

Name ID Section Seat No

Sirindhorn International Institute of Technology Thammasat University

Final Exam: Semester 2, 2011

Course Title: ITS413 Internet Technologies and Applications

Instructor: Steven Gordon

Date/Time: Thursday 12 April 2012; 9:00–12:00

Instructions:

- This examination paper has 16 pages (including this page).
- Conditions of Examination: Closed book; No dictionary; Non-programmable calculator is allowed
- Students are not allowed to be out of the exam room during examination. Going to the restroom may result in score deduction.
- Students are not allowed to have communication devices (e.g. mobile phone) in their possession.
- Write your name, student ID, section, and seat number clearly on the front page of the exam, and on any separate sheets (if they exist).
- Reference material at the end of the exam may be used.

ITS413 Final Exam Hints Semester 2 2011

- 9 questions each with multiple parts
- Total of 80 marks
- Covers topics after midterm: part of TCP, Multicast, QoS, Multimedia, P2P, Bittorrent
- Part of TCP: bandwidth delay product and fairness may be covered (congestion control is not)
- Practice using past exams
- NO questions about the assignment e.g. how to use iperf, but of course parts of TCP may be in the exam as stated above
- NO multiple choice or fill-in-the-blanks
- With calculation type questions, show your calculations (if you get some part wrong then you can still get partial marks)
- With “Explain” type questions, give a brief but clear explanation of why its the answer. For example, if I ask “Does TCP provide fairness? Explain your answer” and you answer “Yes” or “No” you may get 0 marks. But if you answer “Yes, with all conditions the same, TCP provides fairness to connections sharing a bottleneck link” then you may get full marks.

Reference Material

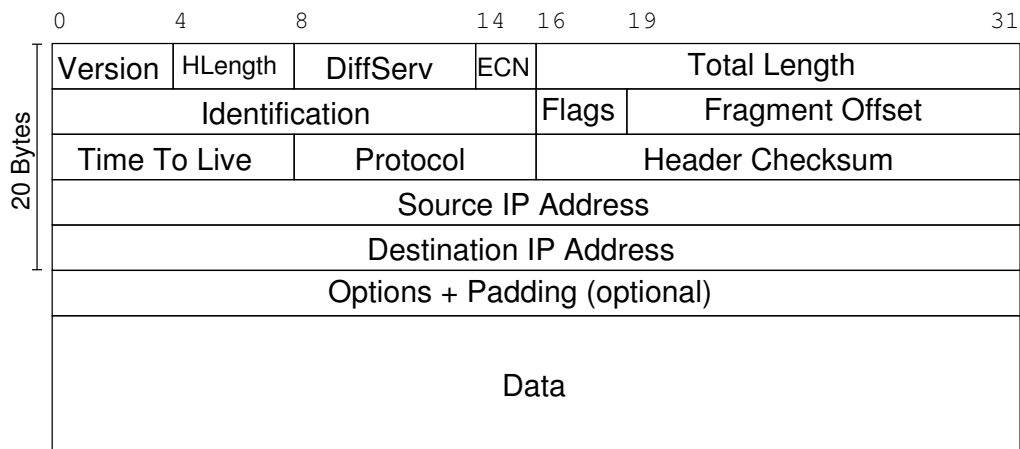


Figure 1: IP Datagram Format. Flags: Reserved, Don't Fragment, More Fragments

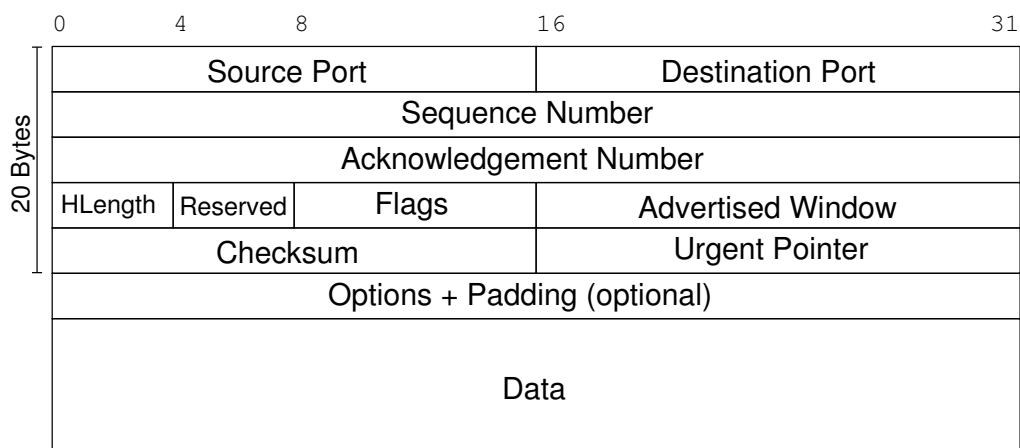


Figure 2: TCP Segment Format. Flags: CWR, ECE, URG, ACK, PSH, RST, SYN, FIN

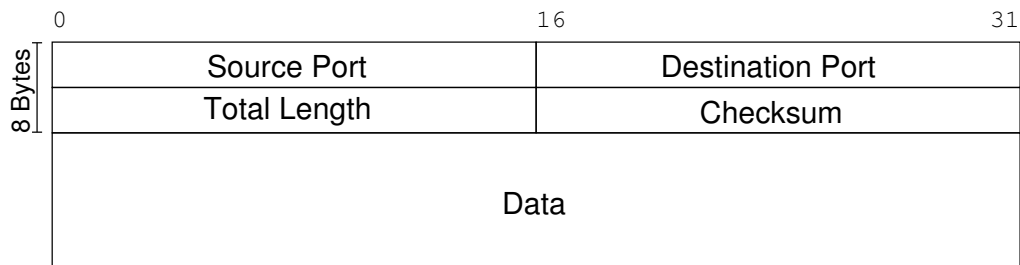


Figure 3: UDP Datagram Format

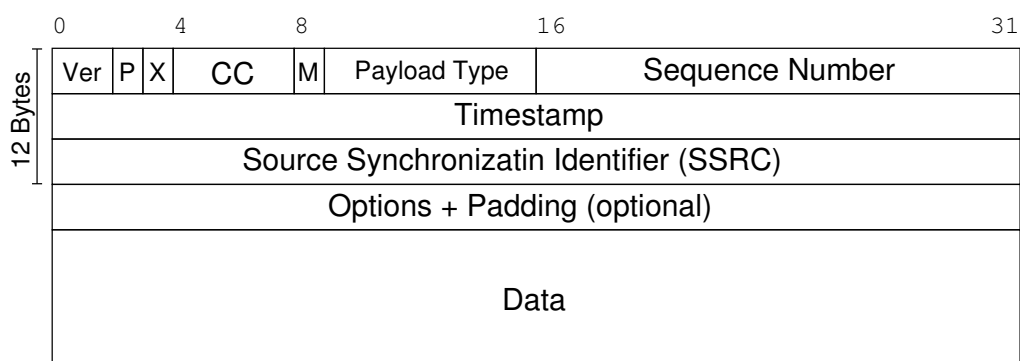


Figure 4: RTP Packet Format. P: Padding; X: Extension; CC: CSRC count; M: Marker