DOT NET MLG

enas prácticas

Para un código impecable

Verisk

SECTOR ALARM

prodware

LEMONCODE

METADEV

plain concepts

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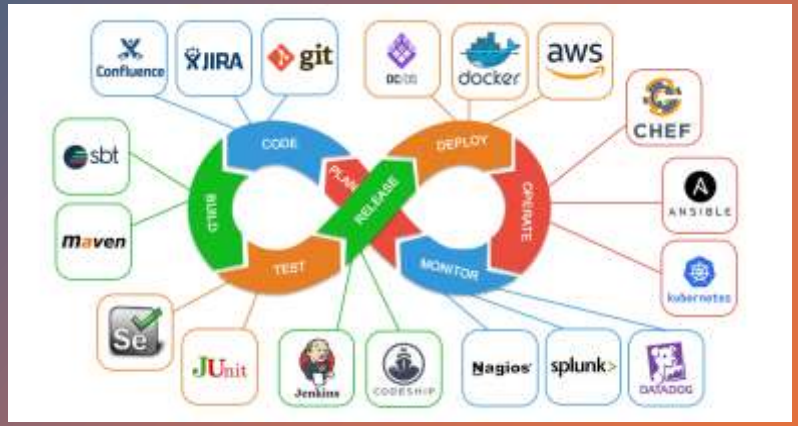
Buenas prácticas

- ¿Son posibles en la metodología actual?
- Visual Studio Performance Profile
- Tipos de tools disponibles
- ¿Por qué ahora?
- Demo
- Dudas y preguntas

Saturación
Estrés
Plazos de entrega



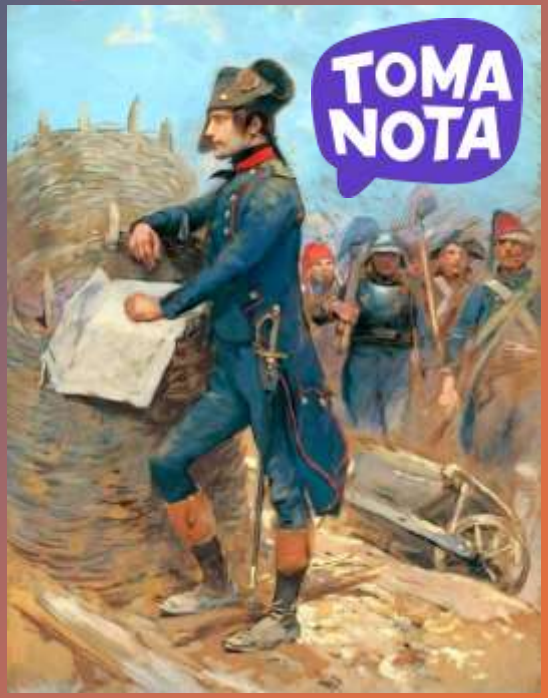
¿Son posibles?

- Developers: *"Lo hago así y ya lo arreglaré"*
- Project Manager: *"Me actualizas el estado, cómo vas, tenemos desviación"*
- Arquitecto: *"Vamos a tener que escalar Azure SQL, porque nos quedamos sin RUs y la memoria está petada"*
- Account Manager: *"Aqui pasa algo raro, le vendimos al cliente un plan S3 y se le esta quedando corto"*

Deben ser
Un must

Son necesarias

Deben ser
Un must



Preveemos el uso

- Asignaciones de objetos en memoria
- Bloqueos en llamadas, por clausulas Sync
- Reserva de objetos en compilación
- Boxing o Unboxing ineficaces
- Inicialización de objetos
- Db queries innecesarias
- Manipulaciones de cadenas

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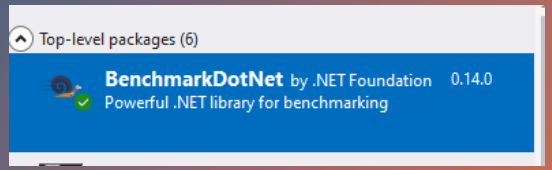
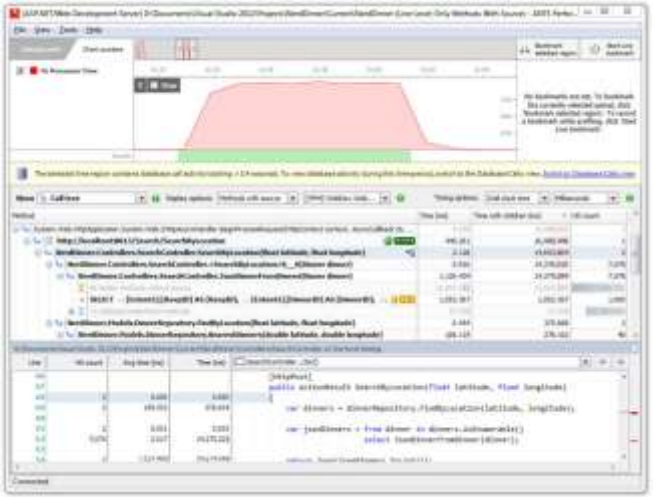
Performance Profile

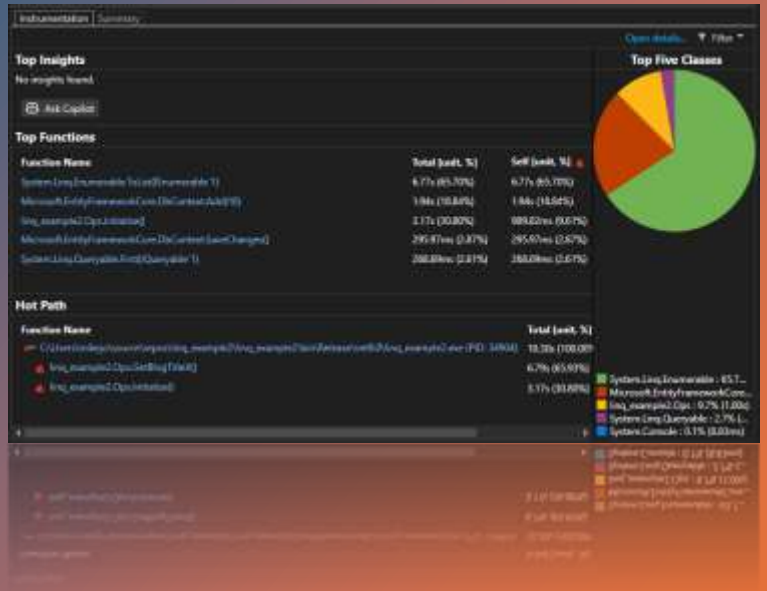



```
using BenchmarkDotNet.Attributes;
using BenchmarkDotNet.Running;
using DataBases;
using DataBases.Context;
using Microsoft.EntityFrameworkCore;


[ShortRunJob]
[MemoryDiagnoser]
public class DatabaseBenchmark
{
    private AppDbContext _context;

    public DatabaseBenchmark()
    {
        _context = new AppDbContext();
    }

    [Benchmark]
    public async Task MeasureCustomerQueryNOPerformance1()
```



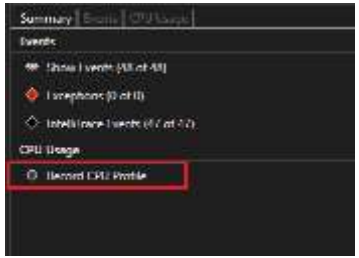
```
// * Summary *

BenchmarkDotNet v0.14.0, Windows 11 (10.0.22631.4460/23H2/2023Update/SunValley3)
AMD Ryzen 9 5900X, 1 CPU, 24 logical and 12 physical cores
.NET SDK 9.0.100
  [Host]     : .NET 8.0.11 (8.0.1124.51707), X64 RyuJIT AVX2 [AttachedDebugger]
  ShortRun   : .NET 8.0.11 (8.0.1124.51707), X64 RyuJIT AVX2

Job=ShortRun  IterationCount=3  LaunchCount=1
WarmupCount=3

| Method | Mean     | Error    | StdDev   | Gen0   | Allocated |
|------- |--------- |--------- |--------- |------- |---------- |
| Test   | 10.19 ns | 11.04 ns | 0.605 ns | 0.0057 |      96 B |

// * Warnings *
Environment
  Summary -> Benchmark was executed with attached debugger

// * Legends *
  Mean      : Arithmetic mean of all measurements
  Error     : Half of 99.9% confidence interval
  StdDev    : Standard deviation of all measurements
  Gen0      : GC Generation 0 collects per 1000 operations
  Allocated : Allocated memory per single operation (managed only, inclusive, 1KB = 1024B)
  1 ns      : 1 Nanosecond (0.000000001 sec)

// * Diagnostic Output - MemoryDiagnoser *


// ***** BenchmarkRunner: End *****
Run time: 00:00:07 (7.76 sec), executed benchmarks: 1

Global total time: 00:00:15 (15.91 sec), executed benchmarks: 1
// * Artifacts cleanup *
Artifacts cleanup is finished
```

Tipos de Profile Tools



Available Tools

- .NET Async
  Tool to investigate async/await usage in .NET applications
- .NET Counters
  Tool to visualize performance counters in .NET applications
- .NET Object Allocation Tracking
  See where .NET Objects are allocated and when they are reclaimed by the GC
- CPU Usage
  See where the CPU is spending time executing your code. Useful when the CPU is the performance bottleneck
- Database
  Examine when queries were executed and measure how long they take
- Events Viewer
  See the events (ETW or NetTrace) that occurred during the session, such as log messages, exceptions and HTTP requests
- File IO
  See what File I/O operations are being performed, how long they take, and how much data they're processing
- Instrumentation
  See precise timing and call counts of functions in your code
- Memory Usage
  Investigate application memory to find issues such as memory leaks



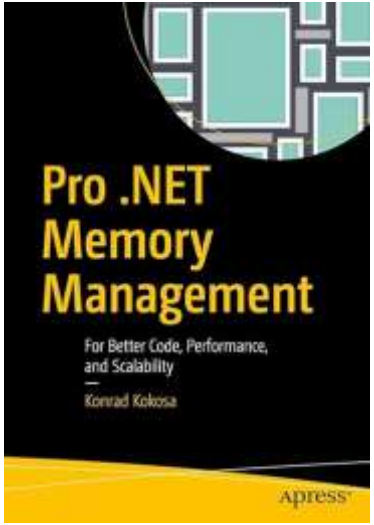
¿Por qué ahora?

- Salimos de un periodo de microprocesadores potentes a nivel OnPremise
- 80% de los procesos son Cloud
- No cumplir buenas prácticas supone rascarse el bolsillo a la larga
- Docker & Microservices
- Copilots
- ¿Más capacitación profesional?

DEMO TIME

Recursos

https://learn.microsoft.com/en-us/samples/dotnet/samples/performance-allocations/
https://learn.microsoft.com/en-us/dotnet/csharp/advanced-topics/performance/
https://learn.microsoft.com/en-us/aspnet/core/performance/overview?view=aspnetcore-9.0



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EL EVENTO SOBRE

TECNOLOGÍAS CLOUD, WEB Y DATA

Gracias

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