Chris' network
(example)

MythTV
10.0.100.5
static

TiVo

Hub

Workstation
10.0.100.100
DHCP

Hub

Workstation
10.0.100.103
DHCP

Workstation
10.0.100.101
DHCP

Switch

10.0.100.1   192.168.1.2

Linux firewall

Hub

Server
10.0.100.2
static
DHCP server

Printer
10.0.100.4
static

802.11b AP
192.168.1.3
static

Internet

DSL/NAT
192.168.1.1
static
DHCP server

Laptop computer
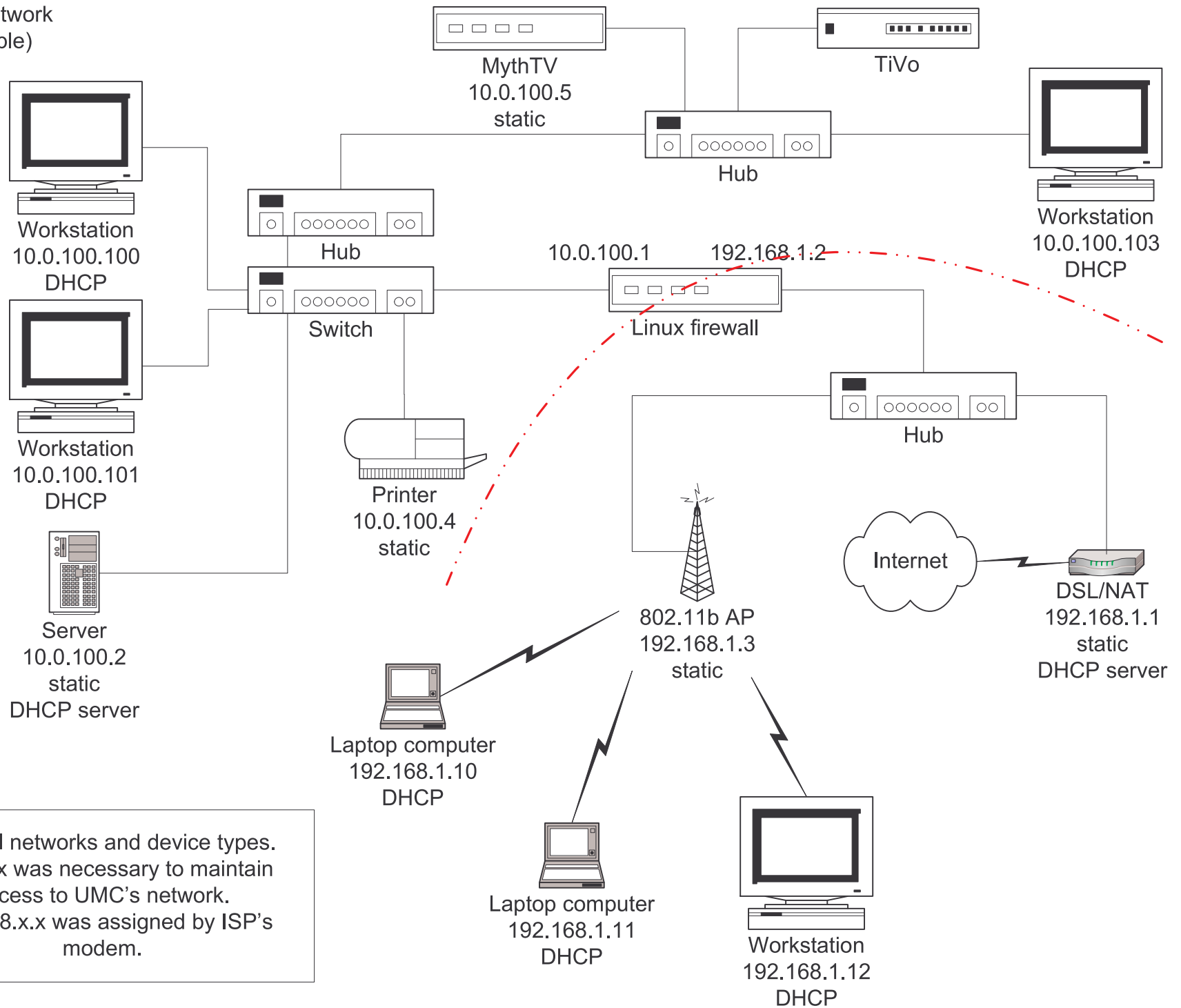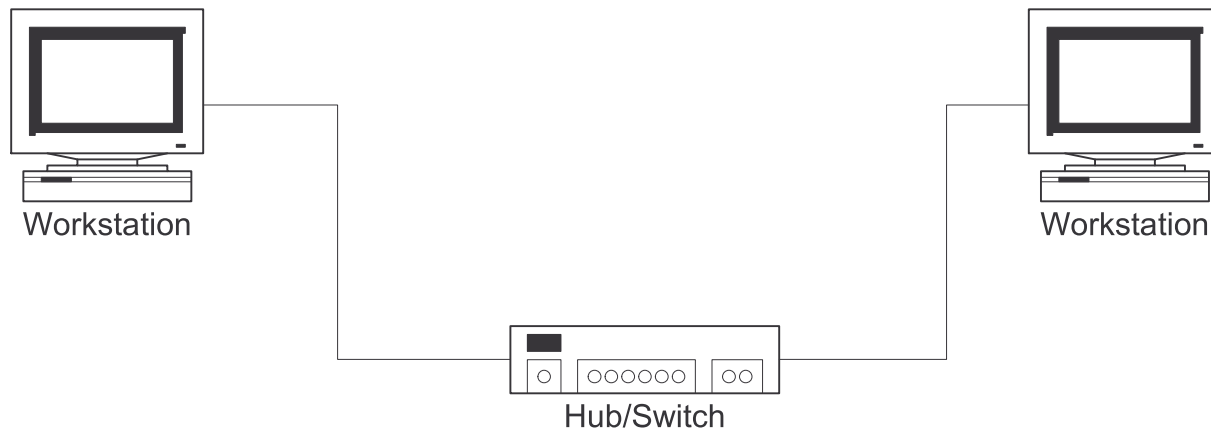192.168.1.10
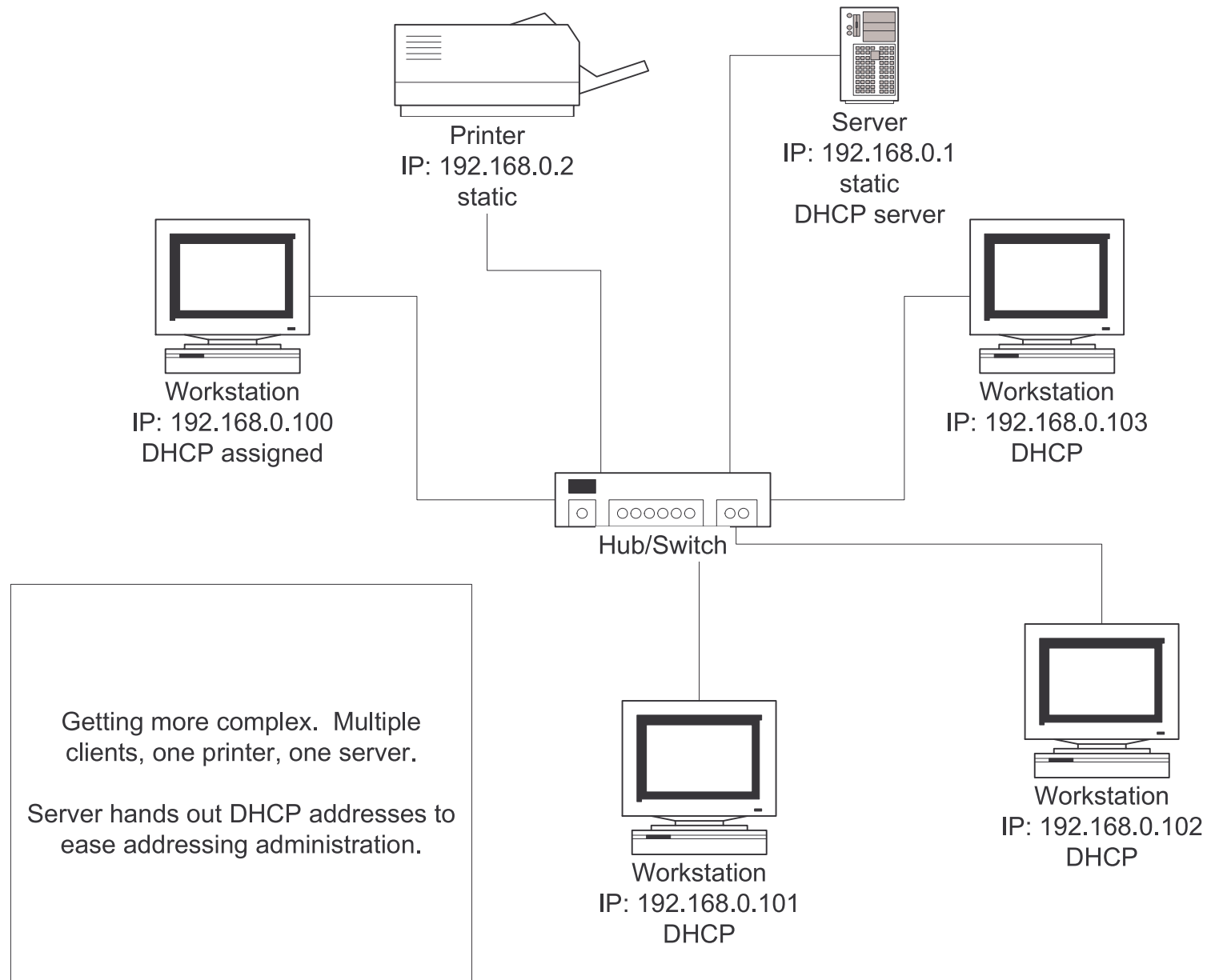DHCP

Laptop computer
192.168.1.11
DHCP

Workstation
192.168.1.12
DHCP

Several networks and device types.
10.x.x.x was necessary to maintain
access to UMC's network.
192.168.x.x was assigned by ISP's
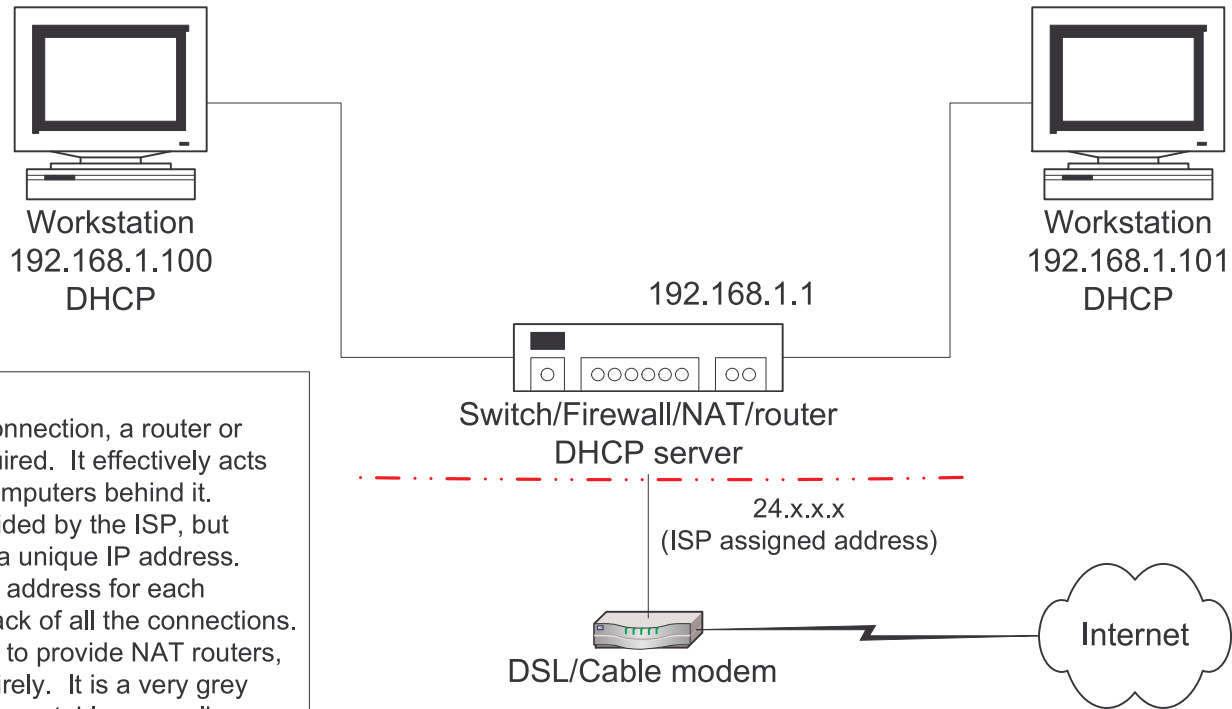modem.

Workstation

Workstation

Hub/Switch

The basic network. Two machines, two
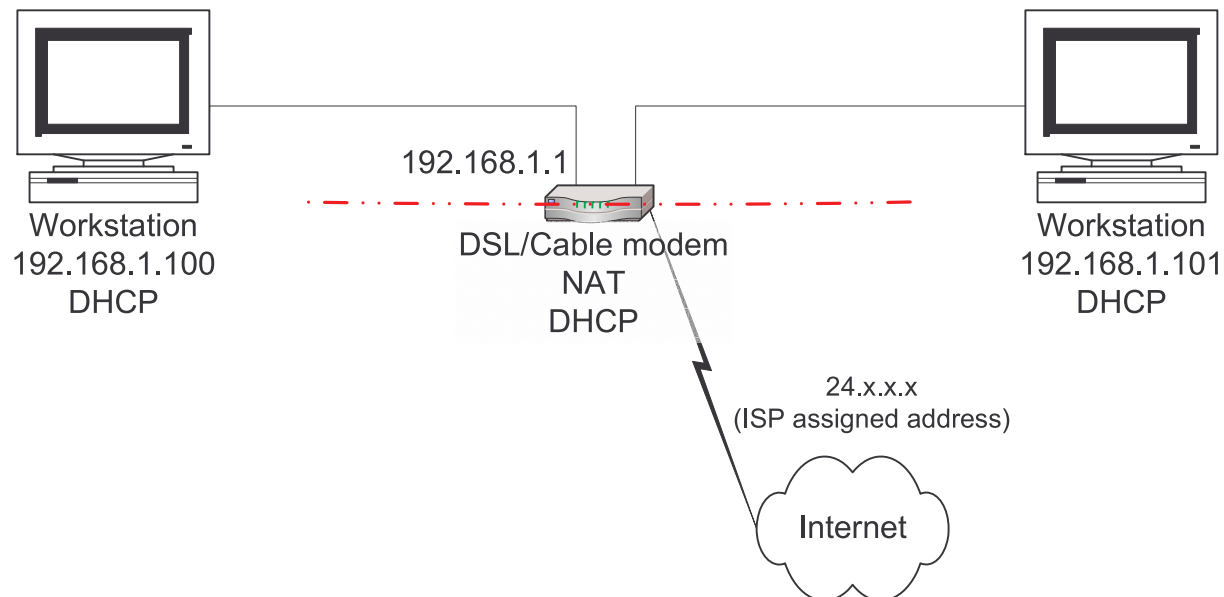ethernet cables, and a hub.

However, needs manual IP addressing or
a protocol that does this automatically
(IPX or NetBEUI).

TCP/IP is the best protocol to use
however. IPX and NetBEUI are not
Internet compatible.

Printer
IP: 192.168.0.2
static

Server
IP: 192.168.0.1
static
DHCP server

Workstation
IP: 192.168.0.100
DHCP assigned

Workstation
IP: 192.168.0.103
DHCP

Hub/Switch

Getting more complex. Multiple
clients, one printer, one server.

Server hands out DHCP addresses to
ease addressing administration.

Workstation
IP: 192.168.0.101
DHCP

Workstation
IP: 192.168.0.102
DHCP

Workstation
192.168.1.100
DHCP

Workstation
192.168.1.101
DHCP

192.168.1.1

Switch/Firewall/NAT/router
DHCP server

To split a broadband connection, a router or NAT "black box" is required. It effectively acts as a proxy for all the computers behind it. One IP address is provided by the ISP, but every computer needs a unique IP address. The black box fakes an address for each computer and keeps track of all the connections. Some ISPs are starting to provide NAT routers, some prohibit them entirely. It is a very grey area. Check with the acceptable use policy.

24.x.x.x
(ISP assigned address)

Internet

DSL/Cable modem

Workstation
192.168.1.100
DHCP

Workstation
192.168.1.101
DHCP

192.168.1.1

DSL/Cable modem
NAT
DHCP

24.x.x.x
(ISP assigned address)

Internet

Parallel

Workstation
192.168.1.100
DHCP

Printer

Parallel

192.168.1.1

Workstation
192.168.1.101
DHCP

Firewall/NAT/router
DHCP server

24.x.x.x
(ISP assigned address)

802.11b AP
(DHCP disabled)

DSL/Cable modem

Internet

Laptop computer
192.168.1.102
DHCP

Workstation
192.168.1.103
DHCP

Wireless Access Point providing wireless connectivity. Make sure
you take proper security measures! Disable SSID broadcast!

Some APs have DHCP server capability. You cannot have two
DHCP servers on the the same segment as they will conflict.

Printer sharing is a feature of some NAT boxes. Another option is to
use Windows printer sharing. The drawback to this is the machine
that has the printer shared has to be on in order for anyone to print.

Reserved network ranges:
10.0.0.0 - 10.255.255.255
192.168.0.0 - 192.168.255.255 - Most consumer devices are using 192.168.1.0 - 192.168.1.255
176.16.0.0 - 176.31.255.255
169.254.0.0 - 169.254.255.255 - Microsoft uses this for it's "autodetect" range.

Use a netmask of 255.255.255.0. There are other ways to set this, but this is the most common.

Gateway is the IP of your router/NAT device, typically 192.168.1.1.

Every computer needs a unique IP address. This can be assigned statically where you have to configure each machine manually, or use DHCP where a DHCP server on the network allocates dynamically IP addresses for which ever computer requests one.

Each computer on the network must have a similar network type interface card. You must use all ethernet or all homePNA or all HomePlug type adapters.

Ping [ip_address] is a low level method of testing connectivity. If you can ping a computer, that means you should be able to communicate on a higher level (share files). A time out error means that the other computer did not answer.

Define all the computers to be in the same workgroup. Default in windows is, surprise, "workgroup".

\\computer_name\resource is the syntax for finding and using computers and whatever they have to offer on the network. \\server\laserprinter could be the path to the network printer for example. \\server\sharedfiles - guess where this goes. Each computer has to have a unique name. Otherwise, how do you specify which network resource you are trying to access?