

Day 56/60 - Must-Know Features in .NET 9

.NET 9 brings several performance improvements, new APIs, and enhanced developer tools. Here are some key updates.

1. Profile-Guided Optimization (PGO) by Default

.NET 9 enables dynamic PGO, optimizing method execution based on runtime usage without manual intervention.

2. Built-In Rate Limiting Middleware

.NET 9 enhances rate-limiting middleware, making it easier to control API request limits.

```
app.UseRateLimiter(new RateLimiterOptions
{
    GlobalLimiter = PartitionedRateLimiter.CreateFixedWindow(10, TimeSpan.FromSeconds(1))
});
```

3. Enhanced JSON Serialization

The System.Text.Json library now supports:

- Faster serialization/deserialization.
- Custom converters improvements.
- Stream-based JSON parsing for large payloads.

4. Improved Native AOT (Ahead-of-Time Compilation)

- Smaller executables with improved startup performance.
- Less memory usage, making .NET more efficient for cloud apps and microservices.

5. Web API Performance Enhancements

- Reduced JSON serialization overhead.
- Minimal API improvements for faster request handling.

6. Better Observability with OpenTelemetry

- .NET 9 integrates OpenTelemetry for distributed tracing.
- Easier monitoring of microservices and cloud-based applications.

Why .NET 9 Matters?

With .NET 9, Microsoft is focusing on performance, efficiency, and developer productivity.

What are your thoughts on .NET 9? Which feature excites you the most?

#dotnet #csharp #dotnet9 #performance #microservices