ISPadmin

Service Provider Book Reviews

In this installment of ISPadmin, I depart from my usual coverage of service provider technical topics. Instead, I will review several books that are of special interest to the readers working in the service provider business and, as it turns out, to most *;login:* readers as well.

In this era of moral misguidance, I feel obliged to say that I have done some work for Addison Wesley (book proposal) for which I received a small honorarium. In the same full disclosure vein, I would also like to point out that I personally paid for the three books reviewed in this column.

The Practice of System and Network Administration

If you are a practicing system administrator (SA), then you need this book. I read this book cover-to-cover, and in my 12-year technical career I can't think of another IT-related book where I even attempted to do so. Though it can easily be used as a reference when needed, it is *not* a technical reference book per se – rather, it attempts to document the best practices and approaches for solving SA problems. Approaches outlined and examples given are a little skewed toward larger sites, but the book still contains a mountain of information and is extremely useful for an administrator working at a smaller site as well.

A typical chapter (there are 31) contains a relatively short introduction to the topic; a section called "The Basics," the core of the chapter; a (usually smaller) section called "The Icing" covering the extras, which are less important or which may not apply to all readers; followed by a conclusion and exercises.

The conclusion and exercises I don't find to be particularly useful. However, I am not studying the material as part of an academic setting so these sections could be useful for others.

Part I, "The Principles," covers the basics of the system administration process, the essence of what SAs do every day. Material covered includes managing desktops and servers, services, debugging, namespaces, security, disaster recovery, and ethics. I found the chapters on servers and services to be particularly interesting.

Part II, "The Process," provides an excellent treatment of the various methods used by SAs to manage their infrastructure, including coverage of change management, hardware upgrades, routine maintenance, converting services, and centralization/decentralization of services. My favorite chapter in this part was "Change Management and Revision Control."

Part III, "The Practices," is a catchall, covering a number of topics not fully covered in the first two parts. These areas include help desks, customer care, data centers, networks, email, print, backup/restore, remote access, software depot (essentially NFS server housing common binaries), and service monitoring. I found the chapters on help desks and customer care to be the most useful part of the book.

Part IV, "Management," covers dealing with (and becoming) management. I can hear the collective groan, but this is an extremely important and overlooked topic. Areas covered here include organizational structures, perception, happiness, and hiring and

by Robert Haskins

Robert Haskins is currently employed by WorldNET Internet Services, an ISP based in Norwood, MA. After many years of saying he wouldn't work for a telephone company, he is now affiliated with one.

rhaskins@usenix.org

THE PRACTICE OF SYSTEM AND NETWORK ADMINISTRATION
THOMAS A. LIMONCELLI AND CHRISTINE HOGAN
Boston, MA: Addison-Wesley, 2001. Pp. 776. ISBN 0201702711.

DESIGNING ISP ARCHITECTURES
JOHN V. NGUYEN
Palo Alto, CA: Sun Microsystems, 2002. Pp. 360. ISBN 0130454966.

{Author – A second printing is not a second edition — printings are (or should be) all identical, while editions are assumed to be revised. Indications from the publisher is the first book is still in its first edition -- 2nd printing}.

firing. The essential chapters here are "Perception and Visibility" and "Being Happy." I have not seen these topics (among many others in the book) covered anywhere else.

The case studies, examples, and figures do an excellent job of complementing the text. Appendix A, "The Many Roles of a System Administrator" is a great addition to the book. It lists the various types of people within the umbrella term system administrator. After reading this appendix, I have a much better understanding of what drives my coworkers, not to mention myself! Appendix B, "What to Do When..." is an excellent road map on handling certain situations, like starting a site from scratch, moving a data center, etc. This chapter acts as a meta-index, tying together everything from the book, with some new material there as well.

My nits on the book are few and relatively insignificant. I think "The Extras" would have been a more appropriate section title than "The Icing." I found the 10-page bibliography (two lines per reference, single spaced) to be a little too much. It is hard to find something with that many references. Also, the length of the book (774 pages) makes it a little overwhelming to read (not to mention to revise for future editions!). Perhaps a two-volume set would have been better.

If you are a beginning or intermediate SA, you'll want this book to find out how to do everything right the first time, without learning the many wrong ways to do a task/project. If you are an experienced SA, you'll want this book to figure out why you have difficulties with certain projects or tasks time and time again. While you would be hard-pressed to get experienced SAs to agree on a single approach to anything, I would agree with 80% of the methods and advice provided in this book. It is an outstanding treatment of a topic long neglected. Every person who manages two or more machines needs this book!

Designing ISP Architectures

"This book is a model for designing architectures for ISPs of any size" is the first line of the back cover of this book. I feel that the scope is a bit larger than simply ISPs, but I will cover that later in this review. The book, part of the "Sun Blueprints" series, has a major bias toward Sun products. For the most part this is fine, but there are several instances where this is a problem. The text covers building an ISP architecture from the ground up, using an imaginary ISP, FijiNet, as a basis for the design and implementation. It starts at requirements analysis, moving through architectural models to creating a physical design, selecting components, and implementing a solution.

The first two chapters do an acceptable job of introducing the topic and deriving a design basis for the system. Some details are buried (such as what services the ISP will offer) and take some digging, but the information is there. It is unclear to me if dialup services are supposed to be offered at FijiNet, as it is not expressly stated. However, broadband services are expressly not part of the service offering.

Chapter 3 goes on to define the architecture for the service, but I can't figure out why DHCP is covered; in a dialup service provider, RADIUS would be used. I have only seen DHCP used in broadband applications (such as cable modem service), and even there its use is limited. For example, most DSL implementations utilize RADIUS not DHCP for authenticating subscribers. Another criticism would be the lack of coverage of maintenance requirements: for example, utilizing some sort of mass-update mechanism (rsynch, rdist, cfengine, etc.) in a provider scaling to 100,000 subscribers is essential!

Chapter 4 covers creating a logical design for the ISP. Once again, the usefulness of some of the figures is questionable, but overall coverage of the material here is acceptable.

Chapter 5 continues on to create a physical design. The planning capacity section is where things become very interesting. While I haven't done a formal survey, I have seen few books giving specific capacity planning formulas for sizing systems and applications. Yes, some books cover an aspect of it (e.g., Adrian Cockroft's very capable *Sun Performance Tuning*) but never from the application point of view. The formulas in this chapter are the reason to have this book. Of course, I have not had an opportunity to actually field-test the formulas, but they are a great start and would be useful for non-service providers who run ISP applications as well.

Chapter 6 covers the selection process used for hardware and software for the imaginary ISP, FijiNet. The tables in this section are not terribly useful, for no other reason than they don't attempt to be complete. Covering "Application Servers" and "Database Servers" is not very useful. According to FijiNet's plan, application servers will be a sideline business (not to mention that there are thousands of such applications). And the database server software selection will be 99% dependent upon the billing software chosen. It would be more useful to cover the criteria for selection of components rather than the choices available.

With regards to the other software selection, the criteria seems to be whether or not the component ships with Solaris 8. If part of the rationale in using software is that it is open source, then use the open source version! This would provide ready availability of security updates, software upgrades, and so on rather than having to wait for Sun to release patches. As with any vendor-related book, the coverage is focused on Solaris 8. Many service providers use one of the many BSD and/or GNU/Linux variants for some or all of their server operations. It would have been nice for an OS besides Solaris 8 to be covered. Of course, this is wishful thinking given that the book belongs to the "Sun Blueprints" series. Finally, the appendices vary in their usefulness.

In the final analysis, the book is worthwhile simply for the capacity-planning equations it contains. But as a "How to Set Up Your Own ISP" guide, it didn't meet my expectations.

As always, I look forward to your questions and comments!