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Outsmarting the Black Swan



Why backup your computer? Is it because all computers die? Or is it maybe something less specific than just the hard drive crashing? Backup plans have to allow for Black Swans, not just old technology failing to work anymore. Having a backup plan that can handle the unexpected Black Swan may keep your business running.

Black Swans

A Black Swan, in disaster planning, is something you never anticipated. You expect to see a white swan, but you don't expect a Black Swan. You have to plan for disasters you can't really predict; these are also called an 'unknown unknown', where you don't know about some new type of threat or combination of events. Think about polar vortexes, Superstorm Sandy, or Ransomware; these all arrived as Black Swans in just the past ten years.

If your office is ready for multiple issues arriving together, that's probably the best protection against a black swan:

Flood: A frozen sprinkler system burst a pipe, but the flood damage was on the next floor down, during busy season, damaged paper and a few surge suppressors, but the mess to deal with was mostly damage to the walls, and getting computers and workers into safe areas to work during the reconstruction. The business survived, with a lot of disruption.

Burglary with office destruction: A fileserver was stolen, plus the backup tape that was in the server, and three other office computers, and other devices left hanging by cables. The only available backup was a tape handed to the owner the week before, with instructions to take it home, but there was no spare backup drive to read that tape, or matching software to decode it. The business survived, after scrounging a matching tape drive, finding bad spots on the tape, and investing two days in data recovery, because that was the only surviving backup.

Burglary with backups: And then there was the Gorilla Heist. Yes, a stuffed six-foot tall gorilla, an Ocean City carnival prize, was standing guard over a computer, and failed at his job. The computer was stolen, along with the gorilla, and the backup disks sitting on top of the computer. That business survived because the office database and customer list was backed up nightly and taken home by the owner.

There are common threads here.

- Data taken out of the building saved two businesses.
- The floor is not a safe place for computers or surge suppressors.
- Anything stored on or near a computer will share the fate of that computer.

3-2-1 Backup Design

In digital photography, the standard backup is the 3-2-1 Backup. That consists of:

- 3 copies of all files.
- 2 different types of devices.
- 1 copy of the data off-site, automated.

So a plan for a Black Swan / Superstorm Sandy / Gorilla Heist would look something like this, for most small businesses:

- The main file set is on a dedicated server with monitored antivirus and drive condition alerts.
- There is a scheduled image backup to a Network-Attached Storage drive, used as the local backup destination. The best place for it is a locked area at the opposite end of the building from the server.
- Cloud backup of business data. The cloud backup services have an option for backup in real time if your internet connection can handle it, or night-time backups otherwise.

Backup More Stuff

Let's add a few more items:

- Your backups should include the documents you create in your business. But it should also include the software used to create them. For some programs, that's just a list and web site links. For others, it's a login and license key. For Microsoft Office, it's a record of the email address and password used at Office.com to register and install Office.
- Your employee list, email passwords list, and key paper records should be on the

fileserver, but it has to be readable during a storm event, offsite, long before repairs start in the office.

- Anything you would need to rebuild your office should be available offline. The contract with your landlord is in that category. So are insurance policies, and pictures of your office.
- Finally, in the case of a major event, your employees need to know how to reach your entire management team if your building is entirely unavailable.

And a few Negatives

There are some good solutions for backups that are either no longer a good idea, or heading that way. Don't hang onto systems that won't work after a Black Swan event:

- Tape drives, or any other proprietary backup system that requires special software to read, are not a good choice for small business. If you must have them, there should be a duplicate drive and software, pre-configured, off-site.
- RAID arrays are OK as redundancy, but don't count them as backup. It's in the same box as your files, and all those drives will suffer the same fate in any power event, flood, or burglary.
- Cloud sharing is not cloud backup. DropBox is not a backup. Proper cloud backup has versions, or a file history, so that in the case of ransomware, we can ignore the last 24 hours of encrypted backups and restore the last set of good files from before cryptoware or employee tampering took place.

Finally, inventory your time bombs, and get rid of them. I'll define these as systems that cannot be repaired because parts are not available, but are still absolutely required for you to function. Anything running DOS software, serial ports, or Windows XP is probably in this category right now, and Windows 7 will enter that category starting in January 2020, when the security patches end. Take steps to turn these systems into ordinary replacement issues; make them upgrades on your schedule, not disasters that will hit all at once.

3-2-1 Backup is key here. Full local backup, plus cloud backup, with all key paper records duplicated in the backups offsite and available for quick access. Think about how things fall apart, so that when the next black swan swims up the Atlantic Coast, you'll be ready.

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