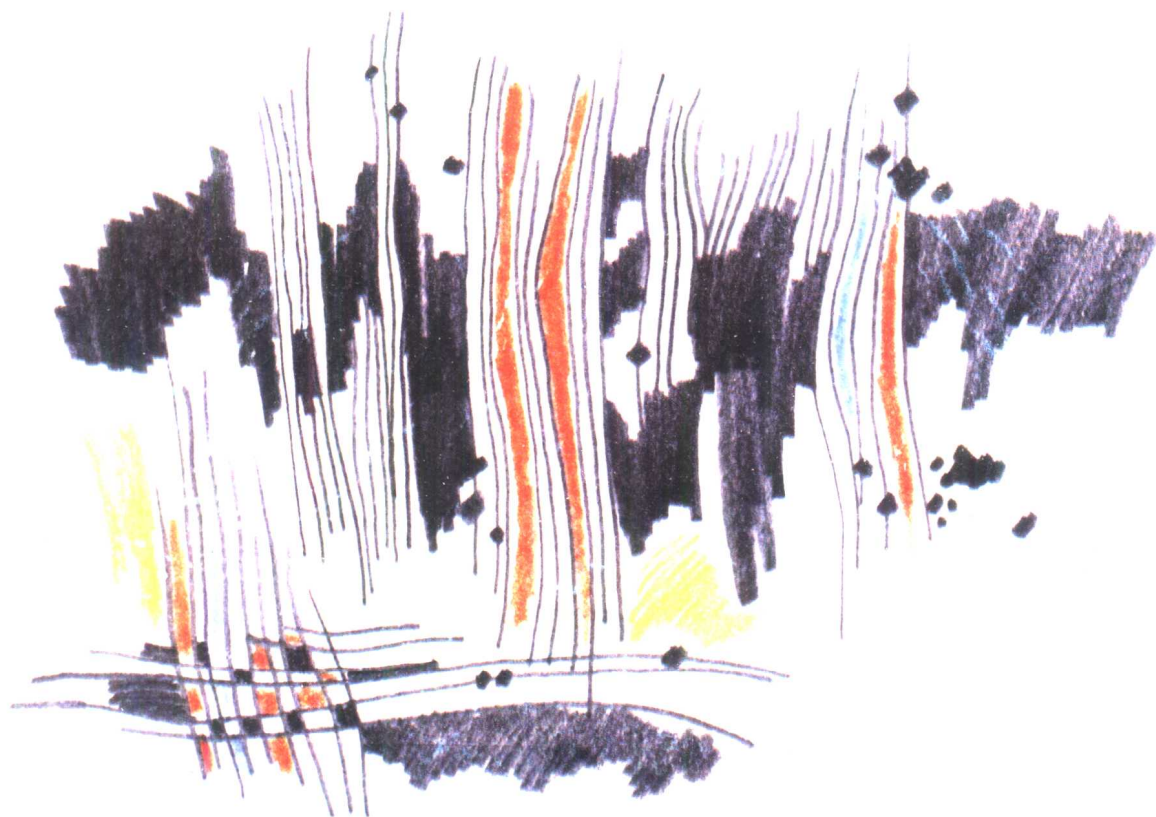


网络新技术系列丛书 影印版

Telecommunications Protocols  
Second Edition

# 电信协议 (第2版)

Travis Russell



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Telecommunications and Telephony  
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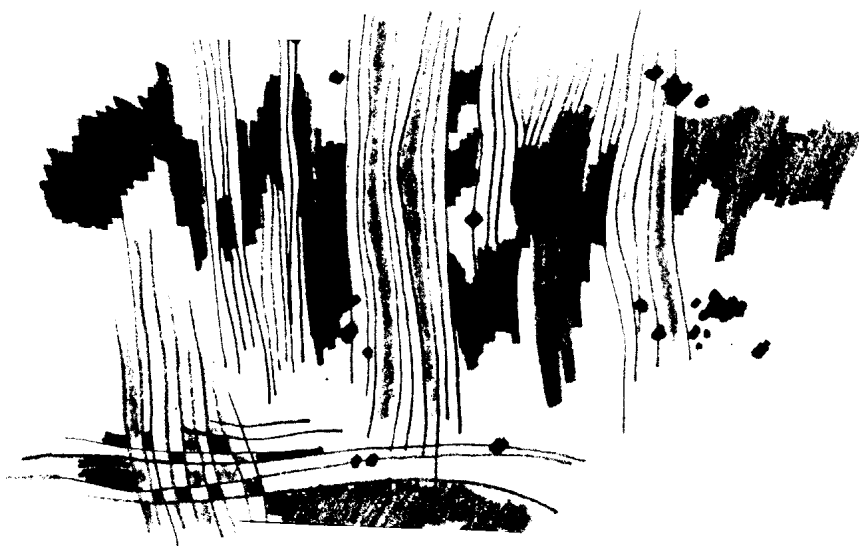
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## 出版前言

21 世纪人类面对的将是一个网络化的新时代,网络化程度的高低将是衡量一个国家现代化水平和综合国力的重要标志。考虑到我国广大科技工作者面临着网络技术飞速发展的挑战,我们精选了一些反映网络技术最新发展的、且具有权威性的图书,组成“网络新技术系列丛书(影印版)”,奉献给广大读者。既表达对我国广大科技工作者的一种支持,也是我社为我国实施“科教兴国”的战略应尽的义务。

这套丛书包括:千兆以太网、移动 IP、虚拟局域网、交换式局域网、IP 组播技术、虚拟专用网、网络安全技术以及目录使能的网络等一系列先进技术。由于我们水平有限,希望各界专家和广大读者提出建议和要求,促使这套丛书出得更好。

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# INTRODUCTION TO SECOND EDITION

I wrote in the Introduction to the First Edition that many of the protocols described in this book were really not new technology at all, but rather older technologies that have been refined and implemented in new ways. Along those lines, we have seen, within the last two years, two of the oldest technologies, Signaling System #7 and TCP/IP, converged into telecommunications networks.

I for one would have never imagined that we would see the evolution of telecommunications the way it has played out. As we near the beginning of a new millennium, telecommunications is facing major change.

Local Number Portability (LNP) has changed the way many telephone companies do business, and has opened up new business opportunities for young startup companies. The convergence of voice and data networks has brought on major changes in telephone company networks as they migrate to TCP/IP infrastructures for both voice and data.

These changes have caused many professionals within the industry to seek out information about the technologies most talked about. I have heard from many of you using the First Edition to learn the basics of these technologies, and I look forward to hearing from many more of you over the years to come.

As I wrote in the First Edition, this book started because a friend of mine asked me to write a book that covered the entire telecommunications industry, from LAN/WAN to wireless. I felt it only fitting to create a Second Edition of this book in order to include the changes now taking place with TCP/IP. As the standards for TCP/IP evolve, I will continue to expand this book to take into account those changes.

Some of you have contacted me to say it was difficult to find my e-mail address, and requested that I include it in the next edition. If you would like to comment on this book, or have questions you would like to ask, I invite you to send e-mail to [travisruss@aol.com](mailto:travisruss@aol.com). I always enjoy hearing from my readers.

—TRAVIS RUSSELL

## ACKNOWLEDGMENTS

This book would have never been started if not for my good friend John Faulkner. It was John's idea for me to write this book, when he found himself trying to explain the various protocols of our industry to his distributors and customers. Now you have a book to give them, John. Hope this helps close the sale!

I would like to thank Tekelec, Inc., for its ongoing support of this and many other projects. Tekelec has been a great company to work for, and I am looking forward to many more great years ahead with it. Thanks again to all of you at Tekelec for your help and encouragement.

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CHAPTER

# 1

## The Fundamentals