# NS Lab 4 Answer Sheet

NS3 simulator - TCP Performance Monitoring

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Lab date: Sep 19 & 23 2013

Hand-in time (submit to blackboard) by Sep 30, 2013 13:00CEST

Total points: 20 pts

Please provide your answer in the appropriate space for each question

### Task 1 – Throughput of TCP client-server connection

|  |  |  |  |
| --- | --- | --- | --- |
| Latency | Measured Throughput | Calculated Throughput | Calculation |
| 64ms |  |  |  |
| 96ms |  |  |  |
| 128ms |  |  |  |

1. Optimal RWIN value:   
   Calculation:

### Task 2 – Monitoring TCP congestion window

1.

*Figure 1: Tahoe – droptail queue = 100*

2.a.

*Figure 2: Tahoe, droptail queue = 40*

2.b

*Figure 3: Tahoe, droptail queue = 40 (from 1 until 1.85 secs)*

|  |  |  |
| --- | --- | --- |
| *State changes, Tahoe – from 1 until 1.85 secs* | | |
| Time (sec, accuracy 3 decimal) | cwnd (bytes) | New state |
| 1.000 | 1 | *(initial state)* |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

2.c

*Figure 4: Tahoe, droptail queue = 40 (from 4 until 6 secs)*

|  |  |  |
| --- | --- | --- |
| *State changes, Tahoe – from 4 until 6 secs* | | |
| Time (sec, accuracy 3 decimal) | cwnd (bytes) | New state |
| 4.000 |  | *(initial state)* |
|  |  |  |
|  |  |  |

3.a

*Figure 5: Reno, droptail queue = 40*

3.b

*Figure 6: Reno, droptail queue = 40 (from 4 until 6 secs)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *State changes, Reno – from 4 until 6 secs* | | | | |
| Time (sec, accuracy 3 decimal) | Current cwnd (bytes) | New cwnd (bytes) | New state | Event |
| 4.000 |  | --- | *(initial state)* | --- |
|  |  |  |  |  |
|  |  |  |  |  |

### Submission

You have to submit:

* Your answers to all the questions. Use this provided **answer sheet** for you answers and graphs. Provide your answers in the appropriate answer field for each question
* The source codes of the two tasks.
* The graphs and the produced data.

Attention: You have to submit one PDF file that contains all the answers and graphs; the name of the file should be lab4-<lastname\_firstletter>.pdf (example: lab1-vanderveldt\_k.pdf, or lab1-pittaras\_c.pdf). Additionally you have to submit one zip (or rar) file containing the source codes, the graphs and the data. The name of the file should be: lab4-source-<lastname\_firstletter>.zip

Any other kind of submission will not be taken into account. You must also put your full name and your student number at the top of the answer sheet.