

File Transfer Protocol

File Transfer Protocol

- FTP (File Transfer Protocol) is the simplest and most secure way to exchange files over the Internet.
- Transferring files from a client computer to a server computer is called "**uploading**" and transferring from a server to a client is "**downloading**".
- To access an FTP server, users must be able to connect to the Internet or an intranet (via a modem or local area network) with an FTP client program.



File Transfer Protocol

- FTP doesn't really move, it copies files from one computer to another
- FTP is the file transfer protocol in the Internet's TCP/IP protocol suite's Application Layer.

File Transfer Protocol

- An FTP Client is software that is designed to move files back-and-forth between two computers over the Internet.
- It needs to be installed on your computer and can only be used with a live connection to the Internet.

FTP Clients

- Some commonly used FTP clients include the following:
- **FileZilla**- a popular FTP client that is freely available for Windows, Macintosh, and Linux users Available as a free download from the Internet.
- **Fire FTP**- a plug-in for the popular Firefox web browser that can be used just like a standalone FTP program
Installed through the FireFox browser.
- **Dreamweaver**- page layout/design program, which include FTP access as one of its many features
Available for purchase from Adobe

Features

- **The FTP protocol is used for transferring one file at a time**, in either direction, between the client machine (the one which initiated the connection, i.e. the calling machine) and the server machine (which provided the FTP service, i.e. the called machine).
- The FTP protocol can also perform other actions, such as creating and deleting directories (only if they are empty), listing files, deleting and renaming files, etc.

The FTP model

So, both the client and server have two processes allowing these two types of information to be managed:

- **DTP** (*Data Transfer Process*) It establishes the connection and managing the data channel. The server side DTP is called *SERVER-DTP*, the client side DTP is called *USER-DTP*
- **PI** (*Protocol Interpreter*) Controls DTP using commands received over the control channel. It is different on the client and the server:

The FTP model

- The **SERVER-PI** is responsible for listening to the commands coming from a **USER-PI** over the control, establishing the connection for the control channel, receiving FTP commands from the **USER-PI** over this, responding to them and running the **SERVER-DTP**.
- The **USER-PI** is responsible for establishing the connection with the FTP server, sending FTP commands, receiving responses from the **SERVER-PI** and controlling the **USER-DTP** if needed.

The FTP model

- It is important to note that since the control and data ports are separate channels, it is possible to send commands from one machine and receive data on another. So, for example it is possible to transfer data between FTP servers by passing through a client to send control instructions and by transferring information between two server processes connected on the right port.

Types of connections

- **Active Connections:**
 - When an active connection is established, the *server* opens a data connection to the client from port 20 to a high range port on the client machine.
All data from the server is then passed over this connection.

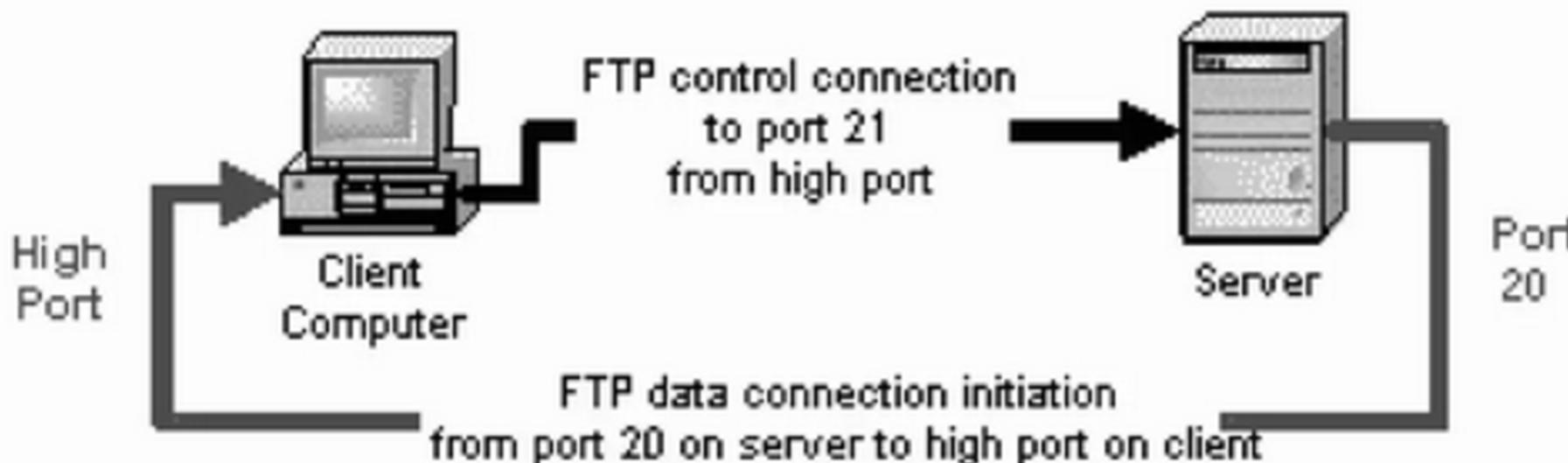
Types of connections

Passive Connections: When a passive connection is established, the *client* asks the FTP server to establish a passive connection port, which can be on any port higher than 10,000.

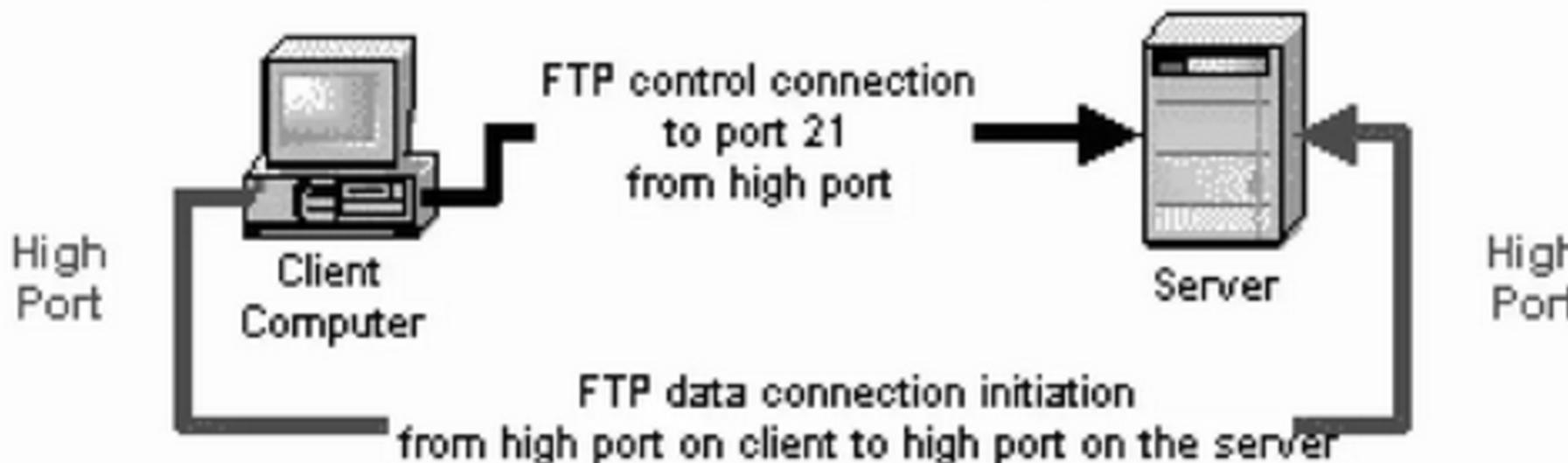
- The server then binds to this high-numbered port for this particular session and relays that port number back to the client. The client then opens the newly bound port for the data connection.
- Each data request the client makes results in a separate data connection. Most modern FTP clients attempt to establish a passive connection when requesting data from servers.

Types of connections

Active FTP



Passive FTP



THANK YOU

ANY QUESTIONS..?

NO HARD QUESTIONS