CompTIA.

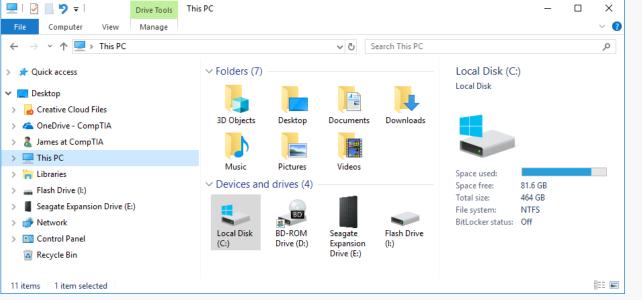
#### CompTIA IT Fundamentals+ (Exam FCO-U61) Module 4 / Unit 4 / Using Shared Storage

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#### Objectives

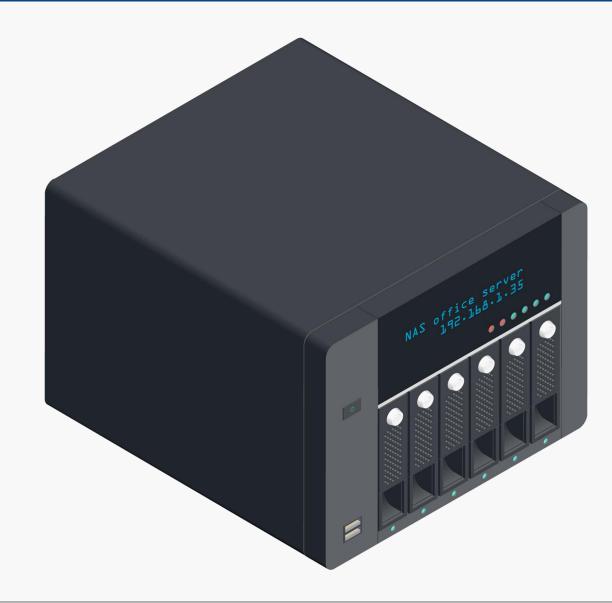
- List ways to share files and storage on a local network
- Describe means of sharing files and services on the Internet
- Explain the importance of backups and configure simple backup options

# File Server (Direct Attached Storage)



- Any drive or folder attached to the computer can be shared on the network
- Fixed disks and removable drives can be shared
- The host computer must be turned on and the drive remain attached for the share to work

# Network Attached Storage (NAS)

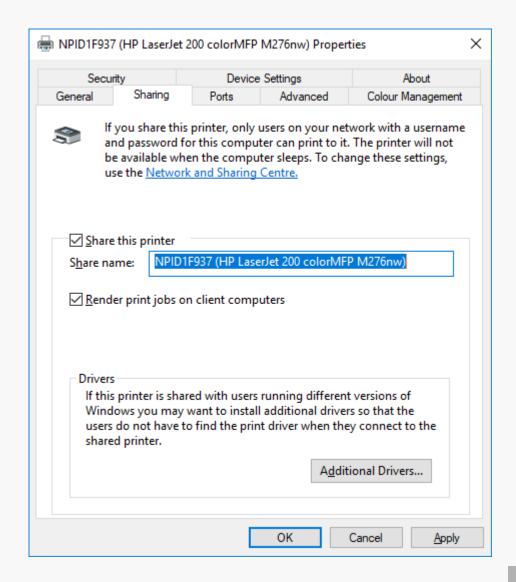


- Server appliance dedicated to file sharing
- Can be configured with multiple disks
- Supports multiple file sharing protocols
- Connected to the network and allocated an IP address (and possibly a hostname)

# **Network Printer Sharing**

#### • Share the printer via Windows

- $_{\odot}$  Share any locally installed printer
- Printer can be connected to Windows host by USB, Bluetooth, Ethernet, or Wi-Fi
- Windows host must be switched on for share to be accessible
- Use a hardware print server
  - Network-enabled printers support direct connections to clients
  - Could also connect printer to NAS server or Internet router/modem



### Joining a Workgroup or Domain

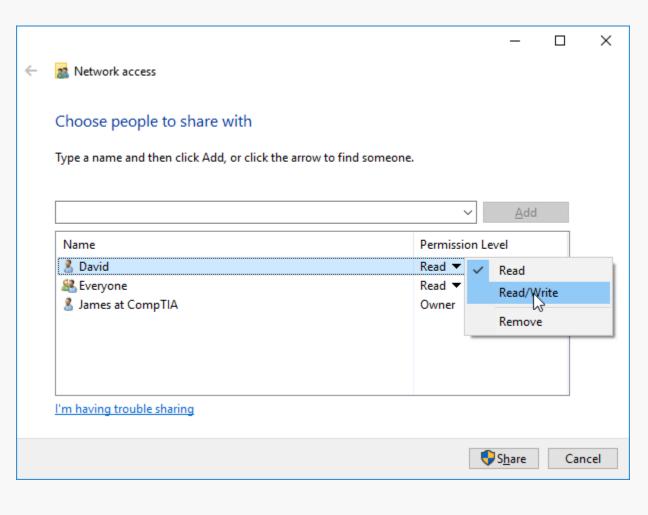
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Control Panel Home	View basic information	about your computer			?
💡 Device Manager	Windows edition				
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System protection	© 2018 Microsoft Corporat	tion. All rights Win	dow	$\mathbf{O}$	
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	System				
	Processor:	Intel(R) Core(TM) i7-2670QM CPU @ 2.20GHz 2.20 G	GHz		
	Installed memory (RAM):	6.00 GB			
	System type:	64-bit Operating System, x64-based processor			
	Pen and Touch:	No Pen or Touch Input is available for this Display			
	Computer name, domain and	workgroup settings			
	Computer name:	COMPTIA	Cha	nge sett	ings
	Full computer name:	COMPTIA			
	Computer description:				
	Workgroup:	WORKGROUP			
	Windows activation				
See also	Windows is activated Rea	d the Microsoft Software Licence Terms			
Security and Maintenance	Product ID:	A4177	Change	produc	t key

 Windows provides all the client and server
 software required for
 file sharing

•Workgroups versus domains

# File and Printer Sharing (1)

- Share any folder via shortcut menu or folder properties
- In a workgroup, each computer must be separately configured with the same user accounts



# File and Printer Sharing (2)

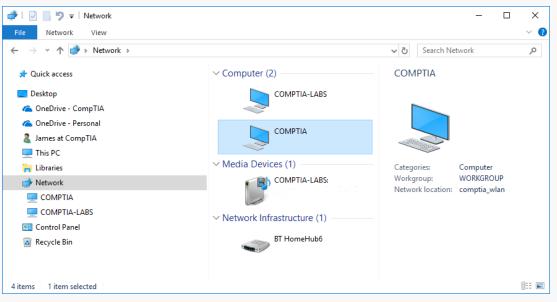
•4 Advanced sharing settings	_	×
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Guest or Public		
All Networks		
Public folder sharing		
When Public folder sharing is on, people on the network, including homegroup members, can access files in the Public folders.		
O Turn on sharing so that anyone with network access can read and write files in the Public folders		
<ul> <li>Turn off Public folder sharing (people logged on to this computer can still access these folders)</li> </ul>		
Media streaming		
When media streaming is on, people and devices on the network can access pictures, music and videos on this computer. This computer can also find media on the network.		
Choose media streaming options		
File sharing connections		
Windows uses 128-bit encryption to help protect file sharing connections. Some devices don't support 128-bit encryption and must use 40- or 56-bit encryption.		
Use 128-bit encryption to help protect file sharing connections (recommended)		
Enable file sharing for devices that use 40- or 56-bit encryption		
Password-protected sharing		
When password-protected sharing is on, only people who have a user account and password on this computer can access shared files, printers attached to this computer and the Public folders. To give other people access, you must turn off password-protected sharing.		
<ul> <li>Turn on password-protected sharing</li> <li>Turn off password-protected sharing</li> </ul>		
Save changes Cancel		

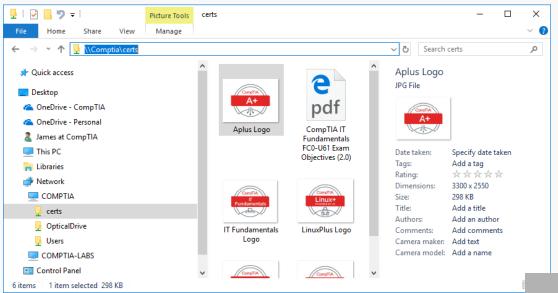
 Configure advanced settings to allow anonymous access—no security

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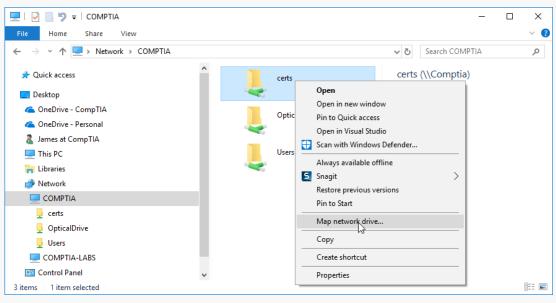
# Browsing Network Shares and Drives (1)

- View computers, printers, routers (network infrastructure), and other devices via the Network object
- UNC (Universal Naming Convention) paths

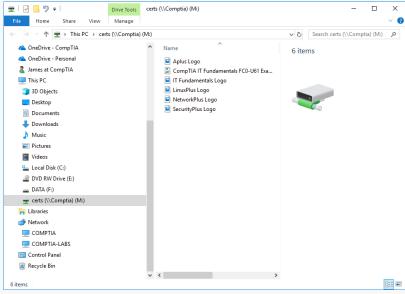




# Browsing Network Shares and Drives (2)



# •Map a shared folder as a local drive



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# Hosted Sharing and Storage

- HTTP/HTTPS and file downloads
  - Upload files to a web server
  - Clients can download using a link or URL over HTTP/HTTPS
  - Website can require authentication if necessary
- File Transfer Protocol (FTP)
  - $_{\odot}$  More efficient than HTTP/HTTPS
  - Most browsers support basic FTP functionality but a dedicated FTP client is usually preferable
  - More secure to use encrypted types of FTP

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		Account:	:			
		Commen	nts:			
New Site	New Folder					<u>^</u>
New Bookmark	Rename					
Delete	Duplicate					×
		[	Co	nnect	ОК	ancel

#### **Cloud Computing**

Cloud computing versus hosted storage

Pay-per-use (metered service)
 Rapid elasticity/scalability

Cloud depends on resource pooling and virtualization

 Less visibility and control about where your data is actually stored compared to hosted solutions

#### **Cloud-based Storage**

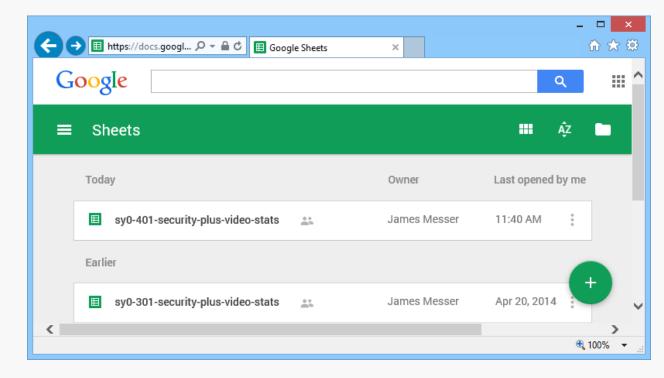
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Desktop, Documents and Pictures	
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Documents	This PC only $\qquad \qquad \lor$
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Photos and videos Automatically save photos and vide a camera, phone, or other device t Screenshots Automatically save screenshots I ca	-
	OK Cancel

 Vendors—Apple, Google, Microsoft, DropBox, Amazon

- Access via a browser or client app
- OneDrive can be integrated with File
   Explorer

#### **Cloud-based Collaborative Applications**

- Provide apps and
  - collaboration features
  - as well as basic storage
- •Vendors—Microsoft Office 365, Google G Suite, Smartsheet



#### **Peer-to-Peer File Sharing**

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# • Files are uploaded to a network of peers

• Each peer hosts

fragments of files



- Data files backup
- System configuration backup
- Backup considerations
  - oOn-site versus off-site
  - Backup media security
  - Point-in-time backups
  - Backup schedule

#### Backup Storage Types

- Locally attached storage
- Network Attached Storage
- •Offsite/cloud-based
- Use multiple methods for comprehensive backup

Local storage for regular point-in-time backups
 Cloud storage for periodic off-site backups

#### File Backups and Critical Data

- Selection of drives/folders/files to include in backup jobs
- •Where is critical data stored?
- Do the locations selected cover all critical files?

#### Database Backups

- File copy methods are not sufficient to back up databases (in most cases)
- Database must preserve integrity by tracking operations as transactions
- Replication copies completed transactions between master and replica servers
- Point-in-time backups must still be made to recover from errors (transaction rollback)
- Snapshot backups can be used for "last ditch" recovery and for logging/auditing changes

#### **OS Backups**

- Restore a host without having to manually reinstall operating system and applications software
- Recover from file corruption, faulty disk storage, malware infection,...
- Bare metal/image-based backup
- •Keep OS and data backups as separate jobs—use well-defined areas for user data storage

#### Windows Backup

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Control Panel Home	Back up or resto	ore your files			^ ()	
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		<b>₩</b> anage space				
	Next back-up: Last back-up: Contents:	In progress Never Files in selected folders and system image				
	Schedule:	Every Sunday at 19:00				
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 Backup and Restore (Windows 7)

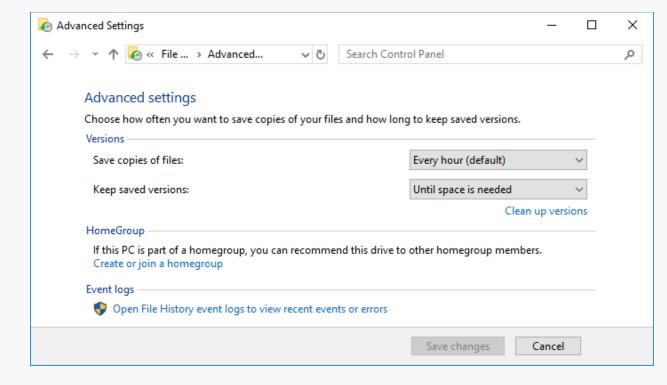
 Enables you to perform selective, scheduled, and adhoc backups

• File History (Windows 8 and Windows 10)

 As files are modified, the versions are tracked and backed up automatically

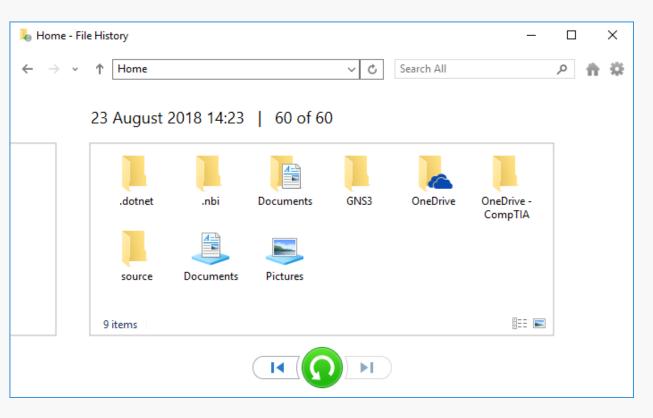
# Scheduling and Frequency

- Scheduling and frequency require careful consideration
  - What are the recovery scenarios?
     When might we need to recover a file?
  - How much backup storage capacity is there?
  - How long do backups take to complete? Do they interfere with normal operations?
  - How can offsite backups be facilitated?



#### **Restoring Data and Verifying Backups**

#### Error detection



 Do backups complete successfully?

#### Configuration

 Is all critical data being backed up?

Test restore

#### Review

Image by Wavebreak Media © 123rf.com

 List ways to share files and storage on a local network

 Describe means of sharing files and services on the Internet

• Explain the importance of backups and configure simple backup options

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