

There are two main options for running a program intended for one operating system on a different one. We can modify the program to use the API of the new OS. Alternatively, we can provide a compatibility layer in the new OS, transparent to the program, without changing the application. HelenOS ecosystem already allows the first. This thesis focuses on supporting the latter. This thesis describes the kernel binary interface and analyses existing solutions on Linux, Windows, and specialised systems. Then we describe our prototype that transparently traps syscalls and emulates them. The emulation is implemented fully in userspace (except for a small kernel trampoline), and its code is executed in the context of the original application. The result allows running some of the unmodified Linux programs (focusing on GCC toolchain) on the x86\_64 instance of the HelenOS system.