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# **When the Back-Ups Fail: Recovery and Reinvention of Digital Collections**

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**Session 3: When Servers Crash**

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# Abstract

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- **Despite our best efforts and planning, a server crash can hobble us. We can lose years of cataloging data, templates for important forms, and disruption of the institution's work. How do we recover/recreate the data without losing our sanity? This talk will examine the ways that visual resources curators can recover from these types of disasters.**
- **Steps include:**
  1. **Check if the measures in the emergency plan were actually being followed;**
  2. **Assess what was lost and what actually needs to be restored;**
  3. **Work with, not against, your tech support; and**
  4. **Rebuild your collection.**
- **After suffering a huge data loss, we have the opportunity to reinvent -- not just recreate -- our collections, our workspaces, our workflows, and ourselves.**



# Overview

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- **Introduction**
- **Servers and Back-Ups**
- **The Back-Up**
- **Assessment**
- **Dealing with Tech Support**
- **Rebuilding**



# Introduction

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- **Disasters happen**



# Servers

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## ■ File Server

- Storage
- Staging area
- Testbed

## ■ Application Server

- Data processing

## ■ Database Server

- Stores data management system

## ■ Web Site Server

- Serves web pages

## ■ Print Server



# Why Servers Crash

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- **Hardware Malfunction, e.g.**
  - Broken fan
  - Loose wiring
- **Software Malfunction, e.g.**
  - Corrupted operating system
  - Virus
- **User error**
- **Destruction, e.g.**
  - Flood



# Server Diagram

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- [add picture]



# Back-Up Types

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## ■ Unstructured

- Select files and folders

## ■ Full

- One complete back-up +
- Partial back-ups later for changes

## ■ Mirror

- Complete back-up





# Back-Up Strategies

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- Backup
  - Typically, critical data is copied to a removable storage media, such as a tape or CD, and the backup copy is then stored offsite. The process is repeated on a repetitive basis, usually daily or weekly.
- Replication
  - This is typically associated with database transactions in which transactions applied against a database are replicated or applied against a duplicate database on a different physical storage media. Usually, this is to ensure that a crash of the first disk can be recovered from by switching to a second disk.
- Redundancy
  - Generally, this implies that a second computer system is available to replace the first system in case of a failure. Often the second system must be reloaded with current software and the data must be restored from the backup before the system is available for use.
- Failover
  - This is similar to redundancy, but the failure of the primary system is usually automatically detected by the failover system and the recovery is at least partially automated.
- Buchanan, Robert W. *Disaster Proofing Information Systems*. Blacklick, OH, USA: McGraw-Hill Professional Publishing, 2002. p 8.  
<http://site.ebrary.com/lib/scelc2/Doc?id=10045779&ppg=28>



# Back-Up Methods

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- “Hot”
- “Cold”



# Don't Panic

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- [add picture]



# The Back-Up

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- **1. Check if the measures in the emergency plan were actually being followed.**
  - When was the last back-up?**
  - Where are the latest back-ups?**
  - How quickly can the back-ups be put into place after a crash?**



# Assessment, con't

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## ■ Find the Back-ups

- Archived copies
- Local copies

## ■ Compatibility of Back-ups

- Media, plugs and drives
- Software versions
- Operating systems



# Assessment

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## ■ 2. Assess what was lost in the crash

- Hardware
- Data
  - Software
  - Databases
  - Images



# Working with Tech Support

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- **3. Work with, not against, your tech support**
  - **Bribe them with cookies**
  - **Become friends with your tech support**
  - **In a perfect world, everyone would work with you. In the real world, you must learn to talk with, not against, your techies. Do not let them gaslight you.**



# How to Talk Techy

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- Learn a bit of their language





# Communication

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- How were you informed?
- How was your tech support informed?
- Is your tech support available 24/7?
  - Phone Tree
  - Automatic E-mails
  - Pagers



# Opportunity

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- **4. Rebuild your collection.**
- **Disasters can bring opportunity – the chance to rebuild a database according to new standards, including VRA Core 4.0 and CCO. Re-evaluate your procedures and practices. Is there new software/hardware that would help? After a huge data loss, you do not have to return to using the same as before**



# It's a New World

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- **New standards**

- VRA Core 4.0

- CCO

- **Upgraded software**

- Filemaker 7.0

- MySQL

- **Better, faster Computers**

- Processor speed

- Gigabytes and Terrabytes of storage



# Assessment, Again

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- **Assess what is worth saving**
  - What are your current needs?
  - What are your future needs?
  - Keep your users in mind
- **Excuse to dump legacy data and systems**



# Re-Imagine

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- **Chance to create the “ideal” catalog**
- **Use new tools, new vocabularies**
- **Subscribe to new services**



**The End**

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**Thank you!**

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