Kernel: System calls, b4, IO_uring and Linux 5.7

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- Two new ways to read a file quickly [2]

System calls on Linux are relatively cheap, though the mitigations for speculative-execution vulnerabilities have made them more expensive than they once were. But even cheap system calls add up if one has to make a large number of them. Thus, developers have been working on ways to avoid system calls for a long time. Currently under discussion is a pair of ways to reduce the number of system calls required to read a file's contents, one of which is rather simpler than the other.

- Introducing b4 and patch attestation [3]

The tool started out as get-lore-mbox, but has now graduated into its own project called b4 ? you can find it on git.kernel.org and pypi.

To use it, all you need to know is the message-id of one of the patches in the thread you want to grab.


Since its introduction in Linux 5.1, IO_uring has been coming together quite nicely and getting better with each new kernel release. IO_uring is the effort for delivering faster and more efficient I/O by avoiding excess copies and other efficiency improvements over the existing Linux AIO code. Here are some comparison benchmarks off Linux 5.6 Git.
IO_uring has been maturing well with each new kernel release for new features, fixes, and further optimizations. Linux 5.6 seems to be in very good shape for IO_uring and we should see more adoption of this new Linux kernel interface this year. Particularly once Ubuntu 20.04 LTS ships with being a major long-term support release on a now-supported kernel that will hopefully spur the adoption. But there's been work by RocksDB and other projects in exploring IO_uring for faster I/O potential.

• **NVMe SSD Systems May Boot Slightly Quicker With Linux 5.7** [5]

  Systems making use of NVMe solid-state storage may see slightly faster boot times with the Linux 5.7 kernel this summer.

  Intel's Josh Triplett has been working recently on optimizing the Linux kernel boot performance. Earlier this month he posted a simple patch for Amazon's EC2 cloud Linux network driver so it could then start ~90x faster.

  [...]  

  Intel's Clear Linux team has achieved boot times in as little as 300ms. Among the motivation for ensuring such speedy boot times are not only for desktop/laptop users but also use-cases like needing to have automobile cameras operational in a defined period of time or also for booting up new VMs in the cloud as quickly as possible in responding to changes in load.

• **Linux 5.7 Getting Driver To Deal With More Buggy & Funky Looking Mice** [6]

  Linux 5.7 continues the trend of the community taking up new drivers being created to support different peripherals under Linux that amount to dealing with quirky/buggy behavior of the hardware.

  Having new drivers mainly to deal with hardware quirks is particularly prevalent among HID devices and with time we've only been seeing more drivers come about, especially among gaming input devices as more gamers try out the likes of Steam on Linux.