The Internet
Protocol Layers

Your Computer 1.2.3.4

Internet

Another Computer 5.6.7.8
Routers

NSP Backbone -- NAP -- NSP Backbone

Regional ISP Backbone

Local Area Network

Your Computer 1.2.3.4

Another Computer 5.6.7.8
When you type a URL into a web browser, this is what happens:

1. If the URL contains a domain name, the browser first connects to a domain name server and retrieves the corresponding IP address for the web server.
2. The web browser connects to the web server and sends an HTTP request (via the protocol stack) for the desired web page.
3. The web server receives the request and checks for the desired page. If the page exists, the web server sends it. If the server cannot find the requested page, it will send an HTTP 404 error message. (404 means 'Page Not Found' as anyone who has surfed the web probably knows.)
4. The web browser receives the page back and the connection is closed.
5. The browser then parses through the page and looks for other page elements it needs to complete the web page. These usually include images, applets, etc.
6. For each element needed, the browser makes additional connections and HTTP requests to the server for each element.
7. When the browser has finished loading all images, applets, etc. the page will be completely loaded in the browser window.
When you open your mail client to read your e-mail, this is what typically happens:

1. The mail client (Netscape Mail, Lotus Notes, Microsoft Outlook, etc.) opens a connection to its default mail server. The mail server's IP address or domain name is typically setup when the mail client is installed.
2. The mail server will always transmit the first message to identify itself.
3. The client will send an SMTP HELO command to which the server will respond with a 250 OK message.
4. Depending on whether the client is checking mail, sending mail, etc. the appropriate SMTP commands will be sent to the server, which will respond accordingly.
5. This request/response transaction will continue until the client sends an SMTP QUIT command. The server will then say goodbye and the connection will be closed.
Packets

http://web.stanford.edu/class/msande91si/www-spr04/readings/week1/InternetWhitepaper.htm