

Computer Networks

CNPro: Homework about Programming for Computer Networks

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- Submit by 16th June 2017
- Pack all files into a zip compressed archive and send to foces.informatica.unileon@gmail.com
- Include your name and DNI.

1. Summary of an article on Network Technology. Apply the concepts about networking developed in CN to explaining the essential points of the following article:

<http://paloalto.unileon.es/ngn/papers/RadicalNewApproach.pdf>

2. Network Programming exercises with C/Libpcap
 - a. Propose some improvement to the arp protocol based on your personal experience about this protocol derived from the laboratory practicals
 - b. Program that send an icmp echo request and expect the icmp reply. Use libpcap filters. Explain what happens
 - c. Can a frame be sent that has the source MAC of a host that is connected elsewhere to a different port? Explain the behavior expected from the switch. Devise an experiment to check switch behavior
 - d. Build a C program that sends a gratuitous ARP every 30 seconds and then checks whether its IP has been duplicated by receiving the would-be ARP reply
 - e. Program a 2-port transparent bridge in Linux as described in pg. 190 of the textbook. List the tests you think should be carried out to make sure the bridge behavior is consistent with the transparent bridge concept. Search the libpcap library or the Sockets service interface if you need more resources
 - f. Do exercises Ch.3/32 and Ch.3/34

g. Advanced: Program a full learning switch per the explanation in pg. 192 of the textbook.