



## Marco Ciavolino

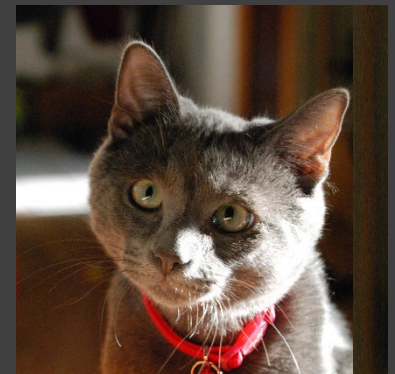
- General Marketing Communications
- STEM training materials by RobotMats
- Web Development in JOOMLA and Wordpress
- Graphic Design/Corporate ID
- Photography/Video
- Tech Research & Development
- Founder of Techbrick Robotics



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Baltimore MD \* Atlanta GA \* Columbia SC

Darcy, the web cat.



Please take a look at  
my website if you have  
a few minutes...

<https://enktesis.com>

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Preferred Webcam: [Center Cam](#)  
Preferred Backup Solution: [Backblaze](#)  
Preferred Ecom Solution: [Shift4Shop](#)  
Preferred Hosting Solution: [Rochan](#)  
Preferred Remote Work Solution: [Splashtop](#)

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FREE PUBLICATION! Organize Your Digital World    FREE PUBLICATION! Guide for Photographing STEM Events    VIEW 52 Frames 2022 Photos

Home

### Innovative Solutions

Please take a few minutes to review the **many solutions** we have created for our clients and then watch some TechTalks.

### Web Sites and Technologies

- ⇒ Website development in Joomla and Wordpress
- ⇒ Website conversion from old platforms
- ⇒ Web hosting
- ⇒ Domain management
- ⇒ Email management

[See some of our web solutions >](#)

### Graphic Design

- ⇒ [Robot Mats Education Training Systems](#)
- ⇒ [Publications](#)
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### Tech Talks

- ⇒ [Click here to watch them](#)

### 52 Frames Photo Submissions

- ⇒ See my photos submitted to this global project.



I have been perpetually curious about my world.



Even at two years old I am interested in how my world works. Years later I still wonder with intense curiosity. I bring this decades long pursuit of solutions to my client's projects. So give me call when you want to know how anything works or can work better.

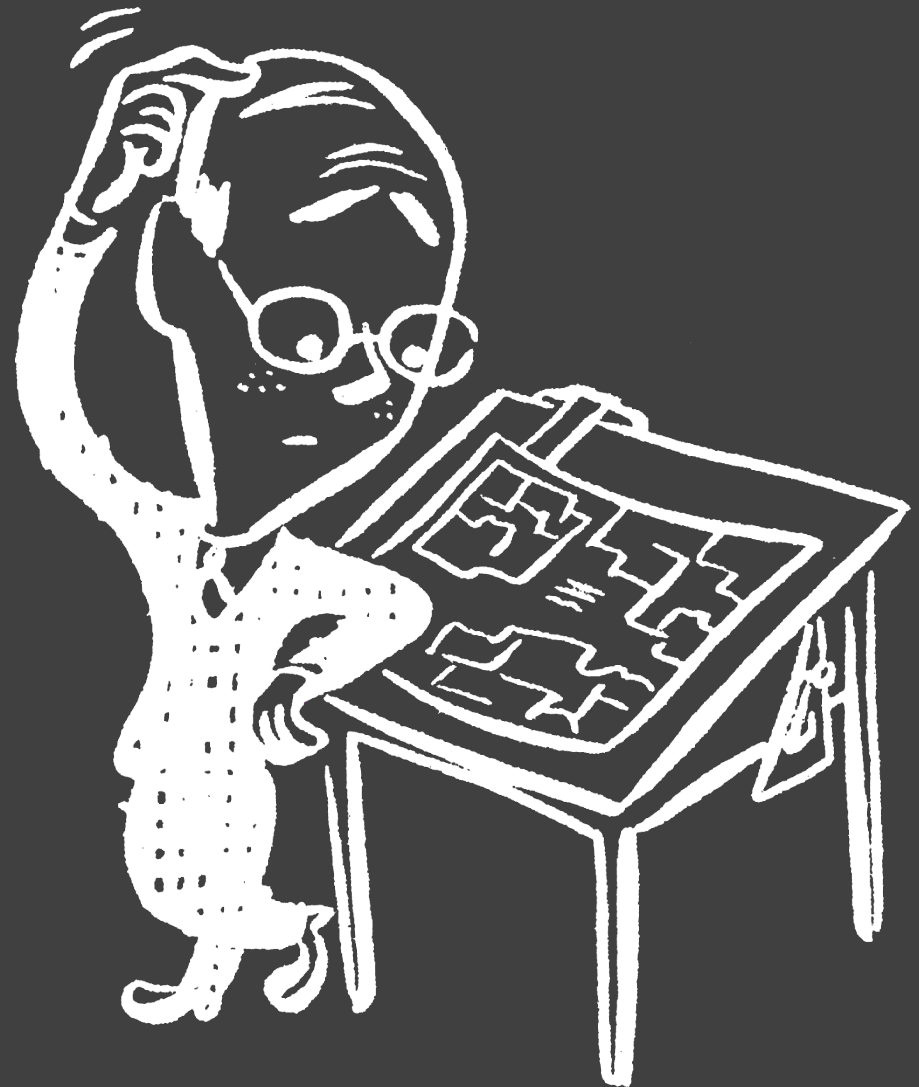
Resources

You can download a PDF with active links!



Darcy, the web cat.

Are you really  
backed up?  
Let's see.



# Backups are Security.

Do you understand the real cost of data loss?

<https://invenioit.com/continuity/cost-of-data-loss>

- ❑ A 2018 study found that the global average cost of data loss was a staggering **\$3.6 million, or approximately \$141 per data record.**
- ❑ A leading researcher estimated that data loss costs U.S. businesses an **average of \$7,900 per minute** during a datacenter outage.
- ❑ A recent report by Verizon found that “**small**” instances of data loss (around 100 lost or compromised records) cost businesses an **average of \$18,120 to \$35,730.**
- ❑ The same study found that **large-scale data loss** (100+ million records) costs an **average of \$5 million to \$15.6 million.**

**TIME IS MONEY  
DON'T DELAY**



# Backup or die. Attacks.

It is highly likely that you may lose key data through some form of Cyber-Attack

The Ultimate List Of Cyber Attack Stats (2022)

<https://explodingtopics.com/blog/cybersecurity-stats>

“A data breach can have devastating consequences for organizations around the world. Alongside lack of trust and lost customers, companies can lose sensitive data due to a malicious link, business email compromise, or DDoS attacks.”

“2021 broke records with a reported 1,291 breaches between January 1st and September 30th in the United States, indicating a 17% increase from the number of cyber breach incidences in 2020.”



# Backup or die. Failures.

You are always 1 millisecond away from possible hardware or infrastructure failure.

[https://en.wikipedia.org/wiki/Computer\\_security\\_compromised\\_by\\_hardware\\_failure](https://en.wikipedia.org/wiki/Computer_security_compromised_by_hardware_failure)

- ❑ Modern corporate infrastructure is complex.
- ❑ Mechanical devices have the highest rate of failure (Hard drives, optical drives, tape backups, switches.)
- ❑ Network hardware can fail over time (hubs, routers, wires, workstations.)
- ❑ External resources can fail (power, internet access, cooling, security mechanisms)
- ❑ Natural disasters can destroy infrastructure (earthquakes, tornadoes, floods, hurricanes.)



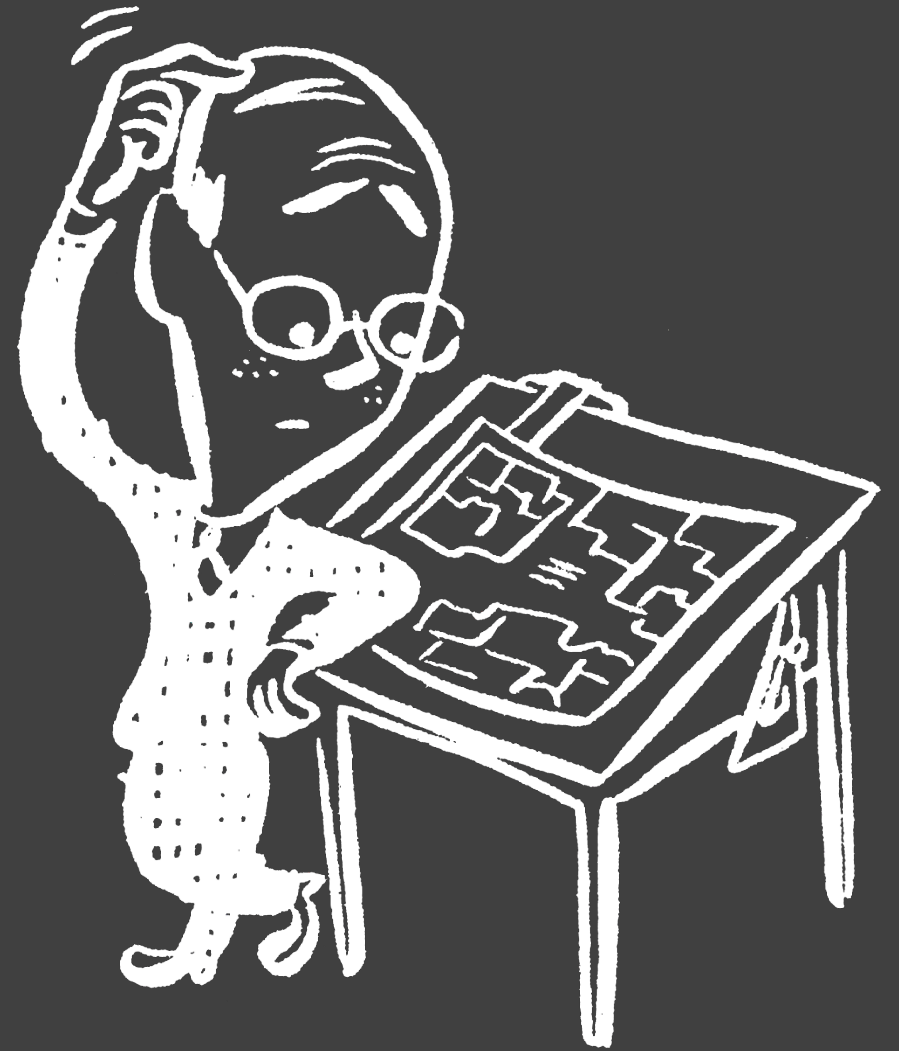
Every scenario needs to be considered and planned for. You will experience failure. Be ready.

### Review your Data Organization

The first step to a reliable recovery plan is data organization.

- Do you know where all your key data is stored?
- Do you backup local computer accounts?
- Do employees have data stored on remote systems?
- Do you rely on external services?
- Do you have key data stored in hard copy?
- What are the security restrictions that must remain in place?
- Do you have data stored on older technologies?  
(Don't count on recovering it later.)

<http://www.datarecoverymasters.com>

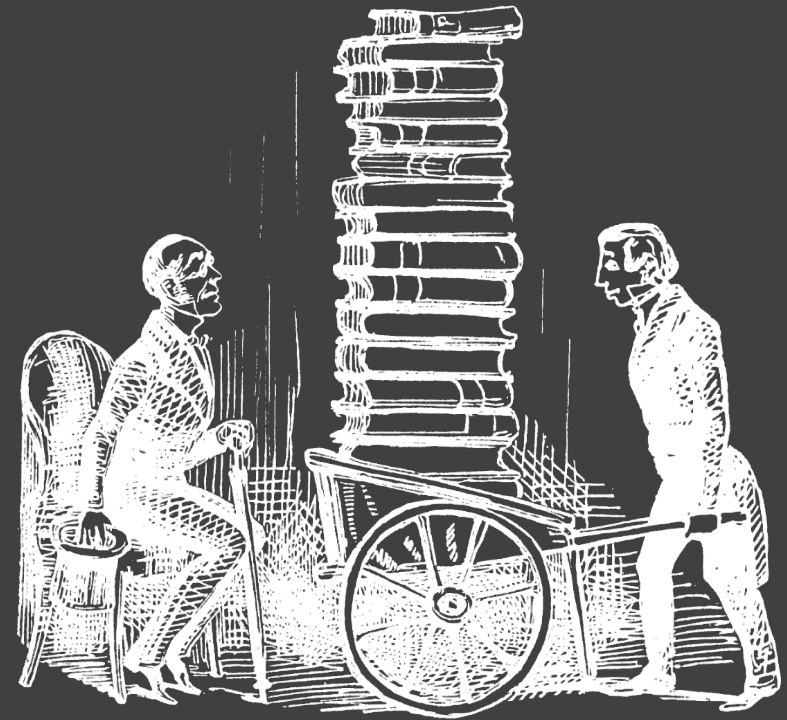


### What is a backup?

Data Backup in Depth: Concepts, Techniques, and Storage Technologies

<https://cloudian.com/guides/data-backup/data-backup-in-depth>

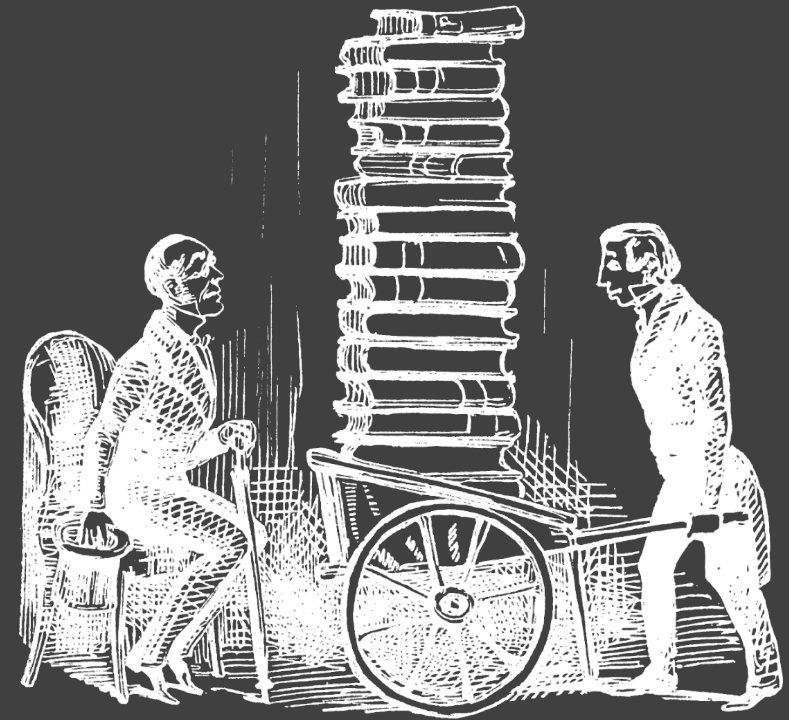
- ❑ “Data backup is the practice of copying data from a primary to a secondary location, to protect it in case of a disaster, accident or malicious action. Data is the lifeblood of modern organizations and losing data can cause massive damage and disrupt business operations.”
- ❑ “Typically, backup data means all necessary data. This can include documents, media files, configuration files, machine images, operating systems, and registry files. Essentially, any data that you want to preserve can be stored as backup data.”



### What do you back up?

All forms of data must be considered.

- ❑ **Static files:** Documents that are edited and saved. Examples: Word, Excel, PPT, jpg, ping, mp4, Photoshop and any other program that produces single saved files.
- ❑ **Dynamic Files:** Files that changing constantly. This includes communications servers, linked resources, key data stores and databases.
- ❑ **Device Configurations:** Data from Internet of Things or other devices.
- ❑ **Network Configurations:** Switches, routers, power backup settings.



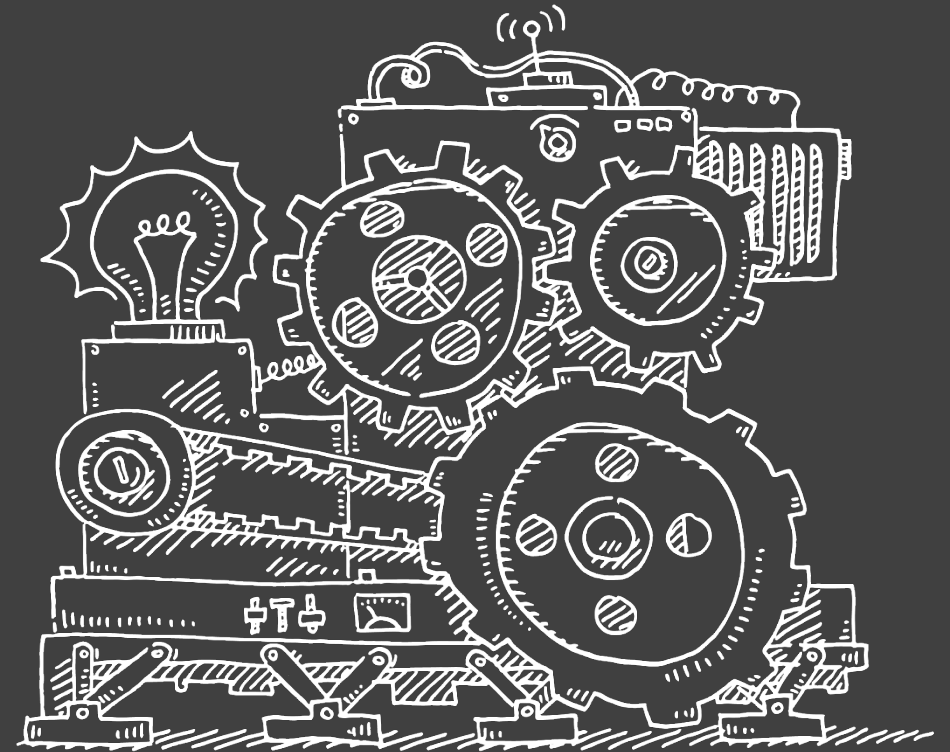
### Hardware

Any backup solution will require some hardware components.

Top 10 Backup Vendors in 2022

<https://www.bacula.com/backup-vendors>

- External hard drives (smaller business, individuals)
- A wide range of integrated hardware/software solutions.
- Local and cloud-based solutions.



### Software

Small and medium businesses can often rely on local software or cloud-based solutions.

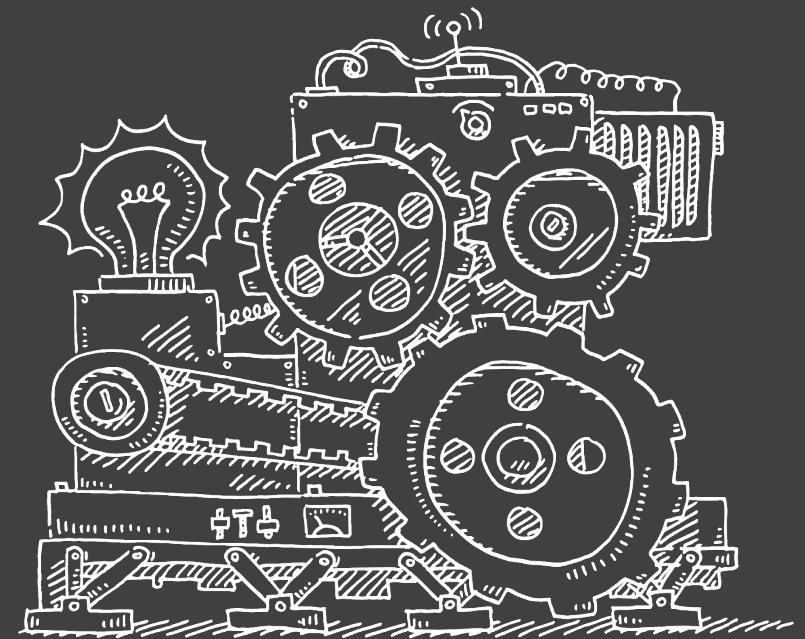
The Best Cloud Backup Services for Business for 2022

<https://www.pcmag.com/picks/the-best-cloud-backup-services-for-business>

- Provide near real-time backup.
- Can protect multiple devices.
- Rapid recovery of small numbers of files.
- Full data recovery discs on request.

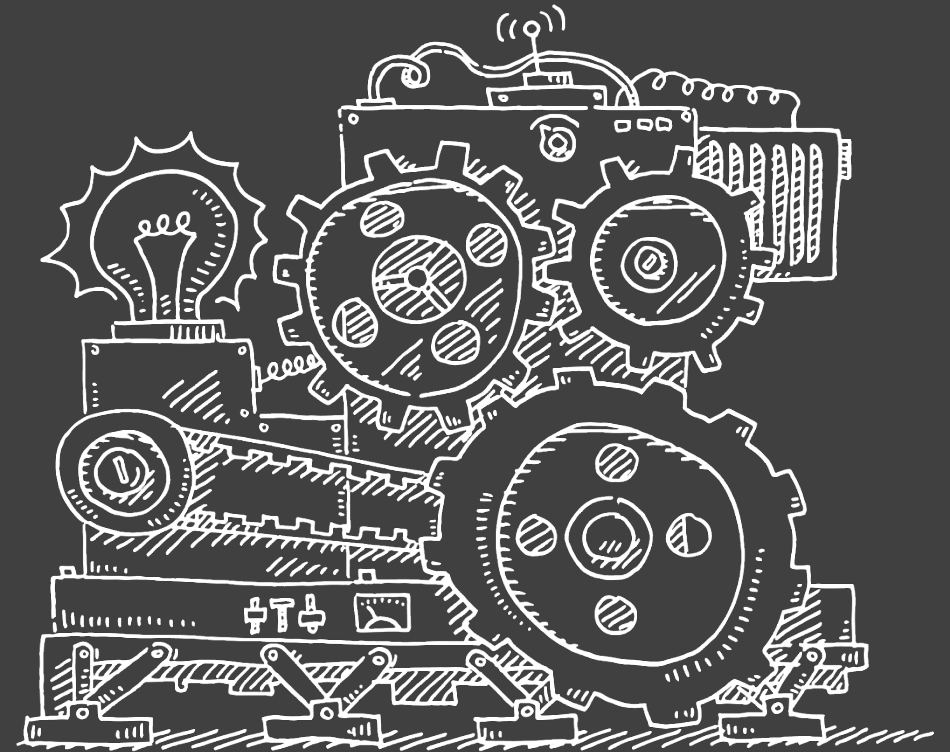


<https://www.backblaze.com>



### Enterprise Considerations

- Enterprises need a complete solution
- Must accommodate all forms of data and platforms
- Must honor security requirements
- Can use starter solutions like Backblaze's FireBall  
<https://www.backblaze.com/b2/solutions/datatransfer/fireball.html>
- And full business backup services  
<https://www.backblaze.com/business-backup.html>



### Testing Backups

What good is a backup if it does not work?

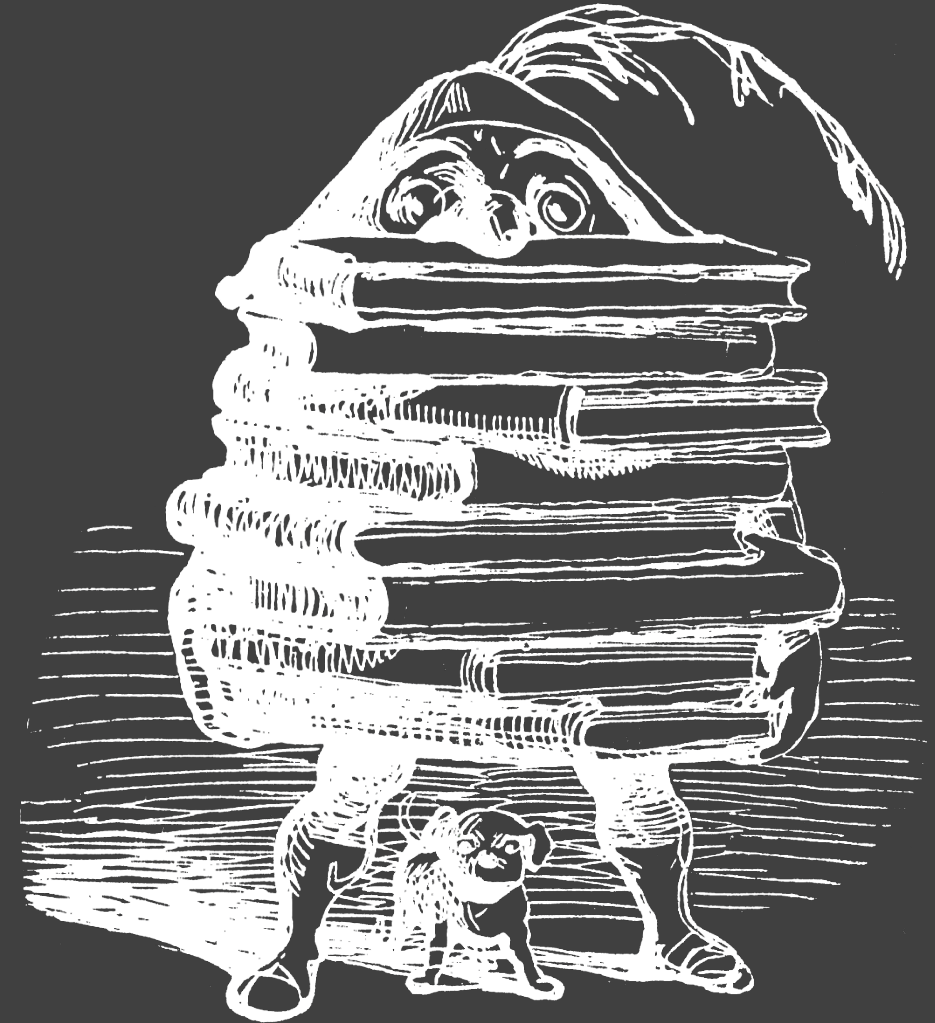
- Every form of backup must be tested regularly (too many stories of blank backups)
- Dynamic backups must be fully restored to new hardware and tested
- Compatible hardware must be readily available



### Can you Restore a Backup

#### Case Study: Walmart

- ❑ Walmart annual revenue for 2022 was \$572.754B
  - ❑ = \$1,089,714 per minute
- ❑ Full backup data center
- ❑ Real time failover
- ❑ What is your 'per minute' value?



## You Need a Written Recovery Plan

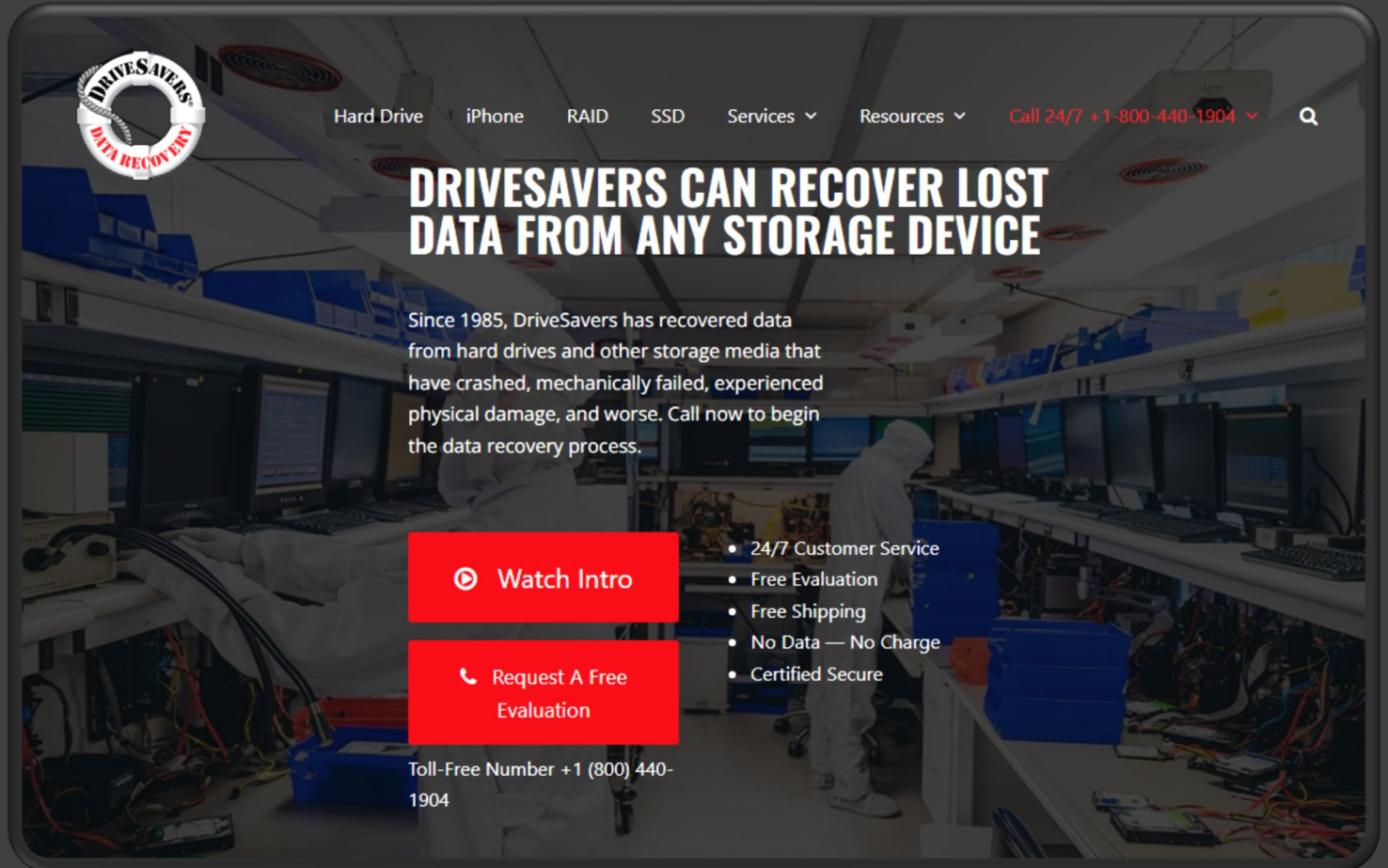
- Minute 1: Attack or Failure
  - Who to contact
  - Key consequences
  - Notifications
  - Specific action steps
- Minute 2: Assessment
  - Determine impact
  - Make notifications
- Minute 3: Initiate Recovery
  - Secure backup data
  - Initialize hardware
  - Contact insurance company



### My Backup Strategy

#### A story.

- Lightning strike
- Total loss
- Crisis counseling
- Suicide counseling (not for me).
- Recovery (mostly)



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<https://drivesaversdatarecovery.com>

### My Backup Strategy

- ❑ Individual Consultant (C Corp)
- ❑ 30 TB of active storage on two workstations
- ❑ Dynamic files are solely related to Outlook
- ❑ Many very large files
- ❑ More than 2.1 million addressable files



## My Backup Strategy

### LEVEL 1



Cloud Backup

<https://www.backblaze.com>

- Realtime-backup of all workstations and laptops
- Quick recovery
- Full recovery discs on request.
- 30 Day rolling window.

### LEVEL 2

Windows system backup/versioning

- Runs in real-time
- Provides local version recovery

### LEVEL 3

Desktop backup of core data daily



<https://bvckup2.com>

- Drive is mounted every evening
- Bvckup backs up all changed files
- Drive is dismounted and powered off

### LEVEL 4

Weekly backup of core data



<https://bvckup2.com>

- Drives are mounted
- Bvckup backs up all changed files
- Drives are powered off
- Stored in fire-proof safe

## Some Costs

- ❑ For an individual or small businesses, the solution I outlined for my office using Backblaze (<https://www.backblaze.com>), will cost less than \$70 per machine per year and few hundred dollars in hard drives. Bvackup is \$50 per workstation (<https://bvckup2.com/buy>). So, almost nothing in comparison to the potential loss.
- ❑ Enterprise solutions must be estimated by the various vendors and require substantial research and configuration.

## What about Cyber Insurance

[https://en.wikipedia.org/wiki/Cyber\\_insurance](https://en.wikipedia.org/wiki/Cyber_insurance)

Cyber-insurance is a specialty insurance product intended to protect businesses from Internet-based risks, and more generally from risks relating to information technology infrastructure and activities. Risks of this nature are typically excluded from traditional commercial general liability policies or at least are not specifically defined in traditional insurance products. Coverage provided by cyber-insurance policies may include first-party coverage against losses such as data destruction, extortion, theft, hacking, and denial of service attacks; liability coverage indemnifying companies for losses to others caused, for example, by errors and omissions, failure to safeguard data, or defamation; and other benefits including regular security-audit, post-incident public relations and investigative expenses, and criminal reward funds.

- Enterprises should investigate cyber insurance
- They will require a high level of compliance and preparation
- It cannot replace the possible outcomes due to missed deadlines and loss of corporate goodwill.
- Cyber-insurance does not replace an actionable plan.

## What should you do next?

- Review your current backups or plan for them
- Do a data survey
- Account for physical documents
- Ask for written recovery plan
- Update as required
- Test backups
- Create active recoveries
- Train employees
- Drill a data disaster
- Investigate Cyber-Insurance