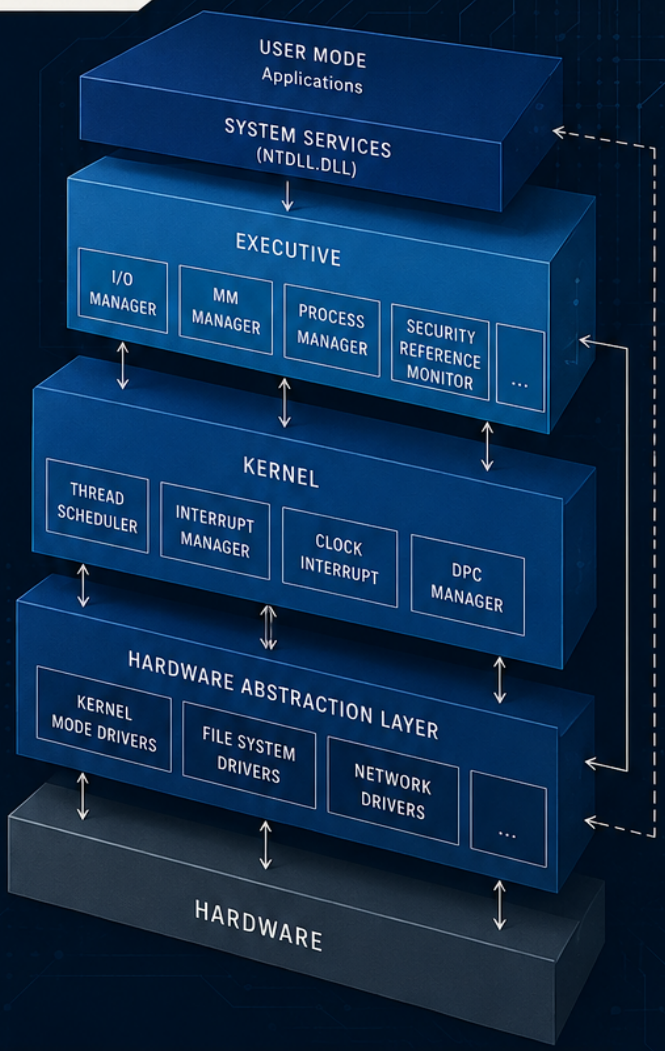
WINDOWS INTERNALS

ARCHITECTURE OF MODERN MICROSOFT OPERATING SYSTEMS

FROM BOOT TO SHUTDOWN

Kernel Design, Security, Virtualization, and Debugging in Windows 10, 11, and Server

- BOOT & INITIALIZATION
- KERNEL ARCHITECTURE
- MEMORY MANAGEMENT
- PROCESSES & THREADS
- I/O SYSTEM & FILE SYSTEMS
- SECURITY ARCHITECTURE
- VIRTUALIZATION
- DEBUGGING & DIAGNOSTICS
- EXPLOIT MITIGATIONS



JAKE SINOFSKY

Windows Internals: Architecture of Modern Microsoft Operating Systems

From Boot to Shutdown — Kernel Design, Security, Virtualization, and Debugging in Windows 10, 11, and Server

Steve T. Publications

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This version was published on 2026-07-09

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From Boot to Shutdown — Kernel Design, Security, Virtualization, and Debugging in Windows 10, 11, and Server

About this book: Modern Windows is the most widely deployed desktop operating system in the world, yet its internals remain opaque to all but a small community of kernel developers, security researchers, and systems programmers. This book bridges that gap. It provides a comprehensive, technically rigorous treatment of the Windows NT kernel architecture from power-on through shutdown, covering the boot process, kernel initialization, memory management, process and thread scheduling, I/O subsystem, file systems, security architecture, virtualization technologies, debugging tools, and modern exploit mitigations. Every chapter includes annotated code snippets, data structure layouts, WinDbg debugging sessions, practical experiments, and comparisons with Linux where illuminating. This book is intended as a graduate-level textbook and professional reference for operating system developers, systems programmers, security researchers, reverse engineers, malware analysts, digital forensics practitioners, and advanced computer science students.

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