Network training

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Contents

1 Introduction

1.1 Classification

Give a concrete example of each of the following kinds of networks (name some devices):

1. BAN,
2. PAN,
3. LAN,
4. WAN.

1.2 Topologies

Give a concrete example of each of the following network topologies:

1. Bus,
2. Star,
3. Fully connected.

1.3 TCP connection

According to TCP (RFC761 (January 1980)) , what are the sequences used in order to establish a connection between two hosts?

1.4 TCP or UDP?

1.4.1 Sensors

You are creating a network application using sensors. The sensors can receive requests to change their settings (rate of measurement, range...) and they continuously send their measurements.

1. Should request packets (settings) be sent with UDP or TCP? Why?
2. Should measurement packets be sent with UDP or TCP? Why?

1.4.2 Website

Does HTTP (RFC2616 (June 1999)) rely on TCP or UDP? Why?

1.5 FTP

1.5.1 Is FTP secure?

According to the file ftp-connect.pcap is FTP secure? What could you do to use it more securely?

1.5.2 FTP and TCP

According to the file ftp-disconnect.pcap does FTP respect the TCP protocol to close a connection?

1.6 DNS

1.6.1 Some news

According to the file nslookup.pcap what is:

1. the DNS server?
2. the domain name for which the IP address is needed?
3. the IP address of the domain if any?

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1.6.2 Which one?

According to the file nslookup-whoseone.com.pcap what is:

1. the DNS server?
2. the domain name for which the IP address is needed?
3. the IP address of the domain if any?

1.7 Ping-pong

1.7.1 Are you there?

According to the file ping.pcap :

1. what is the node 127.0.0.1 doing?
2. Is the node 127.0.0.2 on the network?

1.7.2 Who has this IP?

According to the file arp.pcap and to ARP (RFC826 (November 1982)). What is the source trying to do? What is ARP used for? If ever a host does not respond to ping (i.e., for security reasons), how could you check if the host is up anyway ?