

HW3 Networking Question

1.Bit Stuffing

(a) 1001111101001011111000011

(b) 01111110011111110011111011011111

2.Link Layer Protocol

$(\text{frame size}/4\text{kbps})/((\text{frame size}/4\text{kbps})+2*\text{propagation time})\geq 0.5$

frame size $\geq 160\text{bit/s}$

3.Distance Vector Routing

B (5,0,8,12,6,2)

D (16,12,6,0,9,10)

E (7,6,3,9,0,4)

C (a, b, 0, d, e, f)

b = 6

d = 3

e = 5

a = $\min(b+5, d+16, e+7) = 11$

f = $\min(b+2, d+10, e+4) = 9$

C (11,6,0,3,5,9)

4.TCP Sequence Numbers

75 Tbps = $75*2^{40}$ bps

1byte = 2^3 bit

640bit TCP Sequence $\rightarrow 2^{64}$ different TCPs

expire time = $2^{64} / (75*2^{40} \text{ bps} / 1\text{byte}) = 20.7 \text{ days}$

5.DNS

Creation Date: 1986-06-02T04:00:00Z

Registry Expiry Date: 2018-06-02T04:00:00Z

Name Server: DNS-AUTH-01.OIT.DUKE.EDU

Name Server: DNS-AUTH-02.OIT.DUKE.EDU

Name Server: DNS-NC1-01.OIT.DUKE.EDU

Domain Name: DUKE.EDU
Registry Domain ID: 5059_DOMAIN_EDU-VRSN
Registrar WHOIS Server: whois.educause.net
Registrar URL: <http://www.educause.edu/edudomain>
Updated Date: 2017-06-03T07:03:56Z
Creation Date: 1986-06-02T04:00:00Z
Registry Expiry Date: 2018-06-02T04:00:00Z
Registrar: Educause
Registrar IANA ID: 365
Registrar Abuse Contact Email:
Registrar Abuse Contact Phone:
Domain Status: clientDeleteProhibited <https://icann.org/epp#clientDeleteProhibited>
Domain Status: clientTransferProhibited <https://icann.org/epp#clientTransferProhibited>
Domain Status: clientUpdateProhibited <https://icann.org/epp#clientUpdateProhibited>
Name Server: DNS-AUTH-01.OIT.DUKE.EDU
Name Server: DNS-AUTH-02.OIT.DUKE.EDU
Name Server: DNS-NC1-01.OIT.DUKE.EDU
DNSSEC: unsigned
URL of the ICANN Whois Inaccuracy Complaint Form: <https://www.icann.org/wicf/>
>>> Last update of whois database: 2018-02-21T16:03:28Z <<<

6. Internet Services

In your command shell, run this command in order,
\$ echo -e "GET /~tkb13/courses/ece650/resources/awesome.txt
HTTP/1.0\r\nHost:people.duke.edu\r\n\r\n" > request.txt
\$ nc people.duke.edu 80 < request.txt

NOTICE: do not just copy from this document, type yourself or transfer into plain text before you copy these command