TCP/IP – How Do I Start
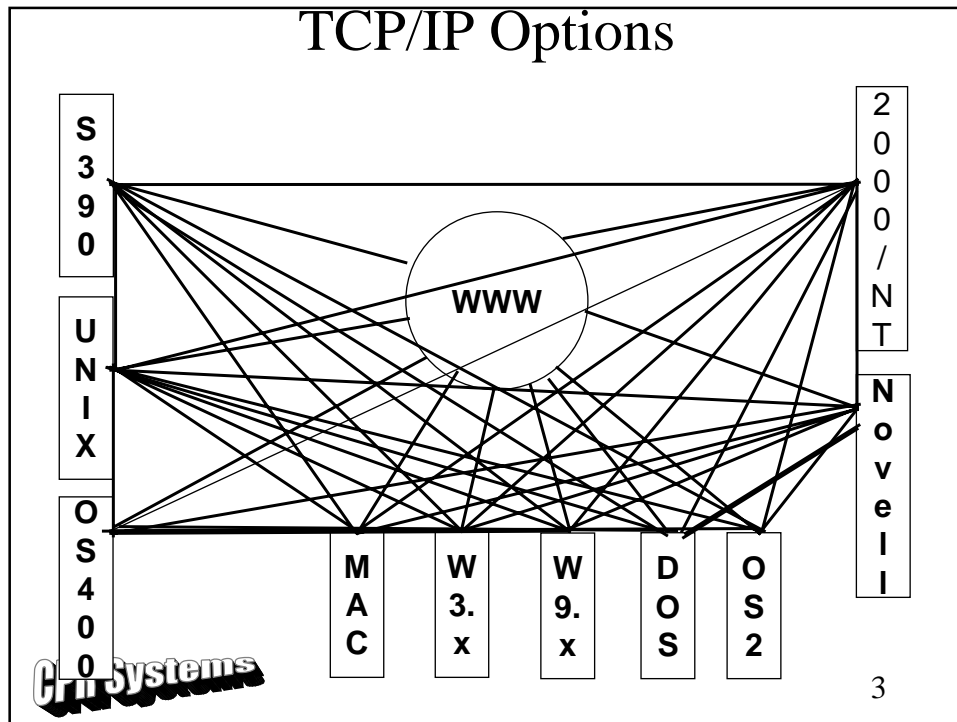
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What is TCP/IP

- IP
  - Internet Protocol
- TCP
  - Transmission Control Protocol

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TCP/IP Options

S 3 9 0

U N I X

O S 4 0 0

WWW

M A C

W 3. x

W 9. x

D O S

O S 2

2 0 0 0 / N T

N o v e l l

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TCP/IP Definition

- TCP/IP is a means for networked computers to communicate and exchange data.
- It is important to note that the computers can be attached:
  - to the same network or to separate networks
- The computers can be
  - similar or dis-similar
  - same manufacturer or different manufacturer
  - running the same software or different software
- TCP/IP provides a common connection interface
- TCP/IP is a platform independent communications standard (i.e.. A protocol)

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TCP/IP VSE Options

- TCP/IP for VSE – IBM or CSI
- TCP/IP Tools – Barnard Software
- OCS TCP/IP – Open Connect
    - Not current
    - Not actively marketed
    - Not a current solution

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IP Address

- Each TCP/IP node in network has an address
- Address is a 32 bit, (4 octet) field normally shown in dotted decimal form
    - 166.82.131.142

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IP Addressing

- Address is broken into two parts – network id and host id
- Uses a subnet mask to break address into the parts
  - 255. 255. 255. 0
  - 11111111.11111111.11111111.00000000

IP

- Packet Protocol
  - Using IP address, packets are transmitted from machine to machine
- Packet includes header fields and data
- Four Layer protocol – four header fields

TCP – UDP

- Transmission Control Protocol
  - Communication between two nodes where connection is established and maintained through out the conversation
- User Datagram Protocol
  - Communications between two nodes where sender just sends the data, no connection is established

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Sockets

- Programming interface for TCP/IP communications
- Always needs two programs – client & server
- Can user either TCP or UDP

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Applications

- Client Server programs written with the sockets interface that provide a communications function

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File Transfer Protocol

- Application used to transfer files from one machine to another
- Requires client and server (daemon)

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FTP for VSE/ESA

- Server Support
- Client Support
  - CICS Transaction
  - Batch Program
  - AutoFTP

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FTPBATCH

```
* $$ JOB JNM=FTPBGETX,CLASS=P,DISP=D
* $$ LST CLASS=A
// JOB FTPBGETX
// OPTION SYSPARM='01'
// ASSGN SYS007,502
// DLBL SDXX,'FTPCKDX.TEST.FILE',0,SD
// EXTENT SYS007,DRS502,1,0,90,150
// LIBDEF PHASE,SEARCH=VENDOR.TCPIP
// EXEC FTPBATCH,SIZE=FTPBATCH
LOPEN
LUSER SBISHOP
LPASS BISHOP
OPEN 192.168.3.3
USER sbishop
PASS bishop
GET FTPBCKDX.TXT %SDXX,SAM,FB,80,800
/*
/&
* $$ EOJ
```
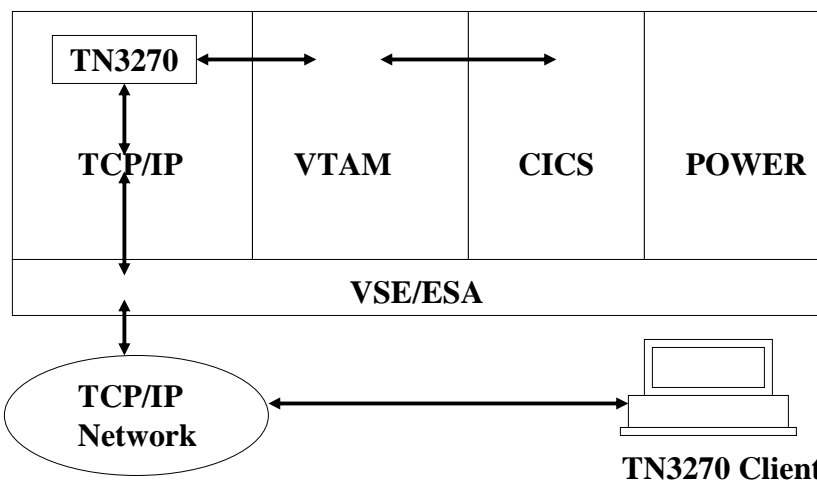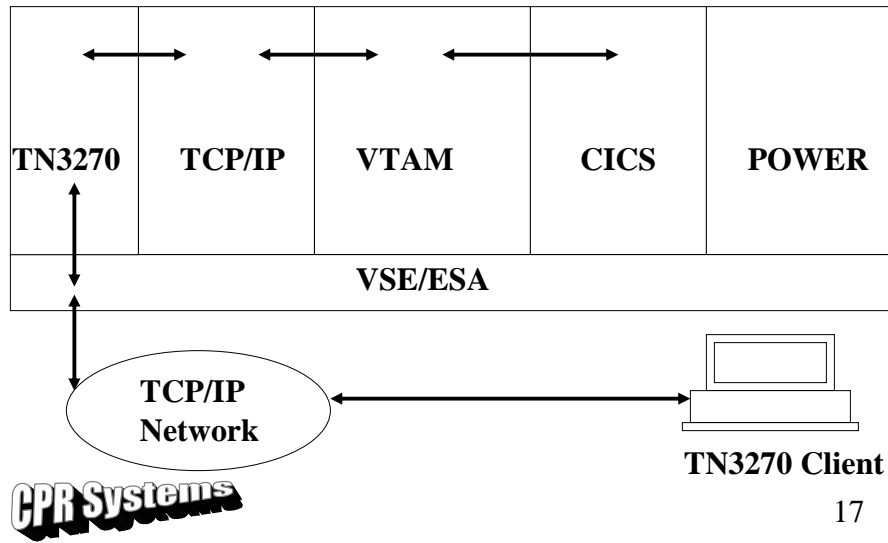
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Telnet Application

- Terminal communications between two programs
- TN3270 is a special Telnet Application
  - Understands/translates 3270 terminal attributes

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TN3270 FLOW TCP/IP CSI

TN3270			
TCP/IP	VTAM	CICS	POWER
VSE/ESA			

TCP/IP Network

TN3270 Client

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TN3270 FLOW TCPIP BSI

TN3270	TCP/IP	VTAM	CICS	POWER

VSE/ESA

TCP/IP Network

TN3270 Client

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TN3270 on VSE/ESA

- Server Support
- Client support from CICS

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LPR & LPD Support

- LPR – Line Printer Remote
  - Client that supports printing on a remote system
- LPD – Line Printer Deamon
  - Server that supports receiving print from another system

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LPR & LPD for VSE/ESA

- Server support
- Client support
  - CICS
  - Batch
  - AutoLPR

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HTTP (Hyper Text Transfer Protocol)

- WEB Server
- Browser Client
- Uses HTML (Hyper Text Markup Language) to define documents

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HTTP for VSE/ESA

- Server support
  - Store HTML documents in a VSE Library
  - Supports CGI (Common Gateway Interface) scripts

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Other Applications

- SMTP   – Mail
- PING   – Verify presence or address
- TN3270E   – TN3270 (includes printing)
- NFS   – Network Files Systems
- SNTP   – Time protocol
- GPS   – General Print Facility

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Sockets Programming

- All applications are written using sockets
- You can write your own
  - Programming is not difficult
  - Only 4 socket commands
    - Open
    - Receive
    - Send
    - Close

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Running TCP/IP on VSE/ESA

- Need hardware connection to network
  - Preferably Switched
- Install the IP stack
- Install applications

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Summary

- TCP/IP is replacing SNA as communications method for VSE
- Performance can be excellent
- Easy to install
- Easy to maintain
- Dramatically enhances connectivity

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