

***Protocols, Packets & Peering:
A Windows InterNetworking Primer***

***by
David W. Boles***

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Why This Book?

Windows InterNetworking is the mother tongue of the World Wide Web. But how many of us can speak that language like a native? Why must we know the modifiers for constructing a Virtual Private Network? How does using the wrong syntax affect IP Stack negotiation? What vocabulary is necessary in order to bring Quality of Service to Winsock 2.0? Mastering these and other base level InterNetworking linguistics is the purpose of this Primer.

By using this book, industry buzz words like NDIS 5.0, ATM, PPTP, Dynamic DNS, Routing, WAN, RAS, TDI and more, will be as easy to understand as reading "See Spot run!"

This Primer will not only ratchet down the semantics of Windows InterNetworking for both the amateur and professional InterNetworker , it will also be packed with Real World examples, Registry tweaks and other insider Microsoft tips that only this Primer will provide.

The hook of the book is this: IP has won the protocol war and networking is ready to be embraced by the masses! This Primer will demonstrate for every reader how they can integrate voice, video and data in their own networks!

Microsoft Exclusivity

When Microsoft called as asked if I'd be willing to write this book for them, I agreed to do it only if they offered me unique access to the Windows InterNetworking Group. When Microsoft agreed to give me their unbridled support, uncensored information, and exclusive access allowed no other author, I agreed to write this 300 page Primer.

Marketing

This book should be positioned as a “must buy” Primer for everyone interested in constructing their own dynamic network. The Primer’s detailed Index will also make it a standout against all other books. Another selling point for this Primer is its keen size. Unlike massive 800 page “Bibles” or eight part “suite” books that are unwieldy and difficult for folks to absorb, this Primer will be totable and comfortable to utilize all day every day.

Special Considerations

- NT 5.0 is scheduled to be in Beta 2 sometime this Summer, so this Windows InterNetworking Primer is a November or December. The information must be guaranteed “Real World” accurate and not based upon changeable beta code. Several of my insider industry sources tell me that NT 5.0 may not be available for public purchase until December, 1997.
- Even though this is an end of the year book, research and preparation must begin immediately in order to redact and frame the avalanche of esoteric documentation from Microsoft into a clear and concise international Bestseller.
- The Index is a prime concern. Too many computer books are Indexed by a software program that cannot fully associate, form and contextualize all the information on every page of the book. A human mind needs to create the Index for this book since we are positioning it as THE primary reference source for Windows InterNetworking. The Index should be coherent, detailed and utterly cross-referenced.
- The only request Microsoft made of me is to promise that all of the folks on their Windows InterNetworking team would be listed in the book. I made them that promise. I, therefore, need a rider added to the contract for this book that guarantees the inclusion of the names of the Microsoft Windows InterNetworking Group with a Publisher penalty of \$10,000 paid directly to the Microsoft Windows InterNetworking Group if the list of names I provide fails to appear in the book.
- I also hope the physical size of this 300 page Primer can be something like 5.5”w x 8”h. That footprint is built to be a “tuck and go tome” so every Windows InterNetworking amateur and professional can let our Primer tag along at all times for handy reference.

Author

David Boles is the international best selling author of IDG's *Windows 95 Communication and Online Secrets!* He is also the author of over 25 published feature articles on the Internet and computing in magazines such as CMP's *Windows Magazine*, MFI's *Web Techniques*, *cIEx*, *The Silicon Times* and *Internet Insider*. He is the Publisher and Editor-in-Chief for *Go Inside* magazine and creator of three other websites.

Microsoft Re-Calling...

As I was finishing up this book pitch, Microsoft called and asked if I'd be interested in doing "a really detailed book on NDIS 5.0 and use of the connection-oriented and streaming capabilities" after I finished this book on Windows InterNetworking. Sounds captivating!

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Why This Book?

IP has won the protocol war

Microsoft put TCP/IP into Win95 and WinNT

The Internet happened

Networking for the masses

Ease of use

Cost of ownership

Network integration of voice/video/data

New demands on data networks

New application opportunities

NT 5.0 Network Architecture Overview

What's new in NT 5.0

Ease of use features

Connection oriented media support

Quality of service

Routing

Winsock 2.0

TCP/IP

“Legacy” transport stacks (IPX, NetBEUI, etc)

NDIS 5.0 and ATM Support

PPTP, L2TP and virtual private networks

Routing and remote access

Winsock 2.0

Winsock 2.0 API overview

Winsock 2.0 service provider architecture

Interoperability and migrations issues from Winsock 1.0 and 1.1

Hookers and chainers

Winsock 2.0 Quality of Service

GQOS – Generic QoS

The RSVP service provider

Winsock 2.0 null transport provider

Winsock 2.0 and ATM

The NT 5.0 IP Stack

Stack architecture

Autoconfiguration for IP networks

QoS support in the IP stack

RSVP signaling

Packet Classifier

Packer Scheduler

Simple packet filtering

Packet filtering APIs

IP Security

Performance optimizations in NT 5.0

Long-fat pipes

Scalable windows

Fast transmit and recovery

Offloading stack functions to hardware

DHCP Server

Configuring a standalone DHCP Server

The DHCP MMC snap-in

DHCP in complex network configurations

BOOTP configuration

Managing superscopes

DHCP optimizations for the enterprise

IP auto-configuration without DHCP

Dynamic DNS Server

Relationship between WINS and DNS

Managing DNS servers in an enterprise

TCP/IP registry parameters

Virtual private networks

Why VPNs?

Outsourcing dialup

Use the Internet as a WAN

Low cost branch office connectivity

Overlaying private networks on Intranets

Architecture of PPTP and L2TP

Control channel

Authentication

Encryption and Compression

RAS using PPTP

Client configuration

Setting host routes

Server-to-server VPNs using PPTP

Server-to-server authentication

VPNs and routing

Configuring a routed VPN over the Internet

Server Integrated Routing and RAS

RAS and Routing architecture

RAS APIs

Router APIs

Routing engine APIs

Router management APIs

Router and RAS UI

Command line router configuration tool

Router registry parameters

Network Driver Interfaces

NDIS 5.0

Miniport driver architecture

Relationship to Windows Driver Model

The connection-less data plane and legacy protocols

The connection-oriented data plane

ATM

Classical IP over ATM (RFC 1577)

LAN Emulation

MARS

Raw access to ATM VCs

ATM and Quality of Service

Call manager interface

UNI 3.1 call manager

Layered miniports

NDIS for telephony applications

TAPI Kernel Mode Driver

Integration with WDM/CSA

NDIS WAN and Unimodem

ISDN support

Raw channel support

UnimodemV

Controller-less modems

Modem diagnostics

Transport Driver Interface – TDI

TDI objects, concepts, and architecture

Addresses

Connection endpoints

Control channel

WDM/CSA (brief overview)