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svnUPDATE

by Steven Kreuzer

This past year was an incredible one for the FreeBSD Project. Over 10,000 commits were made to src, the ports tree is getting close to 27,000 packages, 23 new developers were granted commit bits, and both FreeBSD 10.3 and 11 were released. For a multitude of reasons, I have a strange feeling that when we look back at 2016, the word "interesting" will be used quite a bit, and the FreeBSD Project was not immune. While activity in base tapered off a bit in December, keeping with the theme, I did see a few commits that I would describe as "interesting."

clang, llvm, lldb, compiler-rt and libc++ have been upgraded to 3.9.0, and lld has been imported (https://svnweb.freebsd.org/changeset/base/309124).

The most exciting part of this commit is that it also brings lld into the base system, which is a major milestone for the llvm project. It is the first release that can link real-world large userland programs, including LLVM/Clang/LLD themselves. In fact, it can now be used to produce most userland programs distributed as part of FreeBSD.

Add WITH_LLD_AS_LD build knob (https://svnweb.freebsd.org/changeset/base/309142).

If set, it installs LLD as /usr/bin/ld. LLD (as of version 3.9) is not capable of linking the world and kernel, but can self-host and link many substantial applications. GNU ld continues to be used for the world and kernel build, regardless of how this knob is set. It is on by default for arm64, and off for all other CPU architectures.

Use buffer pager for NFS (https://svnweb.freebsd.org/changeset/base/308980).

The pager, due to its construction, implements clustering for the page-ins. In particular, buildworld load demonstrates reduction of the READ RPCs from 39k down to 24k. No change in real or CPU time was observed.

Support for Ingenic XBurst JZ4780 and X1000 systems on chips (https://svnweb.freebsd.org/changeset/base/308857).

Ingenic Semiconductor designs CPU Microarchitectures based around the MIPS instruction set. This change introduces support for the Imgtec CI20 and Ingenic CANNA single board computers.

Capsicumize some trivial stdio programs (https://svnweb.freebsd.org/changeset/base/308432).

We are starting to see more and more applications take advantage of Capsicum, a lightweight OS capability and sandbox framework. A recent commit added capsicum support to the echo, sleep, basename, dc, dirname, fold, getopt, locate, logname, printenv, and yes, since these userland utilities only interact with stdio.

Performance improvements for pw operations that edit /etc/group or /etc/passwd (https://svnweb.freebsd.org/changeset/base/308806).

r285050 fixed a bug in pw that could lead to /etc/passwd or /etc/group corruption on power loss. However, it was fixed by opening those files with O_SYNC, which is very slow, especially on ZFS. This change replaces O_SYNC with

appropriately placed fsync()s instead, which is much faster. Using a ZFS tmpdir, the time to run pw's kyua tests drops from 245s to 35s.

Concurrency Kit is now part of the base system (https://svnweb.freebsd.org/changeset/base/309266).

CK is a BSD-licensed toolkit providing concurrency primitives, safe memory reclamation mechanisms, and non-blocking data structures for the research, design, and implementation of high performance concurrent systems.

Additional updates in contrib/

- Subversion has been updated to version 1.9.5 (https://svnweb.freebsd.org/changeset/base/309356)
- ntp has been upgraded to version 4.2.8p9 (https://svnweb.freebsd.org/changeset/base/308957)
- ACPICA has been upgraded to 20161117 (https://svnweb.freebsd.org/changeset/base/308953)
- am-utils has been updated to version 6.2 (https://svnweb.freebsd.org/changeset/base/308493)
- jemalloc has been updated to version 4.3.1 (https://svnweb.freebsd.org/changeset/base/308473)
- file has been updated to version 5.29 (https://svnweb.freebsd.org/changeset/base/308420)
- tzdata has been updated to version 2016i (https://svnweb.freebsd.org/changeset/base/308270)
- libarchive has been updated to 3.2.2 (https://svnweb.freebsd.org/changeset/base/307861)

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