⊗ How does your computer connect to the Internet?

⊗ What is a Domain Name?

⊗ What is a DNS?

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⊗ What is a URL?

⊗ What is a Web Server?

⊗ How does your computer connect to the Internet?
The easiest method for understanding how your computer locates another computer on the other side of the world is to examine how humans do a similar task. Let's say that you wanted to call a friend who lived in Russia. You know their name, and the town where they lived, but you don't know their phone number. You understand that by dialing various international operators (perhaps even starting with 411) you could reach an English speaking Russian operator that would be able to provide you with the number of your friend in Moscow.

A computer works in a very similar fashion. Like your 411 information service, your computer has a file on it's hard drive that lets it know where to get the correct connection information if the specified location actually exists. The computer that provides this 411-directory assistance service is known as the **Domain Name Server** (or DNS).

⊗ What is a Domain Name?
A domain name is an alias to a number that would otherwise be too difficult to remember. Similar to today's commercial phone numbers that use words instead of numbers, the Internet had to find an easier way to remember the location of a web server other than IP numbers like 123.23.54.96. So the scientists that were designing and augmenting the Internet came up with domain names. Domain names are comprised of a word with a small three-letter suffix that further indicates what type of business the word refers to. In the event the business is a commercially owned and operated company, a suffix of .com would be added to the end of the word. If the establishment is an educational university, the suffix .edu would be added to the end of

the word and so on. Still, every computer needed access to a master list of domain names (or computer addresses) that would allow computers to address TCP/IP packets to the proper destination. And this is why a Domain Name Server was invented.

⊗ What is a DNS?

Domain Name Servers are computers that contain a two-column list of information about where servers live all over the world. The term domain name is used to refer to the Internet addresses that we use to find services. A common example would be www.name.com. When you request a URL like name.com, your computer will connect with a DNS to find the IP address of the server.

⊗ How on Earth does a DNS know the address of a web server in Moscow?

The answer is two fold. There are two primary types of DNS servers: Local, and what is sometimes referred to as Master.

The local version typically lives within your company's walls, or just on the other side of where your computer's modem connects. If you are using a dial-up service, this computer is usually just on the other side of your modem's connection i.e., where you get your Internet server from. A local DNS will only contain a subset of listings that the master DNS contains.

The master DNS will contain a list of all domain names ever registered worldwide. The local DNS is designed to serve the needs of your local company. This means that only popular domain names are stored for faster lookup to actual IP addresses. In the event that the local DNS does not contain the IP address for the domain name you're looking for (like in the example of Moscow.com) the local DNS will make a request to the master DNS to find the IP address guaranteed.

⊗ What is a URL?

Uniform Resource Locators are typically word equivalents that allow your computer to identify remote servers, and often retrieve data that will then be downloaded to your system locally. It should be thought of as a complete name and address to a location in the world in which your web browser uses to author a connection from your local computer to a remote web server.

⊗ What is a Web Server?

This is a computer that's sole purpose is to distribute information that is hosted within its hard drives. Depending on the information, it is accessed and distributed differently. A detailed example would be standard WebPages that are accessed via the Internet protocol http on port 80 and distributed back in the same fashion.

To simplify this process, imagine a server that contains thousands of text files. Each text file can contain any form of content needed by the user. Text, images, sound, movies, etc are all stored in text files throughout the server's hard drives. When a user makes a request using a URL, the web server will reply to that request and stream TCP/IP packets back to your client machine for further processing. If the requested material is a WebPages, then you will see this content in your web browser. On the other hand, if the requested content is a music file, then you will most likely hear sound. The combinations are endless, and there is virtually no limit to the type of content that can be stored on a web server.

In Review:

- Your computer finds other computers using a DNS the same way you use 411.
- A domain name is an alias to an IP address on the internet.
- A domain name server (DNS) provides a list of IP addresses that can be looked up by domain names.
- There are two types of DNSs,
  1. Local, which contains popular or recently accessed IP addresses;
  2. Master, that contain every domain name ever sold.
- An URL is an address to a location on the internet.
- A Web server is a computer that is dedicated to distributing information via the Internet.