

IMPROVEMENT IN RAID

Snehasis Chatterjee*

Abstract

RAID is introduced to access the disks in faster rate. Implementation of RAID were like hard drive data recovery and taking into notice that, if one of the hard disks failed, still the remaining should work. Hence, the combination of hard drives into a single logical unit in a computer server increases the network availability considerably, hence, increasing the overall system's performance.

The main problems associated is that the loss of data due to disk failure, by natural disasters or by power-failure. Then, the question arises what about the data which has been lost. Data can be lost from the disks due to the above mentioned factors at the time of transmission of data from one disk to another or the disk itself fails when the data resides in it. In this paper, we are introducing the concept that describes how to retrieve the data which is being lost, by keeping in mind that it should not be so expensive and typical.

Keywords--Data, Direct, Block, Disk, Level, Analyze, Failure, Mismatch, Capacity.

* GITAM University, Visakhapatnam, Andhra Pradesh, India

I. OUR IDEA TO PROTECT THE DATA FROM BEING LOST

As from the previous information we got the idea that the many practices has been taken in order to protect the data from being lost. Some of the practices are like keeping error bits in some other disks or mirroring of disks etc. After analyzing all those practices we too come up with an idea which is similarly useful to protect the data and it is not so expensive to maintain.

The idea is as follows:



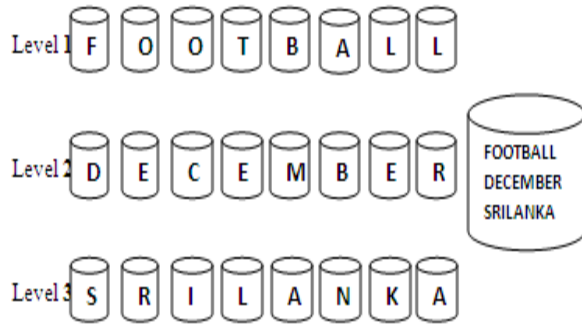
In our practice, we are also maintaining the same number of disks to store the data. For example in level 1, we are taking the data as “FOOTBALL”. Data is being stored in bit pattern. Redundancies take places in level 2 and level 3. Suppose any disk got failure while transmitting data between levels, retrieving data is bit difficult.

Consider, that in level 1 the each disk is of 1 GB then 8 disks will be 8GB, the extra disk which we are using is of 8 GB such that if any data is added in the disks then the same data will also be loaded in that additional high capacity disk.

During loading of data into the disks, first the whole data is divided into parts (may be of same size or may be not) then the each part is loaded not only in each disk and also in the extra disk.

WHY WE ARE NOT USING A SINGLE DISK TO STORE ALL LEVELS DATA?

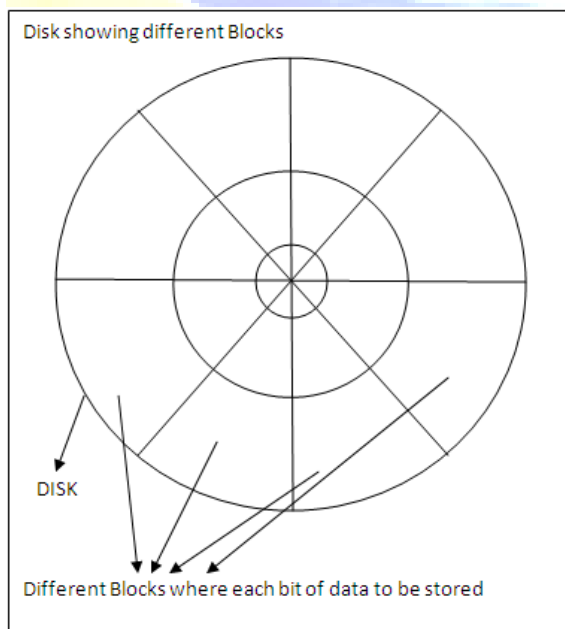
If we use a single additional disk for all the data of all levels it makes us difficult to recover the data which is lost from the huge amount of data.



For example, if the 'A' bit of level 1 is lost then it is difficult to analyze from the single extra disk that the 'A' bit which is already there belongs to which level as two more 'A' bit is also used in level 3. Therefore, we are using extra disks in each level to analyze the data properly without being mismatching of data and the perfect data can be retrieved which is being lost.

II. HOW THE DATA IS KEPT IN THE EXTRA DISK IN EACH LEVEL?

We discussed earlier that the whole data for the particular level is kept in our extra disk which we are using. As the extra disk is going to have large amount of data then it is necessary that the data should be managed in the disk such that when the data is lost, it is easier to have faster access to the disk to retrieve the data. Therefore, we are keeping the data in each block of the disk, which makes the user to retrieve the data by using, direct search technique.



III. ADVANTAGES

- Fast retrieving of data as the data is kept in each block of the disk.
- High capacity disk is only used in the case when we are retrieving the data, therefore the possibility of failure is less and timing replacement will also make failure far less.
- There is no possibility of mismatching of the data.

IV. CONCLUSION

The high capacity disk and the storage style in this disk is the more important thing is to protect data from losses and also for fast retrieval of data. Therefore it is necessary to keep an additional disk always in advance to take back-up and maintenance is as similar as rest of disks.

REFERENCES

- [1] Operating System Concepts, 6th edition Abraham Silberschatz, Galvin and Gagne.
- [2] www.Wikipedia.com
- [3] www.prepressure.com/library/technology/raid
- [4] www.webopedia.com/TERM/R/RAID.html
- [5] www.thegeekstuff.com/2010/08/raid-levels-tutorial/
- [6] www.acnc.com/raidedu/0
- [7] www.kintronics.com/raidwpaper.htm