Solutions for Third Quiz

COSC 6360

Fall 2014

First question

- Which Kerberos entities share these secrets? (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password				
Session key $K_{c,tgs}$				
TGS key K_{tgs}				
Session key $K_{c,s}$				
Server key K_s				

Answer

- Which Kerberos entities share these secrets?
  (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password	**X**			**X**
Session key $K_{c,tgs}$				
TGS key K_{tgs}				
Session key $K_{c,s}$				
Server key K_s				

Answer

- Which Kerberos entities share these secrets? (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password	X			X
Session key $K_{c,tgs}$	X	X		X
TGS key K_{tgs}				
Session key $K_{c,s}$				
Server key K_s				

Answer

- Which Kerberos entities share these secrets?
  (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password	X			X
Session key $K_{c,tgs}$	X	X		X
TGS key K_{tgs}	X	X		
Session key $K_{c,s}$				
Server key K_s				

Answer

- Which Kerberos entities share these secrets? (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password	X			X
Session key $K_{c,tgs}$	X	X		X
TGS key K_{tgs}	X	X		
Session key $K_{c,s}$		X	X	X
Server key K_s				

Answer

- Which Kerberos entities share these secrets? (4 points per correct line)

Secret	Kerberos	TGS	Server	User
User's password	X			X
Session key $K_{c,tgs}$	X	X		X
TGS key K_{tgs}	X	X		
Session key $K_{c,s}$		X	X	X
Server key K_s		X	X	

Second question

- What is the main feature of **SHA** hash algorithms? (10 points)

Answer

- What is the main feature of **SHA** hash algorithms? (10 points)

  - ☐ Any change to the hashed data will (with very high probability) change the hash value
    - Can be used to verify the integrity of data

Third question

- Consider a RAID level 6 array with ten disks. Against which potential failures—or combinations of failures—does the array protects its data? (2×10 points)

Answer

- Consider a RAID level 6 array with ten disks. Against which potential failures—or combinations of failures—does the array protects its data? (2×10 points)

  a) The simultaneous failure of two disks

  b) The failure of one disk and several irrecoverable read errors on the other disks

Fourth question

- What is the cost of a write in a log-structured file system, when its segment cleaner has to clean four segments to produce two clean segments? (10 points)

Answer

- What is the cost of a write in a log-structured file system, when its segment cleaner has to clean four segments to produce two clean segments? (10 points)

  - ☐ The segment utilization is 2/4 = 0.5

  - ☐ **The cost of a write is 2/0.5 = 4 I/O ops**

Fifth question

- According to Shah and Pâris, what is the relationship between the transmission delay of their protocol and the size of its sliding window? (10 points)

Answer

- According to Shah and Pâris, what is the relationship between the transmission delay of their protocol and the size of its sliding window? (10 points)

  - They are **equal.**

Sixth question

- What are the main advantages and disadvantages of using the **asynchronous log updates** in journaling file systems?
(2×10 points)

Answer

- What are the main advantages and disadvantages of using the *asynchronous log updates* in journaling file systems?
(2×10 points)

  - **Main advantage:**
  it is *much faster* than using synchronous log updates

  - **Main disadvantage:**
  it does not guarantee the *durability* of metadata updates

Seventh question

- Which **dependency information** do **soft updates** maintain? (10 points)

Answer

- Which **dependency information** do **soft updates** maintain? (10 points)

- It keeps track of which i-node blocks must be updated **before/after** a given directory entry