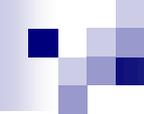




CHAPTER 5 : WINDOWS OPERATING SYSTEM

OPERATING SYSTEM MAINTENANCE



Maintaining The Operating System

- Operating systems and applications software continue to evolve.
- Users need to keep their systems up to date :
 - To ensure they have the latest features.
 - Systems operate efficiently.
 - Protected against attacks.

PATCHES

- After an OS or application is installed, keeping it up to date with the latest patches is important.

*A **patch** is a piece of program code that can correct a problem or enhance the functionality of an application program or OS.*

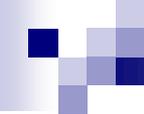
- The size of patches may vary from a few kilobytes to hundreds of megabytes.

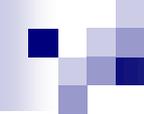
- 
- It is usually provided by the manufacturer to repair a known vulnerability or reported problem.
 - In most cases a patched OS results in a healthier, more stable computer.
 - Computers should be continually updated with the latest patches unless a good reason exists not to do so.

- 
- Sometimes patches negatively impact the operation of another system feature.
 - The impact of the patch should be clearly understood before it is applied.
 - The software manufacturer's website usually provides this information.

Applying OS Patches

- Patches to operating systems can be installed in different ways.
- Depending on the OS and the needs of the user.
- Options for downloading and installing updates include the following:
 - **Automatic installation**
 - **Prompt for permission**
 - **Manual**

- 
- **Automatic installation:** The OS can be configured to connect to the manufacturer's website and then download and install minor updates without any user intervention.
 - Updates can be scheduled to occur during times when the computer is on, but not in use.

- 
- **Prompt for permission:** Some users want to have control over which patches are applied.
 - This choice is often the one for users who understand what impact a patch can have on system performance.
 - The system can be configured to notify the end user when a patch is available.
 - The user must then decide whether to download and install the patch.

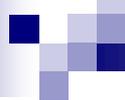
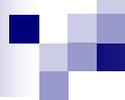
- 
- **Manual:** Updates that require major pieces of code to be replaced on a system should be run manually.
 - These major updates are often called service packs and are designed to correct problems with an application or OS, and sometimes to add functionality.
 - These service packs usually require the end user to manually connect to a website, download files, and install the update.
 - They can also be installed from a CD available from the manufacturer.

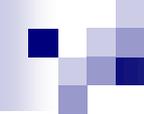


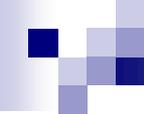
Figure 1 : Windows Automatic Updates



Application Patches and Updates

- Applications also require patches and updates.
- Patches are usually released by the manufacturer to repair a detected vulnerability in the application that could lead to undesirable behavior.
- Browsers and office software such as word processors and spreadsheet and database applications are common targets for network attacks.

- 
- These applications require updates to correct the code that might allow the attack to succeed.
 - The manufacturer might also develop updates that can improve product functionality, at no additional cost.
 - OS and application patches are generally found through the manufacturer's website.

- 
- The installation process might request permission to install the update and to verify that any supporting software is present.
 - The installation process might also install any programs that are required to support the update.
 - Web updates can be downloaded to the system from the Internet and installed automatically.

- Figure 2 shows the Internet Explorer Security Warning that is displayed before an update is downloaded and installed.

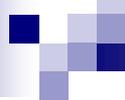


Figure 2 : Installing an Update from the Internet



Security Patches

- A security patch is a change applied to an asset to correct the weakness described by a vulnerability.
- This corrective action will prevent successful exploitation and remove or mitigate a threat's capability.
- Security patches are the primary method of fixing security vulnerabilities in software.



Hot Patching

- Hot patching is a technology that allows patches to be applied without shutting down and restarting the system or the program.
- This addresses problems related to unavailability of service provided by the system or the program.
- A patch that can be applied in this way is called a hot patch.

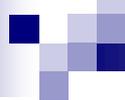
Tools

- There are several tools to aid in the patch application process, such as RTPatch, [JUpdater](#), [StableUpdate](#) or Visual Patch.
- [WinZip Self-Extractor](#) can launch a program that can apply a patch.



Operating System Version

- Windows
- Linux
- Unix
- Sun Solaris
- Mac OS



Windows Operating System

- **Microsoft Windows** is a series of software operating systems and graphical user interfaces produced by Microsoft.
- Microsoft Windows came to dominate the world's personal computer market, overtaking Mac OS, which had been introduced previously.



Describe the evolution of Windows operating system

- 1980 – introduction to MS-DOS
- 1990 – Windows NT
- 1995 – Windows 95
- 1997 – Windows NT Version 4
- 2000 – Windows 2000, Windows NT V.5
- 2001 – Windows XP
- 2005 – Windows Vista
- 2009 – Windows 7

1980 – introduction to MS-DOS

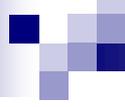
- Microsoft began to market operating system with the introduction of MS-DOS
- Shipped with early IBM Personal computers under the name PC-DOS
- Refined MS-DOS, culminating in a version that supported graphic windows and multitasking

1990 – Windows NT

- Development of Windows NT operating system was well underway by 1990
- Released for public use in July, 1993

1995 – Windows 95

- MS_DOS Windows system was replaced by two new windows operating system
 - Windows 95
 - replace MS-DOS with windows on personal computer
 - Windows NT
 - aimed at machine that had been configured with more resource – workstation and server



1997 – Windows NT Version 4

- Began to be embraced in the commercial world.

2000 – Windows 2000, Windows NT V.5

- The same code as Windows NT ver.5
- Refinement and bug fixes as supported plug-and-play devices installation and power management.
- More robust (crashed less often)

2001 – Windows XP

- Known as Windows NT ver.5.1
- Intended to be combination of Windows 2000 and Windows 98.

