book reviews

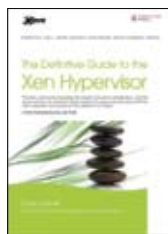## The Definitive Guide to the Xen Hypervisor (Prentice Hall Open Source Software Development Series)

David Chisnall, Prentice Hall PTR, 2007,
$49.99, ISBN: 013234971X.

Any book claiming to be *definitive* sets a high standard for itself. David Chisnall's *Definitive Guide to the Xen Hypervisor* certainly meets that standard. This is not a how-to guide for end users of Xen virtualization technology. It is a comprehensive exploration of the design and internal workings of the Xen hypervisor.

The book opens with Chisnall's overview of the nature and history of virtualization. Hypervisor performance is a major concern for those who use such technology, and the book explains the design and implementation of Xen as it relates to performance, particularly in the areas of guest operating system privileged instruction handling, memory allocation and management, and device-driver construction. The five-chapter section on device I/O is extremely valuable for those designing or improving guest kernels and their device interfaces and for sharing file resources among multiple virtual machines.

The book includes an appendix "cheat sheet" that advises the reader on building new guests or porting existing kernels to the Xen hypervisor.

The final chapter discusses some future directions of the Xen project, including new platforms, desktop virtualization, power management, and large-scale virtualized environments.

Chisnall includes a variety of highly detailed exercises with source code at the end of several key chapters to illustrate Xen internals. These exercises assist the reader in understanding the hypervisor and make the book a valuable resource for use in advanced operating system courses in the computer science curriculum, especially where students are designing and testing their own guest operating system kernels.

Readers who are seeking installation and deployment assistance with Xen-based virtualization should consider other books. For those who need to understand the Xen internals and design philosophy, either as guest kernel implementers, instructors, or students, Chisnall's book is, indeed, the definitive resource.   *—Harry J. Foxwell*

Practical MythTV: Building a PVR and Media Center PC

Stewart Smith and Michael Still, Apress, 2007,
$29.99, ISBN: 1590597796.
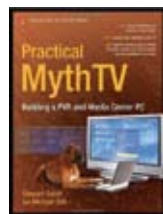
The VCR changed the world of the television viewer. The PVR (personal video recorder)—also known as the DVR (digital video recorder) or HDR (high-definition recorder)—seems an incremental rather than a revolutionary change, but it is certainly a big step forward. With few exceptions, though, PVRs tend to be proprietary, commercially sold (and licensed) boxes that may (now or in the future) restrict the ways in which we can use recorded content.

MythTV is an open-source (Linux-based) system that serves as a PVR. Given the right hardware (reasonable processor, enough memory, a TV tuner card, and enough disk), you can build it yourself.

When I first started reading *Practical MythTV*, I thought that I would build a system, but then I discovered that the old, unused machine I had in my basement would probably not support it without more hardware upgrades than I really wanted to commit to. By the time I'd finished the book, though, I was persuaded that MythTV would be powerful enough and easy enough to install that I suspect I will now be trying it out.

The book discusses the details of building a MythTV system, including the hardware required, basic installation, how to get program guide data, and how to do basic recording and playback. It also covers more advanced topics: converting recordings to other formats; making your own themes; adding multiple tuners; interfacing with MythTV through a Web-based front end; and even using VoIP with MythTV. Since publishing delays almost always ensure that a book of this type lags behind the latest version of the software, it also has a chapter on how to get help, including information on updating the source code.

There are some rough edges, mostly processes (such as expanding your disk space) that may be intimidating, but overall this is a persuasive book. As more full distributions, such as Mythbuntu, KnoppMyth, and MythDora, become available, installing MythTV should become even easier, and MythTV itself more flexible and powerful.

—Jeffrey Putnam