CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

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7.1 INTRODUCTION

This dissertation covers local and remote data backup system as a designed strategy in disaster recovery planning. Each chapter in this dissertation discusses in detail the disaster recovery planning, why risk management is needed and how to design and implement the local and remote backup strategy. However, in final chapter, the overall conclusion of this dissertation, achievements and future enhancement will be discussed.

Knowledge gained and accomplishment from this dissertation will be explained. While showing the practical and concept on how to design and develop an efficient backup strategy in network environment, this dissertation is useful to network administrators and others who wish to protect data assets from the occurrence of disasters.

Instead, this chapter will provide some ideas that can be utilize to enhance the Local and Remote Data Backup System. Thus, personal points of view and suggestions from testing participants on system enhancement will be listed down.

7.2 ACHIEVEMENTS

Achievements from starting till the end will be mentioned in this section. They cover theoretical and practical knowledge, network management view and other network technologies. These achievement can be divided into five parts, they are:

i) Theoretical knowledge in disaster recovery planning and risk management
ii) Theoretical knowledge on network management and data backup strategies
iii) Theoretical knowledge in file transfer protocol
iv) Practical knowledge
v) Other achievements

7.2.1 THEORETICAL KNOWLEDGE IN DISASTER RECOVERY PLANNING AND RISK MANAGEMENT

This dissertation focuses on disaster recovery planning. Besides exploring every area of disaster recovery planning, the implementation of disaster recovery planning is also covered in the case study on a business organization, SEA Automation Sdn. Bhd.. Therefore, the definition of disaster recovery planning and the involved strategies are determined in order to identify how to perform risk management and system design.

The vulnerabilities in distributed network computing system are identified in favor of emphasizing on the need of risk management. As discussed, risk management involves three main components. They are risk analysis, risk assessment and identification of network system requirements.

Data has been identified as the highest priority assets. Hence, every risk that is vulnerable to data loss has been identified in risk analysis. In essence, these risks are categorized as natural disasters, network security threats, deficiency on network management and deficiency on system maintenance. In addition, risk assessment and identification of network system requirements are also performed accordingly on these risks.

7.2.2 THEORETICAL KNOWLEDGE IN NETWORK MANAGEMENT AND DATA BACKUP STRATEGIES

Instead of understanding the disaster recovery planning, this dissertation also provides an opportunity to learn about network management and data backup strategies. In local data backup system, all types of network management typically placement of backup server have been reviewed and compared.

Besides, most of the backup strategies for remote data backup system also have been examined. All of these involve the studies on data storage devices that embrace from magnetic tape storage to RAID. Furthermore, as a supplement to develop a well-designed data backup strategy, review on backup documentation, testing and schedules also have been done.

Theoretical knowledge in network management has been experienced from the observation of network architecture in a business organization. Much of this knowledge is gained from risk analysis on the existing network environment to identify the present vulnerabilities.

7.2.3 THEORETICAL KNOWLEDGE IN FILE TRANSFER PROTOCOL

In place of designing the remote data backup system, which involves file transfer over the international network, the studies on File Transfer Protocol must be done. As discussed, FTP provides facilities for transferring to and from remote computer systems where there is a need in authority to login and access files on the remote system. Consequently, the FTP perspective, model, service commands and replies have been detailed in order to master the concepts of file transferring over Internet.

In addition, the application and overview on Windows Socket (Winsock) and Internet Transfer (INET) in Visual Basic 6.0 also have been done in order to implement the coding of local and remote data backup system.

7.2.4 PRACTICAL KNOWLEDGE IN DESIGNING DATA BACKUP STRATEGY

In spite of the achievements in theoretical knowledge, this dissertation also beneficial in term of technical experience. During the observation and design of local and remote data backup system, the implementation of risk analysis have been performed.

With this practical case study of risk analysis on the network environment in a business organization, much of practical knowledge has been gained. These include identification of the vulnerabilities in the existing network and endeavor to provide the best solution for the risk discovered. Furthermore, based on the practical analysis, discussions and assessments, the practical design of local and remote data backup system also has been experienced.

7.2.5 PRACTICAL KNOWLEDGE IN IMPLEMENTATION OF LOCAL AND REMOTE DATA BACKUP SYSTEM

During the development and implementation of Local and Remote Data Backup System, the coding program, Microsoft Visual Basic 6.0, has been studied in detail. These include the development of local data backup module, remote data backup and restore module, scheduled and incremental backup module and log files module.

Besides, algorithms, methodologies and functions of each module have been experienced. These include the utilization of FileCopy statement in local data backup module, Internet Transfer control in remote data backup and restore module, Timer control in scheduled backup module, File attributes in incremental backup module and ShellExecute function in log files module.

7.2.6 OTHER ACHIEVEMENTS

Despite, during the observation on a business organization, interview and discussions have been carried out in order to perceive information about the disaster recovery planning and backup strategy.

7.3 FUTURE ENHANCEMENT

The local and remote data backup system is developed by using the high level language, Visual Basic 6.0. Thus, the enhancement of this system may involve the additional of new system features and functions. On the other hand, the enhancement of this system may also take account to solve the system drawbacks listed in section 6.4.3. Therefore, future enhancements of this dissertation are as summarized as below:

i) Additional of data compression functions in the system to reduce the utilization of time during file transfer over the Internet.

ii) Additional of data encryption functions before data is transferred to the remote server.

iii) Additional of attractive graphical designs especially in remote server directory listings.

iv) Enhanced functions in data restore module that enables multiple data files restoration at each setup.

v) Enhance local and remote data backup system with synchronous data backup technique, which maintains exact duplicates of selected data files at all times. This will ensure that there is no latency between data on source and target systems.

vi) Perform case studies of disaster recovery planning in other organizations besides business organization. These may include banking system, government and education organizations where disaster recovery planning is mandatory to prevent data loss.

7.4 CONCLUSION

In conclusion, knowledge in term of theory, concept, technical and practical in local and remote data backup strategy, disaster recovery planning and risk management has been gained. This dissertation also describes about the algorithm and methodology to build a local and remote data backup system by using Visual Basic 6.0 in Windows98 platform.

Eventually, dissertation titled Disaster Recovery Planning: Local and Remote Data Backup System has been completed successfully. Every single scope of the dissertation that has been mentioned previously is covered. Besides, the objectives of the dissertation are also accomplished. Achievements in this dissertation are useful for any organizations typically business organizations that require disaster recovery planning to prevent data loss.