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*Short Topics in*  
**Systems Administration**

*Edited by William LeFebvre*

## **System and Network Administration for Higher Reliability**

*John Sellens*

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## **Foreword**

When I think of reliability, the first terms that come to mind are RAID arrays and redundant processors. But these are only the beginning. Building a reliable installation involves much more than choosing the correct hardware. Here John Sellens takes us to every edge of the reliability problem. This compilation of sage advice gives the reader a vast collection of pointers to higher reliability. The topics include items not normally considered part of the problem, showing us just how many different things must fall into place if we are to meet our users' expectations of high reliability. This booklet is a must-read for any system administrator who aspires to improve the service he or she provides.

*William LeFebvre  
Alpharetta, GA, April 2001*





## Preface

This booklet is based on a series of articles “On Reliability” that appeared in *login:* between June 1997 and September 1999, which have been revised and augmented for this publication.

My hope is that this booklet will have something to offer system and network administrators of all levels of experience, from near-beginners to seasoned experts. I’ve tried to assume only a basic background, and have tried to keep the acronyms to a minimum and to avoid using too much unexplained jargon.

This booklet is not intended to cover every situation, include every answer, or provide detailed prescriptions. It is instead intended to be a thought provoker, a discussion starter, and a jumping-off point.

Every situation is unique—what makes sense in one organization could be a complete failure in others. Technology is changing rapidly—specific solutions often have no staying power; they become obsolete too quickly.

I hope that this booklet will give you a few things to think about and that you will be able to apply the lessons offered here, along with your own knowledge and background, to increasing the reliability of your systems and networks.

By way of a disclaimer, while I happen to have written this booklet, I would like to make it clear that that doesn’t mean that I’m “Mr. Know-It-All,” except in the Bullwinkle the Moose sense.

Thanks and gratitude are due Bill LeFebvre for his encouragement and gentle prodding, through more than a few missed deadlines. And to Tina Darmohray and Rob Kolstad for their valuable feedback and enthusiasm while the original articles were being written for *login:*. Many thanks to the volunteer reviewers, Josh Simon and Rick Otten, who provided many valuable comments and suggestions, which resulted in a much improved booklet.

Thank you to all those who contribute their time and effort to open source and freely available software—my working life is made much easier and far more enjoyable by the existence of excellent software like the FreeBSD operating system, Thomas Esser’s TeX distribution, and countless other indispensable tools.

Thanks also to the editors, proofreaders, typesetters, and the USENIX staff. The quality of the finished product is a result of all these contributors, named or not; any remaining faults are mine alone.

*John Sellens*  
*April 2001*