

Unit OSB: Comparing the Linux and Windows Kernels

B. Quiz

Windows Operating System Internals - by David A. Solomon and Mark E. Russinovich with Andreas Polze

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Kernel Architecture

Windows has what type of kernel architecture?

- a) Microkernel
- b) Modified-Monolithic
- c) Monolithic
- d) Modular microkernel

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Linux Tasks

The Windows equivalent of a Linux task is:

- a) Thread
- b) Process with no threads
- c) Process with one thread
- d) Task

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Scheduling Priorities

The Linux equivalent of the Windows “real time” priority range is:

- a) Normal
- b) Fixed FIFO
- c) Fixed Round Robin
- d) Both (b) and (c)

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Linux/Windows Differences

Which of the following is true for Linux, but not for Windows:

- a) Uses form of the “clock” working set management algorithm
- b) Supports more than 64 processors
- c) Supports 4/4 virtual address mode
- d) Both c and d
- e) None of the above

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Scheduler

Which of the following are differences between the Windows scheduler and Linux scheduler?

- a) Biases scheduling decisions against processes with many threads
- b) Performs load balancing in SMP scheduling
- c) Maximum timeslice is less than 200ms
- d) Has fixed and dynamic priority ranges

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Linux Features

Which of the following do not apply to Linux?

- a) Fully asynchronous I/O
- b) Re-entrant kernel
- c) Pre-emptible kernel
- d) Has an $O(n)$ scheduler

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SendFile/TransmitFile

The SendFile API in Linux and TransmitFile API in Windows provide for:

- a) Wake-one semantics
- b) One-copy network I/O
- c) Zero-copy network I/O
- d) Thundering herd semantics

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CriticalSection/Futex

The difference between a Windows Critical Section and Windows Futex is:

- a) Futexes always transition to kernel mode
- b) Futexes have prioritized waits
- c) CriticalSections have prioritized waits
- d) Critical sections work across processes

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