

The Comparation of The Duration of Five Software to Restore The Operating System

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Abstract - In order to do backup and restoration in the computer lab, the technician usually does the clone technique to create an image file. In this research, it aims to test the comparison of the duration of five backup software to restore the operating system. For retrieving data, this research goes through the three stages: hardware, software, and instruments. Testing backups, verifying and restore are recorded in the process analysis. Then, the results are grouped based on the duration of each category, followed by sorting process from the fastest to the lowest.

Keywords: Computer; Backup; Restore; Application; Time; Duration; Restoration

I. INTRODUCTION

Back up and restoration process in the computer lab usually be done manually. The technician usually does the clone technique to create an image file. There are two ways to do it: offline and online mode. In online mode, back up and restoration will be time-consuming depends on how big data that will be recovered. Also, the network should be stable. Otherwise, it will be a damage to the data and the software that included. For this reason, offline mode for backup and restoration should be considered. In offline mode, there is so many backup software. However, the technician should understand which software that is good enough to handle their problem.

Based on this problem, the authors find five backup software that met the requirements. This research aims to help the technician to find the matching software and compare how long the five software works and find the fastest one. For five software, it will be done using the flash drive that has been installed the backup software and make it a bootable USB. For retrieving data, this research goes through the three stages: hardware, software, and instruments. Testing backups, verifying and restore are recorded in the process analysis. Then, the results are grouped based on the duration of each category, followed by sorting process from the fastest to the lowest. In conclusion, Clonezilla is the fastest software to restore the data. Even though, it needs more research to compare the five software with another similar software.

Backup and Synchronization

Backup is a method that does copy a file to another. Synchronization cannot be released when someone does backup files using more than one computer. Synchronization software ensures user to receive the same results of backup as well as they expect. If there is a modification of the backup file, it will affect simultaneously and automatically for each destination file although there is a different operating system [1].

Quality Aspects Of Service

There are 10 aspects of service quality: (1) tangible, (2) reliability, (3) responsiveness, (4) competency, (5) courtesy, (6) credibility, (7) security, (9) communication, and (10) understanding the customer. These aspects determine the quality of customers satisfaction.

The cause of failure in the service quality between customer and provider perceptions is divided by five gaps: (1) between the expected service quality and provider perceptions for user expectations; (2) between the service quality and user perception; (3) between the result of services and service quality specifications; (4) between

the result of services and the value of the user's external communication; and (5) between perceived and expected services [2].

Operating System Configuration

In general, the operating system provides some basic functions, such as file management, working on the files and configuration system. Configuration can be done by CUI (Character User Interface) or based on GUI (Graphical User Interface) [3].

Software Backup

There is five backup software that commonly used: Norton Ghost, Macrium Reflect, Active Disk Image, Clonezilla, and DriveImage XML.

II. RESEARCH METHODS

This research will go through several steps, i.e.:

1. Preparation, population selection, and record the specification of computers as a test tool. Install the operating system, drivers and restore apps. Create and print tables to

record test-related the data. Perform backup drive C that contains operating systems and applications by recording backup results in the backup software, such as backup duration, backup file capacity, backup methods.

2. Testing, doing the image partition including the operating system. Perform the restoration test using five software.
3. Data retrieval, recording the restoration time, from the beginning to the end and the duration of each software.
4. The analysis aims to find out the fastest duration of any software used.
5. Conclusion making, collecting the results of the analysis to receive the fastest duration of any software restoration then interpret the results of data analysis to make conclusions.

III. RESULTS

The results for this research will be grouped into three parts:

1. Backup

Table 1 shows the rank of the backup time and Figure 1 shows the graphic.

TABLE 1. RANK OF THE BACKUP DURATION

Backup Time (second)	Software
451	Clonezilla
563	Active Disk Image
720	Macrium Reflect
909	DriveImage XML
939	Norton Ghost

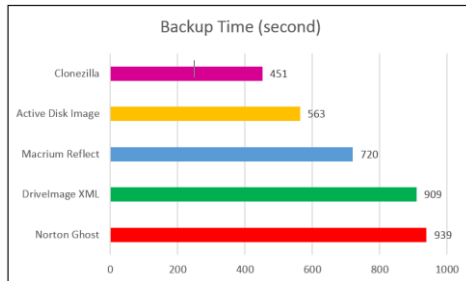


Fig 1. the graphic for the rank of the backup time.

Based on the backup time, table 2 shows the rank of the total file size of the backup process.

TABLE 2. RANK OF THE TOTAL FILE SIZE OF THE BACKUP PROCESS

Total File Size (byte)	File Location	File Name	Software	Desc
7.715.865,374	D:\2017-08-02-17-img	Noname. Formed into 18 files	Clonezilla	No compression
14.488.276,992	D:\image 16Gb	02082017.adi	Active Disk Image	

Total File Size (byte)	File Location	File Name	Software	Desc
14.950.288,805	D:\image 16Gb\1 - Norton Ghost	02082017.gho	Norton Ghost	
17.698.435,000	D:\image 16Gb\3 - Macrium Reflect	A134B59A38FB034B-00-00.mring	Macrium Reflect	
18.137.526,467	D:\image 16Gb\6 - DriveImage XML	Drive_E.xml	DriveImage XML	

2. Verifying

Table 3 shows the rank of the verifying Time and Figure 2 shows the graphic.

TABLE 3. RANK OF THE VERIFYING DURATION

Verifying Time (second)	Software
9	Active Disk Image
164	Clonezilla
233	Norton Ghost
-	Macrium Reflect
-	DriveImage XML

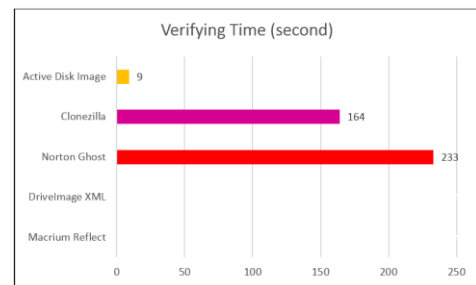


Fig 2. the graphic for the rank of the verifying time.

3. Restoration

Table 4 shows the rank of the restoration time and Figure 3 shows the graphic.

TABLE 4. RANK OF THE RESTORATION DURATION

Restoration Time (second)	Software
451	Clonezilla
690	Active Disk Image
740	Norton Ghost
1.080	Macrium Reflect
1.136	DriveImage XML



Fig 3. the graphic for the rank of the restoration time.

Through three parts, the explanation is provided below.

1. The backup group aims to ensure each test has been succeeded creating image files. The fastest backup is Clonezilla.
2. Verification group aims to ensure the image file is valid. The fastest verification is Active @ Boot Disk (ver. 10.5.0).
3. Restoration group aims to extract image file to partition or drive C that contains an operating system, driver, and software. The fastest restoration is Clonezilla.

IV. CONCLUSION

Based on the data results, it can be concluded Clonezilla is the fastest for the restore process and any other features. Even though, it also needs more research to compare the five software with another similar software and another parameter.

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