Objectives

- In this session, you will learn to:
  - Identify Windows operating system utilities to use in maintenance and troubleshooting.
  - Perform backups.
  - Troubleshoot Windows.
  - Recover a damaged installation of Windows.

Operating System Utilities

- For learning operating system utilities, you need to understand the following:
  - File management tools
  - Disk management tools

File Management Tools

- File management tools are:
  - Windows Explorer
  - Command-line tools

Disk Management Tools

- Disk management tools are:
  - Disk management
  - Chkdsk
  - Format
  - Diskpart
  - Defrag

System Management Tools

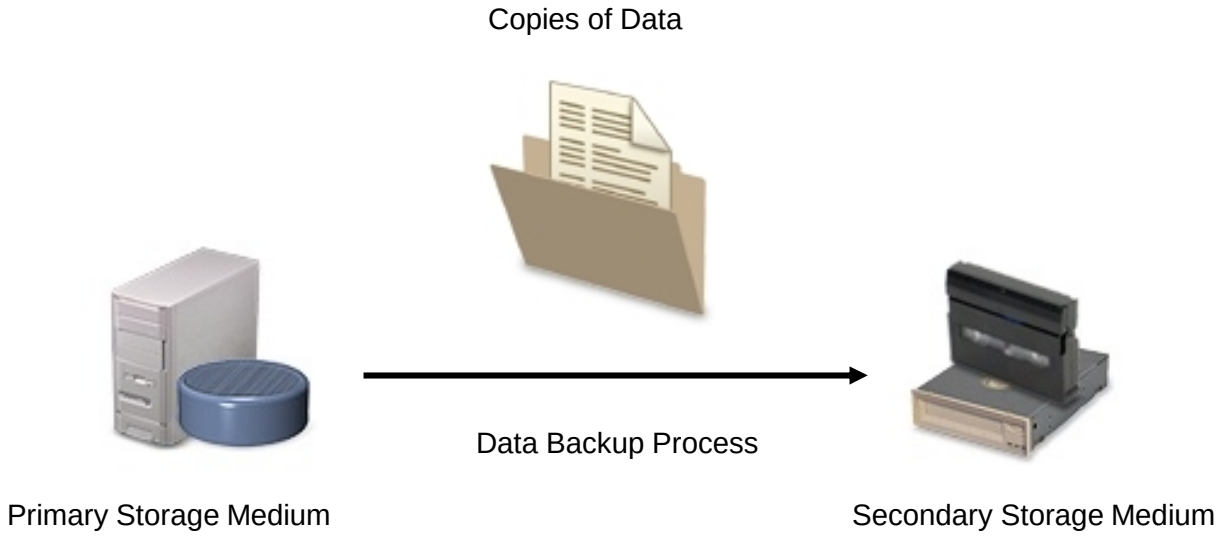
- System management tools are:
  - Device Manager
  - Task Manager
  - System Configuration Utility
  - System Information Utility
  - Event Viewer
  - Registry Editor
  - Computer Management

Maintain Microsoft Windows

- For maintaining Microsoft Windows, you need to understand the following:
  - Backup and restore
  - The Windows backup utility
  - System state data

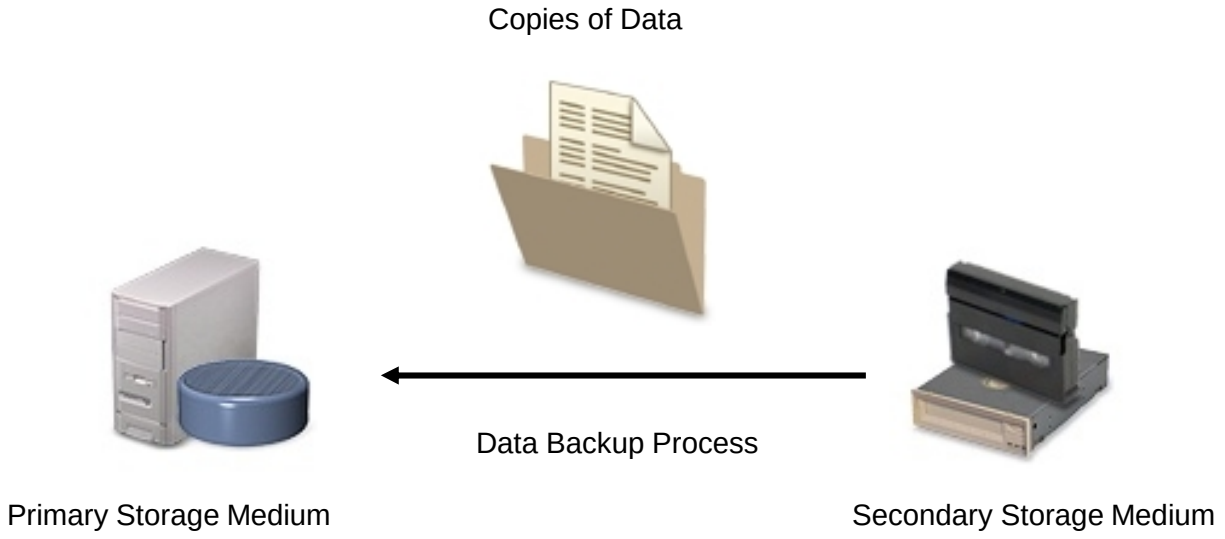
Backup and Restore

- The ***backup*** is a system maintenance task that helps store copies of data on another data storage medium.



Backup and Restore (Contd..)

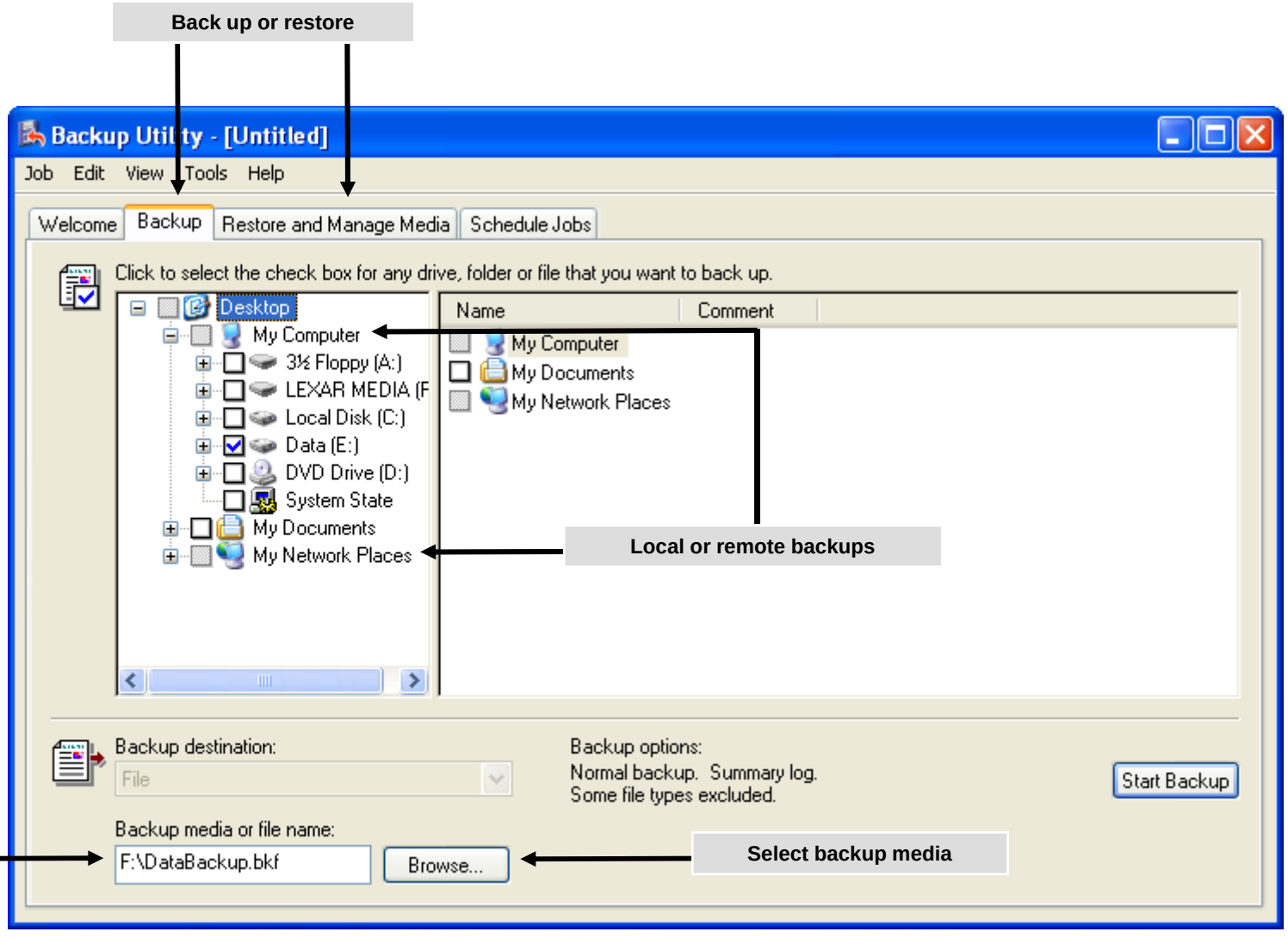
- The ***restore*** is a system recovery task that helps access the backed-up data.



The Windows Backup Utility

- The ***backup utility*** helps back up and restore files on local and remote Windows systems.
- The Backup types are:
  - Copy
  - Daily
  - Differential
  - Incremental
  - Normal
  - The built-in Windows
- The ***built-in*** Windows Backup utilities are:
  - Windows File Protection (WFP)
  - System File Checker

The Windows Backup Utility (Contd..)



System State Data

- The system state is a subset of system components.
- The ***system state data*** is:
  - Backed up as a unit
- The ***system state data*** consists of:
  - Boot files
  - System files protected by WFP
  - The Registry
  - COM+ object registrations

Activity 9-3

Activity on Backing Up System State Data

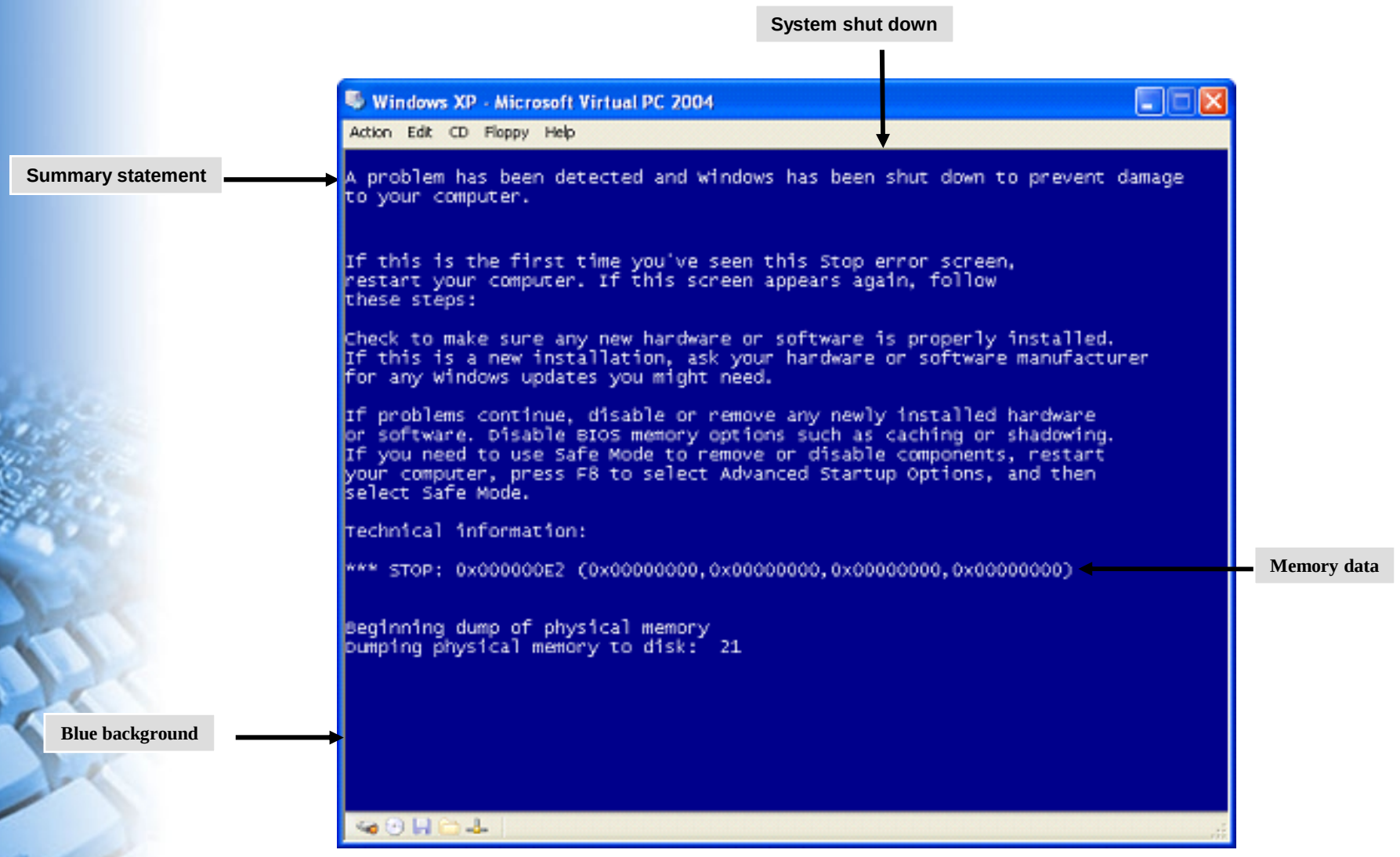
Troubleshoot Microsoft Windows

- Before troubleshooting Microsoft Windows, you need to understand the following:
  - System stop errors
  - System lockup errors
  - Input/Output device issues
  - Application errors
  - Boot errors
  - Error and warning messages in Event Viewer
  - Registry error messages
  - Remote diagnostic and troubleshooting tools

System Stop Errors

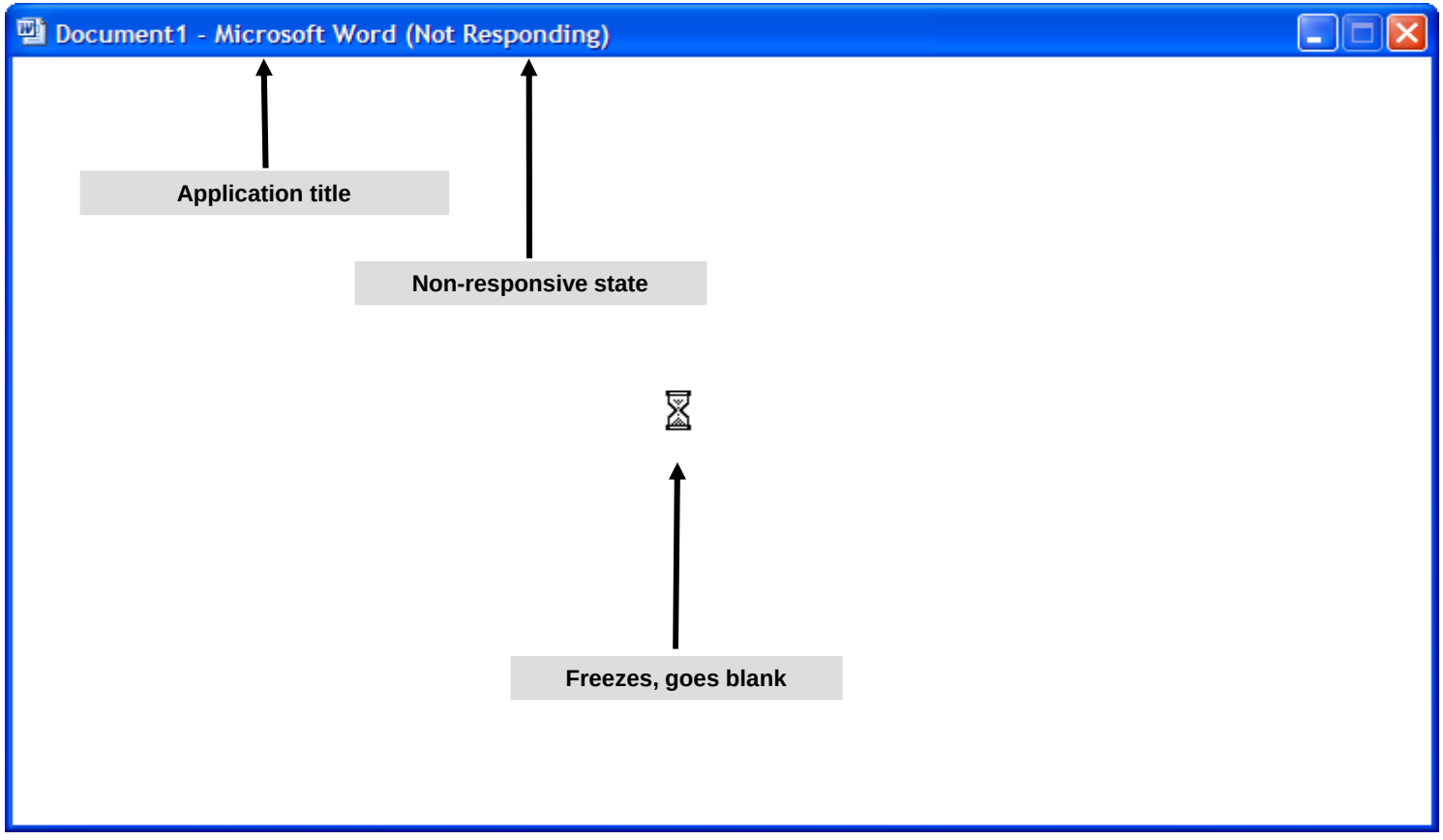
- The ***system stop errors*** are errors:
  - Severe enough to stop all processes
  - Shut the system down without warning

System Stop Errors (Contd..)



System Lockup Errors

- A ***lockup error*** is an error condition in which:.
  - The system or an application stops responding user input.



Input/Output Device Issues

- The input/output devices issues are:
  - Missing or loose connections
  - Blocked wireless signals
  - Missing or incorrect driver
  - Misconfigured display settings

Application Errors

- Common application errors are:
  - Application won't install
  - Application won't start or load
  - Application not found
  - General Protection Fault
  - Illegal operation
  - Invalid working directory

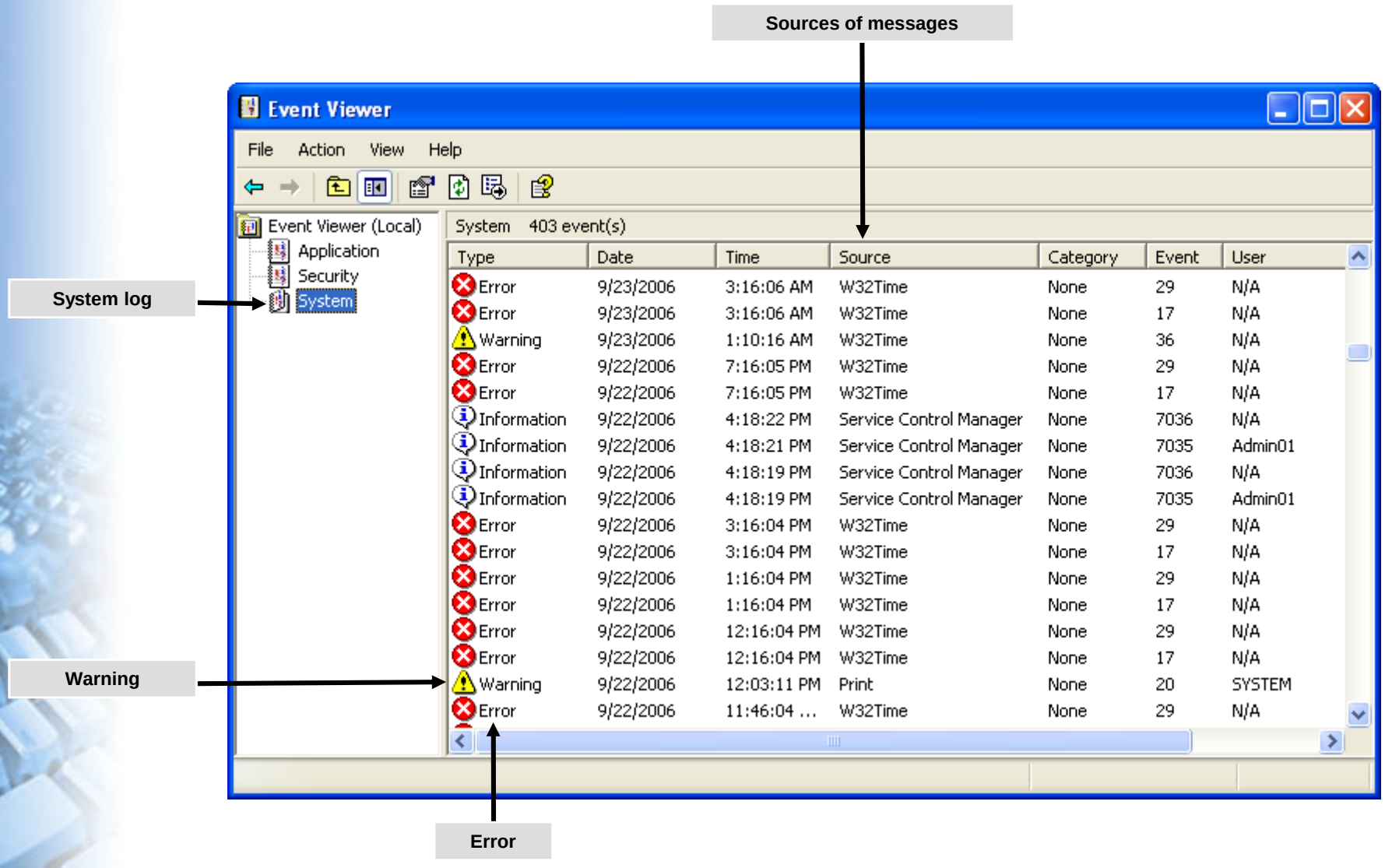
Boot Errors

- Common boot errors are:
  - POST errors
  - Invalid boot disk
  - Inaccessible boot device
  - Missing NTLDR
  - Other missing startup files
  - Device or service failed during startup
  - Device or program in registry not found

Error and Warning Messages in Event Viewer

- In Event Viewer, the structure of event log entries are:
  - Type
  - Source
  - Category
  - Event
  - User
  - Computer

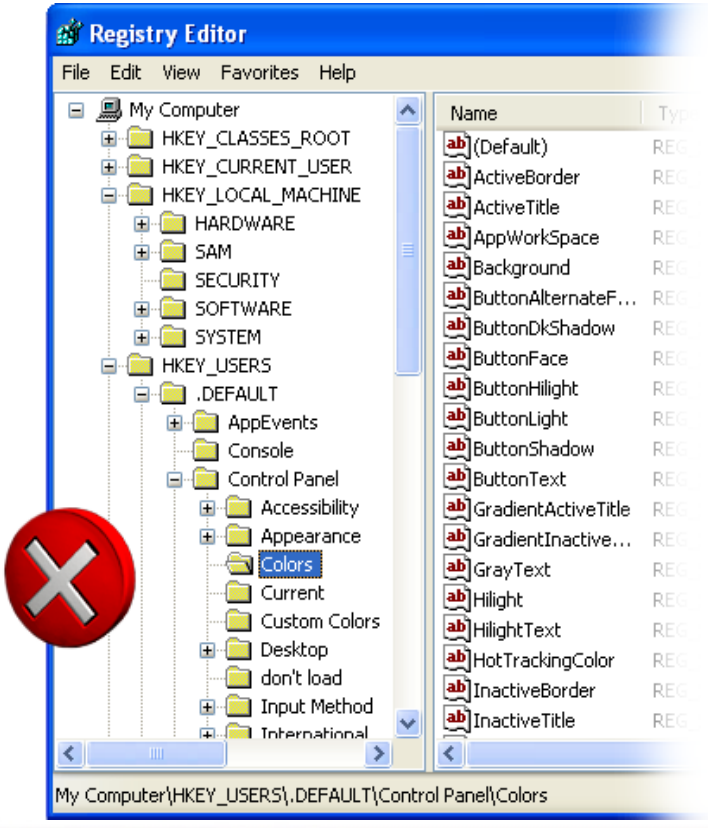
Error and Warning Messages in Event Viewer (Contd..)



Type	Date	Time	Source	Category	Event	User
Error	9/23/2006	3:16:06 AM	W32Time	None	29	N/A
Error	9/23/2006	3:16:06 AM	W32Time	None	17	N/A
Warning	9/23/2006	1:10:16 AM	W32Time	None	36	N/A
Error	9/22/2006	7:16:05 PM	W32Time	None	29	N/A
Error	9/22/2006	7:16:05 PM	W32Time	None	17	N/A
Information	9/22/2006	4:18:22 PM	Service Control Manager	None	7036	N/A
Information	9/22/2006	4:18:21 PM	Service Control Manager	None	7035	Admin01
Information	9/22/2006	4:18:19 PM	Service Control Manager	None	7036	N/A
Information	9/22/2006	4:18:19 PM	Service Control Manager	None	7035	Admin01
Error	9/22/2006	3:16:04 PM	W32Time	None	29	N/A
Error	9/22/2006	3:16:04 PM	W32Time	None	17	N/A
Error	9/22/2006	1:16:04 PM	W32Time	None	29	N/A
Error	9/22/2006	1:16:04 PM	W32Time	None	17	N/A
Error	9/22/2006	12:16:04 PM	W32Time	None	29	N/A
Error	9/22/2006	12:16:04 PM	W32Time	None	17	N/A
Warning	9/22/2006	12:03:11 PM	Print	None	20	SYSTEM
Error	9/22/2006	11:46:04 ...	W32Time	None	29	N/A

Registry Error Messages

- Common registry error messages are:
  - Stop errors or other errors
  - Registry access, value entries, or files
  - Maintain registry backups
  - Find errors in KnowledgeBase



Remote Diagnostic and Troubleshooting Tools

- Tools for remote diagnostic and troubleshooting are:
  - Remote Desktop
  - Remote Assistance

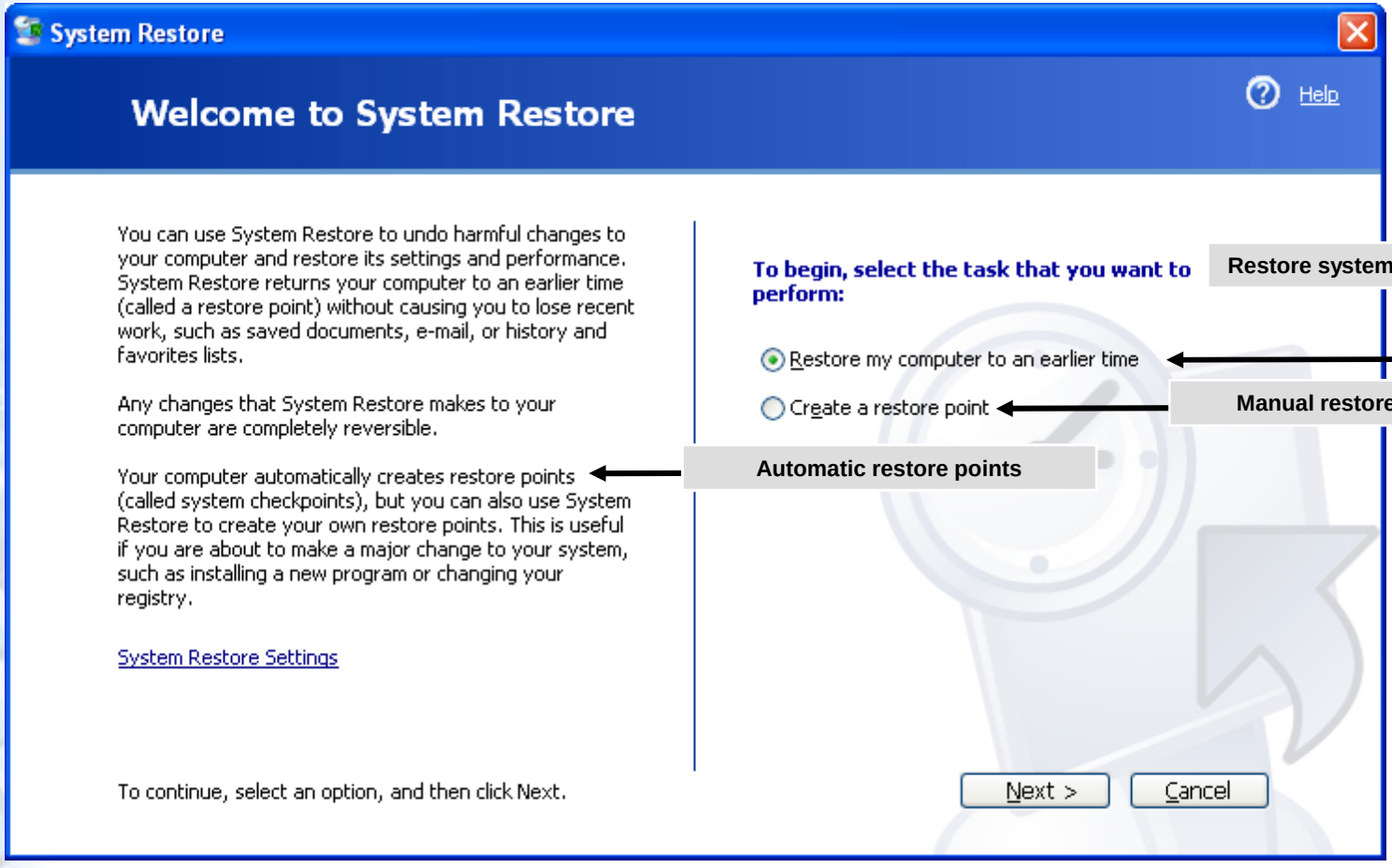
Recover Microsoft Windows

- For recovering Microsoft Windows, you need to understand following:
  - System restore
  - Safe mode
  - Last Known good
  - Recovery console
  - Windows boot disk
  - Automated System Recovery (ASR)
  - Repair installations
  - Windows system issues

System Restore

- The ***system restore*** utility monitors the system to make changes into:
  - Core system files
  - Drivers
  - Registries
- Type of restore points are:
  - Initial system checkpoints
  - System checkpoints
  - Program name installation
  - Auto update
  - Manually created
  - Restore operation
  - Unsigned device driver
  - Backup utility recovery

System Restore (Contd..)



Safe Mode

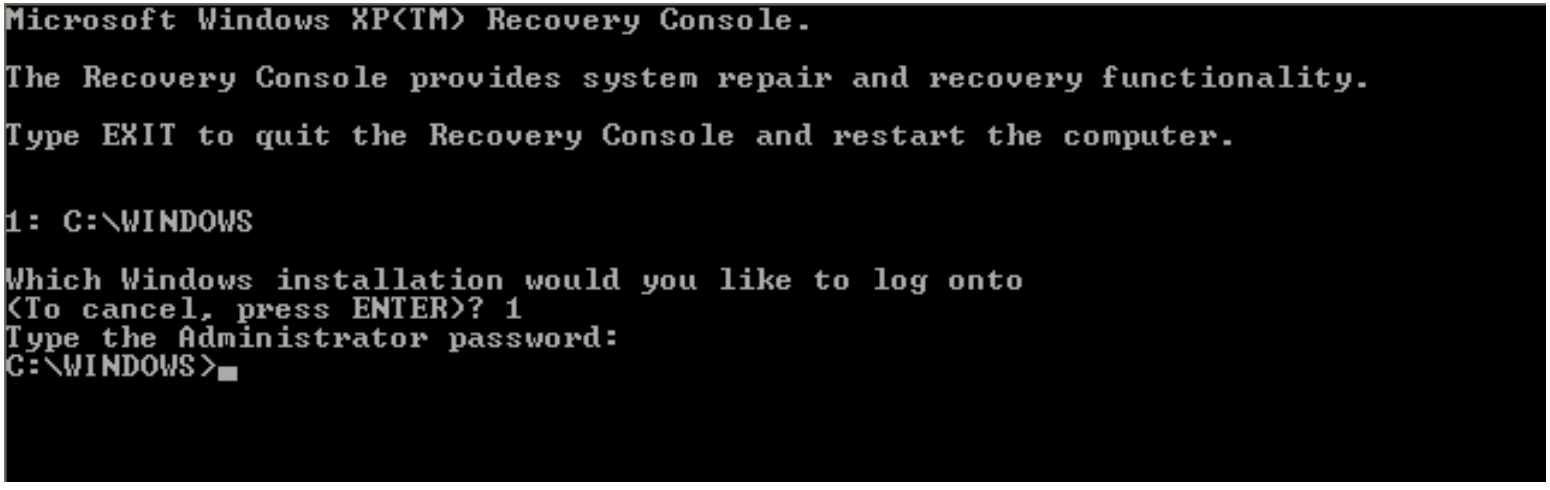
- The safe mode:
  - Is a Windows system startup method
  - loads only a minimal set of drivers and services
  - Omits non-critical items from boot sequence
- The safe mode boot options are:
  - Safe mode
  - Safe mode with networking
  - Safe mode with command prompt

Last Known Good

- Last Known Good is an advanced boot option.

Recovery Console

- The recovery console:
  - Is a minimal, administrative version of Windows
  - Helps manage files and disks
  - Helps correct boot problems
  - Helps enable and disable services



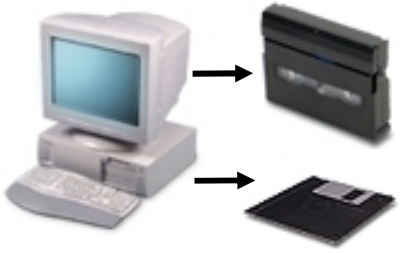
Windows Boot Disk

- A windows boot disk:
  - Starts system if key files are missing or damaged
  - Not a complete OS
- The Windows boot disk includes:
  - Boot.ini
  - Ntldr
  - Ntdetect.com
  - Bootsect.dos (if present)
  - Ntbootdd.sys, (if present)

Automated System Recovery (ASR)

- ASR helps rebuild a failed computer system.
- To perform ASR, you need:
  - Windows installation CD-ROM
  - ASR floppy disk,
  - ASR backup set

Automated System Recovery (ASR) (Contd..)



Prepare for ASR

System fails

1 Use Setup to launch ASR

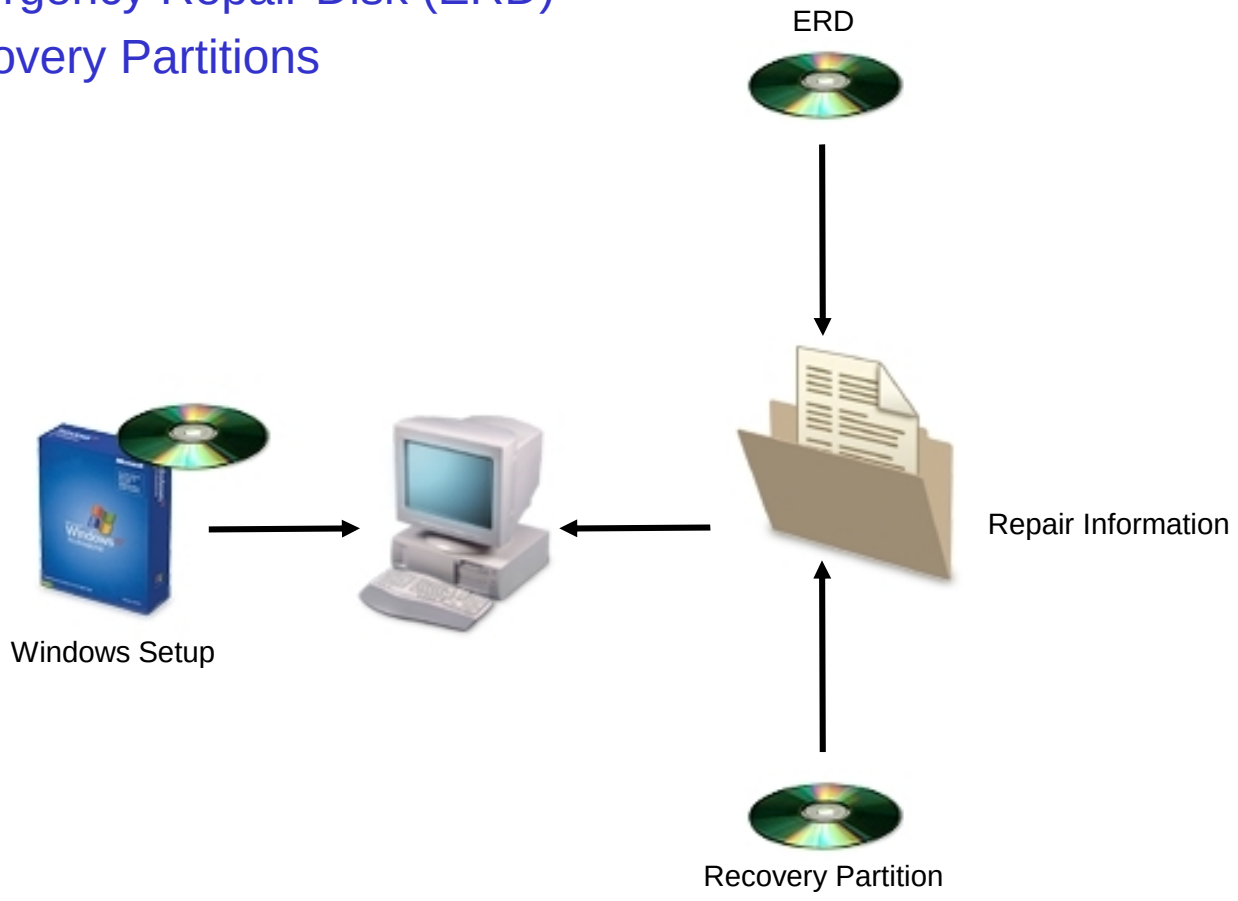
2 ASR floppy disk provides Setup Information

3 Setup installs OS

4 ASR backup set restores system configuration

Repair Installations

- For repair installation, you can use:
  - Emergency Repair Disk (ERD)
  - Recovery Partitions



Windows System Issues

- Windows system issues are:
  - General issues
  - Memory issues
  - Disk issues
  - CPU issues

Summary

- In this session, you learned that:
  - Operating system provides utilities for file, disk and system management.
  - For maintaining Microsoft Windows, you may use Windows backup utilities.
  - There are various types of errors, such as system stop errors and application errors.
  - For recovery Microsoft Windows, you may use system restore utilities.