

Lecture 4

Introduction to Computer Networking

On our plate for today:

- Network Card Overview
- Installing a Network Card
- Making a Windows 95/98 computer visible on the network
- Sharing resources over the network

Part I: Networking Card Overview

- In order for a computer to be part of a network, it needs to have an interface to the physical network itself
- This is usually in the form of a Networking Card, a.k.a. Ethernet Adapter, Network Interface Card (NIC)—these are synonymous terms

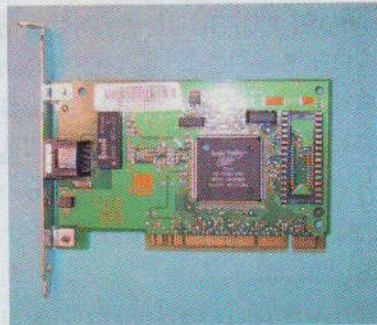
Five common varieties of Networking Cards:

- Internal-PCI slot-for desktop computers
- Internal-ISA slot-for desktop computers
- Internal PC-CARD-for laptop computers
- Internal-integrated-newer desktop and laptop computers
- External USB-for desktop or laptop computers

Internal PCI or ISA



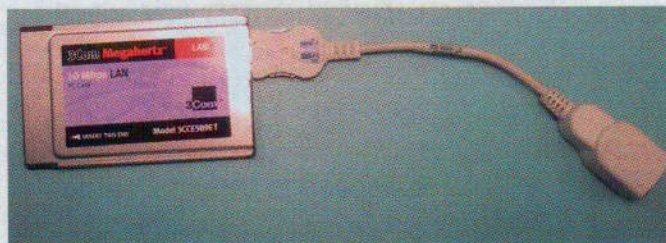
Fit into the white or black (not pictured) expansion slot in the desktop computer. The PCI variety is newer, standard, and dirt cheap. ISA cards are rarely seen nowadays



Pictured: PCI Network card

PC-CARD style networking cards

- Designed for the PC-CARD expansion slots in laptops



Pictured: PC-CARD networking card and Dongle attached (right side)

Integrated Network Cards

- Most computer mfgs. started to realize several years ago that networks were going to become indispensable to computers. So they started building the networking card into the computer.
- You can check on the back of any computer or laptop for an 8 pin jack with a networking symbol.
- If this is a laptop, the 8 pin networking jack will generally be next to a 4 pin modem jack

Part II: Steps for installing a networking card:

- Physical installation (in-class demo)
- Fire up computer
- Operating System installation (drivers)
- Reboot

PITFALL: You **MUST** have access to the internet to complete the following steps **UNLESS** you are positive that you have the drivers on-hand. You **MUST** also have access to a Windows 98 CD

Driver installation

- Drivers are specialized files that allow Windows to communicate with the Networking card.
- These drivers are provided by the manufacturer of the card—though if it is a name-brand computer, these drivers may also be obtained from the computer manufacturer.
- If the Networking Card is integrated into the computer, these drivers are provided by the computer manufacturer.
- If you bought the card new, or are extremely lucky, there might even be a floppy disk or CD-ROM lying around that has the drivers on it. When dealing with computers, you are almost never lucky.

Drivers provided by **computer manufacturer**:

- Example: Dell.com
- Go to Support->Downloads->Enter/select the model of the computer->Select category "Network Drivers" and Operating System "Windows 98" (in this case)

Drivers provided by computer manufacturer:

The screenshot shows the Dell Support website interface. At the top, there's a navigation bar with 'Dell' logo and 'CUSTOMER SUPPORT'. Below it, there's a search bar and several tabs: 'Home', 'Solutions', 'Community', 'Updates', 'Customer Care', 'Downloads', and 'Reference'. The main content area is titled 'DOWNLOADS' and 'Select Criteria > Select Device'. It shows a search for 'Network Drivers on Latitude C600 / Windows 98 / English'. Under 'Select a Device', there are two sections: 'Communication Drivers' and 'Network Drivers'. The 'Network Drivers' section lists several options, including '3Com 10/100 MB Ethernet Cardbus PC Card', '3Com 3C900E Integrated Network Card', '3Com 3C905C Integrated Network Card', '3Com 3CCPE5750T 10/100 MB Ethernet Cardbus PC Card', '3Com 3CCFEM266', 'Dell True Mobile 1150 Series Mini-PCI Card', 'Dell TrueMobile 1150 Series AP1000 (Access Point)', 'Dell TrueMobile 1150 Series PC Card', 'Dell TrueMobile 1170 Access Point', 'Dell TrueMobile 1170 Wireless Base Station', 'IBM 1644 Teleking adapter', and 'Xircom WW Combo 56K/4D/100 RBEM/PC Card/RealPort'. A text overlay on the right side of the screenshot asks, 'Which Network driver do we choose? Good question. Process of practical elimination.'

Drivers provided by card manufacturer

- You MUST have the model number on the networking card.
- In this example, model number is permanently emblazoned on card in yellow or written on label



Drivers provided by card manufacturer

- Example: 3com.com
- Go to Support->Downloads and Drivers->Enter/select the model of the Networking Card


3Com® Megahertz® 10 Mbps LAN PC Card

Product# 3CCE589ET

also product support details

View Downloads By: Drivers

Drivers

| Filename | OS | Release Date | Version | File Size |
|--|---|--------------|---------|-----------|
|  3c589x_1.exe | Windows 95, Windows 95a, Windows 95c, Windows 95c/ME, Windows NT 3.51, Windows NT 4.0 | 18 Jan 2000 | 5.7 | 887,06 KB |

VS.7 LAN Installation Diskette #1 for the 3Com Megahertz 10 Mbps LAN PC Card. Notes: This is Installation Diskette #1 that ships with the latest shipping 589 series adapters. It includes drivers for Windows 95, Windows 95 OSR 2, Windows 95, Windows NT 3.51, Windows NT 4.0, and Windows CE. These drivers are compatible with the 3C589, 3C589B, 3C589C, 3C589D, 3C589E, 3CCE589E, and 3CCE589E series adapters.

| | | | | |
|--|------------------|-------------|-----|-----------|
|  3c589x_2.exe | DOS, Windows 3.x | 18 Jan 2000 | 5.7 | 477,06 KB |
|--|------------------|-------------|-----|-----------|

VS.7 LAN Installation Diskette #2 for the 3Com Megahertz 10 Mbps LAN PC Card. Notes: This is Installation Diskette #2 that ships with the latest shipping 589 series adapters. It includes the DOS ODI and NDIS 2 drivers. It also includes the DOS installer/Diagnostics. Please note that the OEMSETUP file for WFW311 is located in the IBM_40 directory. The Diagnostics included with this diskette should only be used with the 3CCE589E C / 3CCE589E C / 3CCE589E T / 3CCE589E T adapters that it shipped with. These drivers are compatible with the 3C589, 3C589B, 3C589C, 3C589D, 3C589E, 3CCE589E, and 3CCE589E series adapters.

...And if you don't know the model number **or** the brand of computer is card has been integrated in to?

- Chances are, you're screwed, unless you happen to have the original CD or floppy that came with the card, but again, that rarely ever happens.

Installing the network card into the computer (demonstration)

- We'll be installing a PCI network card into a desktop computer
- Let's examine the card to see if we can determine the manufacturer of the card and the model number on the card.

Driver Installation

- Once the computer fires up, Windows will recognize that a new "PCI Ethernet Controller" has been installed. CANCEL out of this prompt.
- We are going to walk through the process of opening the Windows Device Manager and installing a driver for the Ethernet Card we just added to the computer
- The steps are: Right-Click on My Computer. Left-Click on properties. Left-Click on Device Manager Tab. Right-Click on "PCI Ethernet Controller". Left-Click on Properties. Left-Click on Driver Tab. Left-Click on Update Driver button
- Step through the Driver Installation Wizard. Locate the files you downloaded.
- Reboot when prompted.
- These steps illustrated on next slide