

WHITE PAPER

## **TurboHercules and Disaster Recovery**

*An Innovative Approach to Mainframe Outage and Business Continuity*

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### Abstract

In general the IBM mainframe computer is a very reliable system. But, despite the best planning it is still possible that your mainframe could become unavailable. Fire, flood, major power interruptions, etc can all bring the system to a grinding halt. Most organizations have some sort of business continuity plan, but it usually requires the availability of a second machine, either rented or purchased. A TurboHercules based system can replace the mainframe for these outages at a significantly lower cost than a rented or purchased mainframe.

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## Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
<b>2</b>	<b>The Problem .....</b>	<b>1</b>
<b>3</b>	<b>The TurboHercules Approach .....</b>	<b>1</b>
3.1	The Ancillary Mainframe.....	1
3.2	Keeping Your Ancillary Mainframe Up-To-Date .....	2
3.3	The Failover.....	2
3.4	Going Back .....	2
<b>4</b>	<b>Summary .....</b>	<b>3</b>

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## 1 Introduction

“Be Prepared” applies as much to a good disaster recovery plan as it has ever applied to the Boy Scouts. One aspect of the preparation involves the generation and verification of an up-to-date set of backup tapes. This article explains the TurboHercules mechanisms for keeping your backup tapes and backup machine up-to-date and ready to go in the event of an outage of your mainframe.

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## 2 The Problem

Most mainframe sites create regular backups of the data and programs on their mainframe. The rationale is that, if the mainframe becomes unavailable for any reason, these tapes can be used to load up an alternate machine and continue business. So far so good.

Unfortunately many of these same sites never fully test the backup tapes they create for a variety of reasons (not enough mainframe time available, full test would disrupt operations, etc). So they are taking the functionality of the backup tapes as a given once they are created. This is a risky approach since the failure of any one of the tapes in a series could potentially wipe out your ability to restore the entire series. Of course, you could revert to an earlier set of tapes assuming you have them, but now you have a patchwork image that has some files more up-to-date than others.

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## 3 The TurboHercules Approach

This problem can be solved by using TurboHercules as your disaster recovery/business continuity solution.

### 3.1 The Ancillary Mainframe

TurboHercules provides an alternate mainframe that you can run on in the event that your regular mainframe becomes inoperable for any reason (fire, flood, electrical outage, etc). This alternate mainframe has all of the functionality of the mainframe it is configured to backup. All that is needed is an up-to-date copy of the information on the regular mainframe. Once loaded, the TurboHercules alternate can be powered up and IPL'ed within minutes to provide business continuity.

## 3.2 Keeping Your Ancillary Mainframe Up-To-Date

Keeping your TurboHercules mainframe up-to-date is a straightforward process.

On your regular mainframe perform your backups to tape or virtual tape in the usual manner. We will be using an alternate package of software on the TurboHercules machine to verify the backups and not your mainframe itself. Therefore, you have the ability to perform these backups on a much more regular basis, even hourly, if desired.

Once the backup tapes or tape images are complete, you move them to the TurboHercules system where they will be verified and loaded into the emulated disk images. Please note that during the entire backup/verify/restore process, we will not be running a copy of your mainframe OS. All of the work is carried out by a series of standalone applications running the mainframe or on the TurboHercules system. In effect, the TurboHercules system is configured as a cold backup to your mainframe in compliance with the IBM licensing provisions.

Once the images are loaded into the emulated disks on your TurboHercules system, it is ready for operation. If there is a failure with your regular mainframe, the TurboHercules system can be IPLed and brought on-line with data that is as up-to-date as your last backup.

As mentioned earlier, the backup/verification/restoration process can easily be automated, especially if you are using a virtual tape library as your mainframe backup destination.

## 3.3 The Failover

When the “event” occurs and your mainframe is rendered inoperable, you move your communications lines to the TurboHercules system as planned, turn on and IPL the TurboHercules machine from its virtual DASD devices and continue operations. A properly scripted failover could easily be performed from cold in less than an hour or so depending on the people running the exercise.

## 3.4 Going Back

Once the regular mainframe or mainframe environment has been repaired you will need to reverse the process detailed above. At a convenient time you perform a complete backup of the TurboHercules system to tape or virtual tape. You then move the communications lines back to the regular mainframe, restore the tape images to the mainframe DASD devices, IPL from the updated DASD devices, restore the machine and go back to operations as usual.

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## 4 Summary

Properly sized, a TurboHercules based system can support a mainframe work load during the outage of the mainframe itself. As such, the TurboHercules package is an attractive alternative to the purchase of a second mainframe or even a support contract with a disaster recovery/business continuity provider.

In this paper we have outlined one approach that can be used to back up a mainframe system. Each site is different so please contact [info@turbohercules.com](mailto:info@turbohercules.com) to arrange a proof of concept demonstration for your installation.

Finally, for some applications like the support of a z/Linux based mainframe system, a TurboHercules based system can also be used for offline tasks such as program development, testing and education thus freeing up valuable mainframe cycles for production.