2.1.5

FreeBSD 2.1.5 was released in August 1996 and quickly became popular with both internet service providers (ISP) and commercial communities. This release was a significant success for FreeBSD.



1998 — soft updates

The soft updates dependency tracking system was adopted by FreeBSD in May of 1998. Soft updates aim to preserve file-system metadata integrity in the event of a crash or power-outage by by tracking and enforcing dependencies among updates.

1998 — FreeBSD 3.0 RELEASE

FreeBSD 3.0-RELEASE was announced on October 16, 1998 and brought initial symmetric multiprocessing (SMP) support for i386. 3.0-RELEASE also used Common Access Method (CAM) for SCSI by default

1998 — FreeBSD 2.2.8 RELEASE

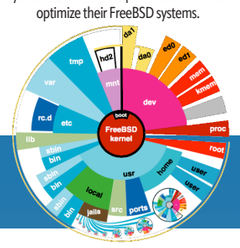
FreeBSD 2.2.8-RELEASE arrived November 29, 1998 (one month after FreeBSD 3 was released). The final Branch of FreeBSD 2 included both sendfile and dummynet, two key features of further FreeBSD versions.

1999 — First BSD Conference

The first FreeBSD conference, FreeBSDCon'99, was held in Berkeley, CA. Over 300 developers and users attended from around the world, marking an important milestone in the popularity and reach of the operating system.

2000 — FreeBSD Jails

FreeBSD Jails were released with FreeBSD 4.0 in early 2000. The jail mechanism is an implementation of operating system-level virtualization which allows system administrators to partition a FreeBSD system into several independent mini-systems or "jails". This gave sys admins much more power to secure and optimize their FreeBSD systems.



2000 — FreeBSD 4.0 RELEASE

On March 14, 2000 FreeBSD 4.0-RELEASE was announced, bringing a heap of new features and tools. The release included early ipv6 support and IPsec, both relying on KAME code, OpenSSH, accept() filters, and wi(4) with basic 802.11b WiFi support.

2000 — FreeBSD Foundation Founded

The FreeBSD Foundation is a United States-based 501(c)(3) registered non-profit organization dedicated to supporting the FreeBSD project, its development and its community. Funding comes from individual and corporate donations, and is used to sponsor developers for specific activities, purchase hardware and network infrastructure and provide travel grants to developer summits. It was created by Justin Gibbs on March 15, 2000.

2000 — kqueue(2)

The innovative replacement for select/poll was introduced to FreeBSD with FreeBSD 4.1-RELEASE on July 27, 2000. The scalable event notification interface inspired Linux's epoll().

2000 — First Core Team Election

While an self-selected core team previously existed, the first core team election was held in September 2000. A team of 9 members was appointed and elections have been held every 2 years since.

2001 — eurobsdcon

EuroBSDCon 2001 was held in Brighton, UK in late 2001. With a globally expanding community, EuroBSDCon's aim is gathering users and developers working on and with the BSD operating systems family and related projects.

2003 — FreeBSD 5.0 RELEASE

FreeBSD 5.0-RELEASE took nearly 3 years of development and was highly anticipated due to the introduction of an advanced multithreaded kernel, allowing for better SMP support.

2004 — amd64 Disk Images

After an experimental build was included with 5.1, 5.2-RELEASE included official amd64 support, becoming the first Tier-1 64-bit platform.

2004 — First AsiaBSDCon and BSDCan

After the success of EuroBSDCon, the first AsiaBSDCon kicked off on March 12th, 2004 with the first BSDCan following shortly on May 13th. As the FreeBSD community grew, so did the demand for global BSD-focused conferences.

2004 — libarchive

Libarchive was originally developed for FreeBSD 5.3 which was released in late 2004. It is a C programming library that provides streaming access to a variety of different archive formats.

libarchive

Multi-format archive and compression library

2005 — Google Summer of Code

The FreeBSD Foundation started participating in the Google Summer of Code in its inaugural year. GSOC gives new developers a chance to work on current open-source coding projects. Many of these students end up being FreeBSD committers after they finish the program.

2005 — First Executive Director

Deb Goodkin joined the foundation as the first Executive Director in 2005. She had previously spent 20+ years working in marketing, sales, and development of data storage devices.

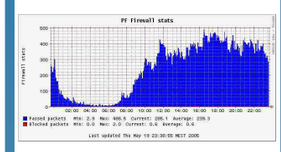
2005 — New FreeBSD Logo

There was a contest for logo designs and the current one, designed by Anton K. Gural, was the winner.

FreeBSD

2006 — PF Ported

In 2006, Packet Filter, which was originally designed for OpenBSD, was ported to FreeBSD with 5.3-RELEASE.



2005 — FreeBSD 6.0 RELEASE

FreeBSD 6.0-RELEASE was released on November 4, 2005. FreeBSD 6.0 marked the first commit to sys/arm/arm with 32-bit Arm support, 802.11 WiFi support was upgraded to include advanced functionality, and 1:1 user-level threading was added with the addition of libthr(3) and further kernel changes.

2007 — jemalloc

Jason Evans developed jemalloc, a memory allocator, in 2005. Around the same time, FreeBSD was in need of a SMP-scalable allocator so Evans integrated jemalloc into FreeBSD's libc and then improved both its scalability and fragmentation behavior.

2008 — FreeBSD 7.0 RELEASE

FreeBSD 7.0-RELEASE was shipped with the ULE scheduler as a kernel tunable due to worries about it being ready in time, it became the default scheduler in the next stable release. FreeBSD 7.0 also added SCTP and major updates relating to network, audio, and SMP performance.

2008 — ZFS

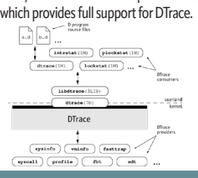
In 2005 Sun Microsystems was also working on a new file system, the resulting ZFS is a combined file system and logical volume manager. The system is scalable and includes extensive protection against data corruption and efficient data compression. ZFS was added to the FreeBSD tree in early 2008.

2008 — CVS to Subversion Transition

FreeBSD tracked its source code, ports collection, and documentation in CVS from the start. This included building additional infrastructure around CVS including cvsup and CVSWeb. Over time, however, CVS proved too limiting and the project migrated from CVS to Subversion starting in May 2008 with the source repository.

2009 — Dtrace

Sun Microsystems created Dtrace for troubleshooting kernel and application problems on production systems in real time. While the program was originally developed for Solaris, it became a standard part of FreeBSD which provides full support for DTrace.



2009 — FreeBSD 8.0 RELEASE

FreeBSD 8.0-RELEASE was announced November 11th, 2009 and featured XEN domU support, a virtualized network stack (VNET), transparent superpages, improved ZFS support, and a new USB stack with USB 3.0 support.

2010 — Capsicum

Capsicum is a lightweight OS capability and sandbox framework. It can be used for application compartmentalization, the decomposition of larger bodies of software into isolated components, and limit the impact of software vulnerabilities. Developed at the University of Cambridge, it was first shipped as an optional feature in FreeBSD 9.0 and became a default feature in FreeBSD 10.0

Capsicum

2012 — FreeBSD 9.0 RELEASE

Released on January 12th, 2012, FreeBSD 9.0-RELEASE included the new installer, bsdinstall. Other key features included soft updates journaling (SUJ), NFS version 4, and modular congestion control. FreeBSD 9 was the version that Sony used to develop the operating system (Obris OS) for the Playstation 4.

2012 — Clang / LLVM

The LLVM Project is a collection of modular and reusable compiler and toolchain technologies. The Clang Project provides a C language front-end and tool infrastructure for the LLVM project. These programs currently serve as the compiling infrastructure for FreeBSD.

2012 — CHERI

In 2012, the University of Cambridge started developing Capability Hardware Enhanced RISC Instructions (CHERI), an outgrowth based off of the earlier Capsicum project. CHERI transposes the Capsicum hybrid capability model into the CPU architecture space, allowing fine-grained compartmentalisation within process address spaces—while continuing to support current software designs.

2013 — Poudriere

Poudriere, a tool that harnesses jails to test ports and later build FreeBSD images, was added to the ports tree.

2013 — The OpenZFS Project Launches

The OpenZFS project is a derivative of OpenSolaris. On September 17th, 2013 the OpenZFS Project announced OpenZFS as the successor of ZFS, and the creation of a formalized community to continue development and support.

OpenZFS

2014 — First FreeBSD Journal

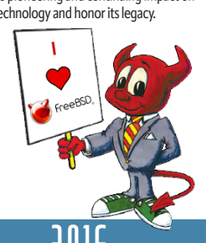
The voice of the FreeBSD Community and the BEST way to keep up with the latest releases and new developments in FreeBSD, the premiere issue of the FreeBSD Journal was the January/February 2014 issue and focused on FreeBSD 10.

2014 — FreeBSD 10.0 RELEASE

On January 20th, 2014, FreeBSD 10.0-RELEASE was announced, bringing a huge collection of new features and tools with it. 10.0 shipped with pkg(7) and a switch to pkgng, the new package management tool allowed for users to skip the process of manually compiling ports. The release also included FUSE implementation, advanced ISCSI with support for both target (server) and initiator (client), VirtIO drivers, the bhyve hypervisor, and UEFI support on amd64.

2016 — First "FreeBSD Day"

National FreeBSD is the annual celebration of FreeBSD's pioneering and continuing impact on technology and honor its legacy.



2016 — FreeBSD 11.0 RELEASE

October 10th, 2016 marked the announcement of FreeBSD 11.0-RELEASE. The release included multiple improvements to wireless networking and the integration of UDP-lite. Most importantly, FreeBSD 11 included aarch64 (arm64) support, initially classified as tier-2 architecture.

2018 — FreeBSD 12.0 RELEASE

Released on December 11th, 2018, FreeBSD 12.0-RELEASE improved support for AMD CPUs as well as significant upgrades to modern graphic card support. RISC-V, the open instruction set architecture (ISA) was also added.

2021 — Git Transition Completed

On April 6, 2021, the migration from Subversion to Git was completed. The process started when a Git working group was established at the May 2019 DevSummit.

2021 — FreeBSD 13.0 RELEASE

While AArch64 was supported starting with FreeBSD 11, it was promoted to Tier-1 with FreeBSD 13.0-RELEASE, the first non-x86 tier platform to do so. 13.0 also included Kernel TLS offload, an upgrade to both clang and LLVM, and the removal of deprecated libraries/tools.

2023

30 YEARS

FreeBSD

FreeBSD is an operating system used to power modern servers, desktops, and embedded platforms. A large community has continually developed it for more than thirty years. Its advanced networking, security, and storage features have made FreeBSD the platform of choice for many of the busiest web sites and most pervasive embedded networking and storage devices.