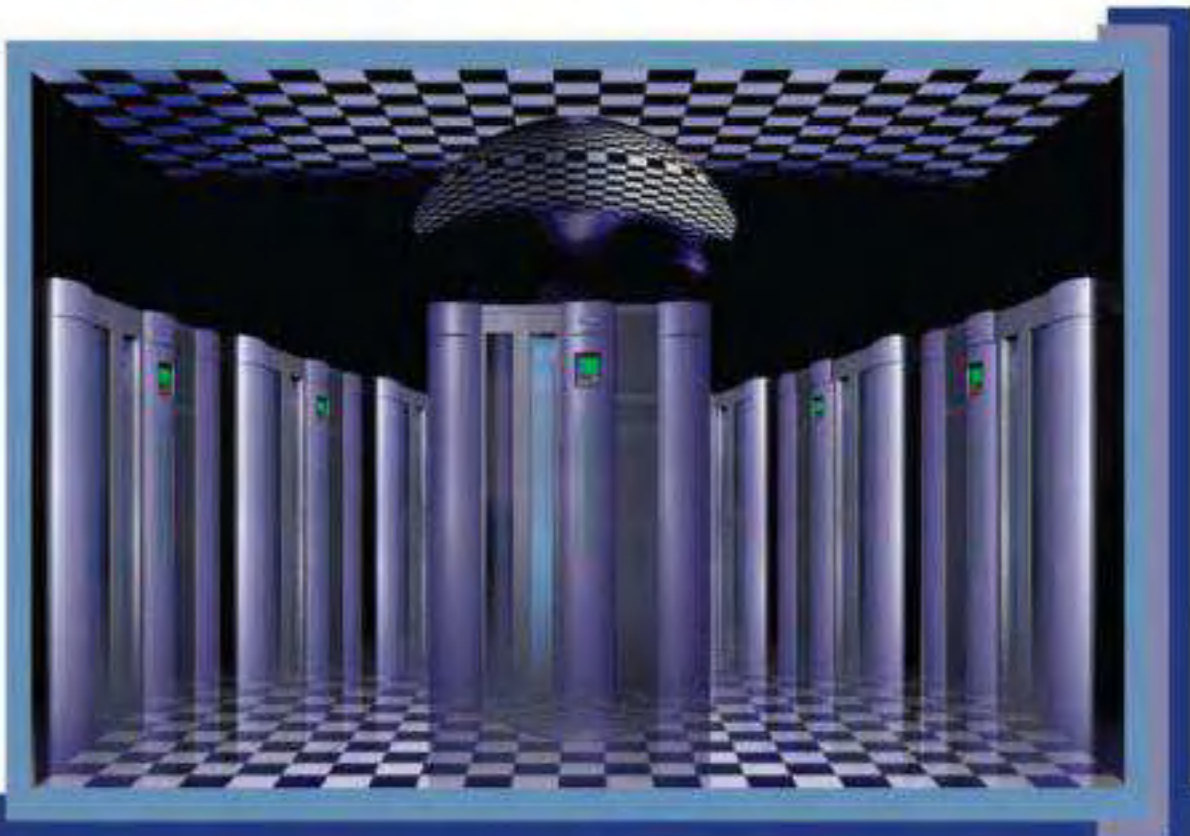


ADVANCED SERVER VIRTUALIZATION



VMware® and Microsoft® Platforms in the Virtual Data Center

David Marshall
Wade A. Reynolds
and Dave McCrory



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DAVE MCCRORY

Part I

Basic Concepts

Chapter 1

Introduction to Server Virtualization

This chapter provides a high-level overview and background of virtualization technology. The most basic concepts are introduced as well as a discussion of the differences between emulation, simulation, and virtualization technologies.

Overview of Virtualization Technology

Virtualization technology is a way of making a physical computer function as if it were two or more computers, each nonphysical or “virtualized” computer is provided with the same basic architecture as that of a generic physical computer. There are several ways to do this, each has its pros and cons. The book will primarily discuss software-based server virtualization, but will touch on other forms including hardware partitioning, emulation, and simulation.

In order to make a physical computer function as more than one computer, its physical hardware characteristics must be recreated through the use of software. This is accomplished by a software layer called abstraction. Abstraction software is used in many software systems, including inside the Windows operating system families. The Windows Hardware Abstraction Layer (HAL) is an excellent example of abstraction. The Windows HAL provides a common way for all drivers and software to talk to the hardware in a common/unified format. This makes the job of writing software and drivers easier because developers don't have to write custom software for each brand or type of computer that they want their code to run on. Abstraction, as it relates to virtualization, is the representation of a set of common hardware devices that are entirely software driven. This is basically software that looks and acts like hardware. Virtualization