# Foreword

With the recent release of Xen 3.1 the Xen community has delivered the world's most advanced hypervisor, which serves as an open source industry standard for virtualization. The Xen community benefits from the support of over 20 of the world's leading IT vendors, contributions from vendors and research groups worldwide, and is the driving force of innovation in virtualization in the industry.

The continued growth and excellence of Xen is a vindication of the project's component strategy. Rather than developing a complete open source product, the project endorses an integrated approach whereby the Xen hypervisor is included as the virtualization "engine" in multiple products and projects. For example, Xen is delivered as an integrated hypervisor with many operating systems, including Linux, Solaris, and BSD, and is also packaged as virtualizaton platforms such as XenSource's XenEnterprise. This allows Xen to serve many different use cases and customer needs for virtualization.

Xen supports a wide range of architectures, from super-computer systems with thousands of Intel Itanium CPUs, to Power PC and industry standard x86 servers and clients, and even ARM-9 based PDAs. The project's cross-architecture, multi-OS approach to virtualization is another of its key strengths, and has enabled it to influence the design of proprietary products, including the forthcoming Microsoft Windows Hypervisor, and benefit from hardware-assisted virtualization technologies from CPU, chipset, and fabric vendors. The project also works actively in the DMTF, to develop industry standard management frameworks for virtualized systems.

The continued success of the Xen hypervisor depends substantially on the development of a highly skilled community of developers who can both contribute to the project and use the technology within their own products. To date, other than the community's limited documentation, and a steep learning curve for the uninitiated, Xen has retained a mystique that is unmistakably "cool" but not scalable. While there are books explaining how to use Xen in the context of particular vendors' products, there is a huge need for a definitive technical insider's guide to the Xen hypervisor itself. Continuing the "engine" analogy, there are books available for "cars" that integrate Xen, but no manuals on how to fix the

"engine." The publication of this book is therefore of great importance to the Xen community and the industry of vendors around it.

David Chisnall brings to this project the deep systems expertise that is required to dive deep inside Xen, understand its complex subsystems, and document its workings. With a Ph.D. in computer science, and as an active systems software developer, David has concisely distilled the complexity of Xen into a work that will allow a skilled systems developer to get a firm grip on how Xen works, how it interfaces to key hardware systems, and even how to develop it. To complete his work, David spent a considerable period of time with the XenSource core team in Cambridge, U.K., where he developed a unique insight into the history, architecture, and inner workings of Xen. Without doubt his is the most thorough in-depth book on the Xen hypervisor available, and fully merits its description as the definitive insider's guide.

It is my hope and belief that this work will contribute significantly to the continued development of the Xen project, and the adoption of Xen worldwide. The opportunity for open source virtualization is huge, and the open source community is the foundation upon which rapid innovation and delivery of differentiated solutions is founded. The Xen community is leading the industry forward in virtualization, and this book will play an important role in helping it to grow and develop both the Xen hypervisor and products that deliver it to market.

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Xen Project Lead and Founder of XenSource