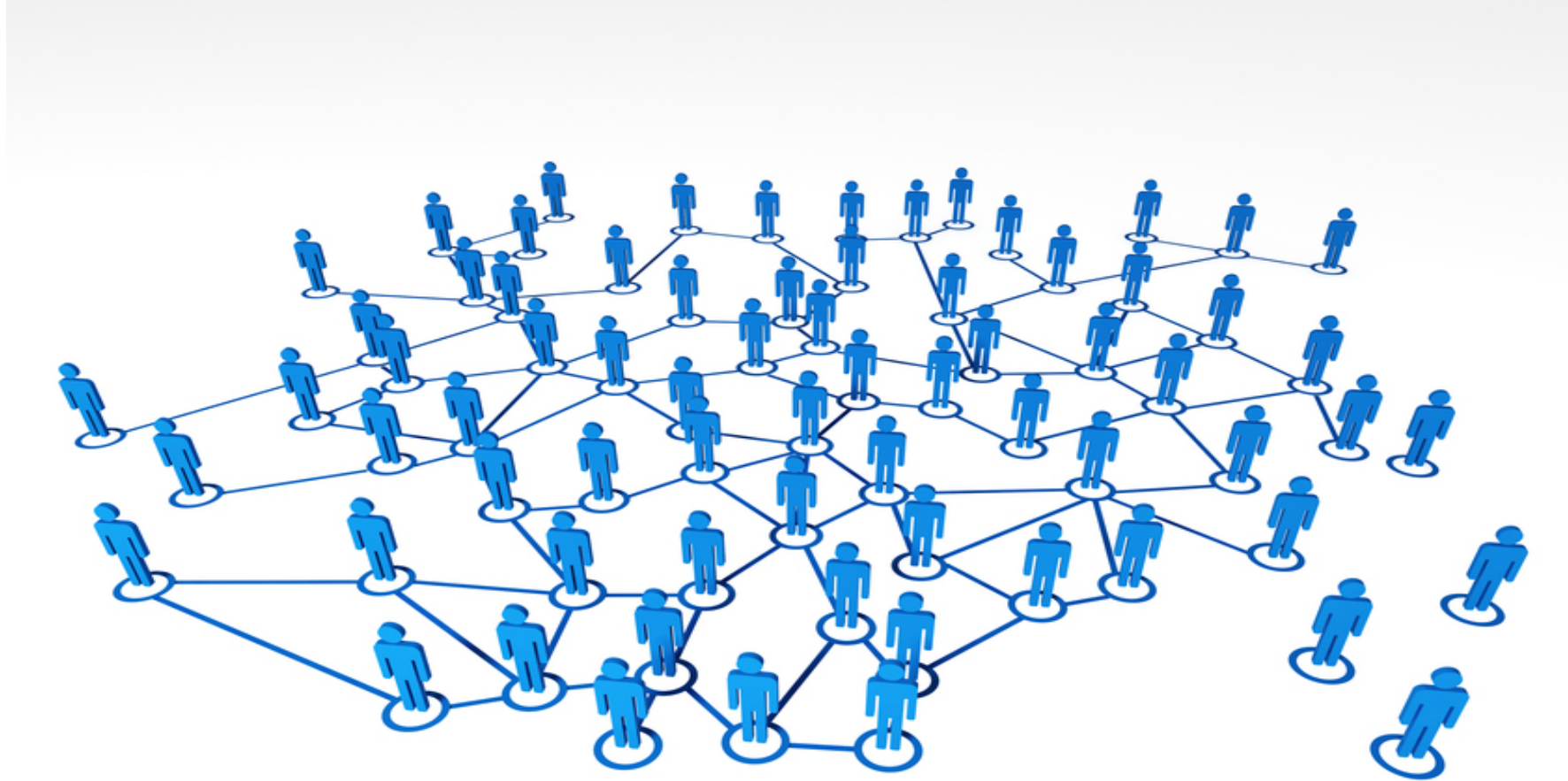


Unit-3

What is Network ?





A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications.

Two very common types of networks include:

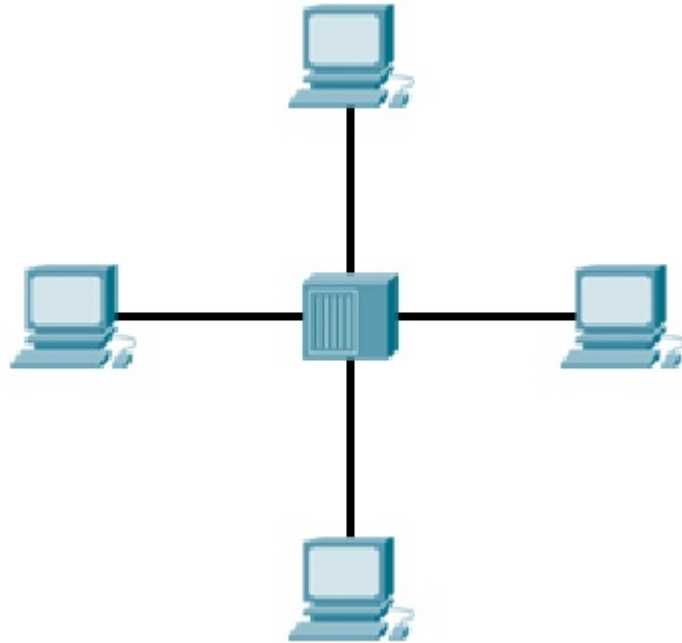
- Local Area Network (LAN)
- Wide Area Network (WAN)

Special type of Network

- Metropolitan Area Networks (MAN)

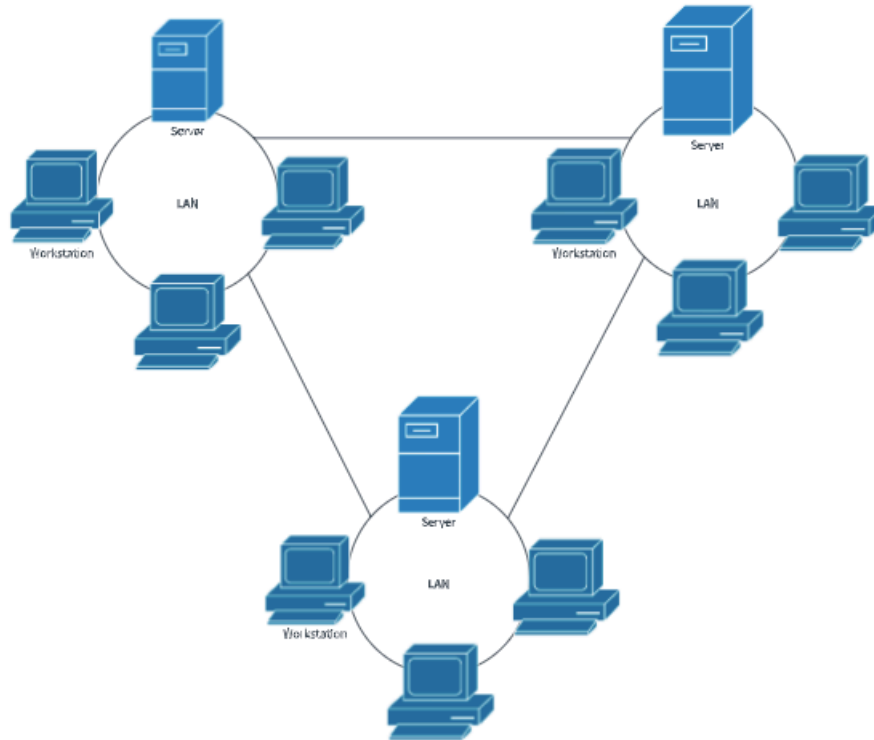
Local Area Network (LAN)

A Local Area Network (LAN) is a network that is confined to a relatively small area. It is generally limited to a geographic area such as a writing lab, school, or building.



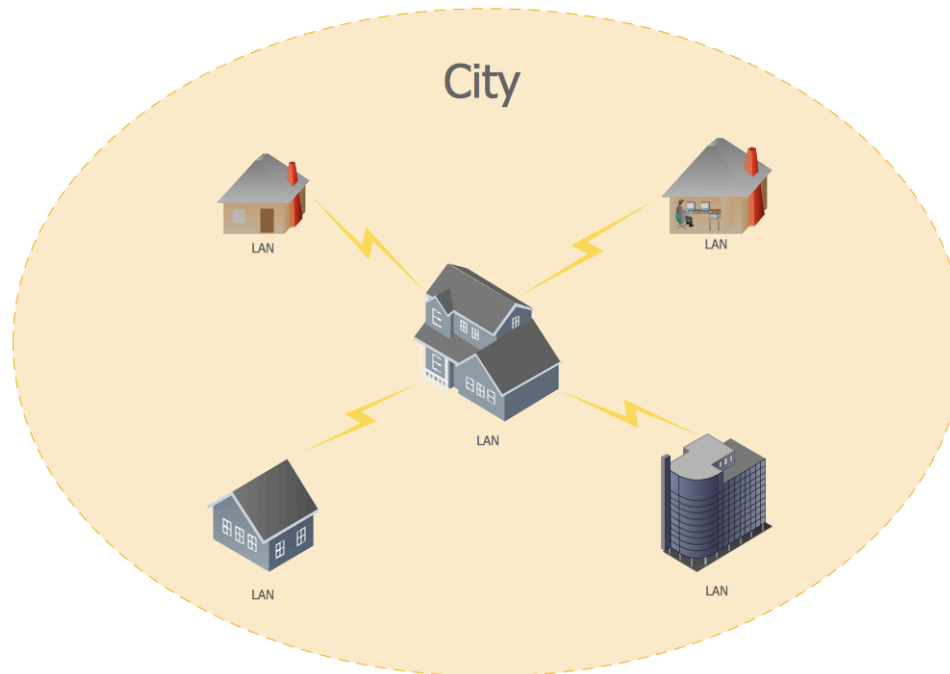
Wide Area Network (WAN)

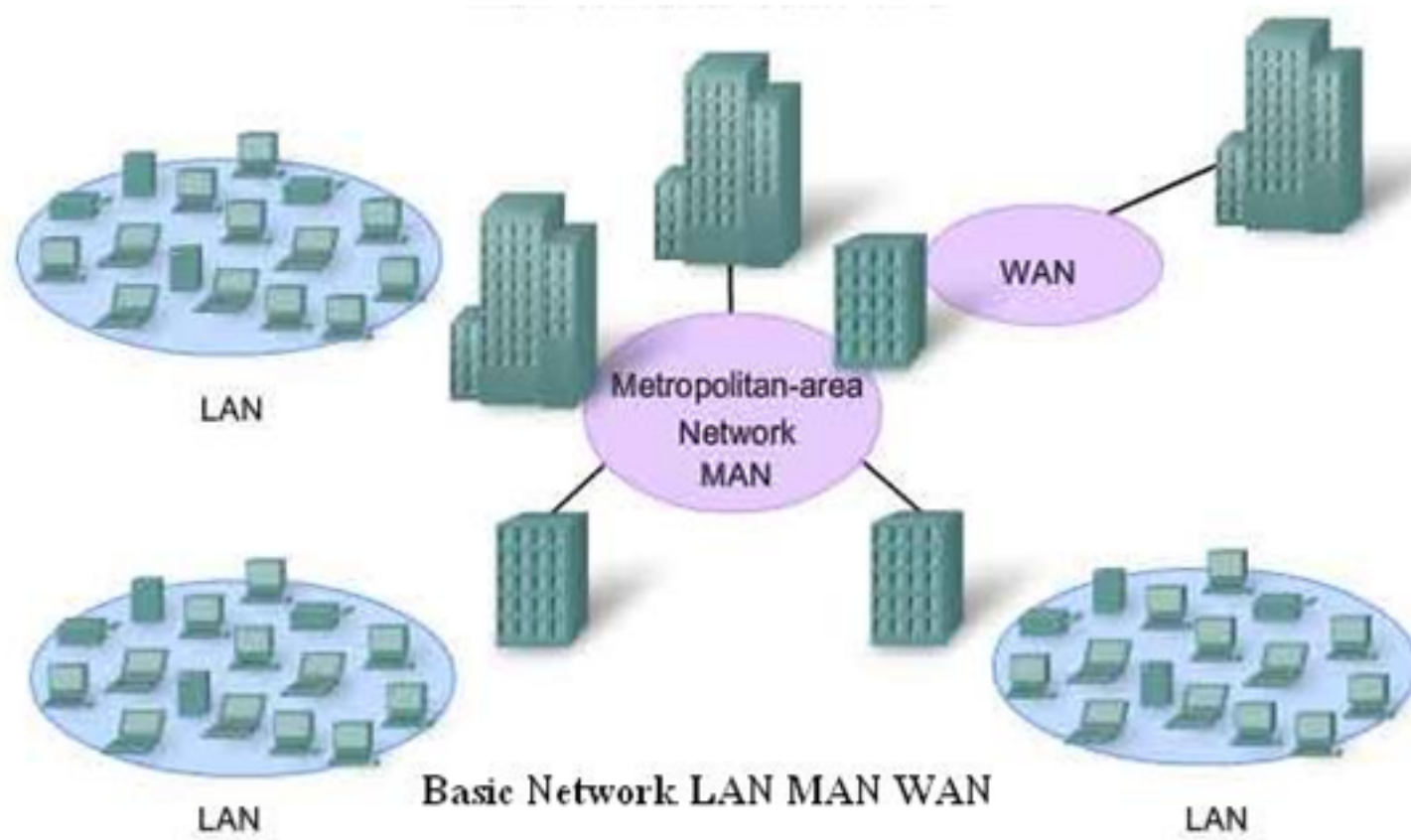
Wide Area Networks (WANs) connect networks in larger geographic areas, such as Tezpur, India, or the world.



Metropolitan Area Networks (MAN)

A metropolitan area network (MAN) is a network that interconnects users with computer resources in a geographic area or region larger than that covered by even a large local area network (LAN) but smaller than the area covered by a wide area network (WAN).





What is the Internet?

The Internet is a global network of networks connecting millions of users worldwide via many computer networks using IP (Internet protocol).

What does Internet Protocol Address (IP Address) mean?

An Internet Protocol address (IP address) is a logical numeric address that is assigned to every single computer, printer, switch, router or any other device that is part of a TCP/IP-based network.

Structure of an IP address.

192.168.3.10

202.24.23.29

What is Domain ?

A domain name is your website name. A domain name is the address where Internet users can access your website. A domain name is used for finding and identifying computers on the Internet. Computers use IP addresses, which are a series of number. However, it is difficult for humans to remember strings of numbers. Because of this, domain names were developed and used to identify entities on the Internet rather than using IP addresses.

A domain name can be any combination of letters and numbers, and it can be used in combination of the various domain name extensions, such as .com, .net and more.

What does World Wide Web (WWW) mean?

The World Wide Web (WWW) is a network of online content that is formatted in HTML and accessed via HTTP. The term refers to all the interlinked HTML pages that can be accessed over the Internet. The World Wide Web was originally designed in 1991 by Tim Berners-Lee.

The World Wide Web is most often referred to simply as "the Web."

<http://www.tezu.ernet.in/>

8876401759

nick@1265

Hypertext Transfer Protocol (HTTP)

HyperText Transfer Protocol (HTTP) is an application-layer protocol used primarily on the World Wide Web. HTTP uses a client-server model where the web browser is the client and communicates with the webserver that hosts the website. The browser uses HTTP, which is carried over TCP/IP to communicate to the server and retrieve Web content for the user.

What does Uniform Resource Locator (URL) mean?

A uniform resource locator (URL) is the address of a resource on the Internet. A URL indicates the location of a resource as well as the protocol used to access it.

<http://www.tezu.ernet.in/>

Web browser

A web browser is a software program that allows a user to locate, access, and display web pages.

Browsers are used primarily for displaying and accessing websites on the internet, as well as other content created using languages such as Hypertext Markup Language (HTML) and Extensible Markup Language (XML).

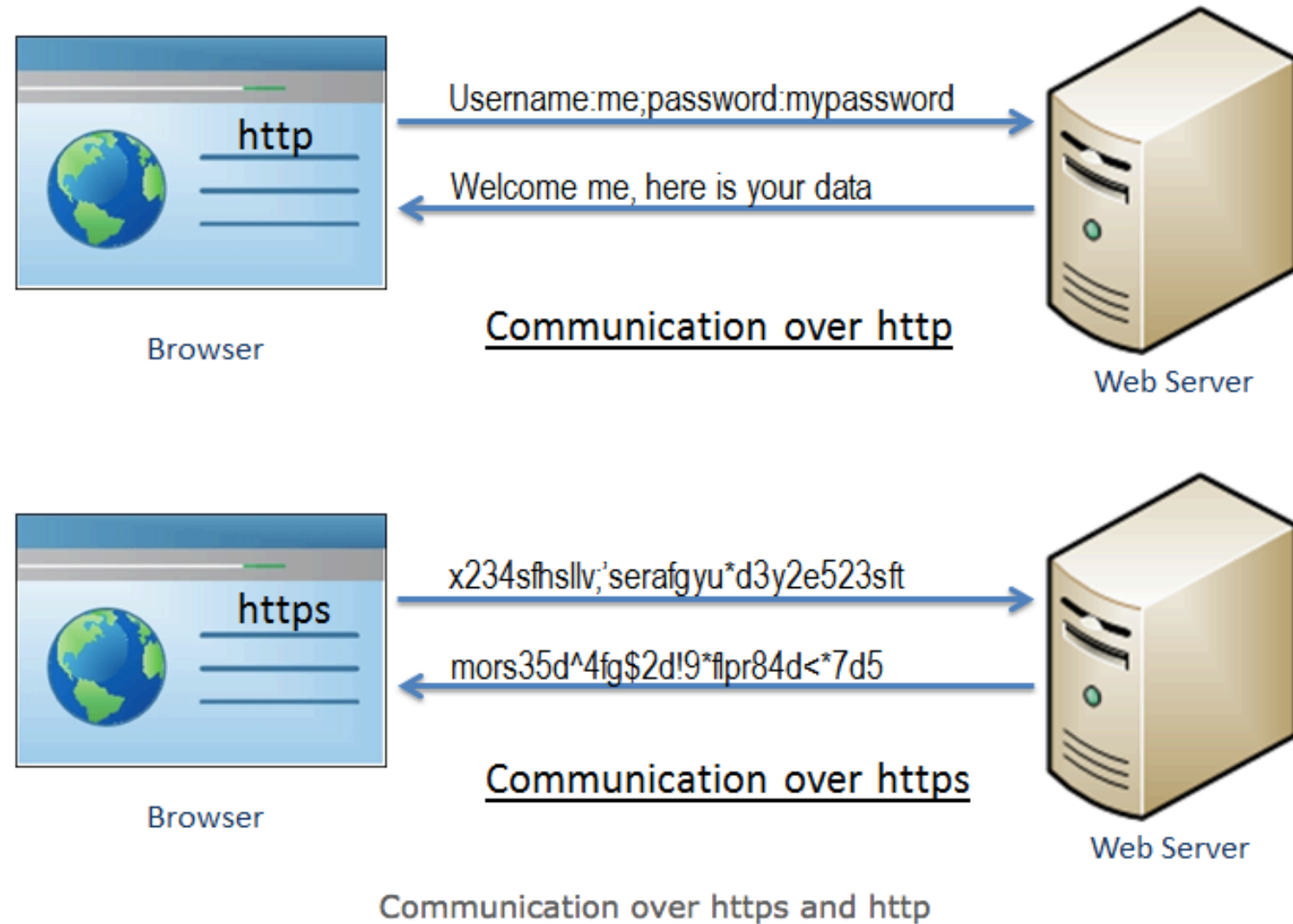
Browsers translate web pages and websites delivered using Hypertext Transfer Protocol (HTTP) into human-readable content. They also have the ability to display other protocols and prefixes, such as secure HTTP (HTTPS)

- E.g: Internet Explorer, Mozilla Firefox, Google Chrome

HTTPS

- Cryptography
- HTTPS stands for Hyper Text Transfer Protocol Secure. It is a protocol for securing the communication between two systems e.g. the browser and the web server.

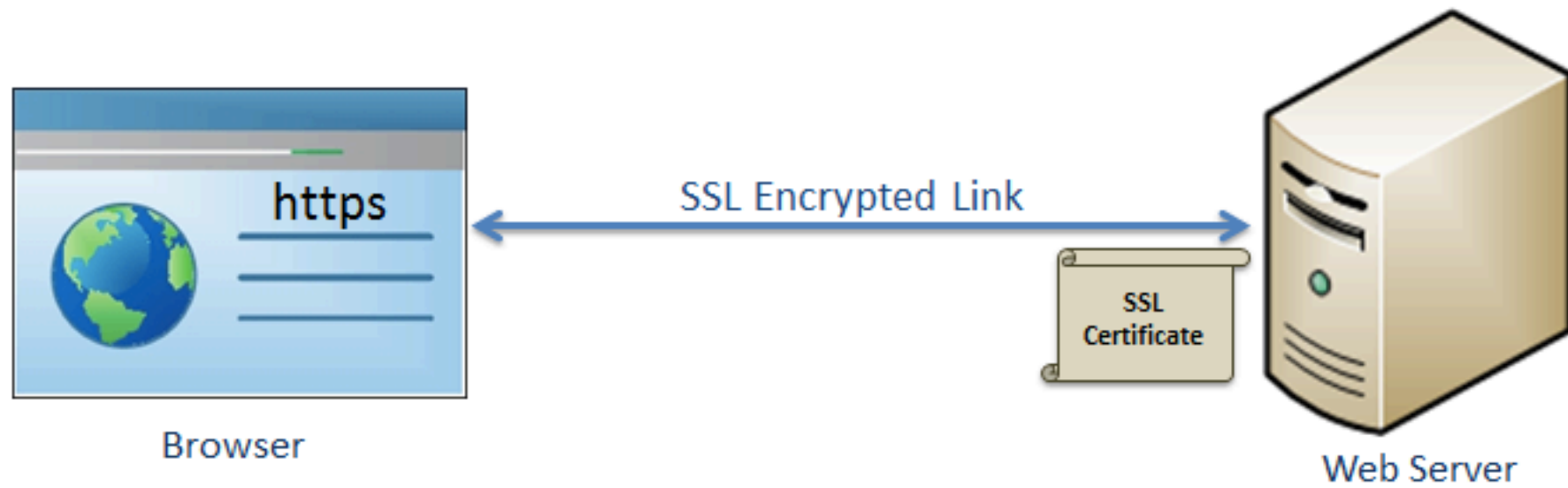
The following figure illustrates the difference between communication over http and https:



- As you can see in the above figure, http transfers data between the browser and the web server in the hypertext format, whereas https transfers data in the encrypted format. Thus, https prevents hackers from reading and modifying the data during the transfer between the browser and the web server. Even if hackers manage to intercept the communication, they will not be able to use it because the message is encrypted.
- HTTPS established an encrypted link between the browser and the web server using the Secure Socket Layer (SSL) or Transport Layer Security (TLS) protocols. TLS is the new version of SSL.

SSL

- Secure Socket Layer (SSL)
- SSL is the standard security technology for establishing an encrypted link between the two systems. These can be browser to server, server to server or client to server. Basically, SSL ensures that the data transfer between the two systems remains encrypted and private.
- The https is essentially http over SSL. SSL establishes an encrypted link using an SSL certificate which is also known as a digital certificate.



SSL

http vs https

http	https
Transfers data in hypertext (structured text) format	Transfers data in encrypted format
Uses port 80 by default	Uses port 443 by default
Not secure	Secured using SSL technology
Starts with <code>http://</code>	Starts with <code>https://</code>