THE LONG TREK OF VIRTUALIZATION

Kids these days think they invented everything, including virtualization.

Little do they know.

Virtualization was developed for PC-based computers in the early 1990s, around the time Captain Picard was flying the Enterprise around in *Star Trek: The Next Generation*.

But the idea is much older than that.

The first virtualized server computers predate Captain Picard by about 20 years. In 1972, IBM released an operating system called simply VM, which had nearly all the basic features found in today's virtualization products.

VM allowed the administrators of IBM's System/370 mainframe computers to create multiple independent virtual machines, each of which was called (you guessed it) a virtual machine, or VM. This terminology is still in use today.

Each VM could run one of the various guest operating systems that were compatible with the System/370 and appeared to this guest operating system to be a complete, independent System/370 computer with its own processor cores, virtual memory, disk partitions, and input/output devices.

The core of the VM system itself was called the *hypervisor* — another term that persists to this day.

The VM product that IBM released in 1972 was actually based on an experimental product that IBM released on a limited basis in 1967.

So whenever someone tells you about this new technology called *virtualization,* you can tell them that it was invented when *Star Trek* was originally on TV. When they ask, "You mean the one with Picard?" you can say, "No, the one with Kirk."

Understanding Hypervisors

At the core of virtualization is a *hypervisor*, a layer of software that manages the creation and execution of virtual machines. A hypervisor provides several core functions:

- It provides a HAL, which virtualizes all the hardware resources of the host computer on which it runs. This includes processor cores, RAM,