svn**UPDATE**

by Steven Kreuzer

On July 8, the head of svn was merged into a stable/11 branch, and when the source repository was thawed the following day, FreeBSD-CURRENT could affectionately be referred to as FreeBSD 12. While both developers and end users are busy testing and helping squash last-minute bugs to make sure that 11-RELEASE is as rock solid as any other release, FreeBSD 10 is still actively being developed and quite a few interesting commits focusing on improved performance and compatibility have made their way from head to stable/10.

MFH r301732, r302288 (https://svnweb.freebsd.org/base?view=revision&revision=302931)

Console="`comconsole`" has been switched to `boot_multicons="YES"` in EC2. This allows FreeBSD instances running in Elastic Compute Cloud to take advantage of an API (https://aws.amazon.com/blogs/aws/ec2-instance-console-screenshot/) that was recently introduced by Amazon to allow for the capturing of screenshots of an emulated VGA device.

Indirect segment I/Os have been enabled by default in the Xen blkfront driver when running on EC2. Due to improvements in EC2, the performance penalty that was present on some EC2 instances no longer exists, and enabling this feature now consistently yields ~20% higher throughput with equal or lower latency.

MFC r297187 (https://svnweb.freebsd.org/base?view=revision&revision=302901)

Intel PRO/1000 gigabit Ethernet adaptor now supports checksum offloading for TCP/IPV6 and UDP/IPV6 as well as SCTP checksum offloading for SCTP/IPV6.

MFH r297023 (https://svnweb.freebsd.org/base?view=revision&revision=302800)

Kldstat(8) now has the ability to print out the module-specific information in likely formats. Among other things, this gives us the ability to find out the syscall number of a dynamically loaded syscall that has a dynamically allocated vector number.

MFC r302402 (https://svnweb.freebsd.org/base?view=revision&revision=302791)

The ahci(4) driver can now attach to a controller with 32 ports. Due to an incorrect sign, expansion in variables that are supposed to be bit fields resulted in an infinite loop. Fixing this allows a system to properly detect 32 devices configured on an AHCI HBA in bhyve.

MFC r302265, r302382 (https://svnweb.freebsd.org/base?view=revision&revision=302714)

The ZFS ARC min and max values can now be tuned at runtime. Prior to this change, the ARC min and max values could only be changed using boot time tunables. It is now possible to change these values at runtime using the sysctls and `vfs.zfs.arc_max and vfs.zfs.arc_min`

MFC r302174 (https://svnweb.freebsd.org/base?view=revision&revision=302688)

The output of "`sysctl vm.vmtotal`" on machines configured with more than 2TB of virtual memory has been fixed.

MFC r301545 (https://svnweb.freebsd.org/base?view=revision&revision=302270)

SeR-IOV guest support has been added to the mlx5en driver. This adds the missing pieces needed for device setup using the mlx5en driver inside a virtual machine that is providing hardware access through SR-IOV.

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