Winter 2021 - COM SCI118-1 - PAU

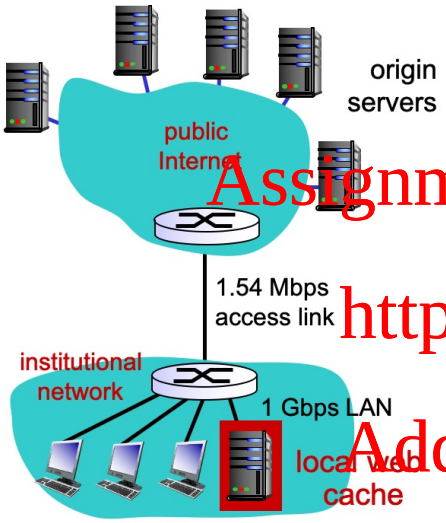
Started on	Thursday, 4 February 2021, 4:57 PM PST
State	Finished
Completed on	Thursday, 4 February 2021, 5:27 PM PST
Time taken	29 mins 59 secs
Grade	**26.00** out of 50.00 (**52**%)

Question **1**

Correct

2.00 points out of 2.00

Consider the topology below.



Parameters:

Average Web object size: X kbit
Browser send an average N. of Lambda/s requests
The total web traffic on the Local Area Network is 1.5 Mbit/s
RTT to "origin servers": RTT=0.88 secondi
LAN Delay =0.002
Cache hit rate: H=0.8

please compute the average delay on the client browser

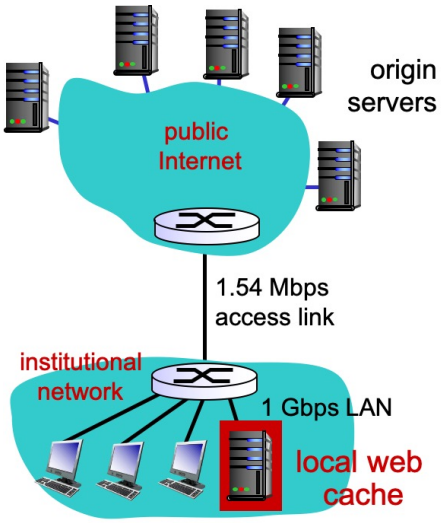
Answer: 0.1776 ✔

The correct answer is: 0.178000

Not answered

Points out of 2.00

The figure below represents the network topology for the company XYZ ltd.



The network parameters are the following:

- Average Web-object size: X kbit
- N. of Web requests at same time: lambda req/s
- Total Local Area Network Traffic 1,5Mbit/s di
- RTT to any of the "origin server": RTT=0.51
- Cache hit rate: H=0.7

Compute the Link Utilization for the Access Link

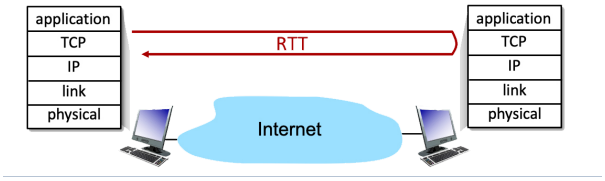
Answer:

The correct answer is: 0.29221

Correct

5.00 points out of 5.00

Let's consider the scenario in the figure below



a TCP connection at time T_0 has the following parameters:

estimatedRTT= 2.7
DevRTT= 3.4
$\alpha = 0.125; \beta = 0.25; G = 0$

the next 3 packets received have the following measured RTTs : rttpk1=2.5, rttpk2=9.3; rttpk3=4.2 respectively.

***Compute**:*

1. ***DevRTT** after receiving the first packet with rttpk1=2.5*

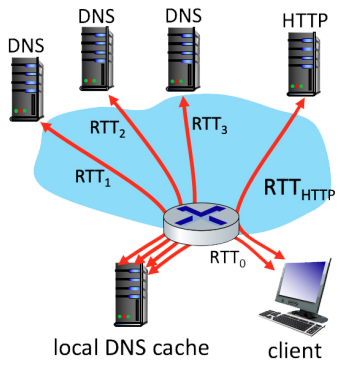
Answer: 2.6 ✔

The correct answer is: 2.60

Not answered

Points out of 2.00

Consider the following topology:



a Web user, performs a mouse click to fetch a web object:

- the IP address associated with the requested URL is NOT stored in the local-host cache
- The necessary DNS query goes through 4 DNS Servers;
- the **first** DNS is contacted by the host is the "**local DNS Cache**" with RTT_0 = 5.2 **milliseconds (ms);**
- the **second**, **third**, and **forth** DNS have RTT_1=5.5 ; RTT_2 =4.9 RTT_3=2.3 **milliseconds** respectively**;**
- The **RTT** between the host and the web server is $RTT_e = 9.3$ **millisecondi**;
- the URL refers to a very small object and assume the object transmission time as **negligible**

COMPUTE:

the time that elapses between the user click and the object rendering in the client browser assuming the transmission and rendering delays are negligible.

Answer: [ ] ✖

The correct answer is: 36

Correct

1.00 points out of 1.00

Consider a Stop and Wait Protocol. Compute the link utilization using the following parameters:

Packet Length in Bits L=8000

Link Rate R=1000000000

Round Trip Time RTT=0.5988

Answer: 0.000013 ✔

The correct answer is: 1.3359875e-5

Question **6**

Correct

1.00 points out of 1.00

Performances in a Stop-and-wait protocol are a function of the following parameters:

1/ Packet Length L bits

2/ Transmission Rate R bit/s

3/ Round Trip Time RTT seconds.

Considering the following values:

L=1491

R=4

RTT={rtt}

Compute the transmission delay

Answer: 372.75 ✔

The correct answer is: 373

Incorrect

0.00 points out of 4.00

Compute the average throughput of the following TCP Connection:

Average TCP Window in bytes W=62

RTT=0.78 secondi

Use the formula for average TCP throughput described in the book.

Answer: 79.487 ✖

The correct answer is: 59.62

Question **8**

Incorrect

0.00 points out of 2.00

TCP Implements:

a. Distance Vector Forwarding

b. A congestion control always exponential

c. A link state based congestion control forwarding ✖

d. None of the Answers is Correct.

The correct answer is: None of the Answers is Correct.

Incorrect

0.00 points out of 2.00

The Slow Start algorithm in TCP:

Select one:

- a. Limits the TCP flip-flop effect
- b. Finds the minimum geometric distance between two congestion algorithms
- c. Defines formally way the optimal congestion cost given the network parameters ✖
- d. None of the answers is correct.
- e. Probes the initial available bandwidth for a TCP connection through an exponential growth of the window.

The correct answer is: Probes the initial available bandwidth for a TCP connection through an exponential growth of the window.

Question **10**

Incorrect

0.00 points out of 2.00

TCP Reno implements:

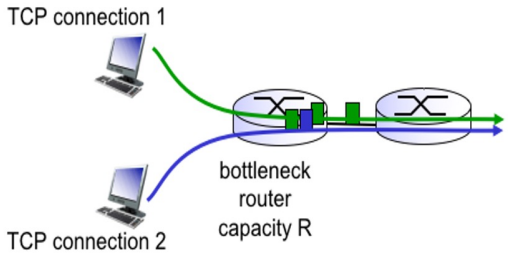
Select one:

- a. A linear slow start algorithm ✖
- b. An exponential congestion control algorithm
- c. A hierarchical data forwarding algorithm
- d. An Additive Increase Multiplicative decrease Congestion Control algorithm
- e. None of the presented answers is correct

The correct answer is: An Additive Increase Multiplicative decrease Congestion Control algorithm

Incorrect

0.00 points out of 2.00



A TCP connection is considered Fair if:

Select one:

- a. None of the presented answers is correct.
- b. Computes a RTT estimation based only on the sending side.
- c. Computes the distance between the fast-retransmit window and the minimum window.
- d. Computes the congestion window based on the RTT ✖

The correct answer is: None of the presented answers is correct.

Question **12**

Correct

1.00 points out of 1.00

The UDP protocol: (check the most appropriate):

Select one:

- a. provides a reliable transport service
- b. is connection oriented
- c. none of the presented answers is correct.
- d. is not used to transport data
- e. is connectionless ✔

The correct answer is: is connectionless

Incorrect

0.00 points out of 5.00

A client HTTP requests a web page to a server using HTTP. The web page consists in:

1 base html file + 10 additional objects.

Each object is L=200 [kbit] long. The link between the client and the server is bi-directional with a Rate C=100 [kbit/s].

The TCP control messages and the GET request are m=100 [bit] long. The propagation delay is tau = 100 [ms].

Compute the time needed for the client to fetch the web page and the 10 linked objects assuming that the client is operating in NON persistent mode

Select one:

- a. 12.215 [s]
- b. 27 [s]
- c. 26.433 [s]
- d. 27.534 [s] ✖
- e. None of the presented answer is correct.

The correct answer is: 26.433 [s]

Question **14**

Correct

1.00 points out of 1.00

The TCP transport protocol is:

Select one:

- a. window-less
- b. Connection Oriented ✔
- c. Connection-Less
- d. None of the presented answers is correct.
- e. Provides an unreliable service

The correct answer is: Connection Oriented

Correct

1.00 points out of 1.00

TCP connection is established :

Select one:

- a. using a best effort protocol
- b. none of the presented answers is correct
- c. using a three way handshake protocol ✔
- d. by a forced connection
- e. using a dual backup connection protocol

The correct answer is: using a three way handshake protocol

Question **16**

Correct

1.00 points out of 1.00

UDP is used mainly in the following case:

Select one:

- a. Files and Executables
- b. VoiP and Streaming ✔
- c. None of the presented answers is correct
- d. email
- e. VID (Very Important Data)

The correct answer is: VoiP and Streaming

Correct

1.00 points out of 1.00

What application protocol is used to transfer web-pages?

Select one:

- a. SSH
- b. http ✔
- c. DNS
- d. None of the presented answers is correct
- e. telnet

The correct answer is: http

Question **18**

Correct

1.00 points out of 1.00

What is the protocol used for sending e-mails?

Select one:

- a. None of the presented answers is correct
- b. DHCP
- c. POP3
- d. SMTP ✔
- e. Telnet

The correct answer is: SMTP

Correct

1.00 points out of 1.00

Which protocol is used to secure the connection and encrypt the data in HTTPS?

Select one:

- a. None of the presented answers is correct
- b. SSL ✔
- c. STP
- d. DHCP
- e. SSH

The correct answer is: SSL

Question **20**

Correct

1.00 points out of 1.00

UDP Header is:

Select one:

- a. 8 bytes long ✔
- b. 64 bytes long
- c. None of the presented answers is correct
- d. 32 bytes long
- e. 16 bytes Long

The correct answer is: 8 bytes long

Correct

1.00 points out of 1.00

A communication can be defined reliable if:

Select one:

a. Errors must be corrected

b. noise must be compensated

c. Errors must be detected

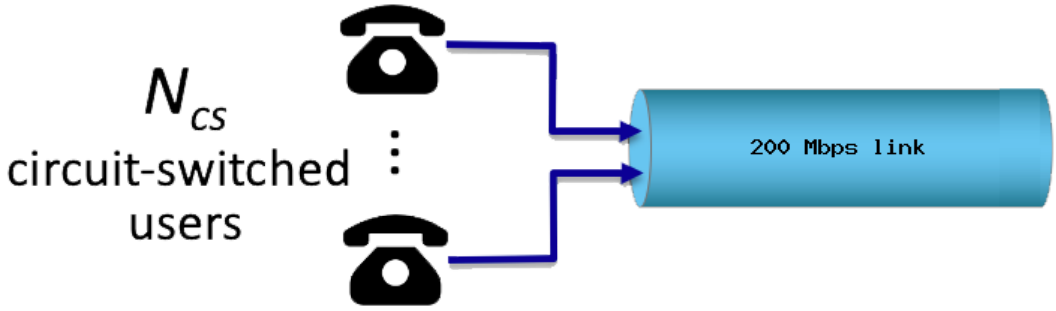
d. ALL of the presented statements must be true at the same time ✔

The correct answer is: ALL of the presented statements must be true at the same time

Correct

1.00 points out of 1.00

Consider the two scenarios below (Circuit Switching e Packet Switching)



The link capacity R is 200Mbps

In the "Circuit Switching" scenario each user requires 20Mbps

in the "Packet Switching" scenario a user uses 20Mbps and transmits 20% of the time

Compute the Maximum number of contemporary users in the Circuit Switching scenario

Select one:

- a. 10 ✔
- b. 15
- c. 20
- d. 8

The correct answer is: 10

Incorrect

0.00 points out of 2.00

Assuming TCP segments of 1500 bytes. How many segments are necessary to achieve full utilization of a link with:

Capacity = 10Gbit/s

RTT= 100ms

recall the link utilization formula.

Answer: 8334

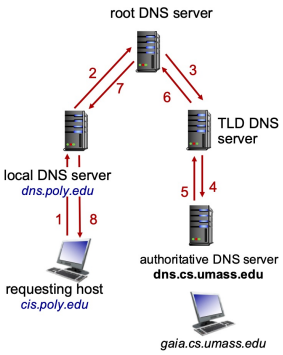
The correct answer is: 83333

Question **24**

Correct

1.00 points out of 1.00

What type of DNS query is depicted by the figure below?



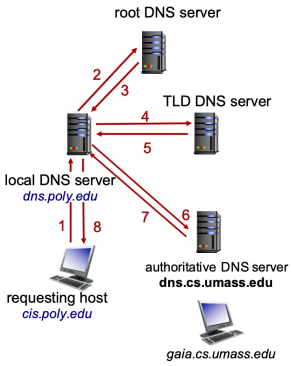
Answer: recursive

The correct answer is: recursive

Correct

1.00 points out of 1.00

What type of DNS query is in the Figure?



Answer: iterative

The correct answer is: iterative

Question **26**

Correct

1.00 points out of 1.00

In slow start: TCP doubles the congestion window at every RTT

Select one:

- True
- False

The correct answer is 'True'.

Question **27**

Correct

1.00 points out of 1.00

Internet is built on ISP connected in a hierarchically

Select one:

- True
- False

The correct answer is 'True'.

Correct

1.00 points out of 1.00

The DNS protocol is used to send and receive e-mail but only from a smartphone

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **29**

Correct

1.00 points out of 1.00

TCP control algorithms are known as AIMD because they use AI to decide the congestion window size

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **30**

Incorrect

0.00 points out of 1.00

When TCP reaches the "slow start threshold" the protocol switches from the slow-start to "congestion-avoidance". The congestion window behavior goes from exponential to logarithmic.

Select one:

- True ✖
- False

The correct answer is 'False'.

Correct

1.00 points out of 1.00

Flow control algorithms in in UDP are known as BBR (best basic rate) as they perform the best flow-control.

Select one:

- True
- False ✔

The correct answer is 'False'.

◄ Midterm Study Guide

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