Duke University
CPS-514 Practice Final: Fall 15

Name: NetID:

There are 1 questions, with the point values as shown below. You have ExamTime minutes with a total of 100 points. Pace yourself accordingly.

This exam must be individual work. You may not collaborate with your fellow students. This exam is closed book and closed notes. You may not use any printed materials, electronic or interactive resources.

I certify that the work shown on this exam is my own work, and that I have neither given nor received improper assistance of any form in the completion of this work.

Signature:

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Question 1 Sample Questions. [100 pts]

1. TCP as a number of limitations and issues: which of these problems are solved by VL2 and MPTCP?

2. MPTCP and DCTCP improve performance in data centers; however, their solutions address different points in the space. What are the different aspects of the network that each attacks?

3. Tail latency is an important issue for online service provider, in two papers we explored solutions to attack tail latency at the TCP level and at the request level. What are the similarity (ies) in these techniques?

4. What makes tail latency an amplified problem in current commodity data centers? Consider servers with 1% failure rate – why does the application have a higher failure rate than a server?

5. Advancements to TCP are hard to adopt and deploy. What makes TCP deployment hard? What is a strategy to deal with these issues?

6. What are the limitations of closed Middleboxes and Switches?

7. Commodity devices enables CoMB and SDNs – both paradigms argue for centralization and global control of the network. How is COMb significantly different from SDNs? (one difference is that CoMB work on MB while SDN focuses on switches) What is another difference?

8. RCP is a precursor to SDNs, what are two issues that RCP aims to solve?

9. TeXCP and MPTCP attack similar problems. What are two differences in the techniques that they propose?

10. TLS provides a great number of benefits, what is the main drawback of TLS with respect to Middleboxes? How do you get around this drawback?

11. NVP and VL2 both propose a flat network to enable different functionality. What are the highlevel problems being solved by VL2 and how are they different from those being solved by NVP?