CPSC 457
Operating Systems
Lecture 3
The Revenge of Hardware
The Concepts of Operating Systems

Last Time

The History of Operating Systems

A Hardware Refresher (from an OS perspective)

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This Time

The Revenge of Hardware
Device I/O
The Truth about Buses

Operating System Concepts
Booting   Address Space
Types of Operating Systems   Files and File Systems
Organization of OSs   System Calls
Processes

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I/O Devices

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Buses

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Types of Operating System

Tanenbaum's Zoo
Mainframe
Server
Personal Computer (Desktop)
Mobile
Embedded
Real-Time

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Organization of Operating Systems

Some Broad Categories

Monolithic

Layered

Microkernels

Modular

Hybrid

Virtual Machines

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Booting

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Processes

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Address Space

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Files and File Systems

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System Calls

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System Calls for Processes

UNIX	Win32	Description
fork	CreateProcess	Create a new process
waitpid	WaitforSingleObject	Wait for a process to exit
execve	--	Load instructions
exit	ExitProcess	Terminate execution

From MOS (pg 62)

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System Calls for Files

UNIX	Win32	Description
open	CreateFile	Create or open a file
close	CloseHande	Close a file
read	ReadFile	Read data from a file
write	WriteFile	Write data to a file
lseek	SetFilePointer	Move the File pointer
stat	GetFileAttributesEx	Get various file attributes

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System Calls for Directories

UNIX	Win32	Description
mkdir	CreateDirectory	Create a new directory
rmdir	RemoveDirectory	Remove an empty directory
link	--	Add a reference to a file
unlink	DeleteFile	Remove a reference to a file
mount	--	Add a device to the file system
unmount	--	Remove a device from the file system

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System Calls for Other Stuff

UNIX	Win32	Description
chdir	SetCurrentDirectory	Change the current working directory
chmod	--	Change the permission bits of a file
kill	--	Send a signal to a process
time	GetLocalTime	Get the current time

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