Solutions for Third Quiz

COSC 6360

Fall 2015

First question

- How does ***SSH*** authenticate a new server?

- Is this process as secure as it should?

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  - **When the client contacts a server, the server replies with its public host key and its public server key.**
  - **Client then decides to accept or reject these keys**
- Is this process as secure as it should?

First question

- How does ***SSH*** authenticate a new server?
  - **When client contacts a server, the server replies with its public host key and its public server key.**
  - **Client decides to accept or reject these keys**
- Is this process as secure as it should?
  - **No because clients rarely have the way to check the keys' authenticity**

Second question

- Which steps will be taken by the Sprite LFS to retrieve a specific i-node when the system reboots after having been properly closed?

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- Which steps will be taken by the Sprite LFS to retrieve a specific i-node when the system reboots after having been properly closed?
  - **Access checkpoint area to get addresses of blocks of i-node map**
  - **Access i-node map to get address of the i-node**

Third question

- What is the cost of a write in the Sprite LFS system, when its segment cleaner has to clean five segments to produce two clean segments?

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- What is the cost of a write in the Sprite LFS system, when its segment cleaner has to clean five segments to produce two clean segments?
  - Compute first segment utilization
    - **U = (5 – 2)/5 = 0.6**
  - Apply formula
    - **2/(1-U) = 2/0.4 =2/(4/10) = 5**

Fourth question

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- According to Shah and Pâris, how should we modify BitTorrent tit-for-tat policy to let peers participate sooner in the video distribution?

  - **They proposed "*a new randomized tit-for-tat peer selection policy that gives free tries to a larger number of peers and lets them participate sooner in the media distribution*."**

Fifth question

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  - ***Main advantage:*** **They are *faster***
  - ***Main disadvantage:*** **They do *not* guarantee the *durability* of updates**

Sixth question

- What is the main motivation for ***tailpacking*** in journaling file systems?

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  - **To save disk space by reducing internal fragmentation**

Seventh question

- Consider a RAID level 6 disk array with ten disks?
  - How much of the total disk space is occupied by parity information?
  - Assume that we have to update a single data block in the array and ***already know the old value*** of the block being updated. How many disk reads and disk writes will be required to perform the update?

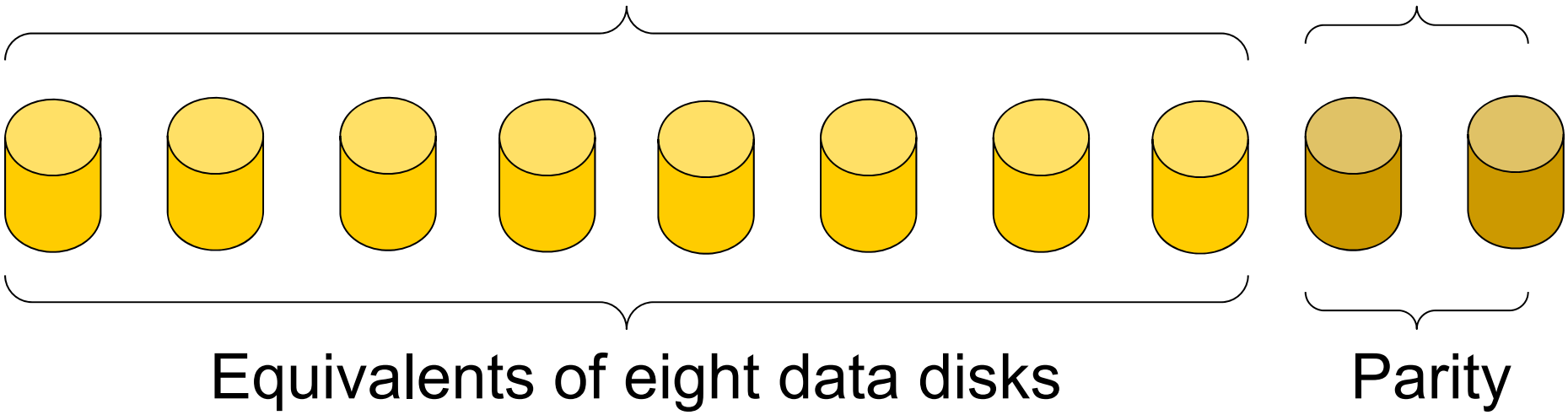
Seventh question

- Consider a RAID level 6 disk array with ten disks?
  - How much of the total disk space is occupied by parity information?
    - Each parity stripe will have ten disks
      - Eight of them will hold data
      - Two of them parity information
    - **Twenty percent**

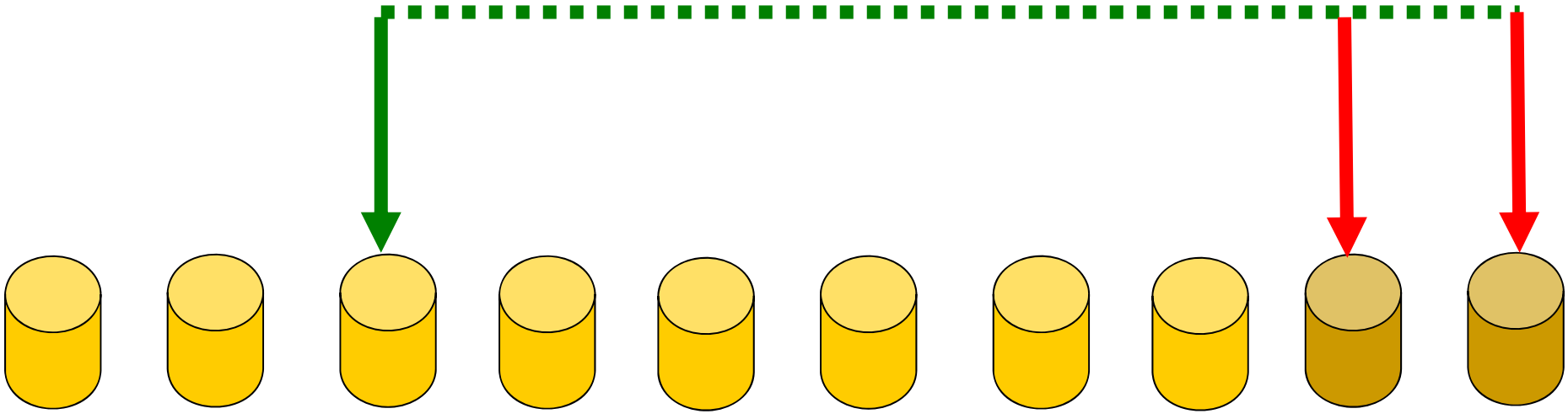
Seventh question

- Consider a RAID level 6 disk array with ten disks.
  - Assume that we have to update a single data block in the array and ***already know the old value*** of the block being updated. How many disk reads and disk writes will be required to perform the update?

The RAID level 6 array



We update



Seventh question

- We will need to write to disk the new values of
  - The modified block B'
  - The modified parity blocks P' and Q'

  for a total of **three writes**
- We already have in memory the old value B of the block but need to read in
  - The old values P and Q of the two parity blocks

  that is, **two reads**