Accessing the Internet with VB

Carl Franklin

Win² Technologies, Inc.
email: carlf@win2.com
Code level: Intermediate
ZIP file: INTERNET.ZIP

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The Internet

The Internet is a Network.

Use TCP/IP to communicate with other machines on the network.

History (Windows)

Traditionally Unix.
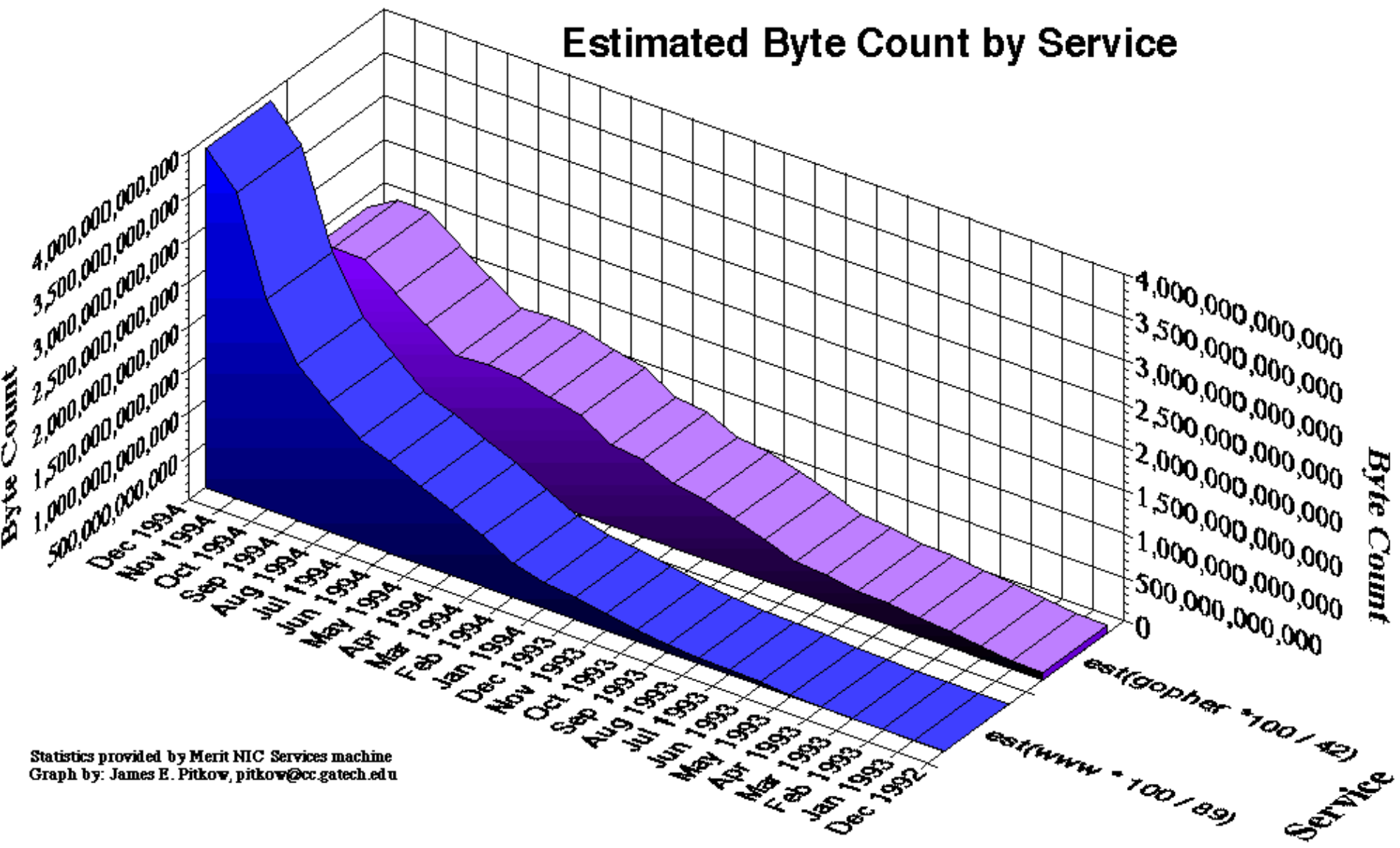
1990 - Lan Manager (real mode).

1991 - Netware (real mode) with Windows Redirector.

1993 - World Wide Web, Mosaic.

1993 - Third Party TCP/IP stacks.

1994 - MS TCP/IP 32 bit virtual driver.

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Internet Growth

Estimated Byte Count by Service

Statistics provided by Merit NIC Services machine
Graph by: James E. Pitkow, pitkow@cc.gatech.edu

Sample Code

Retrieve Webster's dictionary definitions.

HTML Source Browser

Make Wallpaper an hourly satellite weather photograph.

Multi-user Internet Chat.

Available Programming Tools

TCP/IP Stacks.

Windows Sockets (WinSock) for raw communications.

High Level Protocols (FTP, Gopher, Telnet, RCP, Mail, News, etc).

TCP/IP Stacks

Third Party
  Usually DLL.
  Some have distribution fees.
  Been around a few years.
Microsoft
  Network Protocol Driver.
  New in 1994.
  No distribution fees.

Benefits of TCP/IP

Intelligent Routing.

Packet Resequencing.

Extremely Reliable.

No Major Error Handling.

IP Address

Series of four 8-bit numbers separated by periods that identifies a machine.

Webster: "129.79.254.195"

Sometimes called the "Dot Address."

IP Port

Number that identifies an application running on an Internet host machine.

Webster: 2627

WWW - port 80

SMTP (eMail) - port 25

Firewalls

Router configuration.

No connections allowed in a certain port range.

Gateways go out in front of the firewall.

IP Machine Name

Each word stands for a domain.

Rightmost domain (top level domain).

Webster: "grouchy.cs.indiana.edu."

USA: type of organization

   .edu   .com   .org

Outside USA: country

   .jp (Japan)   .se (Sweden)   .uk (UK)

Name Resolution

DNS (Domain Name System) servers return an IP address given a registered Internet host machine name.

WINS (Windows Internet Name System) allows you to import a DNS database for local name resolution (next version).
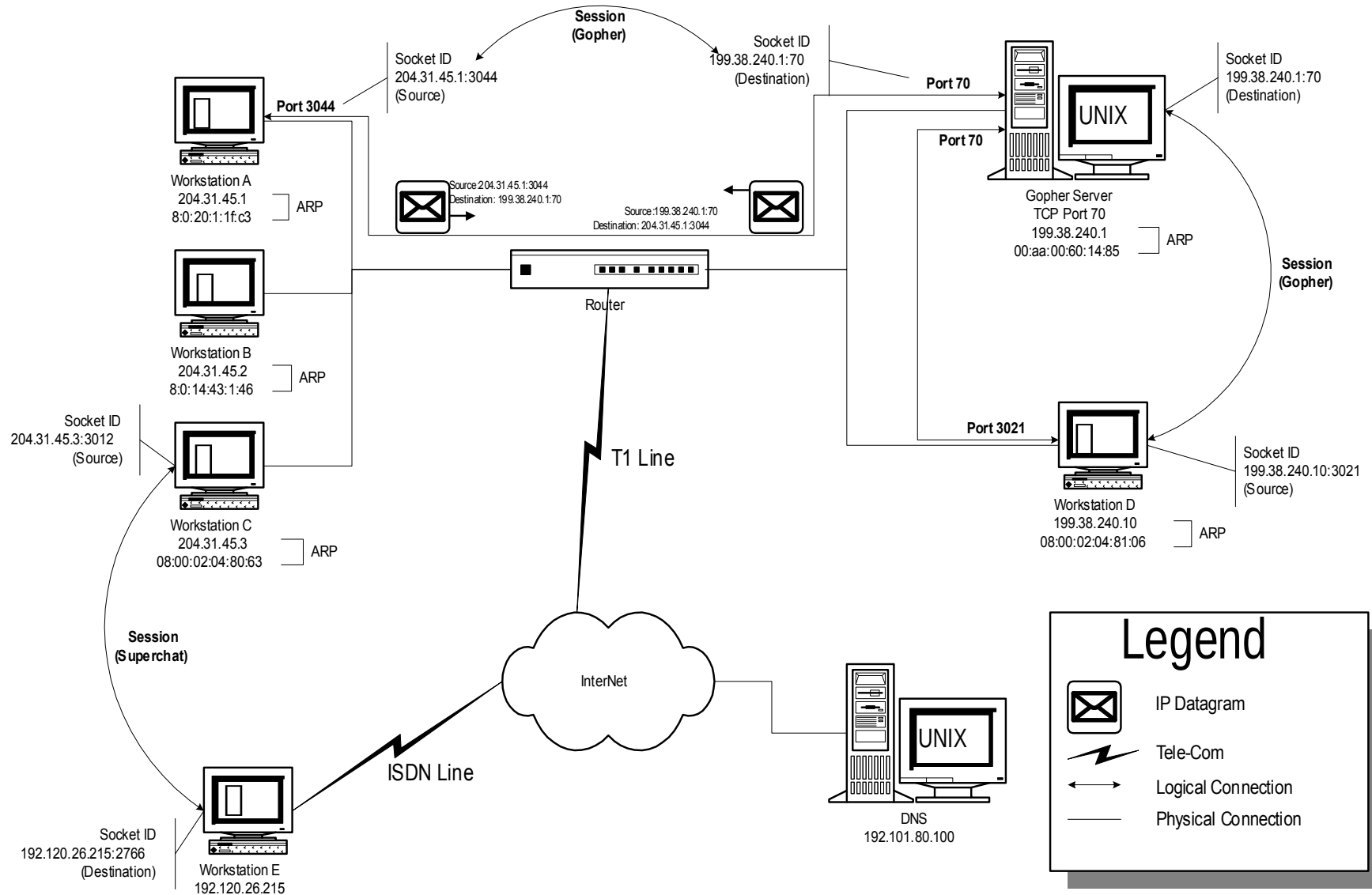
Windows Sockets

High level - sits on top of TCP/IP.
Will support other protocols in the future.
Socket = IP Address : IP Port.
VBX controls available now.

Understanding TCP/IP
Connections

Session (Gopher)

Socket ID
204.31.45.1:3044
(Source)

Socket ID
199.38.240.1:70
(Destination)

Port 70

Socket ID
199.38.240.1:70
(Destination)

Port 3044

Workstation A
204.31.45.1
8:0:20:1:1f:c3

ARP

Source:204.31.45.1:3044
Destination:199.38.240.1:70

Source:199.38.240.1:70
Destination:204.31.45.1:3044

Port 70

Gopher Server
TCP Port 70
199.38.240.1
00:aa:00:60:14:85

ARP

Session (Gopher)

Workstation B
204.31.45.2
8:0:14:43:1:46

ARP

Router

Socket ID
204.31.45.3:3012
(Source)

Workstation C
204.31.45.3
08:00:02:04:80:63

ARP

Port 3021

Socket ID
199.38.240.10:3021
(Source)

Workstation D
199.38.240.10
08:00:02:04:81:06

ARP

T1 Line

Session (Superchat)

InterNet

DNS
192.101.80.100

ISDN Line

Socket ID
192.120.26.215:2766
(Destination)

Workstation E
192.120.26.215

Legend

IP Datagram

Tele-Com

Logical Connection

Physical Connection

DSSOCK.VBX

Windows Sockets 1.1 control.
Shareware, no distribution fees.
Can be both Client and Server.
Included in sample code.

Connecting with DSSOCK

No matter what the protocol (FTP, Gopher, etc) connecting always works the same way.

1) Specify the IP Address or name

2) Specify the Port

3) Tell Sockets to connect

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Sending and Receiving Data

Send Property
   String property
Receive Event
   Passes a string

Error Handling

Exception Event

   Passes an error code and message string.

Only need to know when connection is
   lost. Everything else is handled for you.

Sample #1: WEBSTER

Connects to a Webster's Dictionary Definition server in Indiana, sends a word and returns its dictionary definition.

Sample #2: HTML

Use to browse HTML source text.
Specify an http link.
Connects and Returns the source text.

Sample #3: WMAP

Connects to a gopher server and downloads the latest satellite image weather map GIF file.

Uses freeware GIF2BMP.DLL to convert the GIF to a BMP.

Makes the BMP file the Windows Wallpaper.

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Sample #4: SuperChat

Lets you chat any other SuperChat user anywhere in the world.

Lets you chat to more than one person at once.

Top Ten Research Projects at Clown College

10. The correlation of exploding cigars and facial abrasions.

9. Seltzer vs. soda water: which is funnier?

8. Anti-gravity hair.

7. Reducing carpool costs by traveling 28 to a car.

6. Big shoes that are resistant to elephant manure.

5. Can a cream pie's cholesterol be absorbed through the facial skin?

4. The Hubble telescope.

3. Why chicks dig clowns.

2. Prehistoric forerunners of the rubber weenie.

1. Should steroids for the feet be banned?

Resources on the Internet for Visual Basic Programmers

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Carl & Gary's Visual Basic Home Page

Links to all known VB resources on the Internet.

News Archive database.

Product Reviews.

FTP area.

Consultant listing.

http://www.apexsc.com/vb

Other Visual Basic web sites

Brian Knight's VB Home Page

> http://xmission.com/~wwwads/www/vb.html

Cal State VB Shareware Archive

> http://coyote.csum.edu/cwis/winworld/vbasic.html

CICA Visual Basic Archive

> gopher://pub.vse.cz:7077/11/msdos/cica/programr/vbasic

Microsoft Web Server

> http://www.microsoft.com/

VB Samples from MSDN

> http://www.apexsc.com:80/vb/samp1.html

Visual Basic FAQ

> http://www.cis.ohio-state.edu/hypertext/faq/usenet/visual-basic-faq/top.html

Connectivity Options

Dial-up service.

Windows NT Remote Access

SLIP connection.

ISDN line.

T1 service.

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Access Provider Information

InterNIC maintains a compreshensive listing of Internet Access Providers.

InterNIC Information Services
General Atomics (GA)
P.O. Box #85608
San Diego, CA 92186-9784
Phone: 619-455-4600
Fax: 619-455-4640
email: refdesk@is.internic.net

Sample costs (Netcom)

SLIP (14.4)   160/mo
SLIP (19.2)   200/mo
Leased 56K line   400/mo
T1 (1.5 Megabit)   1000/mo

What's on the CD-ROM?

All sample code (except DSSOCK)

Technical Paper on TCP/IP.

TCP/IP Visio drawing.

InterNIC's list of Internet Access
   Providers (current).

Netcom Pricing.

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Questions?