

Computer Networks 2021 Exercises - Unit 1

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NOTE: Each student's work unit is unique. You must use the work that has been generated for your FAN. If you do not, then you will fail this work unit.

NOTE: You must record your answers in the answer file EXACTLY as required, and commit and make sure your changes have been pushed to the github server, as they will otherwise not be counted.

NOTE: The topic coordinator will periodically run the automatic marking script, which will cause a file called unit1-results.pdf to be updated in your repository. You should check this file to make sure that your answers have been correctly counted. That file will contain the time and date that the marking script was last run, so that you can work out if it has been run since you last changed your answers. You are free to update your answers as often as you wish, until the deadline for the particular work unit.

1 Specify the OSI Layer to which best matches each statement

For each question, you must record your answer in the unit1-answers.txt file in your git repository. For example, if you believed that the following question best matched the Network Layer, which is layer 3, you would put the digit 3 at the end of the rj= line in the file unit1-answers.txt.

Question#	Description
rj	Responsible for inter-networking

The entry in unit1-answers.txt would thus look like:

```
# Question 'rj': Which layer best fits this statement: Responsible for inter-networking
rj=3
```

Templates for each answer are provided in unit1-answers.txt for your convenience.

Which network layer best matches the following descriptions?

Question#	Description
ab	Responsible for flow-control in a network

Question#	Description
ac	Corrects the order of received packets, if they are received out of order

Question#	Description
ad	Interprets the address in the header to determine which receiver on a local network segment should receive it.

Question#	Description
ae	Is used to abstract the network for user-oriented programmes

Question#	Description
af	Detects and reacts to congestion on network path between distant nodes

Question#	Description
ag	Responsible for the forwarding of messages or packets

Question#	Description
ah	Responsible for electromagnetic compatibility

Question#	Description
ai	Responsible for electromagnetic spectrum allocation

Question#	Description
aj	De-duplicates received packets

Question#	Description
ak	Provides globally addressable identifiers for nodes on large networks

Question#	Description
al	The layer where virtual circuits can be established

Question#	Description
am	Facilitates connection-oriented communications

Question#	Description
an	Responsible for human-computer interaction

Question#	Description
ao	Provides galvanic isolation between nodes on a network

Question#	Description
ap	Responsible for routing packets among networks

Question#	Description
aq	Provides support for common services

2 Specify the OSI Layer in which correspond to the following network protocols

For each question, you will need to research the protocol, and judge to which OSI network layer it corresponds. For each question, you must record your answer in the `unit1-answers.txt` file in your git repository. For example, if you believed that the following question best matched the Physical Layer, which is layer 1, you would put the digit 1 at the end of the `fq=` line in the file `unit1-answers.txt`.

Question#	Protocol
fq	RFC1149

The entry in `unit1-answers.txt` would thus look like:

Question 'fq': To which layer does this protocol correspond? : RFC1149

fq=1

Templates for each answer are provided in unit1-answers.txt for your convenience.

To which OSI network layer do the following protocols correspond?

Question#	Protocol
ar	1000BASE-SX

Question#	Protocol
as	LattisNet

Question#	Protocol
at	Digital subscriber line (DSL)

Question#	Protocol
au	Authentication Header (AH)

Question#	Protocol
av	Asynchronous Transfer Mode (ATM)

Question#	Protocol
aw	9P (protocol) (9P)

Question#	Protocol
ax	Spanning Tree Protocol (STP)

Question#	Protocol
ay	HTTPS

Question#	Protocol
az	Internet Control Message Protocol (ICMP)

Question#	Protocol
ba	Plan 9 from Bell Labs (Plan 9)

Question#	Protocol
bb	Network address translation (NAT)

Question#	Protocol
bc	100BASE-T

Question#	Protocol
bd	Media Access Control (MAC)

Question#	Protocol
be	Apple Filing Protocol (AFP)

Question#	Protocol
bf	Internet Protocol

Question#	Protocol
bg	Infrared Data Association (IrDA)

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For each question, you are presented with a fictional network topology and layered network protocol stack(s). You must answer questions about these networks. For each question, you must record your answer in the `unit1-answers.txt` file in your git repository. For example, if you believed that the answer to the following question was 42, you would write 42 at the end of the `x1=` line in the file `unit1-answers.txt`.

Question#	How large would the indicated Protocol Data Unit be? (in bytes)
x1	C.3

The entry in `unit1-answers.txt` would thus look like:

```
# Question 'x1': How large would the indicated Protocol Data Unit be? (in bytes)
x1=42
```

Templates for each answer are provided in `unit1-answers.txt` for your convenience.

Answer the following questions about the fictional network topologies shown

Fictional Network Topology 1

Network Stack 1: 'gefahrt'

OSI Layer #	Name	PDU Header Size (bytes)
7	verwitzung	65
6	besinns	75
5	anwitzte	35
4	auslauftest	34
3	verpflumtest	68
2	enhalten	5

Network Stack 2: 'anpflumkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufrauchse	39
6	zersinnung	83
5	angesitzst	58
4	behundt	80
3	gehunds	98
2	zerkrauer	65

Network Stack 3: 'ensprachte'

OSI Layer #	Name	PDU Header Size (bytes)
7	zerstehetst	6
6	gewarfer	72
5	ausgehaltse	43
4	verkaest	88
3	gespracht	21
2	ankatzetest	10

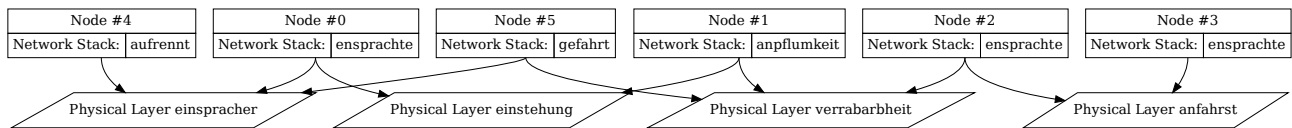
Network Stack 4: 'aufrennt'

OSI Layer #	Name	PDU Header Size (bytes)
7	engehs	80
6	versitzheit	76
5	bepflumte	29
4	ankrauheit	46
3	ausgestehtete	29
2	angetritttete	66

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
einspracher	41	2257	699
einstehung	92	6342	690
verrabarbarkeit	81	8071	382
anfahrst	90	3449	785

Network Diagram



Question#	Question
bh	Could applications on nodes 2 and 4 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
bi	If an application on node 2 sends 752 bytes of data, how large would the PDU be at layer 5? Provide the exact number of bytes as your answer.
bj	Without regard for networking stacks, what is the data rate that is possible between nodes 2 and 4? Provide the exact number of kilo-bits per second as your answer.
bk	How many milli-seconds would it take node 2 to send 7241 bytes of data to node 4? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 2

Network Stack 1: 'angekaestest'

OSI Layer #	Name	PDU Header Size (bytes)
7	verhundtest	100
6	getrauung	61
5	antrauung	89
4	auskatzeen	2
3	angefahren	51
2	angerauchte	61

Network Stack 2: 'ausgekaeste'

OSI Layer #	Name	PDU Header Size (bytes)
7	angesprochen	67
6	angelaufetest	47
5	aufgesitzte	28
4	aufkletten	77
3	gerauchse	19
2	ausgepflumtest	38

Network Stack 3: 'ausgehundkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausgehundung	31
6	angesitzs	4
5	einlaufte	62
4	aufpflumheit	82
3	enkaesen	27
2	besetzer	100

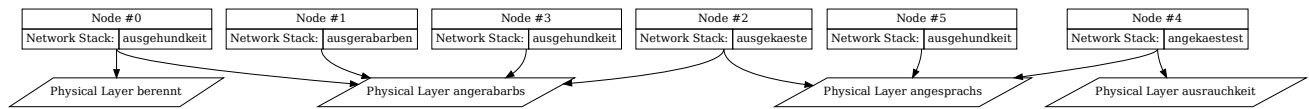
Network Stack 4: 'ausgerabarben'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausschmeckst	69
6	aufgehaltse	42
5	angerennst	78
4	angegehse	5
3	ansetzkeit	12
2	aufrennen	75

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli- seconds)
berennt	49	6145	268
angerabarbs	11	8408	328
ausrauchkeit	67	2878	846
angesprachs	22	2693	56

Network Diagram



Question#	Question
b1	Could applications on nodes 5 and 1 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
bm	If an application on node 4 sends 11 bytes of data, how large would the PDU be at layer 3? Provide the exact number of bytes as your answer.
bn	Without regard for networking stacks, what is the data rate that is possible between nodes 4 and 1? Provide the exact number of kilo-bits per second as your answer.
bo	How many milli-seconds would it take node 4 to send 4405 bytes of data to node 1? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 3

Network Stack 1: 'gegehst'

OSI Layer #	Name	PDU Header Size (bytes)
7	angesetzer	59
6	aussteher	26
5	ausgesitzer	72
4	verhunder	57
3	ausgepflumtete	32
2	aufgesprachung	23

Network Stack 2: 'verpflumheit'

OSI Layer #	Name	PDU Header Size (bytes)
7	zertrittkeit	3
6	verkatzekeit	84
5	ausrauchheit	23
4	auskraute	93
3	ausgetrittst	10
2	getrittst	69

Network Stack 3: 'angewarfte'

OSI Layer #	Name	PDU Header Size (bytes)
7	angewarfkeit	66
6	gelaufst	25
5	ausgelaufheit	1
4	enhundtest	64
3	gewitzheit	91
2	aufgeschmeckt	21

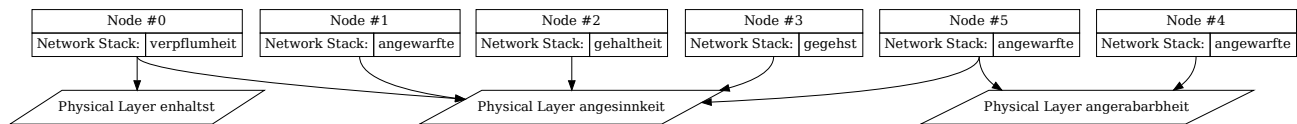
Network Stack 4: 'gehalttheit'

OSI Layer #	Name	PDU Header Size (bytes)
7	entraukeit	92
6	getraukeit	50
5	zerrabarbte	65
4	aufsitzheit	25
3	aushundse	13
2	auswitzse	62

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli- seconds)
enthaltst	25	7255	93
angerabarbarkeit	64	6171	550
angehalter	99	8019	87
angesinnkeit	29	4979	916

Network Diagram



Question#	Question
bp	Could applications on nodes 2 and 4 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
bq	If an application on node 2 sends 135 bytes of data, how large would the PDU be at layer 2? Provide the exact number of bytes as your answer.
br	Without regard for networking stacks, what is the data rate that is possible between nodes 2 and 4? Provide the exact number of kilo-bits per second as your answer.
bs	How many milli-seconds would it take node 2 to send 7468 bytes of data to node 4? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 4

Network Stack 1: 'angefahrt'

OSI Layer #	Name	PDU Header Size (bytes)
7	angewitzheit	86
6	verkatzetest	41
5	angestehkeit	55
4	auftrittte	30
3	zersetzt	99
2	besetzttest	69

Network Stack 2: 'einkrautete'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgehse	72
6	ankraut	58
5	ausklettt	28
4	aufrennte	16
3	betritten	73
2	auftritttheit	88

Network Stack 3: 'zerschmecktest'

OSI Layer #	Name	PDU Header Size (bytes)
7	ehundkeit	3
6	bekeeste	74
5	anshmeektest	84
4	verlaufft	36
3	bewitzs	85
2	ankaesung	20

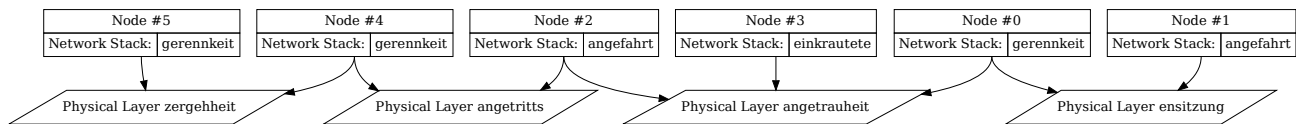
Network Stack 4: 'gerennkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufkatzese	55
6	verrauchte	55
5	aufspracher	37
4	aufklettt	71
3	angerennt	72
2	verwarfkeit	13

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli- seconds)
zergehheit	13	7297	566
angetraueheit	72	2898	736
angetritts	8	3986	91
ensitzung	28	8910	621

Network Diagram



Question#	Question
bt	Could applications on nodes 5 and 4 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
bu	If an application on node 3 sends 263 bytes of data, how large would the PDU be at layer 5? Provide the exact number of bytes as your answer.
bv	Without regard for networking stacks, what is the data rate that is possible between nodes 3 and 4? Provide the exact number of kilo-bits per second as your answer.
bw	How many milli-seconds would it take node 3 to send 4090 bytes of data to node 4? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 5

Network Stack 1: 'enkletter'

OSI Layer #	Name	PDU Header Size (bytes)
7	einsitzte	15
6	aufgegehkeit	33
5	aufsinner	23
4	anrauchen	18
3	aussinntete	24
2	behaltung	26

Network Stack 2: 'auffahrt'

OSI Layer #	Name	PDU Header Size (bytes)
7	angesetzse	67
6	getraus	68
5	angehst	76
4	aufstehst	43
3	einwurfkeit	19
2	aufkletttete	63

Network Stack 3: 'zerhunden'

OSI Layer #	Name	PDU Header Size (bytes)
7	gewarfts	32
6	anrauchte	75
5	angekraus	92
4	anhalttest	59
3	ausgekrauheit	61
2	angerauchst	86

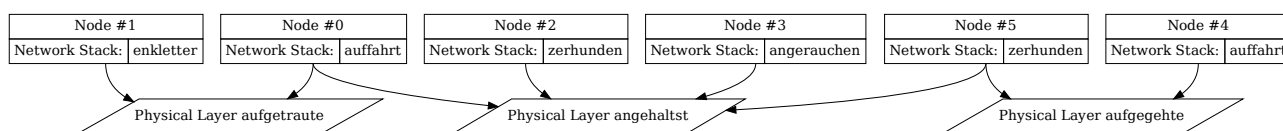
Network Stack 4: 'angerauchen'

OSI Layer #	Name	PDU Header Size (bytes)
7	angeschmecken	71
6	aufwitzheit	19
5	angekrauung	69
4	aufgesprachst	63
3	aufrauchen	46
2	einrabarber	67

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
angehaltst	89	4794	17
aufgegehte	59	2591	329
verwarft	43	6805	751
aufgetraute	84	7882	91

Network Diagram



Question#	Question
bx	Could applications on nodes 1 and 2 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
by	If an application on node 2 sends 27 bytes of data, how large would the PDU be at layer 5? Provide the exact number of bytes as your answer.
bz	Without regard for networking stacks, what is the data rate that is possible between nodes 2 and 2? Provide the exact number of kilo-bits per second as your answer.
ca	How many milli-seconds would it take node 2 to send 1461 bytes of data to node 2? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 6

Network Stack 1: 'verschmeckung'

OSI Layer #	Name	PDU Header Size (bytes)
7	ansitzte	6
6	angekaestete	41
5	aufgekraus	6
4	bekrauheit	72
3	aussitzkeit	55
2	ausgewarfte	87

Network Stack 2: 'aufwarfstest'

OSI Layer #	Name	PDU Header Size (bytes)
7	einhaltt	75
6	aufgekatzetest	46
5	eintrittst	95
4	anstehst	79
3	zerrauchung	51
2	verlaufkeit	39

Network Stack 3: 'ausgerauchtest'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausrauchs	62
6	anwarfung	35
5	versetzer	23
4	zerwarftest	62
3	verhaltung	43
2	zerrabarbtete	39

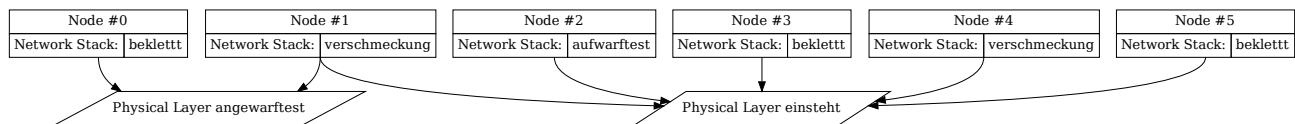
Network Stack 4: 'beklettt'

OSI Layer #	Name	PDU Header Size (bytes)
7	einhalts	74
6	einlaufheit	37
5	verklettung	25
4	angestehs	59
3	gerenns	11
2	enlauftest	93

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli- seconds)
angepflumt	29	7364	245
angewarftest	26	7806	74
aussitzse	24	4220	716
einsteht	56	5893	702

Network Diagram



Question#	Question
cb	Could applications on nodes 0 and 5 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
cc	If an application on node 4 sends 415 bytes of data, how large would the PDU be at layer 3? Provide the exact number of bytes as your answer.
cd	Without regard for networking stacks, what is the data rate that is possible between nodes 4 and 5? Provide the exact number of kilo-bits per second as your answer.
ce	How many milli-seconds would it take node 4 to send 8195 bytes of data to node 5? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 7

Network Stack 1: 'ausklettheit'

OSI Layer #	Name	PDU Header Size (bytes)
7	ansetzen	52
6	gepflumheit	29
5	auflaufer	74
4	enrennen	28
3	ausgehung	91
2	aufsetzs	93

Network Stack 2: 'ausgehundse'

OSI Layer #	Name	PDU Header Size (bytes)
7	berennte	29
6	angewitzer	55
5	aufgesinnst	34
4	zerraucht	46
3	zersitztete	76
2	auswurfung	54

Network Stack 3: 'angekaest'

OSI Layer #	Name	PDU Header Size (bytes)
7	verwarfheit	77
6	angesitztest	75
5	anfahren	16
4	verfahrtheit	96
3	ausgesinnheit	55
2	ausgefahrung	65

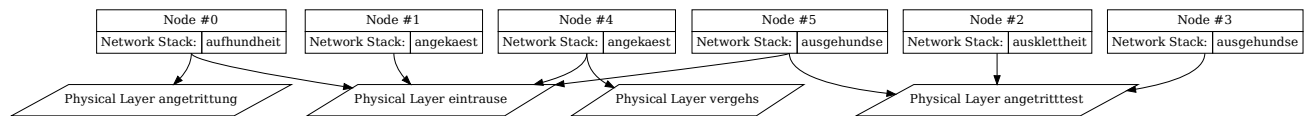
Network Stack 4: 'aufhundheit'

OSI Layer #	Name	PDU Header Size (bytes)
7	ansprachung	89
6	ausgefahrte	67
5	ensinnt	4
4	ausgekraust	60
3	berauchung	88
2	aufgerauchkeit	62

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
eintrause	62	4750	898
vergehs	50	9354	927
angetrittung	89	4137	790
angetritttest	38	7363	671

Network Diagram



Question#	Question
cf	Could applications on nodes 4 and 2 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
cg	If an application on node 4 sends 662 bytes of data, how large would the PDU be at layer 3? Provide the exact number of bytes as your answer.
ch	Without regard for networking stacks, what is the data rate that is possible between nodes 4 and 2? Provide the exact number of kilo-bits per second as your answer.
ci	How many milli-seconds would it take node 4 to send 6897 bytes of data to node 2? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 8

Network Stack 1: 'ensinnte'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausgerabarbt	41
6	zerwarfheit	74
5	aufsitztest	34
4	enstehte	34
3	angerennst	10
2	betrittttest	35

Network Stack 2: 'ausfahrttest'

OSI Layer #	Name	PDU Header Size (bytes)
7	verrabarber	49
6	ausgekaesung	84
5	aufgesetztst	70
4	gespracher	50
3	aufgehundkeit	57
2	zerrenntete	55

Network Stack 3: 'ausgewitzse'

OSI Layer #	Name	PDU Header Size (bytes)
7	ankaesse	78
6	anklettse	6
5	gekaesst	53
4	einschmeckheit	49
3	antrauer	11
2	verpflumtete	87

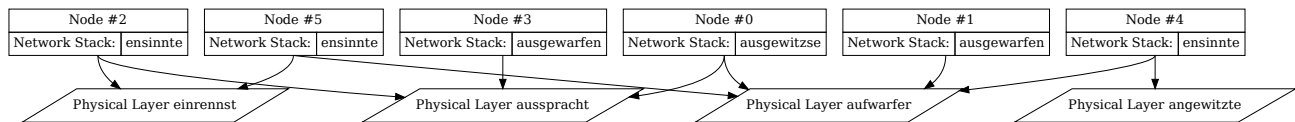
Network Stack 4: 'ausgewarfen'

OSI Layer #	Name	PDU Header Size (bytes)
7	getraute	45
6	getrittung	66
5	zerrabarber	26
4	einlaufst	14
3	enkrauing	90
2	zerklett	75

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli- seconds)
einrennst	7	2001	283
angewitzte	93	797	19
aufwarfer	94	1958	93
ausspracht	69	4759	316

Network Diagram



Question#	Question
cj	Could applications on nodes 1 and 3 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
ck	If an application on node 4 sends 109 bytes of data, how large would the PDU be at layer 4? Provide the exact number of bytes as your answer.
cl	Without regard for networking stacks, what is the data rate that is possible between nodes 4 and 3? Provide the exact number of kilo-bits per second as your answer.
cm	How many milli-seconds would it take node 4 to send 8728 bytes of data to node 3? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 9

Network Stack 1: 'aufspracht'

OSI Layer #	Name	PDU Header Size (bytes)
7	berennung	90
6	ausgehaltung	47
5	zerhaltheit	53
4	ansprachen	100
3	versitzer	23
2	aufhunden	74

Network Stack 2: 'bekaesse'

OSI Layer #	Name	PDU Header Size (bytes)
7	auspflumkeit	85
6	eingehs	20
5	angefahrtete	45
4	ausgekatzetest	19
3	zerwitztest	98
2	aufkatzeen	99

Network Stack 3: 'einkatzeer'

OSI Layer #	Name	PDU Header Size (bytes)
7	zerlaufkeit	50
6	verkaesse	13
5	berennst	70
4	antritten	62
3	auskaesst	6
2	ausrenntest	55

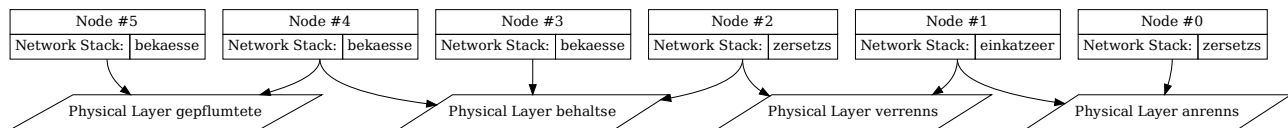
Network Stack 4: 'zersetzsz'

OSI Layer #	Name	PDU Header Size (bytes)
7	aussinnen	13
6	aufgefahrst	33
5	vertraut	36
4	ausgekaeskeit	47
3	aufkletter	30
2	aufgetrause	68

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milliseconds)
gepfluntete	11	1851	281
anrenns	71	356	431
behaltse	46	1456	13
verrenns	80	1413	434

Network Diagram



Question#	Question
cn	Could applications on nodes 4 and 5 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
co	If an application on node 5 sends 240 bytes of data, how large would the PDU be at layer 7? Provide the exact number of bytes as your answer.
cp	Without regard for networking stacks, what is the data rate that is possible between nodes 5 and 5? Provide the exact number of kilo-bits per second as your answer.
cq	How many milli-seconds would it take node 5 to send 5601 bytes of data to node 5? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

Fictional Network Topology 10

Network Stack 1: 'aufstehse'

OSI Layer #	Name	PDU Header Size (bytes)
7	bekaeskeit	66
6	bewarfs	8
5	berauchst	29
4	zertrautest	88
3	gehalttest	13
2	einwurfheit	99

Network Stack 2: 'angelaufener'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausgerabarbte	12
6	besinntete	69
5	ensinnst	96
4	aufgetraus	15
3	gefahrtest	9
2	enschmecker	27

Network Stack 3: 'beträutete'

OSI Layer #	Name	PDU Header Size (bytes)
7	bekrauer	44
6	ausgekaest	99
5	ausgefahrkeit	69
4	aufgehalten	34
3	enfahrse	54
2	bewarfung	48

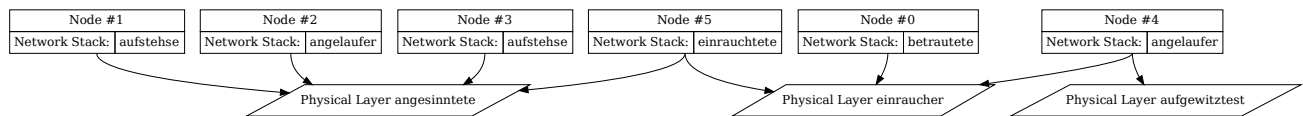
Network Stack 4: 'einrauchtete'

OSI Layer #	Name	PDU Header Size (bytes)
7	ankaesen	56
6	aussinnheit	81
5	ausgekatzt	86
4	zerhalter	10
3	angesetzse	50
2	angesetzs	66

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
aufgekrauen	63	1611	347
angesinntete	39	8949	783
aufgewitztest	92	9819	860
einraucher	6	5873	927

Network Diagram



Question#	Question
cr	Could applications on nodes 2 and 3 communicate with one another? i.e., are they using compatible network stacks, and is there a compatible path through the network between them? Answer Y or N. Any other answer will be marked incorrect.
cs	If an application on node 2 sends 562 bytes of data, how large would the PDU be at layer 6? Provide the exact number of bytes as your answer.
ct	Without regard for networking stacks, what is the data rate that is possible between nodes 2 and 3? Provide the exact number of kilo-bits per second as your answer.
cu	How many milli-seconds would it take node 2 to send 185 bytes of data to node 3? Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.

4 Name and describe five reliability challenges for computer networks, referring to the network layers at which these challenges either arise, or are solved.

For each of the five challenges, you must record your answer in the `unit1-answers.txt` file in

your git repository.

Question#	Description
cv	Reliability Challenge #1
cw	Reliability Challenge #2
cx	Reliability Challenge #3
cy	Reliability Challenge #4
cz	Reliability Challenge #5

The following question forms part of the DN/HD vs lower grade diagnosis for this work unit. Your answer will be used to assess if you are demonstrating the depth of understanding commensurate with a DN or HD grade. The pedagogical diagnosis is made based on the guidance from: <https://www.flinders.edu.au/content/dam/documents/staff/policies/academic-students/grading-scheme.pdf>.

Specifically, in this item, the DN gate will be:

- *iii. produced work which shows a developing capacity for original, critical and creative thinking over and above the essential requirements of the learning outcomes*

and the HD gate will be:

- *iii. consistently demonstrated knowledge skills and application at the highest level expected of a student at a given topic level*

You must write your answer in the `unit1-answers.txt` text file in your github repository between the lines `BEGIN:da` and `END:da`.

Question#	Description
da	<p>Reliable delivery of a streaming video (such as watching a YouTube video) and a video conferencing session have different reliability requirements. What are the commonalities and differences in their requirements? What implications do these have for the way these services are provided and consumed on a network? Describe these implications with reference to the layered networking model, and/or to particular protocols and layers within the model.</p>

Open Answer Question

The following question forms part of the DN/HD vs lower grade diagnosis for this work unit. Your answer will be used to assess if you are demonstrating the depth of understanding commensurate with a DN or HD grade. The pedagogical diagnosis is made based on the guidance from: <https://www.flinders.edu.au/content/dam/documents/staff/policies/academic-students/grading-scheme.pdf>.

Specifically, in this item, the DN gate will be:

- *iii. produced work which shows a developing capacity for original, critical and creative thinking over and above the essential requirements of the learning outcomes*

and the HD gate will be:

- *v. demonstrated an ability to combine knowledge of the subject matter of the topic with original, critical and creative thinking relevant to the discipline,*

You must write your answer in the `unit1-answers.txt` text file in your github repository between the lines `BEGIN:db` and `END:db`.

Question#	Description
db	<p>Describe how a layered network approach can be used to increase the security of a network, without having to change the applications that use the network. If a network was not built using a layered approach, how might security need to be fitted to such a network, if it were required? What would the impacts be?.</p>