|  |  |  |  |
| --- | --- | --- | --- |
|  | **DotTrace** | **ANTS Performance profiling** | **Visual Studio** |
| **Price** | <https://www.jetbrains.com/resharper/buy/#commercial?billing=yearly> | <https://www.red-gate.com/products/dotnet-development/ants-performance-profiler/> | Free (integrated in VS) |
| **Profiling local app** | + | + | + |
| **Profiling remote app on another server** | - dotTrace on local machine  - remote agent running on a server | - | - |
| **. NET support** | + | + | + |
| **Profile .NET Core Application** | + | + | + |
| **Profile WCF service** | + | + | + |
| **IIS** | + | + | * (can`t be used in LTA since LTA IIS hosted) |
| **IIS express** | + | + | + |
| **Integrated with VS** | + | + | + |
| **Different modes** | **Sampling mode** – for first run to find performance issue  **(**<https://www.jetbrains.com/help/profiler/Profiling_Guidelines__Choosing_the_Right_Profiling_Mode.html>**)**  **Tracing mode –** for more detailed info about methods time and call number measurement (<https://www.jetbrains.com/help/profiler/Profiling_Guidelines__Choosing_the_Right_Profiling_Mode.html>)  **Timeline mode –** records application events and writes data about how application state changed during the profiling session **(**<https://www.jetbrains.com/help/profiler/Concurrency_Profiling_Timeline_.html>**)** | Some profiling modes are only available in ANTS Performance Profiler Professional edition.  <https://documentation.red-gate.com/app8/setting-up-and-running-a-profiling-session/choosing-a-profiling-mode>  **Line-level and method-level timings** - records profiling results for every line of code and gives the most detailed results identify exactly which line of code is causing the performance problem.  **Method-level timings** - It records how many times each of these methods is hit but not how long it takes to execute each line within the methods. Line-level and method-level timings - profiles only methods that you have source code for, or methods from code that has already been decompiled |  |
| **Hot spots analyzing** | + | + |  |
| **.Net Memory allocation profiling** | + | - |  |
| **Garbage Collector profiling** | + | - |  |
| **File Operation** | + | + | - |
| **SQL Queries** | + (client side) | + |  |
| **Incoming HTTP Requests** | + | + |  |
| **Go to source code** | + | + |  |
| **Async calls analyzing** | + | + |  |
| **Compare snapshots** | + | - |  |
| **Profile Unit tests (help to focus on specific code pats)** | + | - |  |
| **Documentation coverage** | + (very detailed + video) | + | + |

**Lessons learning**

|  |  |
| --- | --- |
| dottrace`s Filters and features used for profiling in LTA performance tests |  |
| remote profiling | <https://www.jetbrains.com/help/profiler/Starting_Remote_Profiling_Session.html> was used for Profiling performs tests in LTA |
| Profile stand allone application | <https://www.jetbrains.com/help/profiler/Profile_Standalone_Application.html> was used for Profiling performs tests in LTA |
| Tracing mode and comparing snapshots | <https://www.jetbrains.com/help/profiler/Profiling_Guidelines__Choosing_the_Right_Profiling_Mode.html>  <https://www.jetbrains.com/help/profiler/Studying_Profiling_Results__Comparing_Profiling_Data.html>  this possibility allowed us to find out that the number of the method`s calls was significantly different |
| timeline mode | <https://www.jetbrains.com/help/profiler/Studying_Profiling_Results__Index.html>  allowed to analyze call stack of the method that was called more times than in previous LTA version |
| Hot spots analyzing | <https://www.jetbrains.com/help/profiler/Studying_Profiling_Results__Hot_Spots.html>  allowed to analyze call stack and find the method that performed for longest time |
| Filtering by thread state | <https://www.jetbrains.com/help/profiler/Thread_State.html>  used for defining locked “places” |
| Analyzing Incoming HTTP Requests | <https://www.jetbrains.com/help/profiler/HTTP_Requests.html> Used to find the methods that run slowly when web application communicated with a number of external resources. |
| folding calls | <https://www.jetbrains.com/help/profiler/Folding_Calls.html> used for recursion to summarize call times |
|  |  |
| Forecasting | <https://www.jetbrains.com/help/profiler/Forecasting_Performance_Timeline.html> used to predict performing times if method excluded |
| back trace | <https://www.jetbrains.com/help/profiler/Studying_Profiling_Results__Back_Traces.html> used for inverting call tree |
| preview source code | <https://www.jetbrains.com/help/profiler/Reference__Dialog_Boxes__Options__Decompiler.html>  <https://www.jetbrains.com/help/profiler/Studying_Profiling_Results__Previewing_Source_Code.html> |