

## **PRESENTATION PART I**

### **2) EXTERNAL STORAGE HARDWARE (Slide)**

### **3) INTRODUCTION (Slide)**

#### **a) WHAT ARE THEY?**

- \* Devices that can store digital information.
- \* Have varying capacities – small 512mb to very large 2tb.

#### **b) PURPOSES**

- \* Primarily to back up digital information in one's computer. Required with Time Machine feature in OS X.5.
- \* To transport information from one location to another - without having to lug one's desktop.
- \* Filing important permanent records outside of one's computer's internal drive when he/she doesn't need to access them often.
- \* Storing large files such as one's iTunes library or photos, movies etc. that he/she accumulated for years.

### **4) COMMON TYPES OF STORAGE HARDWARE (Slide)**

- \* USB Flash/Thumb/Keychain Drives (512KB TO 64GB)
- \* Compact Disk (700MB) DVD (4.7GB)
- \* Tapes (used for frequently by business) expensive- in the thousand of \$\$\$)
- \* Large Capacity Hard Drives (250 GB to 2TB)

### **5) PHOTO OF DEVICES (Slide)**

- \* Silver device: Maxtor 350GB external Hard drive; interface connections: FireWire 400 and USB 2
- \* Silver and blue devices: Flash or thumb drives: Very useful USB devices for storing/transferring information. Intended to be carried as a keychain.
- \* Little black device: Western Digital 250GB portable drive: USB

### **6) BASIC FEATURES (Slide)**

Sketch of the inner parts of a disk drive. Disks are made of magnetic metal or ceramic.

### **7) CHOOSING A HARD DRIVE (Slide)**

#### **STEP 1**

Ensure compatibility with your computer-making sure the interface connection is consistent:

#### **FOUR DIFFERENT CONNECTION TYPES:**

**a) USB 2-** Most external hard drives support USB 2 connections. One of the drawbacks of USB 2.0 is that PowerPC-based Macs can use these drives, **but not boot from them.**

**Intel-based Macs, however, can boot from USB devices.** This is only a concern if you plan to use the external hard drive for backup purposes; **even then, the ability to boot from the drive is more a convenience than a necessity.**

Data transfer using USB connection is quite slow.

**b) FireWire 400/800** - Though not quite as common as USB, FireWire is one of the preferred connection methods for Macs, because nearly all Macs have built-in FireWire support. Any Mac that supports FireWire can boot from an external FireWire hard drive enclosure. This makes external FireWire drives an almost universal choice, because they work with both PowerPC and Intel-based Macs.

FireWire external drives are available in two formats:

- \* **FireWire 400** (6 pins): 4 for data transfer; 2 for power
- \* **FireWire 800** (9 pins): 6 for data transfer; 3 for power

FireWire 800 is the newer and faster of the two, although either will work with any Mac that supports FireWire.

**c) eSATA External Serial Advanced Technology Attachment** is an external interface for SATA technologies. It competes with FireWire 400 and universal serial bus USB 2.0 to provide fast data transfer speeds for external storage devices.

eSATA is a relatively new connection method. I am not aware of any Mac that directly supports this type of connection without an adapter, such as an eSATA PCI-E card for the Mac Pro, or an ExpressCard for a MacBook Pro. Nevertheless, eSATA is becoming more popular. In the meantime, many Mac Pro users are choosing eSATA drives for external storage, due to their relatively low price and the ability to use the same SATA drive either internally in a Mac Pro or externally in a hard drive enclosure.

## **STEP 2**

Decide the capacity to meet your foreseeable future needs:  
Select a capacity that will not just meet your immediate needs  
but far beyond.

## **8) External Drive Styles: (Slide)**

**a) Empty Case:** Not as popular as pre-installed hard drives, however worth considering. It's essentially a complete hard drive enclosure, with a power supply and hard drive interface except without the hard drive itself. If one buys an external hard drive enclosure, he can install the drive himself, whether it's a new drive or an existing drive obtained from an older computer.

Installing a hard drive in an external case is a task that almost anyone can perform. One just needs to be handy with a screwdriver.

### **b) Pre-installed External Hard Drive Enclosures:**

Most common form of external hard drive. The enclosure contains a hard drive mechanism, power supply, and hard drive interface; all one need to do is plug it into your Mac.

Pre-installed external hard drive enclosures are available from leading hard drive manufacturers, as well as some of the well-known names in Mac peripherals.

**When selecting one of these drives, the main considerations are: storage size and connection type & cost.**

## **9) So, what should you purchase? (Slide)**

- One that supports USB & FireWire – why- because all modern Macs support both connection types.
- The largest capacity drive you can afford – the larger the better especially when using OS X.5, Leopard.

## **10) Catalog Sample (Slide)**

Displays various models and prices.

## PRESENTATION PART II

### 12) UNINTERRUPTIBLE POWER SUPPLY (UPS) (Slide)

### 13) DESCRIPTION/INFORMATION (Slide)

#### a) WHAT IS A UPS?

It is a special unit containing a rechargeable battery with appropriate electronics and can supply continuous power (for a modest time) to one's computer (low energy consuming equipment) in the event of electrical power outage.

#### b) WHAT IS ITS PRIMARY PURPOSE:

To provide back-up power to one's computer, monitor and any external drives during power failure whereby he/she can save his/her files and shut down gracefully to preserve the integrity of his/her data.

*(Note: Some applications such as Microsoft Word or Excel generate an interim document whenever there is a power loss and the document being worked on had not been saved).*

#### c) WHO MIGHT NEED ONE?

\* Anyone who has a desktop computer and loses power regularly or need to constantly reboot and thereby lose data in doing so, or

\* Anyone who wishes to continue working during a power outage.

#### d) OTHER UPS FACTS:

\* Besides being a backup power source, a UPS unit is also "a power conditioner" meaning it would provide a power flow free from surges or voltage drops.

*(Note: Modern computers are designed to withstand some surges and voltage drops without serious consequences).*

\* The UPS unit one generally buys for a computer is NOT suitable to run one's refrigerator, TV, microwave etc. To run these appliances under a power loss, one would require a back up gas-operating generator.

### 14) PICTURE OF A UPS DEVICE (Slide)

### 15) HOW TO SELECT A UPS (Slide) GENERAL

Choose one that has at least enough power for 10 minutes of operation. This should be adequate time for one to shut down gracefully after he/she has saved whatever is being worked on.

**STEP 1**

Find out the total wattage requirements for your computer, monitor and external drives and other equipment you need power during an outage.  
See chart on **Slide 17**.

**STEP 2**

Look up manufacture's runtime charts and select the UPS device you need. See Runtime Chart on **Slide 18**.

**16) ALTERNATE METHOD (Slide)**

Visit any UPS supplier's web site and follow their instructions for selecting.

Several suppliers' web sites:

<http://www.apc.com/>

<http://www.belkin.com>

<http://www.cyberpowersystems.com/>

<http://www.tripplite.com>

<http://www.ultraproducts.com>

**17) POWER CONSUMPTION FOR APPLE COMPUTERS CHART (Slide)**

by Komuves Consulting

[http://kom.com/reviews/apple\\_power\\_consumption/](http://kom.com/reviews/apple_power_consumption/)

**18) RUNTIME CHART FOR APC BACK-UPS ES (Slide)**

**19) THANK YOU (Slide)**