svn UPDATE

by Steven Kreuzer

Every two months I sit down at my computer and dig through thousands of commit messages, looking for the most exciting and interesting changes, and then spend the next few hours curating them into a column called svn Update. As my daughters got older and my responsibilities at work increased, finding those few hours started to become increasingly difficult.

I am finally ready to admit to myself that the time has come to step back from producing these ramblings. I hope you have enjoyed these columns as much as I have enjoyed preparing them. I thank you all from the bottom of my heart. Good night, and good luck.

Expose the kernel's build-ID through sysctl—
https://svnweb.freebsd.org/changeset/base/348611.

After our migration (of certain architectures) to lld, the kernel is built with a unique build-ID. Make it available via a sysctl and uname(1) to allow the user to identify their running kernel.

Modify mountd so that it incrementally updates the kernel exports upon a reload— https://svnweb.freebsd.org/changeset/base/348590.

Without this patch, mountd would delete/load all exports from the exports file(s) when it receives a SIGHUP. This works fine for small exports file(s) but can take several seconds to do when there are large numbers (10,000+) of exported filesystems. Most of this time is spent doing the system calls that delete/export each of these filesystems. When the "-S" option has been specified (the default these days), the nfsd threads are suspended for several seconds while the reload is done.

This patch changes mountd so that it only does system calls for filesystems where the exports have been changed/added/deleted as compared to the exports done for the previous load/reload of the exports file(s). Basically, when SIGHUP is posted to mountd, it saves the exportlist structures from the previous load and creates a new set of structures from the current exports file(s). Then it compares the current with the previous, and only does system calls for cases that have been changed/added/deleted. The nfsd threads do not need to be suspended until the comparison step is being done. This results in a suspension period of milliseconds for a server with 10.000+ exported filesystems.

Add Chacha20 mode to Encrypted Kernel Crash Dumps—
https://svnweb.freebsd.org/changeset/base/348197.

Chacha20 does not require messages to be multiples of block size, so it is valid to use the cipher on non-block-sized messages without the explicit padding AES-

CBC would require. Therefore, allow use with simultaneous dump compression. (Continue to disallow use of AES-CBC EKCD with compression.)

dumpon(8) gains a -C cipher flag to select between chacha and aes-cbc. It defaults to chacha if no -C option is provided. The man page documents this behavior.

Add GRE-in-UDP encapsulation support as defined in RFC8086— https://svnweb.freebsd.org/changeset/base/346630.

This GRE-in-UDP encapsulation allows the UDP-source port field to be used as an entropy field for load-balancing of GRE traffic in transit networks. Also, most of multiqueue network cards are able distribute incoming UDP datagrams to different NIC queues, while very few are able do this for GRE packets.

Add IPv6 transport for bsnmp—
https://svnweb.freebsd.org/changeset/base/345797.

This patch adds a new table begemotSnmpdTransInetTable that uses the InetAddressType textual convention and can be used to create listening ports for IPv4, IPv6, zoned IPv6 and based on DNS names. It also supports future extension beyond UDP by adding a protocol identifier to the table index.

Allow explicitly assigned IPv6 loopback address to be used in jails— https://svnweb.freebsd.org/changeset/base/316328.

If a jail has an explicitly assigned IPv6 loopback address, then allow it to be used instead of remapping requests for the loopback adddress to the first IPv6 address assigned to the jail. This fixes issues where applications attempt to detect their bound port where they requested a loopback address, which was available, but instead, the kernel remapped it to the jails first address.

Drop i486 from the default i386 GENERIC kernel configuration— https://svnweb.freebsd.org/changeset/base/314669.

80486 production was stopped by Intel on September 2007. Dropping the 486 configuration option from the GENERIC kernel improves performance slightly.

Removing I486_CPU is consistent at this time: we don't support any processor without a FPU, and the PC-98 arch, which frequently involved i486 CPUs, is also gone, so we don't test such platforms anymore.

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