



"Internet is so big, so powerful and pointless that for some people it is a complete substitute for life."

- Andrew Brown

Topics

Overview of I-Net+

Setting up a LAN

Protocols

Overview of I-Net+

Vital Statistics

Time Limit: 90 min.

Avg. Time: 33 min.

Passing Score: 73%

of Questions: 72



What you Need to Know

Domain	%
Internet Basic	10
Internet Clients	20
Development	20
Networking	25
Security	15
Business Concepts	10

I-Net+ Topics

- Network Fundamentals
 - Computer Networks
 - Connection Devices
 - Bandwidth Technologies

- Internet Basics
 - History of the Internet
 - Internet's Physical Organization
 - Internet's Logical Organization

I-Net+ Topics

- TCP/IP Networking
 - Introduction to TCP/IP
 - Host Name Resolution Methods
 - Address Classes and Subnets
 - TCP/IP Utilities
- Internet Services
 - Internet Protocols and Default Ports
 - WWW Clients and Servers
 - Internet Clients and Servers
 - Remote Access Protocols

I-Net+ Topics

- HTML Programming
 - Document Structure
 - Formatting a Web Page
 - Tables and Forms
 - XML
- Internet Development
 - File Formats and Standards
 - Cookies and Privacy
 - Programming Concepts
 - Database Programming

I-Net+ Topics

- Site Functionality
 - Exploring Caching Technologies
 - Search Engines
 - Designing and Testing a Web Site
- Site Administration
 - Web Site Administration
 - Connectivity Issues and Resources
 - Compatibility Issues
 - Patches and Software Updates
 - Virus Protection

I-Net+ Topics

- Network Security
 - Security Concepts
 - Suspicious Activities
 - Security Measures
 - Virtual Private Networking
- Business Concepts
 - Internet Commerce
 - Internet Marketing
 - Understanding International Factors
 - Content Ownership

How to study for a Certification

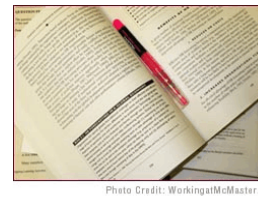
How much does it cost?

How much more can you earn if you get it?

You should be willing to spend at least the cost of the exam in study materials

Study Sources

Two Books Minimum
Exam Cram
Full Coverage Text



Exam Simulation Software
Transcenders
Online Quizzes

Study Sources

Web Sources
cramsession.com
braindumps (pros / cons)

Set up an schedule
Set a date
Work Backwards

Hands On

Hands On

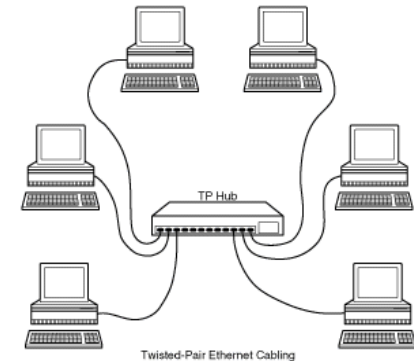
*Setting up a simple
Local Area Network*

Setting up a 10 Base T LAN

Hardware (X machines)
X Cables
X Network Cards
1+ Hub or Switch

Software
Network Card Drivers
Network OS

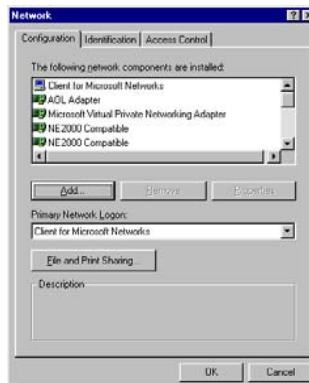
Running the Cable



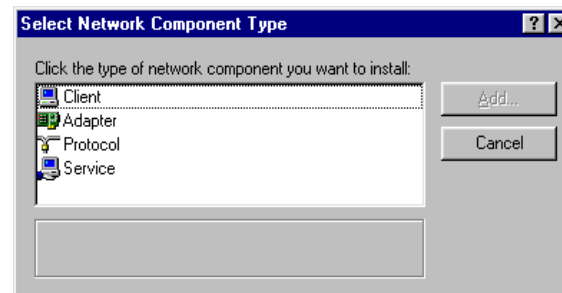
Installing Network Card

Plug and Play

Network
Properties



Adding Network Components



Network Components

Client - for which NOS

Adapter - Should be set already

Protocol - Common language
TCP/IP, NetBEUI, IPX/SPX

Service - file sharing

What to add

Client for Microsoft Networks

Protocol : TCP/IP, NetBEUI

Services: File and Printer Sharing for MS Networks

What Happens

Windows loads components, then reboots

Network should be recognized

Browse Network
Find Resources

Your IP address

Most of your network card should be for automatic IP assignment.

However, we don't have a DHCP server.

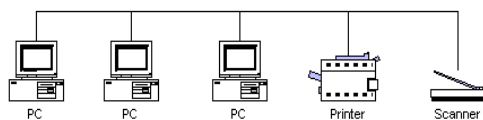
So what is your IP address?

169.254.x.x

Why?

Microsoft Private IP Address

To allow systems to communicate without having to set IP addresses, MS has assigned an Automatic Private IP Address.



Always 169.254.x.x

Where x.x is based on mac address

PING

Based on the concept of a RADAR ping

Test to see if another system is online

ping 169.254.x.x

Other utilities (available on web)

fping - ping with count

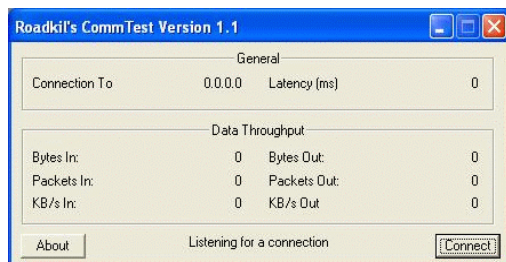
multiping - ping several systems at the same time

Hands On

Hubs vs. Switches

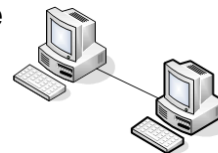
Let's See How Fast It Is...

Road Kil's Commtest.exe will test the network speed between two computers. The transfer speed, latency and packet loss is measured.



Test 1 - Crossover Cable

Connect 2 computers



Start commtest on both

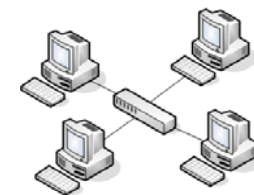
One person find their IP address

Other person click Connect and enter the IP address

Both record the KB/s IN and Kbs OUT and Latency

Test 2 - Hub

Connect 4 computers



Start commtest on all

Ports 1,3 and 2,4 same teams

Ports 1,3 start commtest, record speed

Same speed as Crossover?

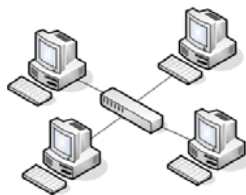
Ports 2,4 start commtest, record speed

Impact on 1,3 speed?

Overall speed? Latency?

Test 3 - Switch

Connect 4 computers



Start commtest on all

Ports 1,3 and 2,4 same teams

Ports 1,3 start commtest, record speed

Same speed as Hub?

Ports 2,4 start commtest, record speed

Impact on 1,3 speed?

Overall speed? Latency?

In the News

Computer Crashes cost Money

June 2001, NYSE crash

Some businesses lost \$10,000 to several million dollars a minute when the NYSE networks went down.

In another case, Nike said faulty computer software caused it to miss \$100 million in orders. The software was supposed to streamline electronic orders.

Amazon.com

According to **amzn** investor relations Net sales increased 26% to \$10.71 billion in 2006, compared with \$8.49 billion in 2005.

If Amazon was offline, how much would they lose in 1 second? 1 minute? 1 Hour? 1 Day?

In the News

Yahoo's long-running defense of its Chinese operations, which have been criticized for close cooperation with the country's police agencies, took an unusual twist this week in a confrontation at the company's headquarters.



ABC (2006.04.12) Yahoo in China.mpg

Network+

Protocol Suites

Protocol Suites

The real life versions of OSI

No protocol stack matches 100%

Major:

NetBEUI, IPX/SPX, TCP/IP

Minor

AppleTalk

NetBEUI

Designed for Windows

Small / Fast Protocol

Everything is broadcast

Not Routable

NetBEUI

Combination of NetBIOS/NetBEUI

NetBIOS

Network Basic Input/Output System

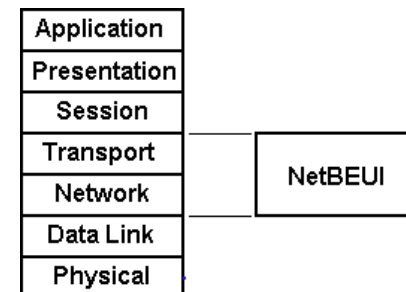
NetBEUI

NetBIOS Extended User Interface

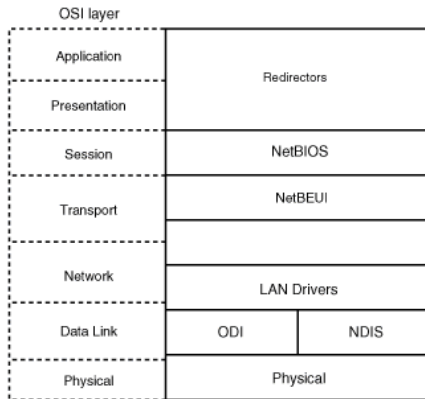
NetBEUI

NetBIOS - Session Layer

NetBEUI - Transport Layer



NetBEUI vs. OSI



Other Parts

ODI - Open Data-Link Interface

NDIS - Network Driver Interface Specification

Allows more than one protocol to be bound to a network card.

NetBIOS

Session Layer

Manages connections based on the NetBIOS name

Network Applet Identification
Computer Name

NetBIOS Name

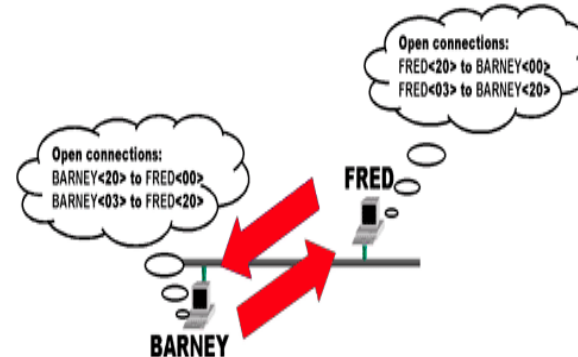
15 Characters in Length

16th Byte - System Functions

- <00> Workstation Name
- <03> Messenger Name Service
- <06> RAS Server
- <1B> Domain Master Browser
- <20> File and Print Server

Used to determine services

NetBEUI



NetBEUI

Works at the Transport Layer

Break files up
Reassembles them

Can not go through a router
(No Network Layer)

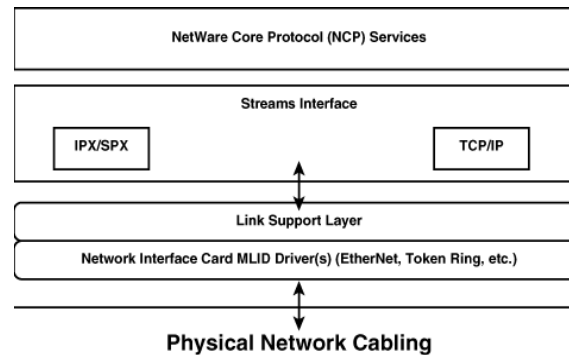
IPX/SPX

Developed / Used by Novell

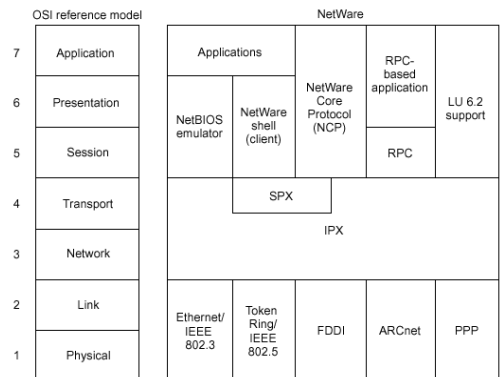
IPX - Network Layer

SPX - Session Layer

Netware Protocol



Netware vs. OSI



IPX/SPX Other Layers

SAP - Service Advertising Protocol

NCP - Netware Core Protocol

Microsoft's Version: NWLink

IPX/SPX

IPX

Internetwork Packet eXchange

SPX

Sequence Packet eXchange

Primary Use

Connect to Netware Servers

IPX/SPX Configuration

Frame Types

Ethernet 802.3

Ethernet II

Ethernet 802.2

Ethernet SNAP

All must be the same

Set for Autodetect

TCP/IP

More Flexible

More Scalable

A lot more Configuration Details

Open Standard

We will save this for next time...

End of Lesson