It's obvious that Microsoft charges more to run Windows Server on more powerful hosts, which makes for an interesting pricing strategy. As it turns out, over the next few years, you'll be hard pressed to purchase hosts that fall below the single-license core limit of 8 cores per processor or two processors per host. That's because Intel's dual-socket Xeon processors are getting more and more cores with each successive generation. The current generation of Xeon processors sports up to 18 cores per processor. Intel still makes 4-, 6-, and 8-core versions of the Xeon processor, but who knows what the future will bring?

In any event, the per-core nature of Microsoft's licensing encourages you to purchase host processors with cores as close to but below 8 per processor increments. In other words, use 8- or 16-core processors in your hosts; avoid 10- or 18-core processors, because they nudge you just over the core limits for licensing.

Introducing Hyper-V

Virtualization is a complex subject, and mastering the ins and outs of working with a full-fledged virtualization system like VMware Infrastructure is a topic that's beyond the scope of this book. You can dip your toes into the shallow end of the virtualization pond, however, by downloading and experimenting with Microsoft's free virtualization product, called Hyper-V, which comes with all server versions of Windows since Windows Server 2008 and all desktop versions of Windows since Windows 8.

The version of Hyper-V that comes with desktop versions of Windows is called Client Hyper-V. The nice thing about starting with Client Hyper-V is that it's similar to the enterprise-grade version of Hyper-V that is included with Windows Server. Much of what you learn about Hyper-V on desktop Windows applies to the server version as well.

Understanding the Hyper-V hypervisor

Although Hyper-V is built into all modern versions of Windows, Hyper-V is *not* a type-2 hypervisor that runs as an application within Windows. Instead, Hyper-V is a true type-1 hypervisor that runs directly on the host computer hardware. This is true even for the Hyper-V versions that are included with desktop versions of Windows.

In Hyper-V, each virtual machine runs within an isolated space called a *partition.* Each partition has access to its own processor, RAM, disk, network, and other virtual resources.