

Standard way: *monolithic kernel*:

Only two levels: user mode and kernel mode  
All kernel code executed in kernel mode with full privileges

Example: Linux

Idea: Restrict amount of code running in kernel mode to minimum  
⇒ Implement remainder of OS as services

At bottom: have microkernel with functions like

- Memory Management
- Scheduling
- Low-level device drivers

Higher-level parts like filesystems implemented in user space

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*Communication between parts of OS*

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Message passing used  
Often combined with capabilities for good permission handling  
⇒ Efficient message passing vital for performance

Message passing lends itself to asynchronous communication  
⇒ bad for implementing Unix system calls  
Suitable for embedded systems, in particular special real-time OS