

PERFORMANCE TUNING

Based on comprehensive analysis of architecture, design, and implementation of an application and system, IPCS Group methodically improves its performance and scalability up to the desired levels.

The problem

When a complex distributed software system (for example, a multi-tier Web application) does not meet its business-critical performance requirements, the next step - improvement of its performance - often turns into a whole sub-project. The more developed the system is at such point, the more difficult it can be to achieve performance improvement quickly and inexpensively. Sometimes the situation can be even more dramatic: with all functionality already in place, the system just "does not want" to perform well enough, no matter how much hardware power is made available to it.

Comprehensive performance testing is merely a first step toward the solution. No matter what the system does, how it's written or what platform it's running on, the basic principles of test management are the same. It begins with gathering and documenting the testing requirements; continues through designing and developing tests; running the tests — both manual and automated, functional and load — and analyzing application defects. The testing process is not linear, and naturally it differs depending on each organization's needs.

Any bottleneck exposed by performance testing usually boils down to some hardware resource (RAM, CPU, disk I/O throughput, or network bandwidth) being exhausted. However, the seemingly obvious remedy - to upgrade the throttling hardware - does not always work. The real questions that should be raised at this point are:

- Is the software system *optimized*? Does it use the currently available hardware resources in the most effective way?
- Is the software system *scalable*? Is it capable to take advantage of additional hardware resources to improve its current performance under the same load?

Finding answers on these questions is not an easy task, especially for distributed software systems that consist of many interoperating components - starting from your own code and ending with such commonly used components as Web servers, database servers, libraries, device drivers, and so on and so forth. And when the answer on any of these questions happens to be "no", the next challenge is to find the best way to improve the situation - to optimize some components or to rewrite others to make them scalable.

If you acknowledge the problem, but your development team does not have either time or enough experience required to find the optimum solution, our Professional Testing Services can help you pull your project out of the critical state quickly and with minimum expenses.

The solution

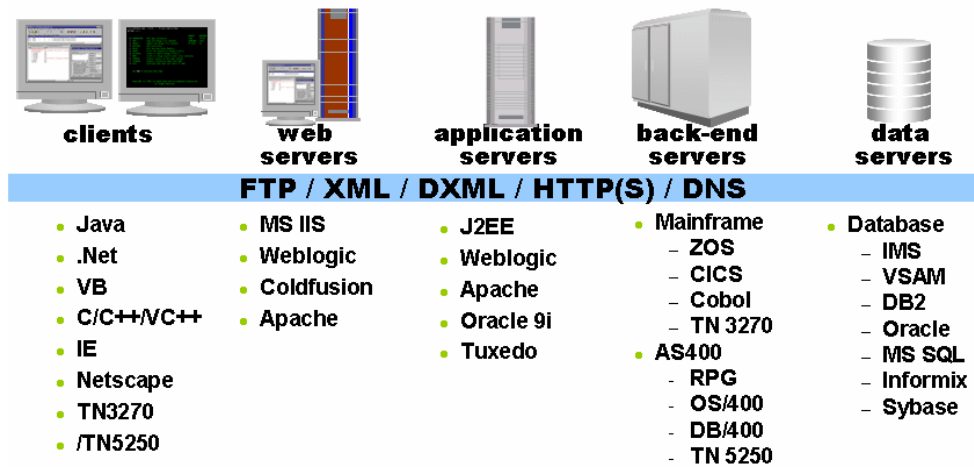
Performance improvement process conducted by us is iterative. Generally it consists of step-by-step detection, analysis, and elimination of performance bottlenecks. At each step, we consider different ways to remove a given bottleneck and, taking into account all important project's constraints (such as timeline and budget), choose the optimum solution.

The solutions we may recommend and implement include:

- Tuning operating system performance on computers running all versions of MS Windows. Unix and Linux
- Tuning performance of database servers (including MS SQL Server, Oracle, and DB2). Optimization of database structures and schemas. Optimization of SQL queries sent to the SQL-based database servers. Optimization of your source code responsible for utilization of database servers.
- General optimization of Java, .Net, Visual Basics, C and C++ code. Optimization of multi-threaded code.
- Optimization of hardware configurations (including RAID systems and networking devices). Hardware upgrade and scalability planning.

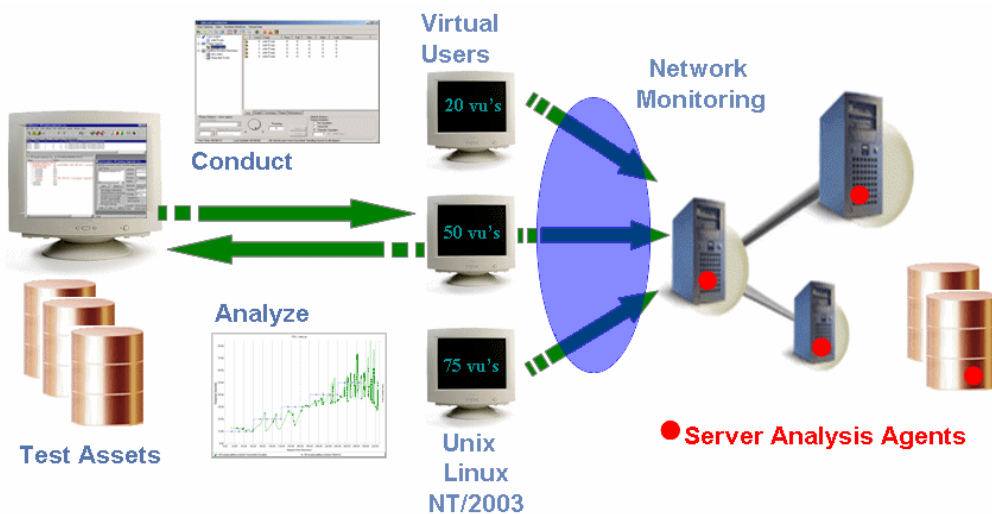
Optimizing IT Performance

Multi-Protocol / Multi-Vendor Network



The benefits

Performance tuning services from IPCS Group can substantially reduce the cost of your product. Our expertise in performance and scalability of software systems guarantees that you will spend money in a most efficient way: we will address the most crucial performance problems first and always attack the real causes of such problems, not the symptoms.



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