Communication Technology

Protocols and Security

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Protocols

* A **network protocol** is a set of rules and conventions for communication between network devices.

* In other words, it is the rules for devices to send data (communicate) amongst each other

Protocols

* Network protocols have mechanisms for all network communication devices to identify and make connections with other devices, as well as rules that specify how data is put into messages sent and received.

Protocols

* There are many different protocols that we use on a daily basis without us even knowing it.

* Here are a few examples of protocols.

Protocols

* POP3 – is the Post Office Protocol. It is being used by local e-mail clients to retrieve e-mail

* HTTP and HTTPS - the Hypertext Transfer Protocol provides a standard for us to browser the web and for servers to communicate. As soon as the ‘s’ is added to HTTP it means it is a secure site that you are visiting

Protocols

* SMTP - ***S**imple **M**ail **T**ransfer **P**rotocol,* this protocol is for sending e-mail messages from one server to another.

* VoIP – allows you to make telephone calls over a computer network like the Internet. VoIP converts analogue voice signals into digital data and supports real-time, two-way transmission of conversations using Internet Protocol (IP). In other words – exactly like a telephone call, only cheaper.

Security Features

* When working on a network it is very important to make sure that all the data on the network is indeed safe.
* To ensure data safety, we implement the following:
  * Good passwords
  * Firewalls
  * Encryption

Security Features

* A password is essential in protecting data.
* To make sure that you make up a good password you can follow these guidelines:
  * At least eight characters long.
  * Does not contain your user name, real name, or company name.
  * Does not contain a complete word.
  * Is significantly different from previous passwords.
  * Contains characters from each of the following four categories: Uppercase, lowercase, numbers and symbols

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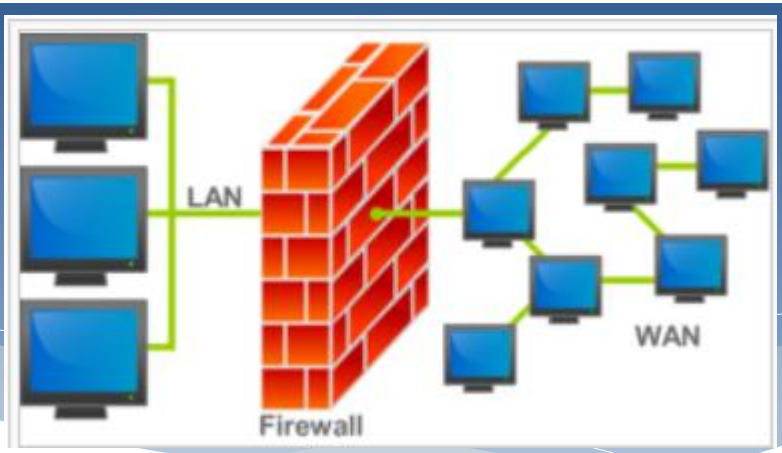
Security Features



* Firewalls - is a software or hardware-based network security system that controls the incoming and outgoing network traffic by analyzing the data packets and determining whether they should be allowed through or not, based on the applied rule set.
* Firewalls can be defined in many ways, according to your level of understanding. A firewall establishes a barrier between a trusted, secure internal network and another network (e.g., the Internet) that is not assumed to be secure and trusted. http://en.wikipedia.org/wiki/Firewall_(computing)

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Security Features

* Encryption - is the scrambling of data so that it can only be decoded and read by someone who has the correct decoding key.
* Encryption is to secure Web sites as well as other mediums of data transfer.
* If an unauthorized person were to intercept the message you sent via an encrypted connection, they would not be able to read it because they do not have the decoding key.

Data transfer through a network

* Animation of data transfer part 1
* Animation of data transfer part 2