

**DISASTER RECOVERY TEST MANAGEMENT SYSTEM
(DRTEMS)**

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To my beloved mother, father, children and my soul mate – my beloved wife.
Who are the source of my inspiration, encouragement, guidance and happiness.
May Almighty ALLAH Bless and Protect them.

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ABSTRACT

Disaster Recovery Test Management System or *DRTEMS* is a web-based system that develops utilising PHP, a scripting language that is widely used in web system development. *DRTEMS* is proposed to facilitate disaster recovery test activity effectively and systematically. The disaster recovery test is one of the important elements in disaster recovery solution to ensure the solution is practical and ready to use whenever disaster happens. The system caters functions of few actors involved in the disaster recovery test activity. It facilitates Service Delivery Manager to approve the online disaster recovery test application made by client. The clients in the other hand are able to apply the test date and receive the notification online. The system provides a platform for DR Consultant to provide the disaster recovery procedure that will be referred by DR Coordinator for the disaster recovery test implementation. The system is also able to produce disaster recovery test performance report that can be viewed by respective people involved in the test. In addition, the system facilitates the organization to conduct client satisfaction survey and measure the client satisfaction based on the input provided by clients. This capability is significant for the organisation to increase customer satisfaction by providing good services.

ABSTRAK

Disaster Recovery Test Management System atau *DRTEMS* ialah sebuah sistem berasaskan web yang dibangunkan dengan menggunakan PHP, bahasa pengaturcaraan yang digunakan secara meluas dalam pembangunan sistem berasaskan web. *DRTEMS* dicadangkan untuk memudahkan pelaksanaan ujian pemulihan bencana secara efektif dan sistematik. Ujian ini adalah salah satu elemen penting di dalam penyelesaian pemulihan bencana bagi memastikannya prosedur sedia ada dalam keadaan terkini dan dapat digunakan bagi menghadapi sebarang kemungkinan bencana. Sistem ini merangkumi fungsi beberapa aktor yang terlibat di dalam aktiviti ujian pemulihan bencana. Sistem ini memudahkan pelanggan untuk memohon secara elektronik tarikh ujian pemulihan bencana. Sistem ini juga membenarkan Perunding Pemulihan Bencana untuk menyediakan prosedur pemulihan bencana yang akan digunakan oleh Koordinator Pemulihan Bencana. Seterusnya, sistem ini berupaya untuk menghasilkan laporan prestasi ujian pemulihan bencana yang telah dijalankan. Selanjutnya, sistem ini juga membantu HeiTech Padu untuk menjalankan kajian maklum balas kepuasan pelanggan berkaitan dengan perkhidmatan pemulihan bencana yang ditawarkan. Keupayaan ini penting bagi organisasi untuk meningkatkan lagi perkhidmatan yang ditawarkan ke tahap yang terbaik.

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CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

The title of this project is *Disaster Recovery Test Management System (DRTEMS)* for HeiTech Padu Berhad (HeiTech Padu). The system will enable HeiTech Padu personnel that provide disaster recovery services to manage disaster recovery test activity effectively. Hence, the system is hoped to act as a catalyst for HeiTech Padu to provide excellent disaster recovery services to client and as a reference for other similar system implementation that intended to be an enabler to achieve HeiTech Padu business objective.

1.2 Background of Problem

Disaster Recovery Test Management System (DRTEMS) is a proposed project intended for managing disaster recovery test activity for disaster recovery service. The system is developed based on the author's organisation – HeiTech Padu.

A disaster recovery service is one of HeiTech Padu core business. Disaster Recovery Test (DR Test) main purpose is to maintain the effectiveness of the developed Disaster Recovery Plan (DRP). The test activity is very important to ensure the DRP is current and relevant to the current business environment. Currently, there is no system to facilitate the DR Test activity. Due to that, HeiTech Padu personnel who provide the service experienced difficulties to provide satisfactory service to client.

Currently, there are more than 30 of clients subscribed with HeiTech Padu's disaster recovery service. Some of the clients are subscribed to shared disaster recovery service. The service requires low investment due to shared resources. Prior to the test activity, the client applies to the disaster recovery test activity to Service Delivery Manager (SDM). Then, the SDM checks availability of test calendar date and/or resources. For the dedicated service's clients, SDM only needs to check a pre-requisite of test date availability. The availability of test date is due to the policy that HeiTech Padu set which limits number of client's test at one time. This is to ensure client satisfaction and convenience to conduct the test due to limited space of common working area. For the shared service's clients, SDM needs to check the availability of test calendar date and shared resources with the Data Centre Service Manager (DCSM) who is responsible of the disaster recovery resources. Only if the mentioned pre-requisite is available the test application is approved. If not, the SDM will ask the client to re-apply the test date. The tedious and ineffective process gives negative perception to the disaster recovery service as a whole. In short, without an efficient system, HeiTech Padu personnel have to go through hassle process to confirm resource and the test date availability prior confirmation to the client

Fundamentally, the important part of the test is during the test activity. HeiTech Padu and client monitor the performance of the overall recovery process to ensure that it meets the disaster recovery test objective. In real life situation, ineffectiveness of the disaster recovery procedure can cause harm to the organisation's business. The recovery process consists of predefined recovery activities which involve number of tasks and resources. Currently, with the manual development of disaster recovery process, the DR Coordinator experienced difficulties to verify the recovery process and its dependencies. He also has difficulties to monitor and track the test performance. Furthermore, the current DR Test practice not emphasise on the business impact cause by the simulated disaster recovery scenario. After the test, the DR Coordinator has to compile and produce disaster recovery report which is another major effort.

Currently, the DR Test information is scattered among HeiTech Padu personnel who provide disaster recovery service. Each of individual involved in DR Test activity has its own set of information. The management faces difficulties to gain overall disaster recovery service and test activity information off hand. Every time the management requires certain disaster recovery information, they have to identify the person who has that particular information and retrieve that information from him. Hence, as the information is distributed, the management finds hard to analyse disaster recovery service and test activity information. As overall, without a centralise system, HeiTech Padu personnel experience difficulties to refer to the DR Test historical information.

Furthermore, the current DR Service and test activity not provide any mechanism to assess client satisfaction towards the provided service. Without this mechanism and input, HeiTech Padu is not being able to evaluate and measure clients' satisfaction in regards to the services. Thus, it complicates HeiTech Padu to provide better, satisfactory and relevant service as required by clients.

The next section of 1.3 – statement of the problem will serve as a continuous overview of the existing problem.

1.3 Statement of the Problem

As described in the problem background section, the current issues faced by Heitech Padu that need to be addressed in this project are elaborate as below:

- **Difficulties to apply and approve disaster recovery test activity**

The current manual process requires Clients to request a test date to DR Coordinator from SDM Department. Then, the DR Coordinator has to confirm the date with DCS Manager. This requires DCS Manager to check date availability due to limited space of working environment. The policy specifies only three disaster recovery test can be conducted at a particular date. Without a single interface to check the disaster recovery category and test date availability, SDM Manager face difficulties to approve the test date application. And at the other end, clients face difficulties to apply the test using manual process. If the application is rejected due to the mentioned constraints, clients have to initiate a new request of disaster recovery test. This problem cause dissatisfaction to the clients and give negative impact to MDCS reputation in giving excellent service.

- **Difficulties to track performance and problem of disaster recovery test**

Disaster recovery test objective is to evaluate and to test conformity of disaster recovery plan and solution. The test is significant to set a guideline for the revision of disaster recovery plan. The existing disaster recovery plan will become irrelevant whenever organization's business process change which always require new set of business process plan. The plan also needs to be revised when organizations do business transformation or change its core business priority. Base on the client's disaster recovery services subscription, HeiTech Padu will provide disaster recovery test activity. Currently, without a single point of reference and existing scattered information to facilitate the test activity, management face difficulties to track performance of disaster recovery test. The overall result for the disaster recovery test is important to the management to further improve the services either on the technology, people or procedure.

- **No centralise database information for disaster recovery services**

Currently, there is no centralise database information for disaster recovery services. Many times, management needs to refer to number of individuals to get disaster recovery services information. This is due to different functions of each personnel that involve in providing disaster recovery services. The important information for disaster recovery services that requires by management are:

- i. Details of disaster recovery services account's information
- ii. Details of disaster recovery test implementation date
- iii. Details of disaster recovery test activity and results

- **No mechanism to evaluate clients satisfaction**

Clients' satisfaction is very important to sustain business relationship with clients. Currently, there is no mechanism either manual or electronic to gather feedback from clients regards to disaster recovery services and test activity. The disaster recovery services and test activity performance can also be measured from the input given by clients. To be a client's orientation service company, satisfaction survey is important to gain information of client preference. This to ensure that the provide services meets the client needs and requirements.

Aware of the problems facing by the stakeholders, it motivates the author to develop a customised disaster recovery test management system for disaster recovery services to cater stakeholders need.

1.4 Project Objectives

The objectives of the proposed system – DRTEMS are listed as below:

- To study, understand and analyse Managed Data Centre Services (MDCS) of HeiTech Padu's current environment in relation to:
 - i. Implementation of disaster recovery test activity for client
 - ii. MDCS' department functions to provide disaster recovery services for client
 - iii. Details of disaster recovery test activity and results

- To develop a proposed system that is design and customised to MDCS environment, which is able:
 - i. To facilitate application and approval of disaster recovery test
 - ii. To facilitate and monitor disaster recovery test activity and performance
 - iii. To facilitate clients' satisfaction assessment

1.5 Project Scope

DRTEMS is designed and developed solely base on HeiTech Padu's Managed Data Centre Services (MDCS) division context and circumstances. The solution is focused on the disaster recovery test of disaster recovery services.

As a whole, the major functionality of DRTEMS is to serve as a platform to facilitate disaster recovery test activity process for the disaster recovery services. The proposed system improves the disaster recovery test application by providing online application. In addition, the system also facilitates in providing a platform to track disaster recovery test performance and result during disaster recovery test

activity. The system also enables clients to give feedback in regards to the HeiTech Padu's disaster recovery services.

From the management perspective as a whole, they are allowed to view all vital information related to disaster recovery services and test include clients' account, clients' contact, staffs contact, disaster recovery service's accounts, disaster recovery test calendar, disaster recovery test results and clients' satisfaction assessment result. Data Centre Services Manager as particular is able to manage shared resources own by HeiTech Padu. In addition, Service Delivery Manager is able to approve disaster recovery test application by clients.

From the DR Coordinators & Account Managers perspective, they are allowed to view associated information related to disaster recovery service and test include clients' account, clients' contact, staff contact, disaster recovery service's accounts, disaster recovery test calendar and disaster recovery test. In addition, the DR Coordinator is allowed to manage disaster recovery test activity. It includes adding recovery process information and updating recovery process results. The results will be viewed and used by management and working level.

From the clients perspective, they are also allowed to view associated information related to disaster recovery test includes clients' account, clients' contact, staff contact, disaster recovery service's accounts, disaster recovery test results. Furthermore, the clients are allowed to apply the test activity date and provide feedback of the services through online client satisfaction survey.

To develop the proposed system – DRTEMS, following software will be used:

- Windows XP Professional – an operating system used for the proposed system – DRTEMS development.
- Apache Web Server – An open-source web server for modern operating systems including UNIX and Windows. The goal of the web server is to provide a secure, efficient and extensible server that provides web services in sync with the current HTTP standard

- Internet Explore 6.0 – a widely used internet browser to display contents of the internet site.
- PHP – a widely used general-purpose scripting language that is widely used for web development and can be embedded into HTML
- MySQL – a popular open source database. MySQL is consistently recognized for its high quality and reliability.
- Microsoft Office Suite – document software to assist in preparing the project report.

1.6 Importance of the Project

DRTEMS will give significant contribution to MDCS to provide better disaster recovery services particularly in disaster recovery test activity to clients. The system will benefit both clients and MDCS. This includes clients, MDCS's management, disaster recovery coordinator and technical support who directly and indirectly involved in provision of the mentioned services.

The system is significant to assist MDCS to provide an excellent disaster recovery services to client. The system improves and speeds up clients' test date application process through online application form. Prompt response to the test date application reflects good service image to clients. Furthermore it will enhance clients' satisfaction with the provision of disaster recovery service.

The performance tracking and monitoring of recovery process improve the overall of disaster test activity. This feature facilitates Disaster Recovery Coordinator to prepare and verify the sequence of disaster recovery task, quantify the performance of recovery process, track and monitor problems occur during the recovery process and generate standard disaster recovery test report. Contrary to the

existing implementation which the mentioned tasks take few days to weeks, the proposed system simplifies and speeds up the whole process.

In addition, the most important element in providing services to clients is to assess clients' satisfaction. Management requires the feedback to strategise services offering to the clients. This to ensure the provision of the services aligns and meets clients' requirements and needs. The system facilitates the assessment of clients' satisfaction survey and quantifies the satisfaction base on the feedback given by client.

1.7 Summary

HeiTech Padu is committed to be a preferred disaster recovery service provider. To achieve this goal, HeiTech Padu requires revising its current practice of providing services. One of the areas that can be improved is to manage disaster recovery services efficiently particularly on disaster recovery test activity. By recognizing IS/IT as a key enabler to operational efficiency and client intimacy, a particular disaster recovery test management system can be introduced to improve its current business process.

As a whole, DRTEMS is a solution that caters both clients and MDCS requirement. From the client perspective it provides channel for the test date application through online form. It also provides online disaster recovery services and test activity information associated to clients. This provides information transparencies of the mentioned services to the clients.

For the MDCS, the system facilitates improvement of response process towards the test date application. Hence, the system also provides mechanism to disaster recovery coordinator to manage disaster recovery test activity effectively with the recovery process performance tracking and monitoring features. The

system also benefits the MDCS personnel and management with the overall and associated disaster recovery services and test activity information.

In short, the system is served as a platform to improve overall disaster recovery services particularly on the implementation of disaster recovery test activity.

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