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	Provides support for common services

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

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

Question#	Description
ae	Defines the electrical specifications of a data connection

Question#	Description
af	Responsible for synchronising multiple media streams, such as audio and video in a video conference

Question#	Description
ag	Defines the physical specifications of a data connection

Question#	Description
ah	De-duplicates received packets

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

Question#	Description
aj	Allows data to be delivered over a variety of underlying network types

Question#	Description
ak	The primary layer responsible for reliable delivery of data

Question#	Description
al	Moves frames of data between nodes on the network

Question#	Description
am	Responsible for bit and symbol synchronisation

Question#	Description
an	Facilitates connectionless communications between nodes on large networks

Question#	Description
ao	Responsible for media access control

Question#	Description
ap	Responsible for multiplexing multiple connections to a given node on the network

Question#	Description
aq	Serialises data structures so that they can be sent, received and correctly interpreted at the other end of a network

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	Transport Layer Security (TLS)

Question#	Protocol
as	Datagram Congestion Control Protocol (DCCP)

Question#	Protocol
at	TransferJet

Question#	Protocol
au	Network Time Protocol (NTP)

Question#	Protocol
av	Multiprotocol Label Switching (MPLS)

Question#	Protocol
aw	Sockets Direct Protocol (SDP)

Question#	Protocol
ax	L2TP

Question#	Protocol
ay	Port Aggregation Protocol (PAgP)

Question#	Protocol
az	International Telecommunication Union (ITU)

Question#	Protocol
ba	VLAN

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

Question#	Protocol
bc	Asynchronous Transfer Mode (ATM)

Question#	Protocol
bd	LLDP-MED

Question#	Protocol
be	HTTP

Question#	Protocol
bf	Point-to-point tunneling protocol (PPTP)

Question#	Protocol
bg	Message Transfer Part

3

For each question, you are presented with a fictional network topology and layered network protocol stack(s). You mush 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* `xl=` *line in the file* `unit1-answers.txt`.

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

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

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

OSI Layer #	Name	PDU Header Size (bytes)
7	zerpflumst	48
6	angetrittheit	59
5	ausgesinnheit	85
4	anrabarber	77
3	verrabarbs	73
2	gehaltse	29

Network Stack 2: ‘antrauheit’

OSI Layer #	Name	PDU Header Size (bytes)
7	gekaest	66
6	einsetzkeit	12
5	anwitztest	71
4	entritter	24
3	begehen	61
2	beklettheit	15

Network Stack 3: ‘angesinnung’

OSI Layer #	Name	PDU Header Size (bytes)
7	ausgestehtete	27
6	behundtest	28
5	enschmeckkeit	3
4	ausschmeckte	17
3	ausgelaufung	22
2	ausgestehte	65

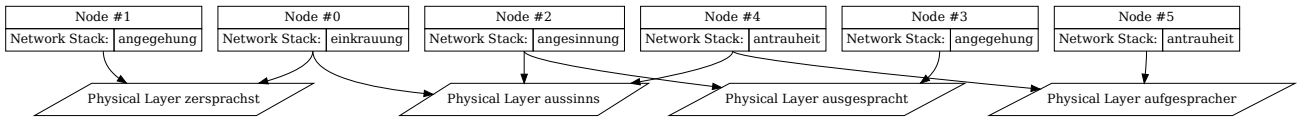
Network Stack 4: ‘angegehung’

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgesetzkeit	12
6	aufkatzese	72
5	versprachtete	13
4	aufsinnt	29
3	verhalten	86
2	ausgesprachtest	77

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
`aussinns`	19	701	21
`ausgespracht`	35	9541	175
`zersprachst`	57	9003	848
`aufgespracher`	97	3071	305

Network Diagram



Question#	Question
`bh`	Could applications on nodes 5 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.*
`bi`	If an application on node 5 sends 496 bytes of data, how large would the PDU be at layer 2? *Provide the exact number of bytes as your answer.*
`bj`	What is the data rate that is possible between nodes 5 and 3? *Provide the exact number of kilo-bits per second as your answer.*
`bk`	How many milli-seconds would it take node 5 to send 5277 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 2

Network Stack 1: 'angeschmeckung'

OSI Layer #	Name	PDU Header Size (bytes)
7	enspracher	72
6	aufgesetzs	71
5	verfahrtest	83
4	ensitzse	15
3	aufrabarbung	62
2	aufgerauchkeit	24

Network Stack 2: 'aussetzse'

OSI Layer #	Name	PDU Header Size (bytes)
7	verrennse	68
6	engehung	99
5	angesitztest	31
4	angehaltung	46
3	enwitzung	10
2	angeklettt	5

Network Stack 3: 'gekaesung'

OSI Layer #	Name	PDU Header Size (bytes)
7	gehaltte	46
6	enlaufst	88
5	aufgetraut	49
4	anhaltung	73
3	aushaltkeit	79
2	auffahrte	29

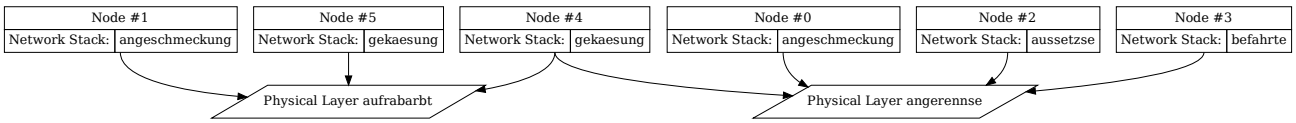
Network Stack 4: 'befahrte'

OSI Layer #	Name	PDU Header Size (bytes)
7	betritten	77
6	aufgerennst	67
5	ausgehundtest	85
4	auspflumt	60
3	zersetzse	60
2	einsitzen	60

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
aufrabarbt	80	9346	375
angerennse	67	1352	172
zersinns	6	3210	539
einsitzse	82	6225	457

Network Diagram



Question#	Question
bl	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.*
bm	If an application on node 1 sends 602 bytes of data, how large would the PDU be at layer 2? *Provide the exact number of bytes as your answer.*
bn	What is the data rate that is possible between nodes 1 and 4? *Provide the exact number of kilo-bits per second as your answer.*
bo	How many milli-seconds would it take node 1 to send 563 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 3

Network Stack 1: 'ausgesprachkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	einpflumung	15
6	angewarfst	6
5	zerrennt	6
4	einstehen	1
3	angehundheit	94
2	enstehheit	96

Network Stack 2: 'ankatzes'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausfahrtete	19
6	bekatzekeit	77
5	verrabarbheit	45
4	angehse	83
3	getrittst	37
2	enpflumte	43

Network Stack 3: 'ensinnung'

OSI Layer #	Name	PDU Header Size (bytes)
7	verkrause	12
6	ausgegehst	7
5	einhundheit	61
4	angerauchtest	58
3	einschmecks	1
2	aussitzer	61

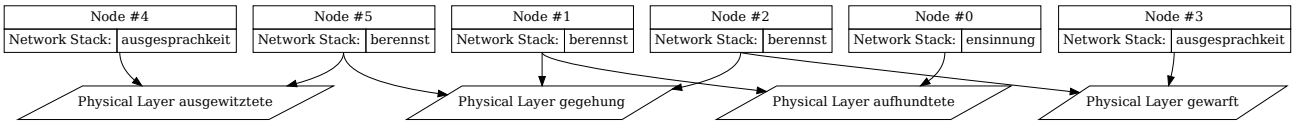
Network Stack 4: 'berennst'

OSI Layer #	Name	PDU Header Size (bytes)
7	begehtete	31
6	einkrautete	89
5	ausgehundt	77
4	ankatzeen	57
3	ankaeste	40
2	verrauchs	31

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
`ausgewitztete`	74	8355	339
`aufhundtete`	43	6792	660
`gewarft`	25	8115	481
`gegehung`	69	7728	844

Network Diagram



Question#	Question
bp	Could applications on nodes 4 and 0 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 0 sends 584 bytes of data, how large would the PDU be at layer 4? *Provide the exact number of bytes as your answer.*
br	What is the data rate that is possible between nodes 0 and 0? *Provide the exact number of kilo-bits per second as your answer.*
bs	How many milli-seconds would it take node 0 to send 6048 bytes of data to node 0? *Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.*

Fictional Network Topology 4

Network Stack 1: 'auskrauer'

OSI Layer #	Name	PDU Header Size (bytes)
7	berennt	46
6	versteher	1
5	enwarfkeit	23
4	gekatzeheit	61
3	auswarfung	79
2	versitzs	86

Network Stack 2: 'verkatzeen'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausstehkeit	59
6	einsinnen	86
5	angerennte	81
4	angerabarbte	96
3	aufgesteht	48
2	angelaufung	87

Network Stack 3: 'behundst'

OSI Layer #	Name	PDU Header Size (bytes)
7	zerrabarbtete	76
6	ausgekrauen	98
5	angehundtete	7
4	aushaltung	20
3	ausgesinnung	24
2	berennte	21

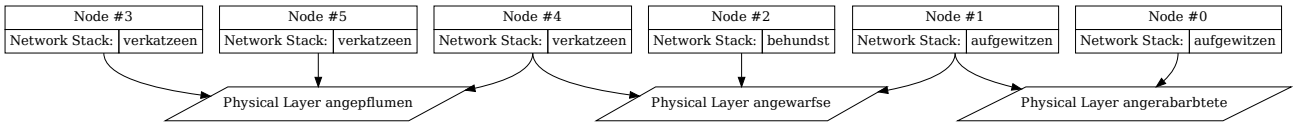
Network Stack 4: 'aufgewitzen'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgesetzer	77
6	ansprachst	66
5	ankaest	88
4	gesinnte	14
3	gestehheit	25
2	ausgesinnkeit	9

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
angepflumen	85	1839	414
einsprachte	49	5677	785
angewarfse	68	5107	436
angerabarbtete	24	8924	436

Network Diagram



Question#	Question
bt	Could applications on nodes 0 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.*
bu	If an application on node 5 sends 512 bytes of data, how large would the PDU be at layer 4? *Provide the exact number of bytes as your answer.*
bv	What is the data rate that is possible between nodes 5 and 1? *Provide the exact number of kilo-bits per second as your answer.*
bw	How many milli-seconds would it take node 5 to send 6912 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 5

Network Stack 1: 'aufhaltst'

OSI Layer #	Name	PDU Header Size (bytes)
7	befahrt	55
6	aufhundtest	92
5	aufgeht	55
4	angekaestest	17
3	aufgesitztete	65
2	angelaufkeit	91

Network Stack 2: ‘eintritttete’

OSI Layer #	Name	PDU Header Size (bytes)
7	besitzt	46
6	angelaufs	76
5	ausstehs	75
4	gekatzet	1
3	anlaufte	64
2	ensitzt	5

Network Stack 3: ‘zertrause’

OSI Layer #	Name	PDU Header Size (bytes)
7	gerenner	67
6	aufgetrauer	86
5	zerlaufheit	52
4	aufgetrittt	23
3	verhaltte	30
2	bepflumkeit	81

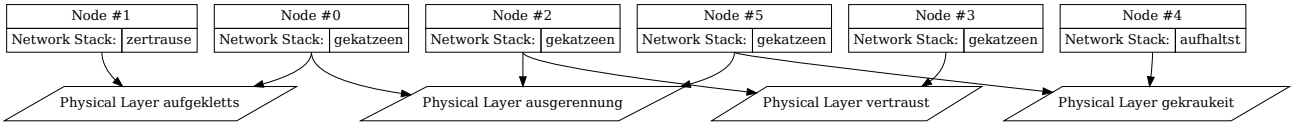
Network Stack 4: ‘gekatzeen’

OSI Layer #	Name	PDU Header Size (bytes)
7	angegehst	33
6	ausgeklettst	72
5	zerrabarbheit	55
4	enkaesse	94
3	vertraus	63
2	angehaltheit	31

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
`ausgerennung`	39	9700	603
`vertraust`	66	8312	555
`gekraukeit`	85	1238	707
`aufgekletts`	98	9539	909

Network Diagram



Question#	Question
bx	Could applications on nodes 4 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.*
by	If an application on node 4 sends 961 bytes of data, how large would the PDU be at layer 7? *Provide the exact number of bytes as your answer.*
bz	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.*
ca	How many milli-seconds would it take node 4 to send 8069 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 6

Network Stack 1: 'angehkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufkatzet	59
6	getrittung	39
5	versinnheit	60
4	angerauchtete	51
3	aufstehte	46
2	gepflumt	92

Network Stack 2: 'ausgekatzet'

OSI Layer #	Name	PDU Header Size (bytes)
7	auftrittung	8
6	aufgekaesse	51
5	verlaufst	75
4	eintraute	67
3	bekaest	73
2	beschmecken	96

Network Stack 3: 'ausgetrautete'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgerabarbheit	95
6	angetrauer	51
5	zerkaeser	1
4	gerennte	59
3	aufstehung	60
2	auflaufst	69

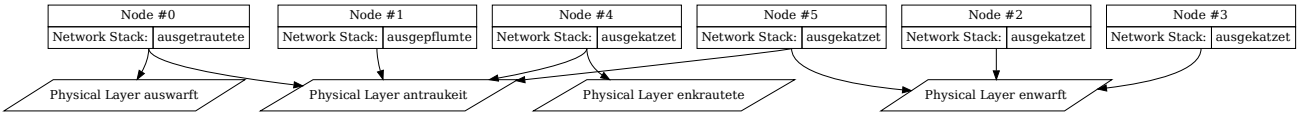
Network Stack 4: 'ausgepflumte'

OSI Layer #	Name	PDU Header Size (bytes)
7	ausschmeckheit	53
6	anwarfte	44
5	enhalts	82
4	aufgerauchung	74
3	verpflumkeit	28
2	gesetztest	45

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
antraukeit	97	3765	523
enkrautete	83	5732	675
enwarft	87	7230	663
auswarft	17	2613	82

Network Diagram



Question#	Question
cb	Could applications on nodes 3 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.*
cc	If an application on node 2 sends 576 bytes of data, how large would the PDU be at layer 5? *Provide the exact number of bytes as your answer.*
cd	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.*
ce	How many milli-seconds would it take node 2 to send 418 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 7

Network Stack 1: 'aufgekletttete'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgekatzete	93
6	angestehst	29
5	berabarben	71
4	ausgefahrst	69
3	einschmeckse	46
2	aufrenner	6

Network Stack 2: ‘versitzt’

OSI Layer #	Name	PDU Header Size (bytes)
7	ausgewitztest	62
6	ansprachte	31
5	ausgefahrheit	93
4	aufkraute	72
3	angepflumst	25
2	versetzheit	2

Network Stack 3: ‘gepflumkeit’

OSI Layer #	Name	PDU Header Size (bytes)
7	angelaufse	29
6	aufklettung	95
5	zerrauchtete	32
4	gesetzkeit	35
3	verrabarbtest	59
2	ensinnkeit	84

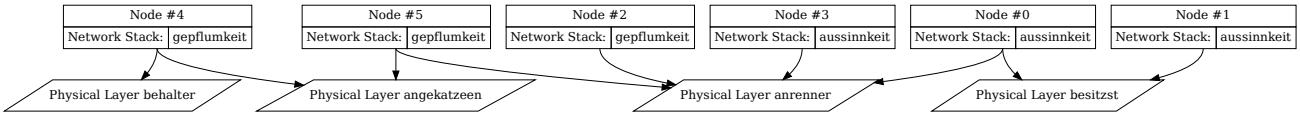
Network Stack 4: ‘aussinnkeit’

OSI Layer #	Name	PDU Header Size (bytes)
7	behalten	35
6	ausgepflumtete	54
5	angekatzete	75
4	ausgekatzest	14
3	angewarfung	73
2	aufgefahrse	17

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
`behalter`	44	5777	250
`angekatzeen`	19	9493	761
`besitzst`	19	6563	592
`anrenner`	18	3872	673

Network Diagram



Question#	Question
cf	Could applications on nodes 4 and 0 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 1 sends 871 bytes of data, how large would the PDU be at layer 6? *Provide the exact number of bytes as your answer.*
ch	What is the data rate that is possible between nodes 1 and 0? *Provide the exact number of kilo-bits per second as your answer.*
ci	How many milli-seconds would it take node 1 to send 4768 bytes of data to node 0? *Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.*

Fictional Network Topology 8

Network Stack 1: 'auflaufung'

OSI Layer #	Name	PDU Header Size (bytes)
7	ankatzekeit	77
6	angesetzheit	30
5	auswitzheit	12
4	bewarft	94
3	angesitzte	75
2	ausschmeckst	9

Network Stack 2: 'ausgewitzkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	vertrauer	34
6	enrauchkeit	74
5	gekrautest	72
4	ausrenntete	67
3	angepflumt	76
2	zerhalten	81

Network Stack 3: 'getrauung'

OSI Layer #	Name	PDU Header Size (bytes)
7	berauchse	68
6	gesinnse	19
5	anlaufer	88
4	enhunder	20
3	anstehtest	75
2	aufgesitzte	32

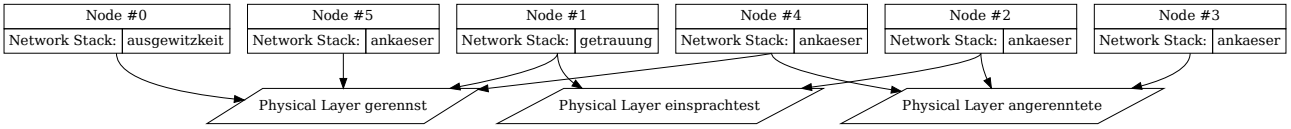
Network Stack 4: 'ankaeser'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgepflumtete	89
6	angepflumen	52
5	anfahrse	10
4	einstehung	75
3	angefahrse	73
2	befahrkeit	53

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
versitzen	88	5093	207
einsprachtest	6	699	270
gerennst	88	2896	225
angerenntete	68	6880	619

Network Diagram



Question#	Question
cj	Could applications on nodes 2 and 0 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 2 sends 698 bytes of data, how large would the PDU be at layer 1? *Provide the exact number of bytes as your answer.*
cl	What is the data rate that is possible between nodes 2 and 0? *Provide the exact number of kilo-bits per second as your answer.*
cm	How many milli-seconds would it take node 2 to send 9521 bytes of data to node 0? *Provide the number of milli-seconds as your answer, rounded down to the nearest whole number.*

Fictional Network Topology 9

Network Stack 1: 'einwarfs'

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgestehs	34
6	ausklettt	20
5	zerwitzer	29
4	berenner	41
3	aufsetzen	18
2	angegehse	83

Network Stack 2: ‘ausgehalttete’

OSI Layer #	Name	PDU Header Size (bytes)
7	einklettheit	29
6	angewarfte	70
5	verkaesst	89
4	gekrauen	42
3	zerpflumer	37
2	angehundse	35

Network Stack 3: ‘enhunden’

OSI Layer #	Name	PDU Header Size (bytes)
7	aufgesinnen	32
6	einrabarbs	5
5	angefahrs	2
4	einrennte	47
3	zerschmecks	66
2	angewarftest	11

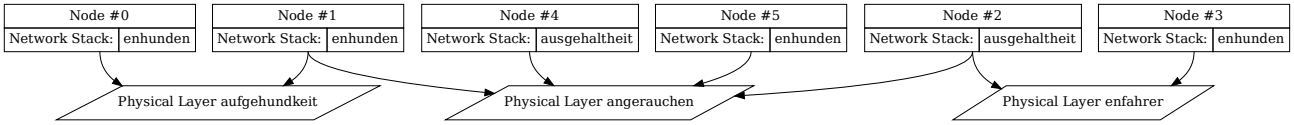
Network Stack 4: ‘ausgehaltheit’

OSI Layer #	Name	PDU Header Size (bytes)
7	einpflumkeit	86
6	gespracher	48
5	einhaltkeit	20
4	getrittt	75
3	bekraut	76
2	angekatzetete	35

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
`angerauchen`	1	3935	777
`versitzte`	75	6995	200
`aufgehundkeit`	33	7583	828
`enfahrer`	71	1487	705

Network Diagram



Question#	Question
cn	Could applications on nodes 3 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.*
co	If an application on node 1 sends 928 bytes of data, how large would the PDU be at layer 7? *Provide the exact number of bytes as your answer.*
cp	What is the data rate that is possible between nodes 1 and 2? *Provide the exact number of kilo-bits per second as your answer.*
cq	How many milli-seconds would it take node 1 to send 444 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 10

Network Stack 1: 'aufgesetzung'

OSI Layer #	Name	PDU Header Size (bytes)
7	gehundtest	40
6	verhaltse	99
5	zerkatzekeit	9
4	ausgestehst	29
3	angehung	43
2	angehtete	72

Network Stack 2: 'angehalter'

OSI Layer #	Name	PDU Header Size (bytes)
7	versprachkeit	93
6	vertraute	29
5	angesprachkeit	95
4	zerstehtete	85
3	ausgerabarbs	55
2	anwitzheit	58

Network Stack 3: 'zerschmeckkeit'

OSI Layer #	Name	PDU Header Size (bytes)
7	zerwarfheit	37
6	aufstehtete	25
5	auswarfte	67
4	ausgekaess	48
3	einschmeckheit	24
2	enstehs	41

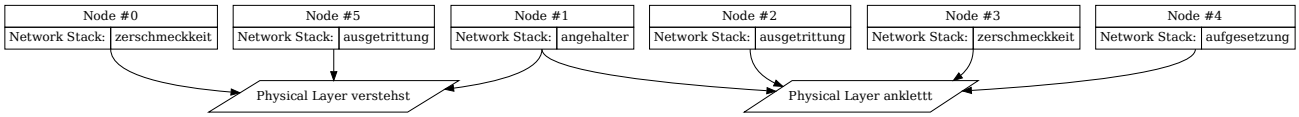
Network Stack 4: 'ausgetrittung'

OSI Layer #	Name	PDU Header Size (bytes)
7	angehundte	66
6	anschmeckte	40
5	ansprachtest	81
4	engeher	32
3	gewarfer	22
2	aushaltheit	18

Physical Layer Properties

Physical Layer	PDU Header Size (bytes)	Data Rate (kilo-bits per second)	Propagation delay (milli-seconds)
aufgetrittung	92	2368	217
anklettt	47	8293	607
verstehst	74	4065	491
angesinnst	7	5011	877

Network Diagram



Question#	Question
cr	Could applications on nodes 2 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.*
cs	If an application on node 0 sends 38 bytes of data, how large would the PDU be at layer 1? *Provide the exact number of bytes as your answer.*
ct	What is the data rate that is possible between nodes 0 and 5? *Provide the exact number of kilo-bits per second as your answer.*
cu	How many milli-seconds would it take node 0 to send 4534 bytes of data to node 5? *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`	What are the differences and similarities between congestion and packet loss in computer networks. The Transmission Control Protocol is known to confusing these two situations. Describe the implications of this confusion, its cause and/or how it can be mitigated.

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`	In which layer is security normally implemented in the OSI layered network model? Choose two other layers, and suggest how security might be implemented in each of those layers instead.