



DATA RECOVERY TEST

Prepared for:
West Herts Crematorium

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Document Control

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Executive Summary

The data recovery service was introduced by Complete I.T. when it became evident that an ever-increasing number of organisations who relied on tape backup or similar media to back up their data found that in a 'real-life' data restore situation, they encountered issues or were unable to restore the required data from their backup solution altogether. In many cases this was due to tape or hardware failure, media being unrecognised and unreadable or the data sets residing on the backup media corrupted or incomplete.

The data recovery service tests the client's backup tape or media and firstly runs a full data integrity hardware check, followed by fully restoring the server(s) within Complete I.T. secure testing lab environment. This testing is not only beneficial in providing the client with the peace of mind that their company data is 'restorable' given a 'real-life disaster emergency' but also crucial in highlighting the critical potential business down time (time scales) the business may face, given this type of scenario. This is covered in more detail in the following pages.

Many organisations are now moving to the 'cloud' offsite backup solution and Complete I.T. provides this platform with its partner provider Datto, in this excellent, secure, off site cloud backup solution. The data recovery service is part of the client Datto solution and a test is conducted 'annually' on all client servers residing on the cloud storage portal. This ensures that the servers and data backed up to the cloud are 'restorable' and in a fully functional, operational state, in the event a data or disaster recovery type scenario is required.

Report Objectives

This purpose of this document is:

- To provide you with an understanding of concepts of backup, disaster recovery and business continuity.
- To provide you with a review of your current backup solution and how it compares to alternatives.
- To provide you with an estimated cost of downtime in the event of a disaster.
- To provide you with the reassurance that your current backups are complete, healthy and able to restore your critical systems and data with the minimal downtime.
- To enable you to plan and mitigate risk in the event of a major disaster such as fire, flood, virus outbreak or major server failure
- To provide you with a report outlining the steps required to recover your critical IT systems in the event of a real disaster.

Disaster Definition

An I.T. disaster is not just a fire in the office which destroys the server hardware. The largest threats to business data integrity are now typically man made, focused and with a criminal motive.

The following are examples of real life I.T. disasters which have affected the organisations Complete I.T. support:

- Ransomware – Malicious software such as Cryptolocker and Cryptowall encrypt all data contained on a server. The only way to release this data is to pay the creators or completely recover the data from a backup.
- Catastrophic events – Floods, fire and vandalism have resulted in servers being physically destroyed so unavailable for several days.
- Loss of utility services – Unplanned power outages over several days which have left businesses without access to their servers.
- Theft – Physical theft of server from an unsecured office environment.
- Pandemic – this type of disaster restricts travel to the office premise; can the infrastructure be accessed remotely.
- Partners going out of business – All data hosted with a “private” cloud partner who went out of business meaning all company data was unavailable.

Is your business prepared for a disaster?

As demonstrated in the previous section, disasters can arise at any time and planning for disaster is critical for any business of any size.

The first few hours of a disaster are usually chaotic, and the time is spent organising people, if your employees are remote or the disaster happens out of hours, it can be difficult contacting them if your systems are down.

Depending on the type of disaster you will also need to contact your suppliers, your customers and your insurance company.

If your company uses social media such as twitter to communicate with your customers, do you have the company Twitter login details available?

If you don't have this information to hand, then this process wastes precious hours.

Key documentation available is critical at this time so you can spend the first few hours organising people to action, this could save you a lot of time and of course lost revenue for your business.

Below is a key list of documentation you need if a disaster strikes:

- Complete I.T. Contact Details
- Telephony Company contact details so the main phone number can be routed to a mobile phone.
- Your employees contact details i.e. Phones numbers, remember email might be down.
- A list of key people and their contact details within the business that will help with the recovery. i.e. Finance personnel to contact the bank to inform them of the disaster.
- A list of your customers and contact details.
- A list of suppliers and contact details.
- Your company insurance details.
- Logins for key cloud-based applications.
- An Internal People Plan
- An external and internal communications plan.
- A Disaster Recovery/Business Continuity Plan

The information above needs to be kept in a secure off-site location and available 24-7 by a number of people in the organisation.

If the disaster renders your premise unusable, such as a fire or flood, you will have to seek alternative premises to use even temporarily, make sure you investigate in your local area for temporary office space which has broadband capability. Regus is one company that provides countrywide temporary office space. <http://www.regus.co.uk/>

Complete I.T. can provide a secure off-site location for your documents that can be accessed from anywhere 24/7. Please contact Complete I.T. for more information.

Concepts of backup disaster recovery

When deciding which backup solution best meets the needs of the organisation the following two objectives need to be agreed upon:

- Recovery Point Objective (RPO) – Should there be a server failure then how long ago was the last backup run therefore dictating how much data might be lost.
- Recovery Time Objective (RTO) – should there be a server failure then how long will it take to recover the data and get the server back up and running again.
- Traditionally, the go-to backup solution for many small and medium enterprises were based on tape technology. Here is an example of the two concepts of RPO and RTO on this solution:
 - Server disaster on a late Thursday afternoon. The server hardware is damaged by a leak in the air conditioning.
 - A call is logged with Complete I.T. Helpdesk and a Technical Consultant is dispatched to site the following morning to assess the damage.
 - The Technical Consultant working with the hardware manufacturer conclude that the server is not recoverable. Replacement hardware is identified and ordered on the Friday afternoon.
 - Monday morning the new hardware arrives. This is not a like for like replacement of the old hardware as this is no longer produced. A compatible tape drive for the server is no longer available so the last backup tape, Wednesday night the previous week, is sent to Complete I.T. for recovery in the lab environment.
 - Monday afternoon the new hardware is built.
 - Tuesday and Wednesday the data contained on the tape is rebuilt in the lab environment. This assumes that all the data is recoverable, and it is not corrupted.
 - Thursday the data, now on a portable hard drive, is sent back to the business and transferred over to the new server hardware. The Technical Consultant works with any third-party support parties to ensure these applications are working correctly.
 - Friday users are able to return to work.

The cost of downtime

As detailed in the previous section, should there be a disaster which affects the ability of the staff to access their I.T. systems then there will be downtime for these users.

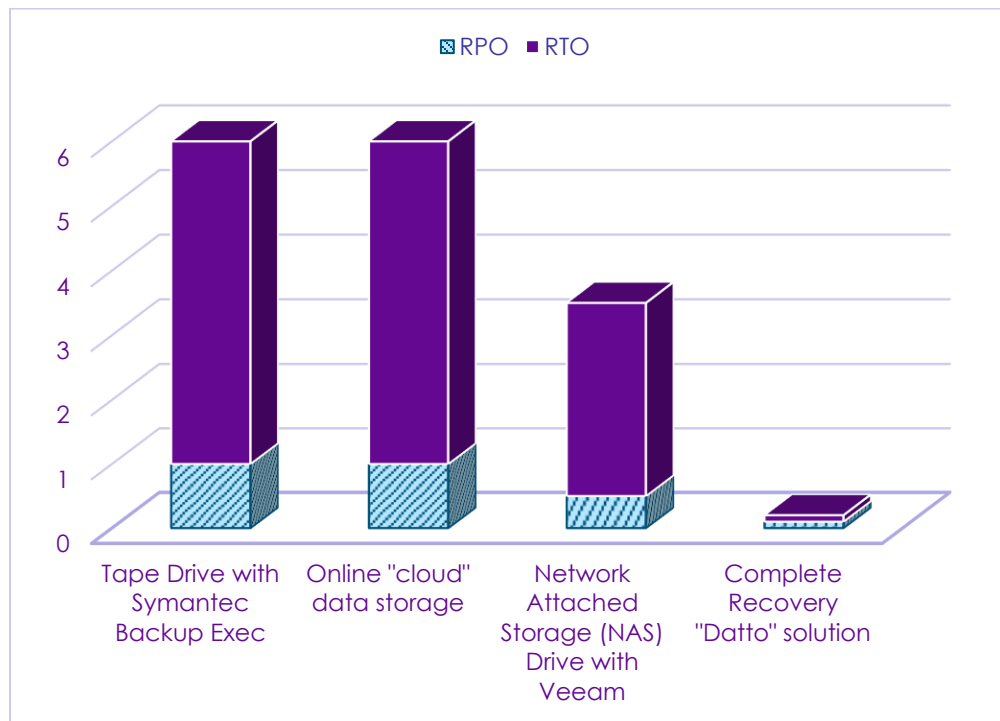
The cost, in terms of Pound values, of this downtime is given in the example below. This does not include any extrapolated costs of damage to brand image or value of lost data.

Assumptions	
Number of users	50
Average hourly overhead of each employee	£20.00
Average hourly income generated by each employee	£25.00
Total downtime the employees experience (days)	4 Days (30 Hours)
Calculated costs to the business	
Estimation of hardware costs for new equipment based on a single server	£2,500.00
Estimation of Technical Consultancy to rebuild and recover	£2,500.00
Total hourly overhead	£1,000.00
Total hourly lost income	£1,250.00
Total hourly cost	£2,250.00
Total employee's downtime cost (30 Hours)	£67,500.00
Total cost of downtime	£72,500.00

Reducing the downtime associated with any disaster is therefore critical to the solution employed.

What solutions are out there?

There are many types of backup, disaster recovery and business continuity solutions available with differing RPO and RTOs. Below are examples of these technologies and their respective recovery times.



Downtime and your organisation

Introduction

The following gives a top-level description on the major effects of a disaster on your organisation:

Email Solution

Hosted Email Solution

West Herts Crematorium emails are not stored on their server. They are hosted on the Microsoft Office 365 web portal and in the event of a server disaster, staff will be able to send / receive emails normally while any on-premise server(s) is offline, and an active internet connection is available.

Key Line of Business Application

On-Premises Solution

West Herts Crematorium key line of business applications are stored on their on-premises server. This means, in the event of a server disaster, your users will not be able to access these applications, while the servers is offline.

If a disaster was to occur, how long could your organisation go without being able to access the key line of business application?

Organisations files and folders

On-Premises Solution

West Herts Crematorium company shared data folders and associated files are stored on their on-premises server. This means, in the event of a server disaster, your users will not be able to access these data folders and files, while the server is offline.

If a disaster was to occur, how long could your organisation go without being able to access the files and folders?

Backup Solution Employed

On-premises and offsite Cloud replication solution.

West Herts Crematorium currently backup their servers to their on-premise Datto storage device and upload a copy of the data sets to the Datto online cloud storage platform, with one full server restore point per day, and file incremental changes every 60 minute's.

What would happen in a disaster?

In a real disaster scenario, for example, fire and flood, new server equipment will have to be procured and sent to a new premise before a full restore can begin.

Once a suitable premise has been secured and there is broadband provision, procurement can typically take a couple of days, so when analysing time of recovery - please take this factor into account.

However, With the Datto cloud storage solution, a virtual server can be configured and booted up normally upon the cloud-based platform. The users can then access the virtual cloud platform via an active internet connection, enabling them to work in a reduced capacity, but allowing access to critical applications and data while the on-premises server is procured.

A backup copy of the Datto Cloud server image can then be exported from the Datto Cloud platform and restored directly on to the recently procured server.

Recovery Prerequisites

To recover the selected West Herts Crematorium server, some prerequisite information was required.

- Full back up of the server including all application agents.
- Server had to be a Domain Controller (for authentication).
- Application usernames and passwords for testing the restored services.

Server Name	Backed up?	Backup Method	Tested?
WHC-DC01	Yes	Datto Cloud	Yes

The data recovery tests results

Introduction

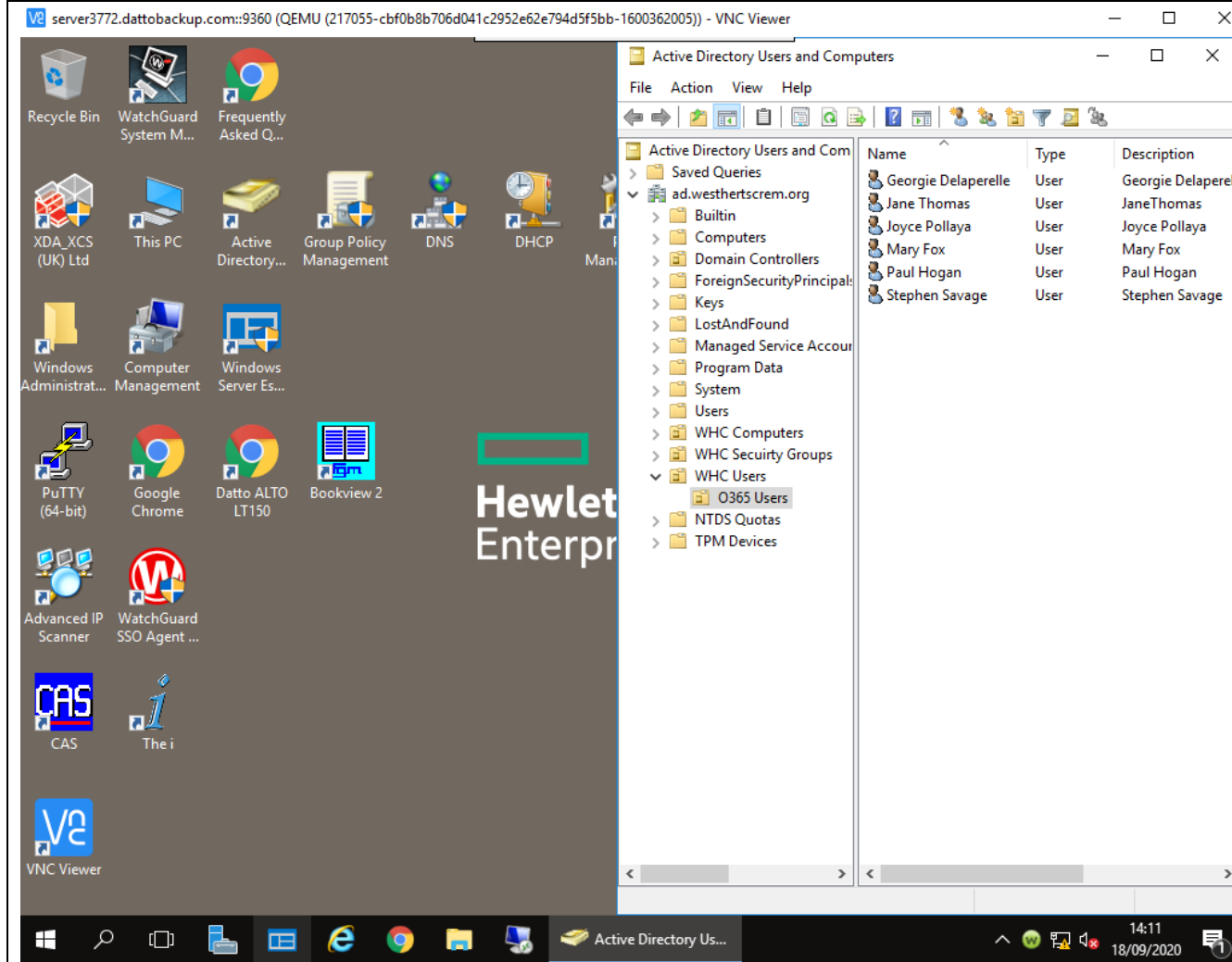
The data recovery test recently conducted for West Herts Crematorium, was undertaken using the Datto disaster recovery solution. West Herts Crematorium, currently backup their server to the Datto online cloud storage solution, with 1 full server restore point per day and file incremental changes every 60 minutes.

Data restore Total Time

Server Name	Role/Function	Time take to fully Restore
WHC-DC01	Active Directory & data Server	0 Hour and 25 Mins
Total		0 Hour and 25 Mins

Data recovery evidence

Server Name:	WHC-DC01
Function/Role:	Authentication & data server
Time to restore	0 Hour & 25 Minutes
Screenshot (s)	



Once the restore had been completed on server WHC-DC01, it was then confirmed that all server services had started successfully, and associated applications were running normally. The Active Directory console was opened, and domain network authentication tested and confirmed to be in a fully operational state.

Server Name:	WHC-DC01
Function/Role:	Authentication & data server
Time to restore	0 Hour & 25 Minutes
Screenshot (s)	

Once the restore had been completed on server WHC-DC01, it was then confirmed that all server services had started normally and access to the company's data folders and associated files were fully operational.

Roundup

The data recovery test on West Herts Crematorium's Datto cloud based virtual servers was conducted over the course of a working day. In conclusion, the test was successful with the West Herts Crematorium virtual server WHC-DC01, up and running and performing normally within the Datto cloud based virtual storage platform.

It is suggested that the nightly backups are routinely checked and monitored, and regular server data restores tests undertaken to confirm and check the data's integrity.

The next Datto cloud-based data recovery test for West Herts Crematorium, is scheduled for October 2021.

