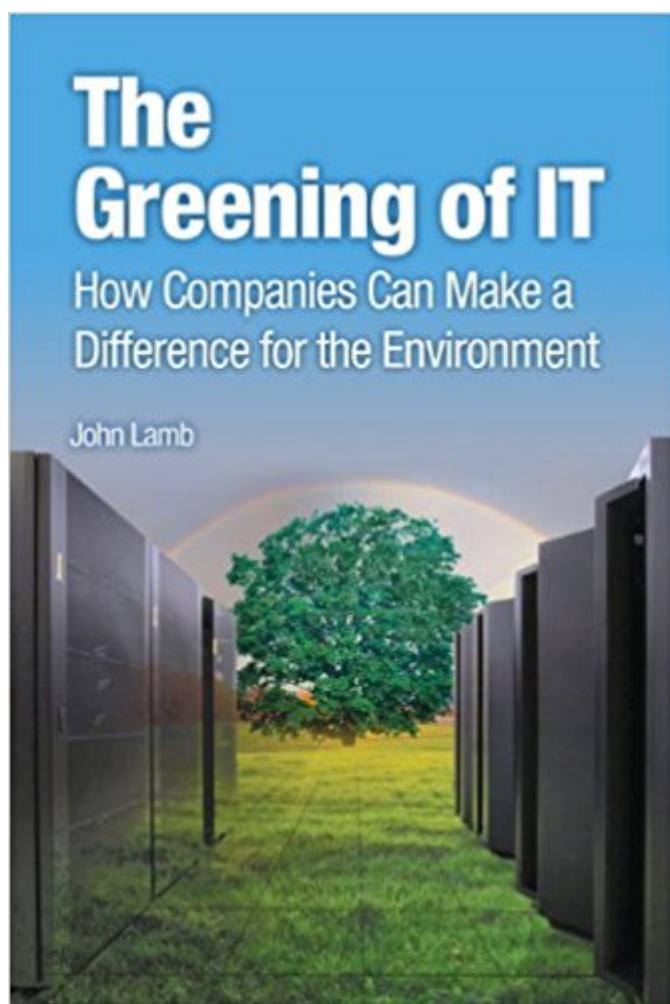


The book was found

The Greening Of IT: How Companies Can Make A Difference For The Environment



Synopsis

The Greening of IT offers clear, business-focused coverage of both the benefits and roadblocks of moving to green IT. Lamb discusses internal organizational obstacles, as well as regulations, energy cost shifts, and utility rate incentives that can help companies move towards green IT. You'll find specific how-to guidance on everything from measuring energy usage and optimizing data center cooling equipment through leveraging virtualization. Lamb also presents detailed, up-to-the minute green IT case studies - including utilities, universities, and companies of all sizes, worldwide. He concludes by previewing emerging trends in green IT and identifying "on the horizon" opportunities businesses should be monitoring and preparing for.

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How IT Can Drive Immense Business Value by "Going Green" For CEOs, CIOs, CFOs, and IT leaders: The green IT business case and best practices for making it happen Timely help for companies facing rising energy costs, new government rules, and growing public concern Powerful new insights from IBM's breakthrough \$1 billion green computing initiative Chances are your enterprise IT organization has a significant carbon footprint. In an era of unpredictable energy costs, reducing energy usage throughout your data centers and IT infrastructure represents a powerful cost-cutting opportunity. Now, a top green IT expert shows business and IT leaders how to drive powerful business value by improving IT's environmental performance. Drawing on leading-edge experience, John Lamb helps you realistically assess the business case for green IT, set priorities,

and overcome the internal and external challenges to making it work. He offers proven solutions for issues ranging from organizational obstacles to executive motivation and discusses crucial issues ranging from utility rate incentives to metrics. Along the way, you'll discover energy-saving opportunities-from virtualization and consolidation to cloud and grid computing-and solutions that will improve business flexibility as they reduce environmental impact. Lamb presents case studies, checklists, and more-all the practical guidance you need to drive maximum bottom-line value from your green IT initiative. Preface xxiii Acknowledgments xxix About the Author xxxiii Chapter 1: The Importance of Green IT 1 Chapter 2: The Basics of Green IT 15 Chapter 3: Collaboration Is Key for Green IT 39 Chapter 4: The Government's Role-Regulation and EPA Activity 55 Chapter 5: The Magic of "Incentive"-The Role of Electric Utilities 69 Chapter 6: A Most-Significant Step-"Virtualizing" Your IT Systems 85 Chapter 7: The Need for Standard IT Energy-Use Metrics 109 Chapter 8: What About Chillers, Cooling Tower Fans, and All That Cooling Equipment Usually Ignored by IT? 129 Chapter 9: Green IT Case Studies for Energy Utilities 147 Chapter 10: Green IT Case Studies for Universities and a Large Company 157 Chapter 11: Worldwide Green IT Case Studies 183 Chapter 12: The Future of Green IT for Corporations 205 Appendix A: Green IT Checklist and Recommendations 215 Appendix B: Green IT and Cloud Computing 237 Appendix C: Comparison of Different Power-Generation Methods 251 Appendix D: Worldwide Electricity Costs for IT with Projections 281 Glossary 289 Bibliography 301 Index 305

John Lamb is a Senior Technical Staff Member for IBM Global Business Services in Somers, New York. He is an IBM Senior Certified IT Architect, and he holds a B.A. degree from the University of Notre Dame and a Ph.D. in engineering science from the University of California at Berkeley. He is a senior member of the IEEE and ASME engineering societies. He has published more than 50 technical papers and articles and has coauthored four books, including *Lotus Notes* and *Domino 5: Scalable Network Design* (McGraw-Hill, 1999) and *IBM WebSphere* and *Lotus: Implementing Collaborative Solutions* (Prentice-Hall, 2004).

It is said that 'Green is Red Hot'! I became an ISEB certified Green IT Professional in 2010. At that time, I was looking for good reference material on the topic of Green IT as I was invited to teach a course on Green practices, to the students of business management, in one of the key institutes offering masters degree course in business management. After much search, I chanced upon this book by Dr. John Lamb and that was the end of my search! Today, as a researcher, writer and speaker in Green IT, Dr. John Lamb's book continues to be a prominent primary reference for me

on the topic. The best part is that this book was produced using paper made with 30% post-consumption recycled fiber. This is what it truly 'walk the talk'. I like the structure of the book and Dr. Lamb's presentation style. He uses a clear, concise and simple language to introduce the key topics in Green IT. Very aptly, the book starts with the need for Green IT and the basic elements of Green IT. Importance of 'green data centers' is also explained. Being from the prior background of measurements and metrics in quality assurance, I most enjoyed reading the chapter on 'energy use metrics' (Chapter 7). Energy efficiency rating explained is Chapter 5, makes interesting reading. The repertoire of rich cases studies provide on the various implementation aspects of Green IT is the crowning glory of the book (Chapter 9, Chapter 10 and Chapter 11). Dr. Lamb has brought for the significance of 'cloud computing' in view of 'Green' in Appendix B - as a Green IT researcher I find that most useful for my work. All the appendices of the book contain extremely useful information. For example - Energy engineers would appreciate Appendix C in which various methods of power generation are presented. IT professionals would read with great interest Appendix D where projection on worldwide costs for IT is presented. The Green IT checklist in Appendix A of the book is a useful tool for auditors. Electricity usage in global data centers is also explained in the same appendix. The book is published by IBM press and it is a well known that IBM is a leader in green IT space; for those are interested in comparisons with other IT giants would read with keen interest Green computing information about HP and Sun. All in all, this is a 'must have' reading material for those working in the Green IT space. I'd highly recommend this book by Dr. Lamb, to all speakers, writers as well researchers in the domain.

Dr. John Lamb has a Ph.D. in engineering science, which is quite apparent in reading his book, "The Greening of IT." This book provides a welcome relief from the many books that center around virtualization as the panacea for energy utilization. While "The Greening of IT" does have virtualization as one of the steps required for lowering energy utilization, it takes an engineering approach. He says, "This book provides details on the importance of implementing green IT....and especially the case studies for 'lessons learned' and the best practice approaches for implementing green IT." Dr. Lamb provides a global view of Green IT. This is appreciated as he puts Green IT in a world-wide perspective, detailing why we need to save energy. The global view of Green IT continues by placing it squarely in the roadmap for "reducing greenhouse gases which, in turn, can help reduce global warming," a goal for both the United Nations (UN) as well as the White House. Throughout the book are sprinkled engineering explanations such as the difference between volts, watt, amps, KWHs and voltage levels. As another example, Dr. Lamb's explanation of "Data

Center Cooling Basics" clarifies HVAC systems, thecooling equipment, and new technology (such as stored cooling, thermal storage systems, and phase change materials. Dr. Lamb uses IBM's 5-step program for datacenter efficiency: diagnose, manage and measure, use energy-efficient cooling, virtualize, and build new or upgrade facilities when feasible. Then there are two sections which I have not found in other books: (1) tuning your applications to require less CPU and (2) Greening your laptop. Tuning applications often does not happen as we virtualize applications and consolidate them rather than looking inside the application to use less CPU. Many applications can be tuned to use 25% less hardware than today, however, requires time as the original application developer is usually not still employed by the corporation. Greening our laptops is a good idea as well and is a great step to helping use less energy. Dr. Lamb gives the instructions in his book for Power Management Features and provides the option of utilizing a thin client PC for corporations as well. (Maybe PROFS will come back, the original thin client application by IBM, known either as Professional Office System or PF Keys Rigidly On Freakish Settings). Dr. Lamb's section on collaboration is interesting as it discusses the need for IT vendors to "integrate" their hardware, software, and services" to help customers improve their energy initiatives. Further, there is a good overview of IBM's energy monitoring programs as well. The part where Dr. Lamb allows himself to go back to more engineering-related topics where is really interesting. The chapter on "The Magic of Incentive" -- The Role of Electric Utilities" and "PG&E Lead Utility Energy Efficiency Coalition" of the impact of energy companies on the Greening of IT and available incentive programs. This type of explanation, looking outside the typical datacenter and to the energy companies, was new to me. The section on virtualization is made more interesting by the SPEC metrics for virtual servers. Note that older frame's utilization is not tied to their power consumption. Newer, greener frames use more power as the utilization rises. What is not covered here, however, is the re-platforming of servers from, for example, a system p environment to a system z environment. IBM Enterprise Computing Model (ECM) has re-platformed hundreds of pSeries LPARs into a z/Linux box and reduced all costs as well as lowered energy utilization. Maybe Dr. Lamb will put that in his next book. In all, the 5-step approach for an "Energy Efficient Data Center" - Diagnose, Build, Virtualize, Manage and Measure, and Cool - provides corporations a look at their datacenter energy costs and find ways to improve their energy utilization and their virtualization penetration. The emphasis on measurement throughout the book is very important as Dr. Lamb provides methodologies for baselining (what to baseline) as well as energy-measurement tools. The book ends with appendices and checklists to actually do this work. This is not a theoretical book for anyone dealing with high energy costs, it is a must-read to put a

team in place to Go Green!

Do you turn your computer off when not being used? Both at home? And on the job? And you printer too? John Lamb's "The Greening of IT" raises all the right questions along with answers and proposed actions to one of the more important topics in recent times: The ever increasing use of IT and along with it the ever increasing use of energy and its increasing negative impact on our environment - both at a large scale company level, as well as the individual level. The book is well written and with a perfect balance of information, rationale, technical insight, case studies, and a practical understanding of how to approach the IT greening challenge for companies and their current organizational structure; e.g. "The CIO doesn't pay the electricity bill". Several expected aspects are discussed such as blade centers, virtualization, and energy efficient cooling, but the author also discusses one topic that often is overlooked: Inefficiencies of the software that runs on the IT hardware alone can be a significant contributor to unnecessary waste of energy; e.g. a regularly executed batch job that takes 8 hours to complete, but with proper performance tuning and implementation can be made to run in just 8 minutes. A highly recommended read on the topic of Green IT; both for CEOs, CIOs, IT architects and anybody else concerned about the environment.

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