Performance em .NET

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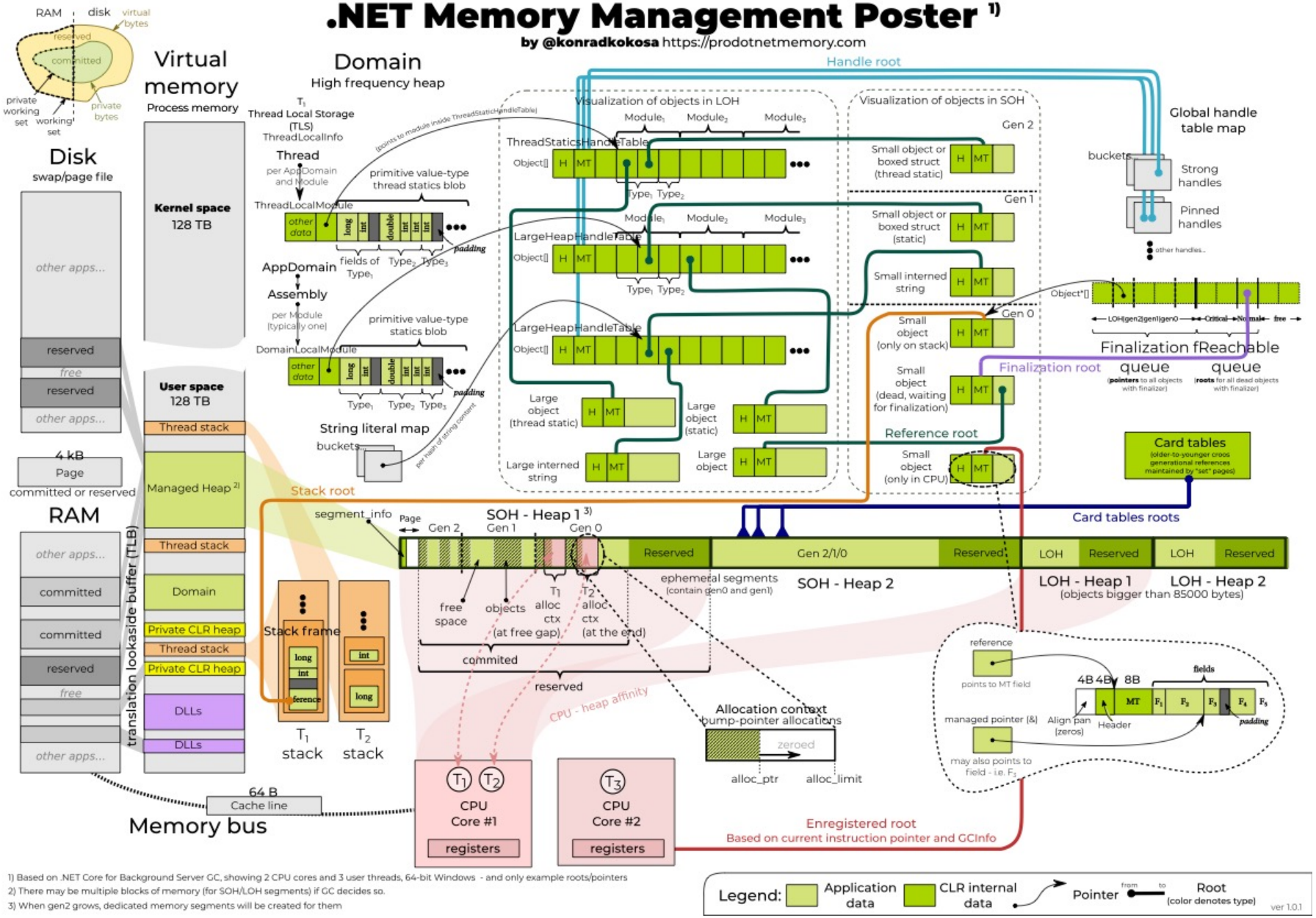
Agenda

- *Tuning* Sistemático – Medir, avaliar, melhorar, aprender
- GC – Garbage Collector
- RTFM – Estude a documentação do .NET!
- Show me the code
  - *Strings*
  - Serialização
  - *Logging*
- Referências

O *tuning* sistemático consiste em:

1. Avalie o problema e estabeleça indicadores **numéricos** que categorizam um comportamento aceitável.
2. **Meça a performance do sistema antes da modificação.**
3. Identifique a parte do sistema que é crítica para melhoria de performance. Isso é chamado de **bottleneck** (gargalo).
4. Modifique a parte do sistema para remover esse *bottleneck*.
5. Meça a *performance* do sistema após a modificação.
6. Se a modificação fez a *performance* melhorar, adote-a. Se a modificação fez a *performance* piorar, deixe como estava.

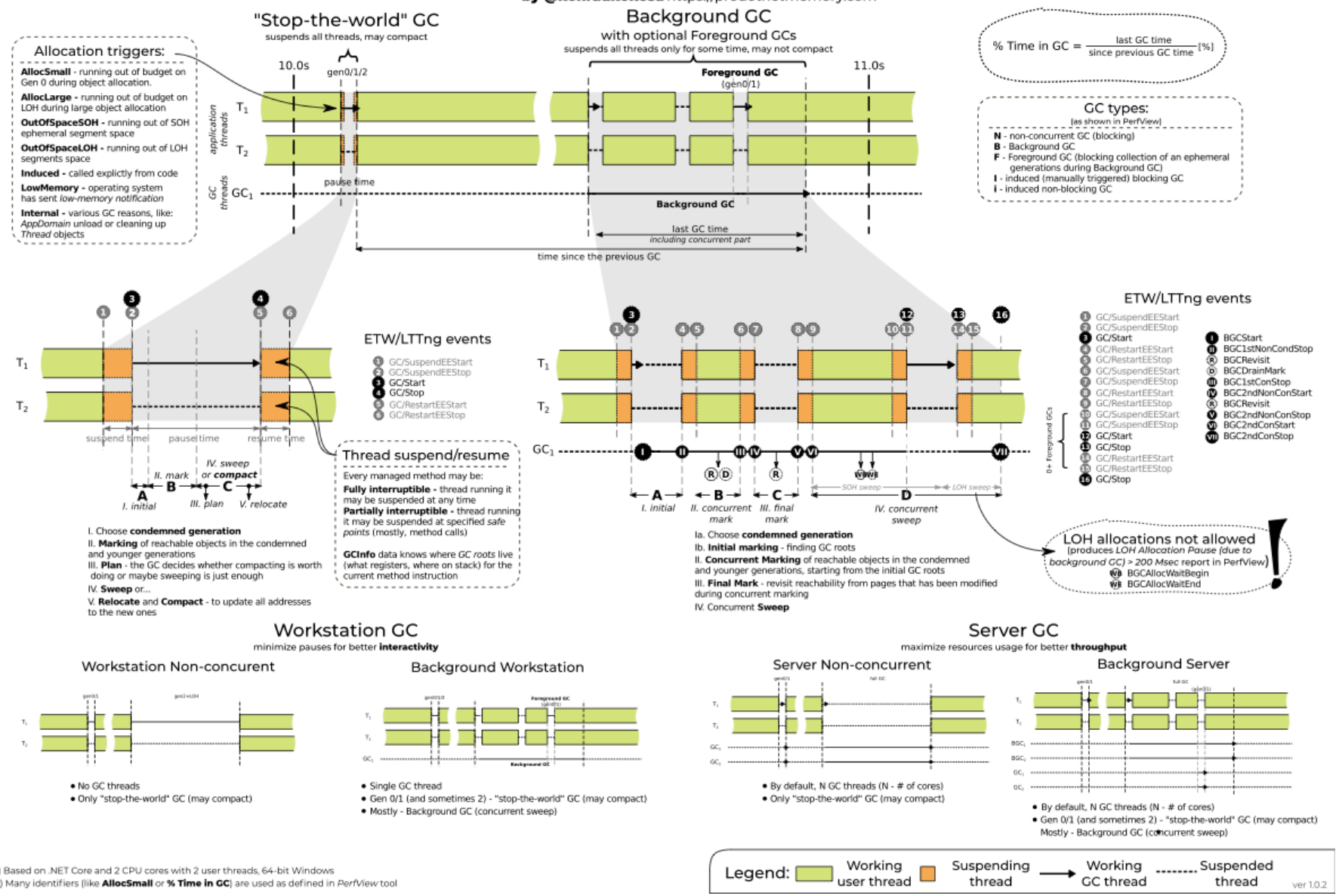
Fonte: https://en.wikipedia.org/wiki/Performance_tuning



Fonte: https://prodotnetmemory.com/

.NET Memory Management Poster II [1)2)]

by @konradkokosa https://prodotnetmemory.com



Fonte: https://prodotnetmemory.com/

RTFM – Estude a documentação do .NET!

1. https://learn.microsoft.com/en-us/dotnet/
2. https://learn.microsoft.com/en-us/dotnet/framework/performance/performance-tips
3. https://learn.microsoft.com/en-us/aspnet/core/performance/performance-best-practices

Show me the code!

Strings, Serialização, *Logging,...*

Referências – Blogs

Adam Sitnik
.NET Performance and Reliability
https://adamsitnik.com/

Maoni Stephens
Garbage collection and Memory
https://devblogs.microsoft.com/dotnet/author/maoni/

Stephen Toub
Async and Threads
https://devblogs.microsoft.com/dotnet/author/toub/

Referências – Livros

Pro .NET Memory Management

https://prodotnetmemory.com/

by Konrad Kokosa

Writing High-Performance .NET Code

https://www.writinghighperf.net/

by Ben Watson

C# in Depth

https://csharpindepth.com/

by Jonathan Skeet

Pro .NET Benchmarking

https://www.oreilly.com/library/view/pro-net-benchmarking/9781484249413/

by Andrey Akinshin

https://www.oreilly.com/library/view/pro-net-performance/9781430244585/

by Sasha Goldshtein, Ido Flatow, Dima Zurbalev

Pro Asynchronous Programming with .NET

https://www.oreilly.com/library/view/pro-asynchronous-programming/9781430259206/

by Richard Blewett, Andrew Clymer

Concurrency in .NET

https://www.oreilly.com/library/view/concurrency-in-net/9781617292996/

by Riccardo Terrell

Effective C#

https://www.oreilly.com/library/view/effective-c-50/9780134579290/

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CLR via C#

https://www.oreilly.com/library/view/clr-via-c/9780735668737/

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Windows Internals Seventh Edition Part 1

https://www.oreilly.com/library/view/windows-internals-seventh/9780133986471/

by Pavel Yosifovich, Alex Ionescu, Mark E. Russinovich, David A. Solomon

Concurrency in C# Cookbook

https://www.oreilly.com/library/view/concurrency-in-c/9781492054498/

by Stephen Cleary