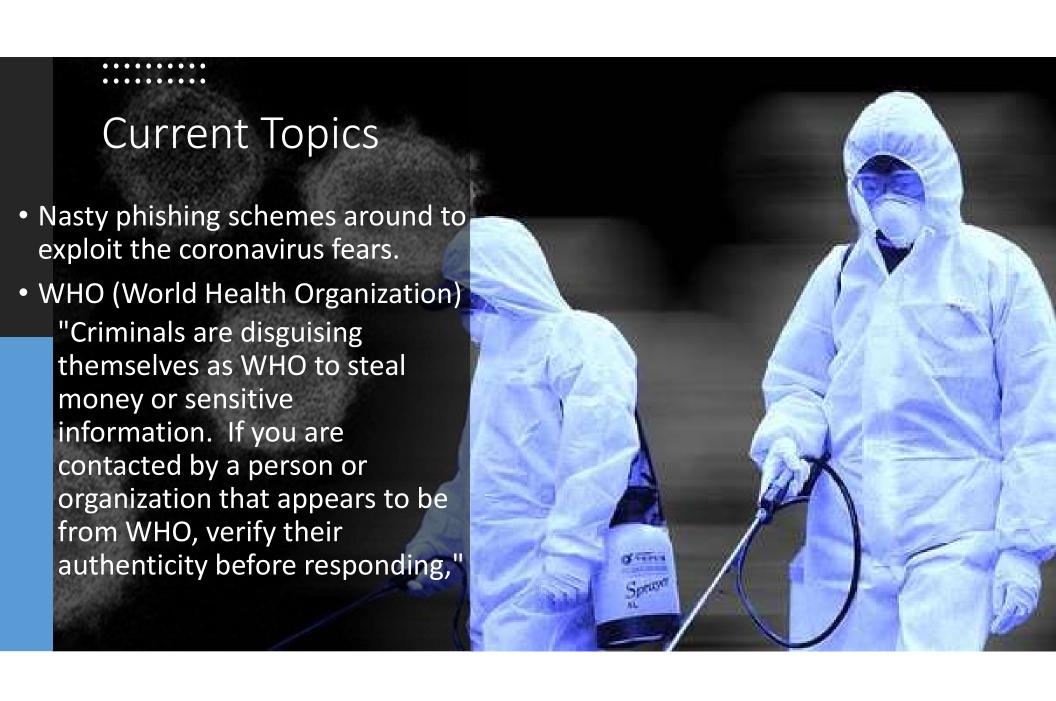


PWC G8 Gals@Technology

March 2020

Are You Tired Of Me Talking About Backups Yet?



Current Topics

- Microsoft Windows Updates will now follow a yymm naming scheme. Next update is Version 2004 due for general release in April 2020.
- California's New Consumer Privacy Act (aka CCPA) is the first American attempt to follow the European lead with General Data Protection Regulation (aka GDPR)
 - Right to know what personal information is being collected, used, shared, or sold both as categories and specific pieces of personal information
 - Right to delete personal information help by businesses and by extension, business's service providers
 - Right to opt-out of sale of personal information. Children under 16 must provide opt-in consent and a Parent must opt-in for children under 13.

HERE'S OUR CURRENT DISASTER RECOVERY PLAN

Some Backup is Better Than No Backup

- Manual copy
- Full backup
- Incremental backup
- Differential backup
- Mirror backup
- Rule of 3 on your computer, somewhere else in the house, and in the cloud

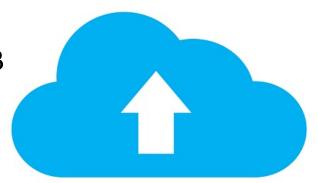
Destination Media

- USB Device
 - 32 GB USB Flash Drive \$6.50
 - 64 GB USB Flash Drive \$10.99
 - 128 GB USB Flash Drive \$18.99
 - 256 GB USB Flash Drive \$34.99
 - 2TB external drive \$59.99
 - 5TB external drive \$109.99
 - 1TB external SSD \$169.68
 - 2TB external SSD \$307.99



Destination Media

- Cloud space
 - Microsoft OneDrive \$1.99/mnth/50GB
 - Google Price \$1.67/mnth/100GB
 - Dropbox \$8.25/mnth/1000GB
 - Amazon Drive \$19.99/yr/100GB
 - iCloud \$0.99/50GB



WHAT IF I TOLD YOU "THE CLOUD" IS JUST SOMEONE ELSE'S COMPUTER.

Backup Utilities

- Carbonite (https://www.carbonite.com/)
 - Automatic, cloud based
 - One computer
 - \$6.00/mnth, unlimited cloud backup
 - \$9.34/mnth, add external drive backup + cloud
 - Multiple computers \$24/mnth, 250GB
 - Additional storage at additional cost



Backup Utilities

Acronis (https://www.acronis.com/en-us/)

- Utility only (license key required)
 - 1 computer \$38.99
 - 3 computers \$45.00
 - 5 computers \$49.98
- Acronis cloud available for additional cost
 - 250GB free, additional 500GB \$20



DIY

- Photo Backup Stick (https://photobackupstick.com/)
 - iPhone/Andriod/Windows/Mac
 - Only photos and video
 - Removes duplicates
 - 8GB \$59.95
 - 256GB \$169.95



- Copies user data contents but NOT system and applications
- Connect to destination
- drag c:/{This PC}/c:/Users/{Your name} to Destination
- Demo

Full Backup

- Full Backup of all data, application, setting, etc.
- Records all content necessary to restore but not the full "context" of the disk
- Full backup take most storage and most time
- Commercial packages
- Demo

Incremental Backup

- Initial full backup and then just back up things that change
- Uses less storage and less time but restoration is time consuming
- A "synthetic full backup" uses all incremental backups to rebuild a usable full backup to reduce restore time

Differential Backup

- Similar to Incremental Backup
- Initial full backup with each subsequent backup copying all data changed since last full backup
- Compromise between a bit more storage and backup time for much faster restoration time

A comparison of different types of backup

TYPE/BACKUP	FULL	MIRROR	INCREMENTAL	DIFFERENTIAL
Backup 1	All data	All data selected	_	=
Backup 2	All data	All data selected	Changes from backup 1	Changes from backup 1
Backup 3	All data	All data selected	Changes from backup 2	Changes from backup 1
Backup 4	All data	All data selected	Changes from backup 3	Changes from backup 1

Benefits and drawbacks to types of backup

TYPE	BENEFITS	DRAWEACKS
Full	Provides full copy of data set Offers arguably best protection	Requires lots of storage space
Incremental	Less time and storage space than full backup	Time-consuming to restore Need all the backups in backup chain to restore
Differential	Shorter restore time than incremental	Can grow to much bigger size than Incremental
Synthetic full	■ Reduced restore time ■ Less bandwidth usage	Newer, so not as well-known
Incremental-forever	Availability of data Automated restoration process	= Newer, so not as well-known = Need all the backups in backup chain to restore

Mirror Backup (aka Disk Cloning)

- Full sector-by-sector copy of disk media
- Most complete, most storage, full restore of EVERYTHING



