



TenTwentyFour LLC Backup Recommendations and options.

Overview:

Backup options for individuals to mid sized businesses

Information:

Individual backup solutions:

Definition:

This solution is for a single computer or a multiple computers without a network.

The computers that will use this solution need to have USB support and windows 98SE or above.

This solution is simple to use. Move the backup device to the computer to be backed up and run the included backup software.

There are three options in this category.

Option 1)

CD-Rom backups.

Since most computers come with CD Burners today this is a valid option.

Microsoft backup (included with windows) can be used with this option to backup your computer to CD-Rom.

Disadvantage:

CD-R can only be used one time. The storage capacity on a CD-Rom is only 700 Megs, if there is more data than that in a backup it will take more CD's to backup the data. With a full hard drive this could take 10 – 20 CD's to backup.

Option 2)

External USB hard drive. Several manufacturers have drives available that are large enough to backup all the data on you computer. The extra benefit of this solution is that you can also use the drive to store other forms of data. This is just another disk connected to the computer useable by any program.

Disadvantage:

There is no way to store the backups besides moving the external disk drive to storage. There is no custom backup software. Microsoft backup will backup to any external device in a standard format.

Option 3)

External Tape drive. The tapes will backup the entire computer. The tapes can be removed and stored off site (lock box, fire vault, etc.) The unit can be moved between computers. The tapes are not expensive.

Disadvantage:

External Tape drives have become hard to find and expensive. With the availability of cheap hard drive solutions. The media is inexpensive but the drives are expensive.

Products)

CD-RW burners are included with most new computer. External units with USB connectors are very easy to find. Blank media, only writeable once, is very cheap and easy to find.

Capacity: 700 Meg < \$100.00 (internal)

Capacity: 700 Meg < \$200.00 (external)

External USB hard drives are available at Best buy, CDW, and comp USA (other places to).

Capacity: 60Gig < \$200.00

Capacity: 120gig < \$300.00

External Tape Drive

Capacity: 10/20 Gig < \$400.00

Capacity: 20/40 Gig < \$550.00

Recommendation:

External USB hard drive. The cost and functionality of this solutions makes it very usable and attractive.

Small network backup solutions, (no server):**Definition:**

A small network is established between computers, but there is no server on the network to support backups. All the computers to be backed up will need access to the network.

Option 1)**NAS device:**

The network attached storage device. The device is a Hard drive this sits on the network and all the computers on the local area network have access to the drive. Redundency and be built in depending on the model purchased. A mapped drive is established over the network and all the backups are taken over the network. The device can also be used to share data files between PC's.

Disadvantage:

No option for removability. *With some NAS devices with two hard drives, one of the drives can mirror the other and then be removed and stored.

The speed of the network limits the speed of accesses to the device. (network update may be needed)

Option 2)**Removable Hard drive shared over a network:**

As in the setup for single computer backups this would add a external hard drive to one of the computers on the network using a USB port. This drive can then be shared between computers and backups can be taken over the network.

Disadvantage:

The availability is dependant on the computer being turned on and running. The speed of the USB connection may slow down the accesses to the device.

Option 3)**Install an Extra hard drive in one of the networked computers:**

On a standard computer install a new high capacity hard drive and share that drive out to the network.

Disadvantages:

There is not way to remove the drive for storage. The computer that has the drive in it must be on to accesses the drive.

Products)**Recommendation:**

The solution for this situation needs to be evaluated for the correct option. What options is a best fit depends on the current requirements and the future plans and directions for the information infrastructure.

Small network backup solutions, (server based):**Definition:**

All the computers are on a local area network and have access to a server.

Option 1)**Backup tape drive in the server:**

Install an internal tape drive in the server that can backup local files. All the backups will be done to the server over the network and the server will backup everything on its drives to the tape drive.

This solution can be enhanced with backup software that runs on the client computers. With better software the clients can access the tape drive directly allowing direct PC backups to the servers tape drive. Tapes for the drive are inexpensive and removable. A simple tape rotation scheme allows multiple backups to be taken over an extended period of time.

Disadvantage:

Access to the server is needed for restorations. High initial cost for hardware. My need to install a SCSI internal card.

Option 2)

Hot swap hard drive cage installation:

Installation of a hot swap cage on the server. This allows a removable drive to be added to the server for backups and then removed for storage.

Disadvantage:

Each drive needs to be purchased separately at a high cost. Still need access to the server to do restores. A hot swap SCSI card and hot swap rack would need to be purchased and installed.

Products:

Travan tape drive:

Capacity: 10/20 cost < \$300

Capacity: 20/40 cost < \$450

Dat tape drive DDS drives:

Capacity: 12/24 cost < \$700

Capacity: 20/40 cost < \$800

Capacity: 36/72 cost < \$1250

DTL tape drive:

Capacity: 40/80 cost < \$1400

Capacity: 80/160 cost < \$3500

Capacity: 110/220 cost < \$4000

AIT tape drive:

Capacity: 35/90 cost < \$1000

Capacity: 50/100 cost < \$2600

VXA Tape Drive:

Capacity: 33/66 cost < \$700

Capacity: 80/160 cost < \$1300

Hot swap racks:

Capacity: 0/320 cost: need to be research for the situation.

Recommendation:

For all small sized networks I would recommend an internal tape drive in the server for backups. This allows off site storage of important data. This solution can integrate into a disaster recovery plan.

Mid sized network backup solutions, (server based):

Definition:

A server based network solution for a network of 15-100 computers.

Option 1)

High capacity single tape drive

One drive on the server will backup all data on the server and data that may be on PC's on the network. This should include backup software that allow scheduled backups, and cataloged backups. This should utilize a tape library idea for the backup rotation scheme. One backup should be removed from the site for disaster recovery options.

Option 2)

High capacity tape autoloader

This will allow faster backups by allowing the autoloader swap out tapes when needed. This is an efficient use of one or more tape drives, and allow hands off backups.

Products:

See DLT list above.

LTO tape drives

Capacity: 100/200 cost < \$3000

Capacity: 200/400 cost < \$7000

Autoloader:

Capacity: 0/2.5 terabyte cost from \$7000

Depends on the desired speed and capacity.

Recommendation:

Both solutions will give a great deal of performance for the network and servers it will server.
Solutions need to be customized to the architecture that will be used.

Mid sized network backup solutions, (Tape library):**Definition:**

A server based network with high bandwidth backbone and the desire to backup multiple servers to one location. This solution needs to be custom designed for the infrastructure that it will support. This solution is for networks will a high volume of data that needs to be stored between multiple servers and architectures.

Option 1)

High capacity network tape library autoloader.

Products:

Capacity: 0 / 10 Terabytes

Recommendation:

A custom designed solution will be designed for this infrastructure need.

Notes:

The data that is most important should always be backed up. This can be done without anything other than windows. If you have MS backup installed on your computer it can be used to backup import things like the My Documents folder. This can be done to the C:\Drive.

MS backup is located in Programs, Accessories, System tools.

Floppy backups can be good, but don't rely on them. Backup your data in more that one place if a floppy is the only backup source.