# Sun City Summerlin Computer Club Seminar

# Backing Up
# Your Hard Drive and Files

**Tom Burt**

**June 7, 2012**

# **Agenda**

- **Basic Backup Concepts**
- **Where to Back up?**
- **Cloning vs Imaging**
- **A Sampling of Backup Tools**
- **Demo - Imaging With Windows 7 Backup**
- **Demo - Making a Windows System Repair Disk**
- **Tom's Backup Guidelines**
- **Cloud Storage Services**
- **Demo - Using Microsoft SkyDrive "cloud" storage service.**
- **Web Site Links**

# Basic Backup Concepts

- "Backing up" means *making a copy* of all or part of your PC hard drive to another hard drive.

- Why do it?

  - Hard drives are electro-mechanical devices – they BREAK DOWN. (but hard drive MTBFs are now 50,000+ operating hours)
  - Hard drives, their folders and files can become CORRUPT.
  - Humans are fallible!! Sooner or later you will DELETE a file when you didn't mean to.
  - Malware of all kinds may attack your PC and DESTROY data.
  - Lightning may strike, fires happen, floods happen.

- Without backups, you may lose irreplaceable data

  - Family photos, music, videos, financial records, e-mail, …

- Replacing lost software may be difficult and expensive.

# **Where to Back Up?**

- **To an external drive (USB 2/3, eSATA or rack mounted)**
  - **Fastest I/O, especially for cloning or imaging.**
  - **Backup drive can be removed after backup is complete.**
  - **If imaging, can use an "images" folder on the external drive. (No need to dedicate the entire drive to backups).**
  - **External drive pricing: 1 TB for about $100.**

- **To another computer on your home network**
  - **Similar to imaging to a USB backup drive.**
  - **Dedicate an area on that PC to storing backup images.**

- **To DVDs or Blu-ray discs**
  - **Much slower and less convenient.**
  - **Better for backing up specific files – like all your photos.**
  - **Even with dual layer (9 GB) DVDs, will need about 5 DVDs or 2 (25 GB) Blu-rays to back up a full 40GB hard drive partition.**
  - **Blu-ray burners can be had for about $125**

# <u>Cloning vs Imaging</u>

- **Cloning**
  - **Backs up an entire hard drive to another entire hard drive.**
  - **The resultant hard drive is bootable – same OS & drivers.**
  - **The resultant hard drive has all the files and folders of the original.**
  - **The "clone" is a *logical* copy – not a bit-for-bit physical copy.**
  - **Cloning requires Acronis, Norton or Casper software tools.**

- **Imaging**
  - **An image is a single large file if on NTFS, or a group of files if on FAT32.**
  - **An image is a copy of one or more partitions of a hard drive.**
  - **Images are compressed – about 2 to 1.**
  - **Images only contain "used" areas of the original partition.**
  - **Images are not directly bootable, but contain all boot information.**
  - **With software help, an image can be "mounted" as a logical drive. (This allows individual files to be retrieved from the image).**

# A Sampling of Backup Tools (1)

- **Windows 7 Backup**
  - **Comes built-in.**
  - **Backup hard drive must be plugged in while operating.**
  - **Backs up entire hard drives or specific partitions.**
  - **Makes an "image" of the entire hard drive or partitions.**
  - **Also can back up individual files.**
  - **Then makes copies of just files that changed.**
  - **Can make a bootable "Repair CD" for restoring after a hard drive failure.**

- **Windows Explorer**
  - **Built in Windows File Manager.**
  - **Easy to use for copying small groups of files and folders.**

# A Sampling of Backup Tools (2)

- **Macintosh "Time Machine"**
    - **OS X Leopard or later.**
    - **Comes already installed.**
    - **External Backup drive has to be plugged in or need to have a Time Capsule on your network.**
    - **Makes a snapshot of entire hard drive.**
    - **Then makes copies of just files that changed.**
    - **Keeps multiple versions of changed files.**
    - **Runs continuously.**
- **http://support.apple.com/kb/HT1427**

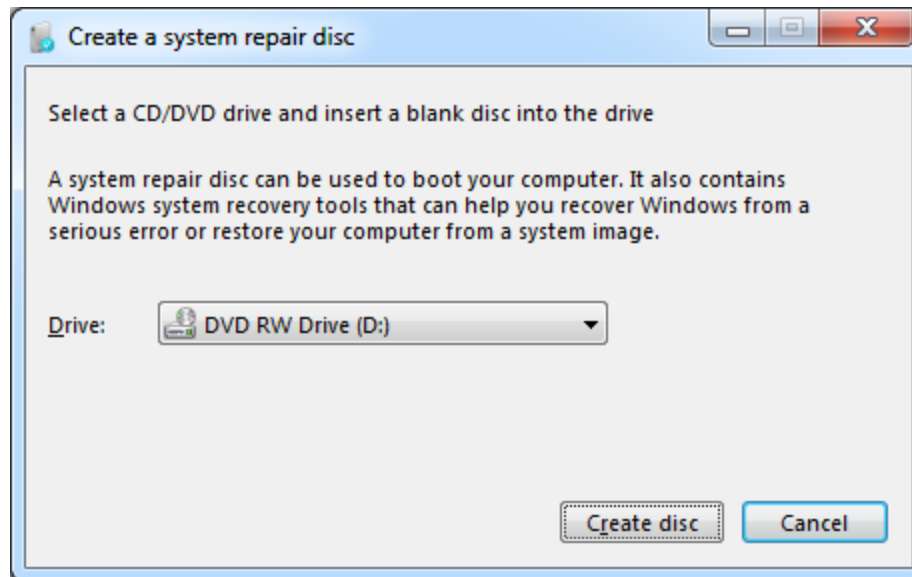# A Sampling of Backup Tools (3)

- **Acronis True Image 2012**
  - Backs up entire hard drives, specific partitions or sets of files.
  - Supports both imaging and cloning.
  - Supports both full and incremental backups.
  - Supports "non-stop" backups (any files that change)
  - Can make a bootable "Rescue CD" for restoring after a hard drive failure.
  - Costs about $30 **–** sometimes less at www.ugr.com.

- **Casper**
  - Makes clones.
  - Supports "smart cloning" (clones only changes)
  - Costs about $50

# Backing Up With Windows Backup

1.  **Attach external USB/eSATA drive.**
2.  **Start Windows Backup.**
3.  **Choose backup Options:**
    - **Source partition / drive / Folders**
    - **Target partition / drive / Folder**
4.  **OK your selections.**
5.  **Sit back and let the backup take place.**
6.  **Exit from Windows Backup**
7.  **Safely Remove the backup hard drive.**

# **Making a Windows System Repair Disk**

- **Click the Start orb**

- **In the search box, enter System Repair**

- **In the search results, click "Create a system repair disk"**

- **Follow the directions in the dialog.**

- **Use the System Repair Disk to restore from a backup.**

# Cloud Storage Services

- Offer a baseline amount of free storage and then charge for additional usage.

- Several synchronize your cloud storage space with a folder on your local hard drive or handheld device.

- SkyDrive & Google Drive allow editing of documents stored in your cloud storage by one or more authorized users – nice for collaborative work.

- Any new or changed file in your local cloud will automatically get uploaded to the cloud storage space.  This provides for automatic backup of any data you place in your local cloud folder.

# **Popular Cloud Storage Services**

**Microsoft SkyDrive: http://Skydrive.live.com**
**7GB free (25GB if have a Windows Live account), 20GB $10/yr 50GB $25/yr**
**Win, Mac, IOS, WP7, Android**

**Apple iCloud: www.apple.com/icloud**
**5 GB free, 10GB $20/yr, Mac (Lion), IOS 5, Win (Vista, 7)**

**DropBox: www.dropbox.com**
**2GB free, 50GB $9.99/mo, Win, Mac, IOS, Android**

**Google Drive: http://drive.google.com**
**5GB free (+ 1GB Picasa storage), 25GB $2.49/mo, Win, Mac, IOS, Android**

**SugarSync: https://www.sugarsync.com**
**5GB free, 30GB $49.99/yr, Win, Mac, IOS, Android**

**Amazon Cloud Drive: www.amazon.com**
**5GB Free, 20GB $20/yr, Win, Mac, IOS, Android, purchased MP3 files stored for free.**

# Tom's Backup Guidelines

- **Use Acronis or Windows Backup for Image Backups**
  - **Weekly for OS partition**
  - **Weekly for separate data partition**
  - **Daily for frequently changing data**

- **Back up to a Removable Hard Drive**
  - **USB 2/3 or eSATA are good choices - can unplug and put away afterward.**
  - **Rack mount drives OK, but racks need to be installed.**
  - **eSATA docks are a new alternative.**

- **Also burn CD or DVD backup disks**
  - **Safe copies of irreplaceable data like digital photos, financials**
  - **Can store off site – bank safe deposit or friend's home**

# **Useful Web Links**

- **http://www.ugr.com**
- **http://www.acronis.com**
- **http://www.newegg.com**
- **http://www.tigerdirect.com**

# Questions

# and

# Answers