

There is an old line that Linux kernel developers like to throw out when they are feeling grumpy: “User space is just a test load for the kernel.”

By muttering this line, the kernel developers aim to wash their hands of all responsibility for any failure to run user-space code as well as possible. As far as they’re concerned, user-space developers should just go away and fix their own code, as any problems are definitely not the kernel’s fault.

To prove that it usually is not the kernel that is at fault, one leading Linux kernel developer has been giving a “Why User Space Sucks” talk to packed conference rooms for more than three years now, pointing out real examples of horrible user-space code that everyone relies on every day. Other kernel developers have created tools that show how badly user-space programs are abusing the hardware and draining the batteries of unsuspecting laptops.

But while user-space code might be just a “test load” for kernel developers to scoff at, it turns out that all of these kernel developers also depend on that user-space code every day. If it weren’t present, all the kernel would be good for would be to print out alternating ABABAB patterns on the screen.

Right now, Linux is the most flexible and powerful operating system that has ever been created, running everything from the tiniest cell phones and embedded devices to more than 70 percent of the world’s top 500 supercomputers. No other operating system has ever been able to scale so well and meet the challenges of all of these different hardware types and environments.

And along with the kernel, code running in user space on Linux can also operate on all of those platforms, providing the world with real applications and utilities people rely on.

In this book, Robert Love has taken on the unenviable task of teaching the reader about almost every system call on a Linux system. In so doing, he has produced a tome that will allow you to fully understand how the Linux kernel works from a user-space perspective, and also how to harness the power of this system.