

CS2105 Semester 2, 2006/07

Tutorial 5 (Week on 26 Feb) REVISION

Note: -

- All students must be prepared to participate in the discussion. Tutorial session will be interactive and it would depend on you to make it a livelier and a useful session.
 - Please bring your text book (Kurose and Ross) for all tutorial sessions.
 - Please note that all questions in this tutorial need not be discussed in full in the class.
1. (Apr 2003 Exam) Suppose 2 computers are separated by L meters and connected by a direct link of R bps. Suppose the propagation speed over the link is C m/s.
 - a. Drive an expression for the BDP of the system.
 - b. Suppose the computers are exchanging packets of size P bits per packet. Explain the significance of the ratio of BDP to the packet size with respect to the efficiency of the transmission system.
 2. (Apr 2004 Exam) Do you agree with the statement "connectionless packet switched network is more reliable than connection oriented circuit switched network". If so, please explain why.
 3. (modified MST Mar 2006) Consider the following command and output.

```
bhojan@sf0:~[412]$ dig -t a www.comp.nus.edu.sg +trace
```

```
; <<>> DiG 9.2.2 <<>> -t a www.comp.nus.edu.sg +trace
;; global options: printcmd
.       275471 IN    NS    C.ROOT-SERVERS.NET.
.       275471 IN    NS    D.ROOT-SERVERS.NET.
.       275471 IN    NS    E.ROOT-SERVERS.NET.
.       275471 IN    NS    F.ROOT-SERVERS.NET.
.       275471 IN    NS    G.ROOT-SERVERS.NET.
.       275471 IN    NS    H.ROOT-SERVERS.NET.
.       275471 IN    NS    I.ROOT-SERVERS.NET.
.       275471 IN    NS    J.ROOT-SERVERS.NET.
.       275471 IN    NS    K.ROOT-SERVERS.NET.
.       275471 IN    NS    L.ROOT-SERVERS.NET.
.       275471 IN    NS    M.ROOT-SERVERS.NET.
.       275471 IN    NS    A.ROOT-SERVERS.NET.
.       275471 IN    NS    B.ROOT-SERVERS.NET.
;; Received 420 bytes from 137.132.90.2#53(137.132.90.2) in 4 ms

sg.     172800 IN    NS    DS.NIC.NET.sg.
sg.     172800 IN    NS    SEC3.APNIC.NET.
sg.     172800 IN    NS    NS-SG.RIPE.NET.
sg.     172800 IN    NS    AUTH02.NS.UU.NET.
```

```
sg.          172800 IN   NS   PRIDNS.STARHUB.NET.sg.
sg.          172800 IN   NS   DNSSEC6.SINGNET.COM.sg.
;; Received 329 bytes from 192.33.4.12#53(C.ROOT-SERVERS.NET) in 249 ms
```

```
nus.edu.sg.  21600 IN   NS   dnssec1.singnet.com.sg.
nus.edu.sg.  21600 IN   NS   dnssec2.singnet.com.sg.
nus.edu.sg.  21600 IN   NS   dnssec3.singnet.com.sg.
nus.edu.sg.  21600 IN   NS   ns1.nus.edu.sg.
nus.edu.sg.  21600 IN   NS   ns2.nus.edu.sg.
;; Received 231 bytes from 202.42.194.205#53(DS.NIC.NET.sg) in 23 ms
```

```
comp.nus.edu.sg. 86400 IN   NS   ns1.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns2.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns2.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns3.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns4.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns1.nus.edu.sg.
;; Received 241 bytes from 165.21.83.11#53(dnssec1.singnet.com.sg) in 6 ms
```

```
www.comp.nus.edu.sg. 86400 IN   CNAME sunsvr.comp.nus.edu.sg.
sunsvr.comp.nus.edu.sg. 86400 IN   A     137.132.90.6
comp.nus.edu.sg. 86400 IN   NS   ns3.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns4.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns1.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns1.comp.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns2.nus.edu.sg.
comp.nus.edu.sg. 86400 IN   NS   ns2.comp.nus.edu.sg.
;; Received 278 bytes from 137.132.90.2#53(ns1.comp.nus.edu.sg) in 2 ms
```

```
bhojan@sf0:~[413]$
```

Give the IP address of

- a) a root DNS server:
- b) a top-level domain DNS server:
- c) local DNS server:
- d) host www.comp.nus.edu.sg:

4. What are limitations of SSL for payment card transactions?
5. Kurose & Ross Text Book -> **Chapter 8**-> Homework Problems & Questions -> Problems -> **Question 11**
6. Kurose & Ross Text Book -> **Chapter 8**-> Homework Problems & Questions -> Discussion Questions -> **Question 1**