



Jiří Činčura (www.tabsoverspaces.com)

Mastering asynchronous code, threading and parallelism

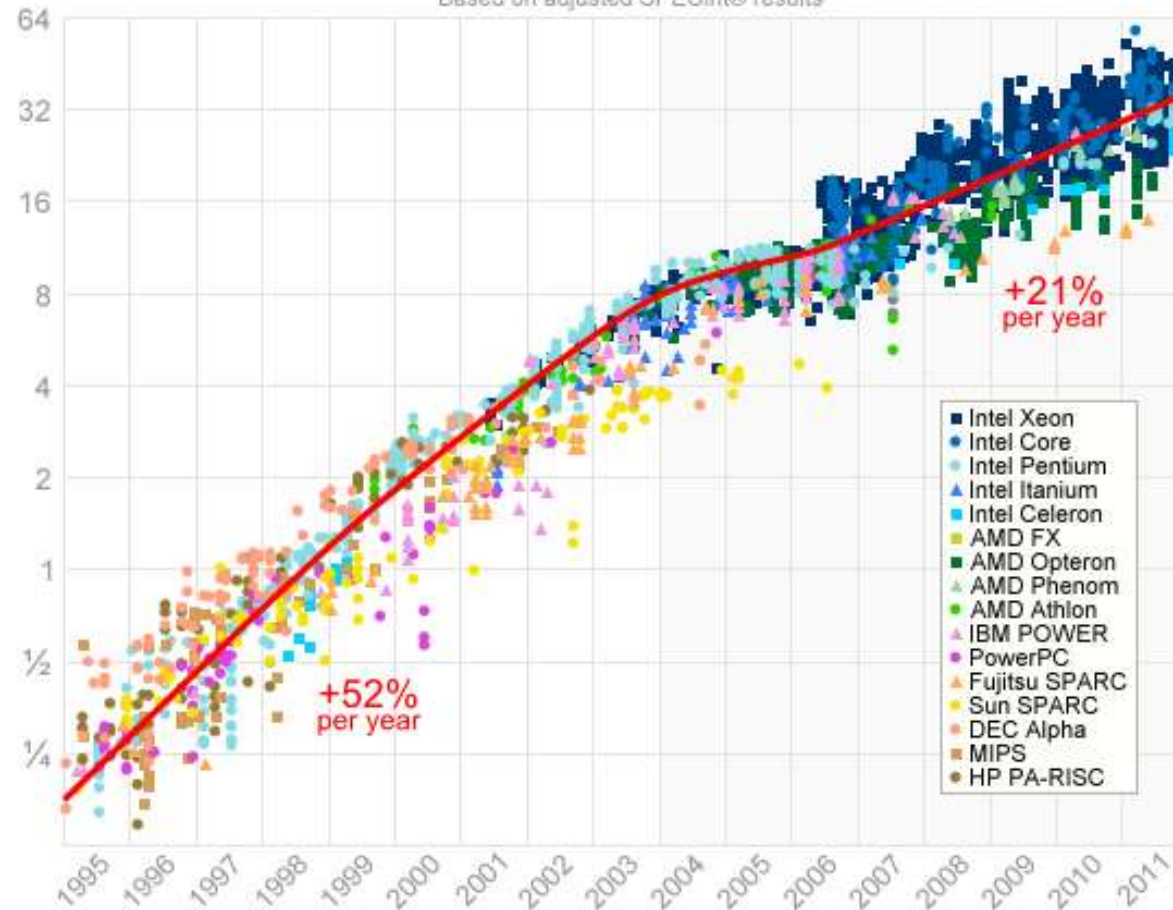
About

- Senior software engineer @ Microsoft, .NET/performance
- Speaker, blogger, ...
- <https://www.taboverspaces.com/about>

- <https://www.tabsoverspaces.com/notes/threading>

Single-Threaded Integer Performance

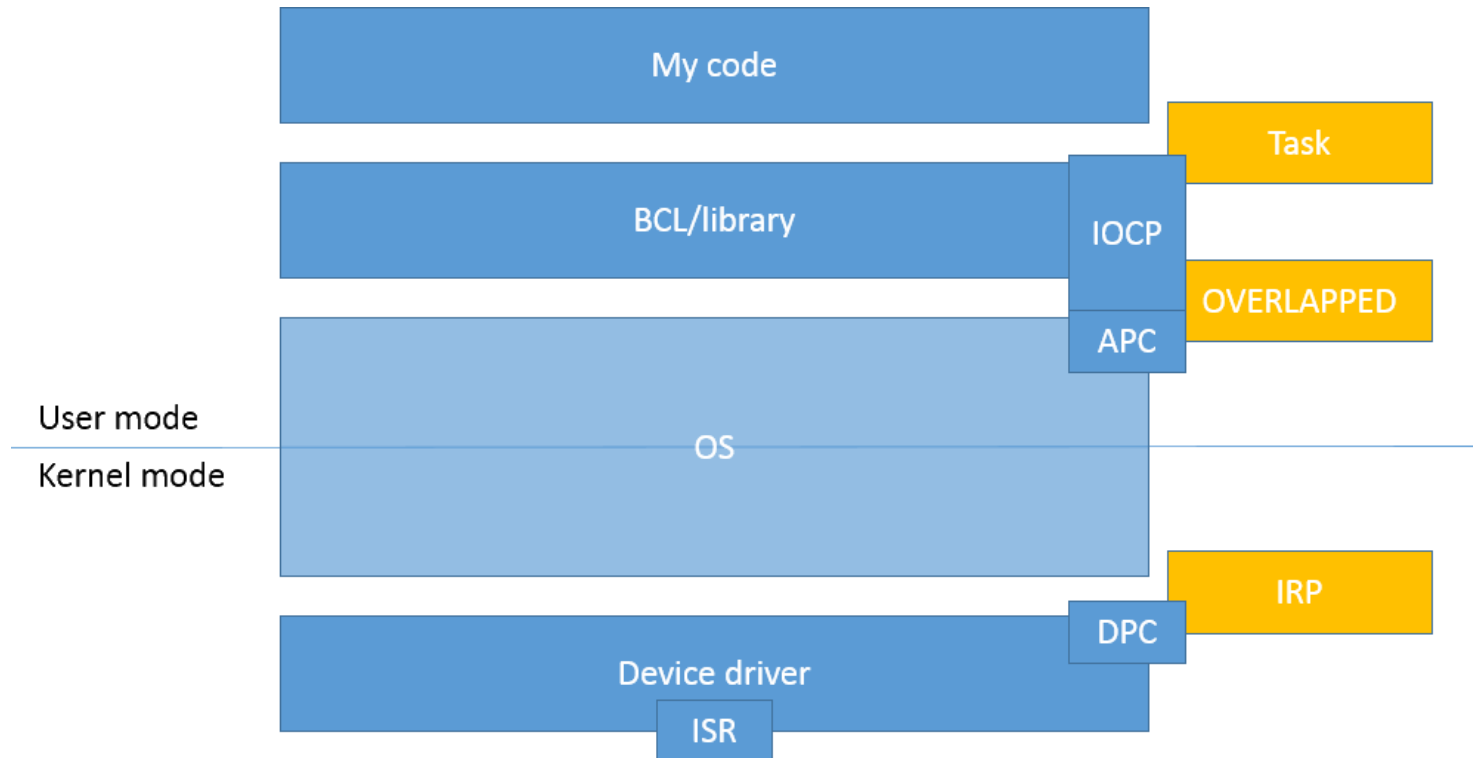
Based on adjusted SPECint® results



Zdroj: preshing.com

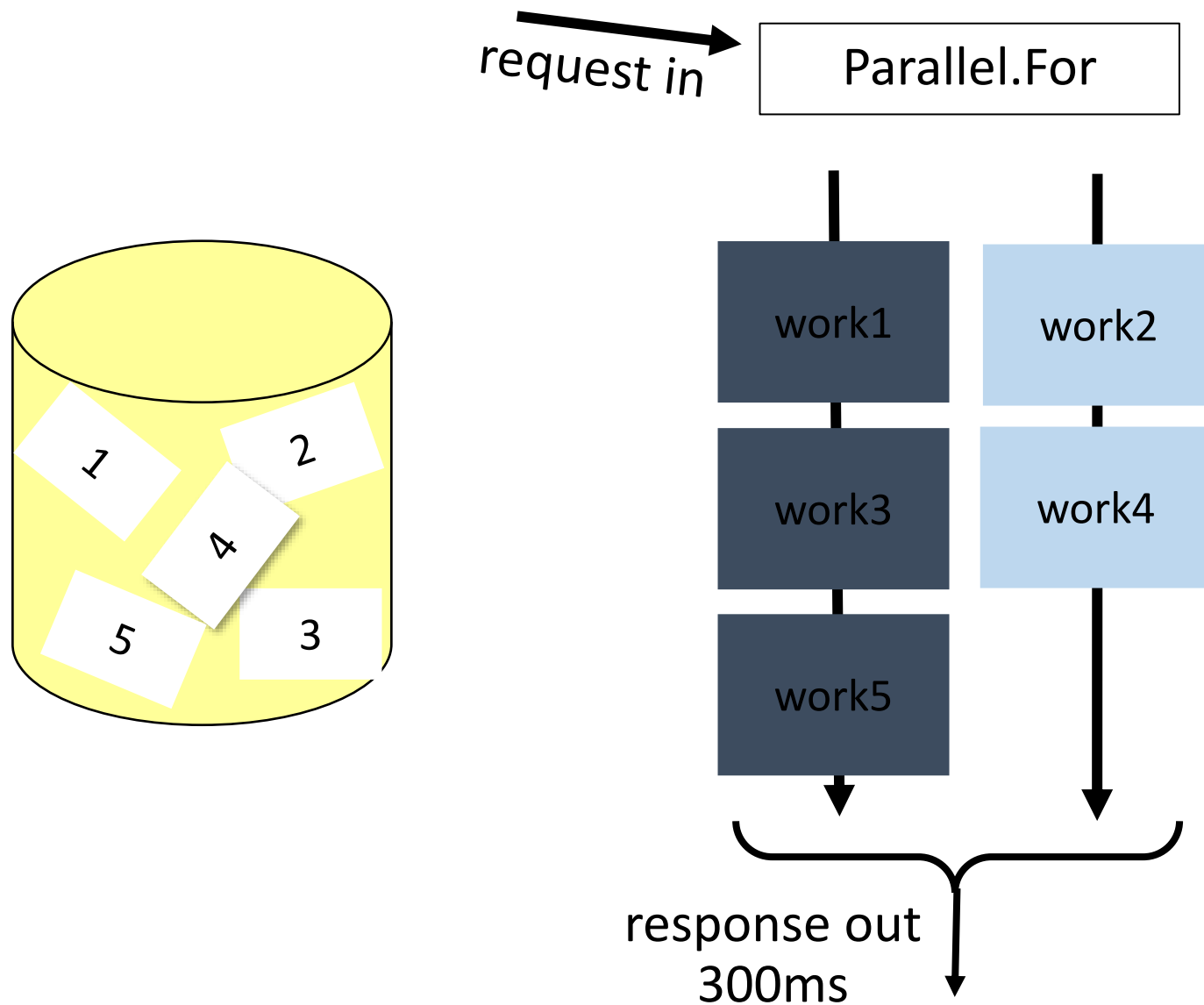
- Vlákna jsou drahé objekty
 - Vytvoření, zrušení
 - 200 000 cyklů vytvoření, 100 000 zrušení
- Thread kernel object
 - Vlastnosti vlákna
- Thread environment block
 - Exception-handling chain, TLS, GDI/OpenGL
- User-mode stack
 - 1MB, .NET FW <4.8 committed
- Kernel-mode stack (12KB/24KB)
- DLL attach/detach notifikace

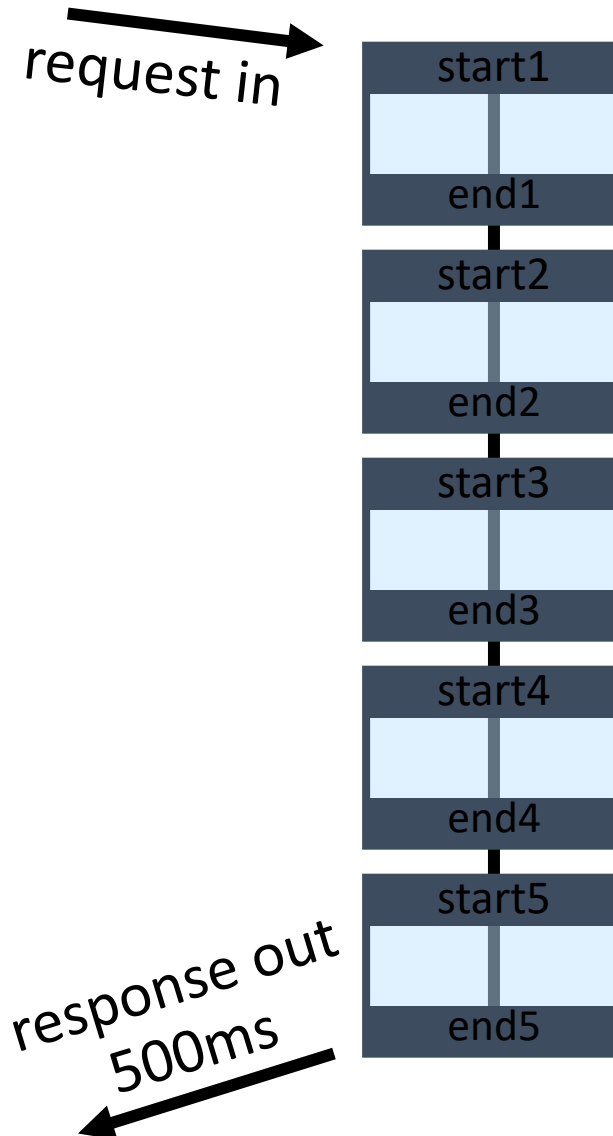
- V systému mnoho vláken
 - Nejlepší vlákna = počet CPU
 - Většina vláken nic nedělá
- Context switching
 - 6000-8000 cyklů
- CLR vlákna mapována na Windows vlákna



```
public List<Something> LoadSomething()
{
    var result = new List<Something>();
    for (int i = 1; i <= 5; i++)
    {
        Something s = Something.LoadFromNetwork(id: i);
        result.Add(s);
    }
    return result;
}
```







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