FIGURE 7-4. Xen system architecture

HOSTED VIRTUALIZATION

Xen is an example of native virtualization (also known as Type 1 virtualization). The alternative approach is to run a hypervisor on top of a *host* operating system. In this case, each virtual machine effectively becomes a process in the host operating system. The host operating system is responsible for the management functions that domain zero performs on Xen. The hosted hypervisor and management software are like a regular application, which sits on top of (and might plug into) a commodity operating system; see Figure 7-5.

Hosted hypervisors are commonly used in the "workstation" versions of other virtualization products, such as VMWare Workstation, Parallels Workstation, and Microsoft Virtual PC. The main advantage of this approach is that installing a hosted hypervisor is as simple as installing a new application, whereas installing a native hypervisor such as Xen is more akin to installing a new operating system. Therefore hosted virtualization is better suited for nonexpert users.

On the other hand, the advantage of a native hypervisor is that it can achieve better performance, because the native hypervisor is a far thinner layer of software than the combined host operating system and hypervisor. Hosted virtual machines are scheduled at the mercy of the host operating system, which can lead to performance degradation if other applications are running alongside the hypervisor. By contrast, because domain zero is scheduled like a regular virtual machine, applications running there do not have an impact on the performance of the other virtual machines.