



Mindtree

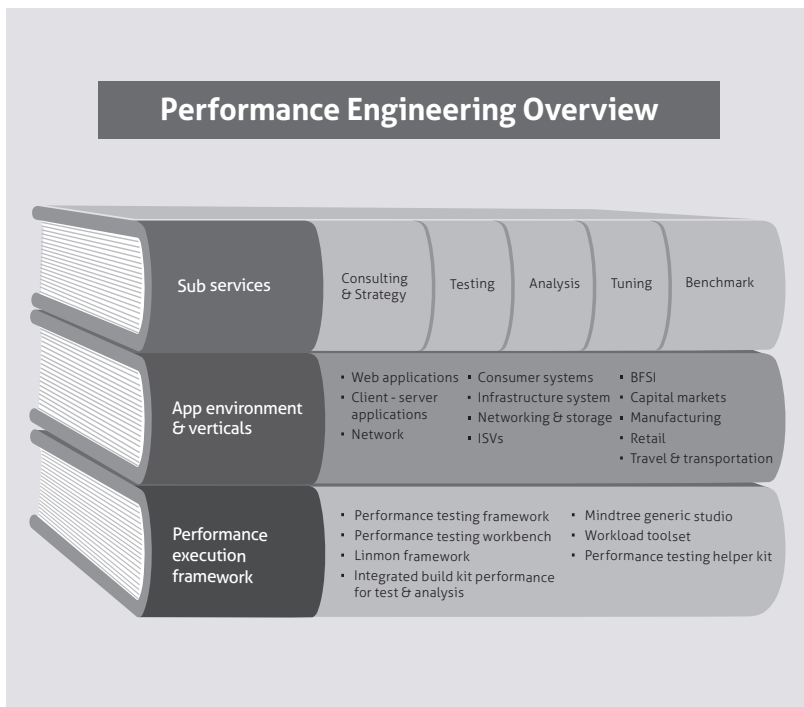
Welcome to possible

## Mindtree's Performance Engineering Services

Applications fail to meet enduser expectations when performance engineering is carried out at the very end of the software development lifecycle. We deploy it right at the design stage of the development lifecycle. This helps us build effective solutions with a quantifiable ROI.

### Our solution

Mindtree leverages its performance engineering services to develop software products and applications that perform optimally in normal as well as extreme load conditions. This reduces the number of failures related to performance and availability. We offer performance engineering services across a wide range of verticals and applications based on client server, Web technologies, Web services and ERP.



### Business challenges

- Is performance built into your product/ application or is it an afterthought?
- Have you maximized your product/ application's performance?
- Ever experienced a situation where the overall cost was lower for a high-performance, highly reliable application?
- Can you assure your customers that your application will not fail under peak loads and back it up with data?

### Key aspects

- Define performance: Comprehends the customer's perception of performance and re-evaluates from user's perspective, while assessing the competition and industry standards
- Build performance: Tunes and builds performance, based on performance objectives and analysis

Our performance engineering services help develop software products and applications that perform optimally in normal as well as extreme load conditions. This significantly reduces failures related to performance and availability. Our services encompass a wide range of verticals and applications, based on client server, web technologies, web services and ERP.

### Mindtree's performance engineering methodology

Our four step methodology for executing end-to-end performance engineering services.

<b>Performance strategy and system evaluation</b> <ul style="list-style-type: none"> <li>Performance targets</li> <li>Workload distribution</li> <li>Usage analysis</li> <li>User characteristics</li> <li>Tool selection</li> <li>Risk mitigation</li> <li>Metrics finalization</li> </ul>	<b>Performance testing and stimulation</b> <ul style="list-style-type: none"> <li>Baseline &amp; load testing</li> <li>Benchmark testing</li> <li>Performance measurement</li> <li>Profiling</li> <li>Performance debugging</li> </ul>
<b>Performance analysis</b> <ul style="list-style-type: none"> <li>Result evaluation</li> <li>Identify bottlenecks</li> <li>Confirm performance targets</li> <li>Metrics reporting</li> </ul>	<b>Performance tuning</b> <ul style="list-style-type: none"> <li>Fix bottlenecks</li> <li>Validate changes</li> <li>Verify achievement of performance targets</li> </ul>

### Mindtree's expertise in commercial & open source tools

<b>Profiling</b> <ul style="list-style-type: none"> <li>JProbe, JProfiler, VTune, Eclipse Profiler (NOT EDIPSE), DTrace</li> <li>Opensource: Jprobe (free version), EJP, Edipse profiler, Dtrace, etc.</li> <li>Thread / head analyzers</li> </ul>	<b>Load testing</b> <ul style="list-style-type: none"> <li>Commercial: LoadRunner, Silk Performer, WebLoad, Rational Performance Tester, JMeter</li> <li>Open source / freeware: Jmeter, Grinder, OpenSATA, Microsoft ACT, etc.</li> </ul>	<b>Monitoring</b> <ul style="list-style-type: none"> <li>Commercial: CA willy</li> <li>Opensource / Freeware: Nagios</li> </ul>
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- Measure performance: Tracks relevant metrics to measure product/ application performance against the set objectives

### Key differentiators

- Full-cycle performance engineering services
- Proprietary frameworks that accelerate and optimize testing processes
- Expertise in database, high volume transaction systems and related technologies
- On-demand performance analysts and architects to improve product performance
- On-demand capacity planning and sizing assistance
- Expertise in proprietary, open source (JMeter) and third-party tools (load runner, VSTS)

### Customer success stories

- 50% reduction in the response time for a service lifecycle management product
- 2X increase in query throughput of application query execution for an enterprise application platform
- 70% increase in performance of application query execution for an enterprise application platform
- 12X increase in the load-bearing capacity and 70% time savings in test cycle of an adapter in a middle-tier application

## Success stories

### World's leading provider of virtual data room services

The customer wanted to conduct performance assessment for all the releases of a document management system product. They wanted to establish and validate the benchmarks for business critical transactions and ensure that application was scalable. Mindtree provided end-to-end performance engineering services which included performance benchmarking, testing and providing tuning recommendations.

#### Business benefits

- 100% improvement in throughput for email-in transactions
- 30% improvement in response time of document download and process activation
- 30% improvement of CPU utilization for uploading documents
- 60% drop in stop the world scenarios during garbage collection exercise

### A leading American developer and distributor of video games

The customer engaged Mindtree for application development and independent testing of their customer experience portal. The project had numerous challenges, such as simulating large number of concurrent users (3000+) using cost effective load generating tools. Business logic execution through multiple java scripts created problems in performance script creation. Mindtree used Performance Execution Framework (PEF) to simulate large number of virtual user using REST protocol. PEF was utilized to monitor several Linux application servers.

#### Business benefits

- Timely and seamless release with zero performance issues reported on production for the application's spring release
- 90% reduction in the licensing cost through PEF
- 90% performance improvement in the application response time
- 10% drop in garbage collection time

### A leading provider of information services, software and workflow tools for tax, accounting and legal

The customer engaged Mindtree to performance test the critical business scenarios of the application for defined user load, to identify the architectural flaws of the application and tune the critical business scenarios in application. Mindtree provided end-to-end performance engineering services which included benchmarking, performance testing and performance tuning of the application.

#### Business benefits

- 40% increase in application throughput
- Identified code hot path and reduced execution time by 100%
- Best coding practices were created for future products
- Identified memory leaks and reduced memory footprint of each service call by 30 Mb

## ABOUT MINDTREE

Mindtree [NSE: MINDTREE] delivers digital transformation and technology services from ideation to execution, enabling Global 2000 clients to outperform the competition. "Born digital," Mindtree takes an agile, collaborative approach to creating customized solutions across the digital value chain. At the same time, our deep expertise in infrastructure and applications management helps optimize your IT into a strategic asset. Whether you need to differentiate your company, reinvent business functions or accelerate revenue growth, we can get you there. Visit [www.mindtree.com](http://www.mindtree.com) to learn more.