**Abstract**

This documentation serves to provide an overview and analysis of two operating systems: Windows and Linux. Comparisons will be drawn between the two focusing on the Kernel, API, File System, Memory management, and User Interface.

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# OS Kernel

## Windows

The Windows NT Kernel is proprietary, closed source software developed exclusively by Microsoft.

It is a type of hybrid kernel in the sense that it can work with both uniprocessor and symmetrical processors, and contains a hardware abstraction layer, as well as driver support built in.

The primary focus of the Windows NT Kernel is to start and configure the required device drivers when the system is booted. This is done ad-hoc, depending on what is needed. It then coordinates and controls the programmes that are run on the Windows operating system by acting as an intermediary to the controls and requests of the user applications and the underlying hardware.

The Windows NT Kernel is used only on Windows devices designed and developed by Microsoft.

## Linux

The Linux Kernel, in contrast to the Windows NT Kernel is open sourced and is developed by thousands of contributors around the world. In addition to this the Linux kernel is a monolithic type, meaning that the applications that run on it run on their own virtual address space.

The main difference between in user applications is that on the Linux Kernel, user applications have access directly to the kernel itself. On Windows this is not the case.

# Application Programming Interface

## Windows

## Linux

# File System

## Windows

## Linux

# Memory Management

## Windows

## Linux

Controlled by the kernel

# User Interface

## Windows

## Linux

# System Security

## Windows

## Linux

Address space – more secure

Kernel

# Error Management

## Windows

## Linux

# Performance

## Windows

## Linux

# User Suitability

## Windows

## Linux