

## **Recitation 5: Group exercises**

1.SCTP

2.Unicast Routing Protocols

3.DNS

## 1. SCTP

- Why SCTP is needed? Is SCTP designed to replace TCP?
- Compare the features of SCTP, TCP and UDP.
- Explain the design motivation for Verification Tag.
- List as many SCTP chunk types as you can? Can you find corresponding features in TCP to each SCTP chunk type?
- An SCTP data chunk is numbered using:
  - TSN
  - SI
  - SSN
  - none
- To distinguish between different streams, SCTP uses:
  - TSN
  - SI
  - SSN
  - none
- To distinguish between different data chunks belonging to the same stream, SCTP uses:
  - TSN
  - SI
  - SSN
  - none
- In SCTP, what is the smallest possible field of a data chunk? And in that case, what is the total SCTP packet length?
- Read the following DATA chunk dump in hex format:
 

```
00000015 00000005 0003000A 00000000 48656C6C 6F000000
```

 Draw the corresponding chunk field diagram and find out the UBE flags, TSN, SI, SSN, message and paddings.
- The state of a receiver is as follows:

The receiving queue has chunks 1 to 8, 11 to 14 and 16 to 20.

- There are 1800 bytes of space in the queue.

- The value of lastAck is 5.
- No duplicate chunk has been received.
- The value of cumTSN is 5.

Show the contents of the receiving queue and the variables. Show the contents of the SACK message sent by the receiver.

## 2. Unicast Routing Protocols

- What is an autonomous system (AS).
- What is the difference between intradomain and interdomain routing?
- What is distance vector routing? How does it work?
- What is the difference between split horizon and poison reverse?
- Compare the message formats for RIPv1 and RIPv2.
- How does link state routing work?
- What is a stub link?
- What is BGP identifier in an Open message?

### 3. DNS

- Why DNS uses Hierarchical Name Space instead of Flat Name Space?
- What is the difference between a domain and a zone?
- What is the difference between a FQDN and PQDN?
- What is a zone transfer?
- What is the difference between recursive and iterative resolution?
- How does caching helps in DNS?
- How does a client specifies that it desires a recursive answer?
- What do the following resource records specify: A, NS, CNAME, SOA, PTR, HINFO, MX, AAAA
- How is compression done in DNS?
- Does NS uses TCP or UDP as its transport layer protocol. Discuss.
- What is DDNS?