

# svn UPDATE

by Steven Kreuzer

It's the start of a brand new year and we have already seen several exciting updates that highlight FreeBSD's continued commitment to high-performance networking. In addition, FreeBSD is quickly becoming a mature and powerful platform to use in your virtualization projects, be it as a host running on bare metal or as a guest running somewhere in the cloud. While you can look forward to upgrading your production machines to 10.3-RELEASE in the very near future, you should pay very close attention to HEAD because 2016 is going to be a very exciting year for 11-CURRENT.

## New sendfile(2) with Support for asynchronous I/O

One of the most exciting changes to hit HEAD has been the addition of an implementation of the sendfile(2) system call. The result of an ongoing development partnership between NGINX and Netflix, the new sendfile significantly speeds up large TCP data transfers by adding support for asynchronous I/O. Even more impressive is that the new sendfile is a drop-in replacement, so it will not be necessary for you to make any changes to your applications to take advantage of these improvements. You can now expect significantly better performance in cases where the old sendfile was blocked on disk I/O. (<https://svnweb.freebsd.org/changeset/base/293439>)

## Support for Netmap in bhyve Guests

While bhyve continues to see very active development and is quickly gaining widespread adoption, a recent commit will help address one of the biggest disadvantages that plague all virtualization deployments. Network I/O virtualization tends to exhibit poor perform-

ance, especially under heavy load, and until recently it was a non-trivial task to eliminate these bottlenecks. Guest operating systems that are running under bhyve now have the ability to make use of netmap, a framework for high speed packet I/O, to achieve near native performance. (<https://svnweb.freebsd.org/changeset/base/293459>)

## EC2 Enhanced Networking Enabled by Default

Also known as SR-IOV (Single Root I/O Virtualization), this extension to the PCIe specification allows devices such as network adaptors to appear as multiple separate physical devices to the hypervisor or guest operating system. SR-IOV enables network traffic to bypass the virtualization stack to achieve network performance that is nearly the same as in non-virtualized environments. SR-IOV is now enabled by default when building EC2 images for Amazon Web Services. (<https://svnweb.freebsd.org/changeset/base/293739>)

## LLDB Enabled by Default on amd64 and arm64

LLDB is a next-generation, high-performance debugger, which is made available under a BSD-style license. After extensive testing has shown that it works as well as the in-tree gdb version, it has been promoted to the default debugger on both amd64 and arm64. LLDB also provides some level of support for FreeBSD on arm, mips, i386, and powerpc, but is not yet ready to replace gdb as the default debugger on these platforms. (<https://svnweb.freebsd.org/changeset/base/292350>)

## ZFS Boot Environments

If a system is booted with ZFS, a new menu item will appear in the loader that will contain an autogenerated list of ZFS boot environments making it easier to switch to an alternate root file system. This will quickly become a handy feature if you would like to switch between different versions of FreeBSD or need to recover from a failed upgrade. (<https://svnweb.freebsd.org/changeset/base/293001>) ZFS boot environment is

also available in the UEFI loader as well. (<https://svnweb.freebsd.org/changeset/base/294073>)

## UEFI Gains Terminal Emulation Support

**B**ased on the existing vidconsole implementation, it is now possible to emulate a video terminal in UEFI. (<https://svnweb.freebsd.org/changeset/base/293233>) Shortly after that change was introduced, the Beastie menu was added to the UEFI console. (<https://svnweb.freebsd.org/changeset/base/293234>)

## Updates to head/contrib

**T**he base FreeBSD userland is made up of quite a few utilities, some of which are developed outside of the project. In the past few months we've seen quite a few updates to the third-party software that helps create a great user experience.

- clang and LLVM have been upgraded to version 3.7.1 (<https://svnweb.freebsd.org/changeset/base/292735>).
- less has been updated to version v481 (<https://svnweb.freebsd.org/changeset/base/293190>).
- ntp has been updated to version 4.2.8p5 (<https://svnweb.freebsd.org/changeset/base/293423>).
- bmake has been upgraded to version 20151220 (<https://svnweb.freebsd.org/changeset/base/292733>).
- OpenBSM has been upgraded to version 1.2a4 (<https://svnweb.freebsd.org/changeset/base/292432>).
- Unbound has been upgraded to version 1.5.7 (<https://svnweb.freebsd.org/changeset/base/292206>).●

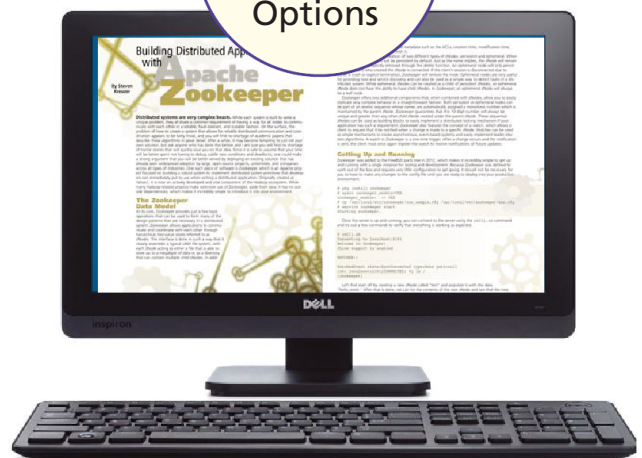
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