

PERFORMANCE

TESTING

PERFORMANCE TESTING – MEANING

Performance testing is the process of determining the speed or effectiveness of a computer, network, software program or device.

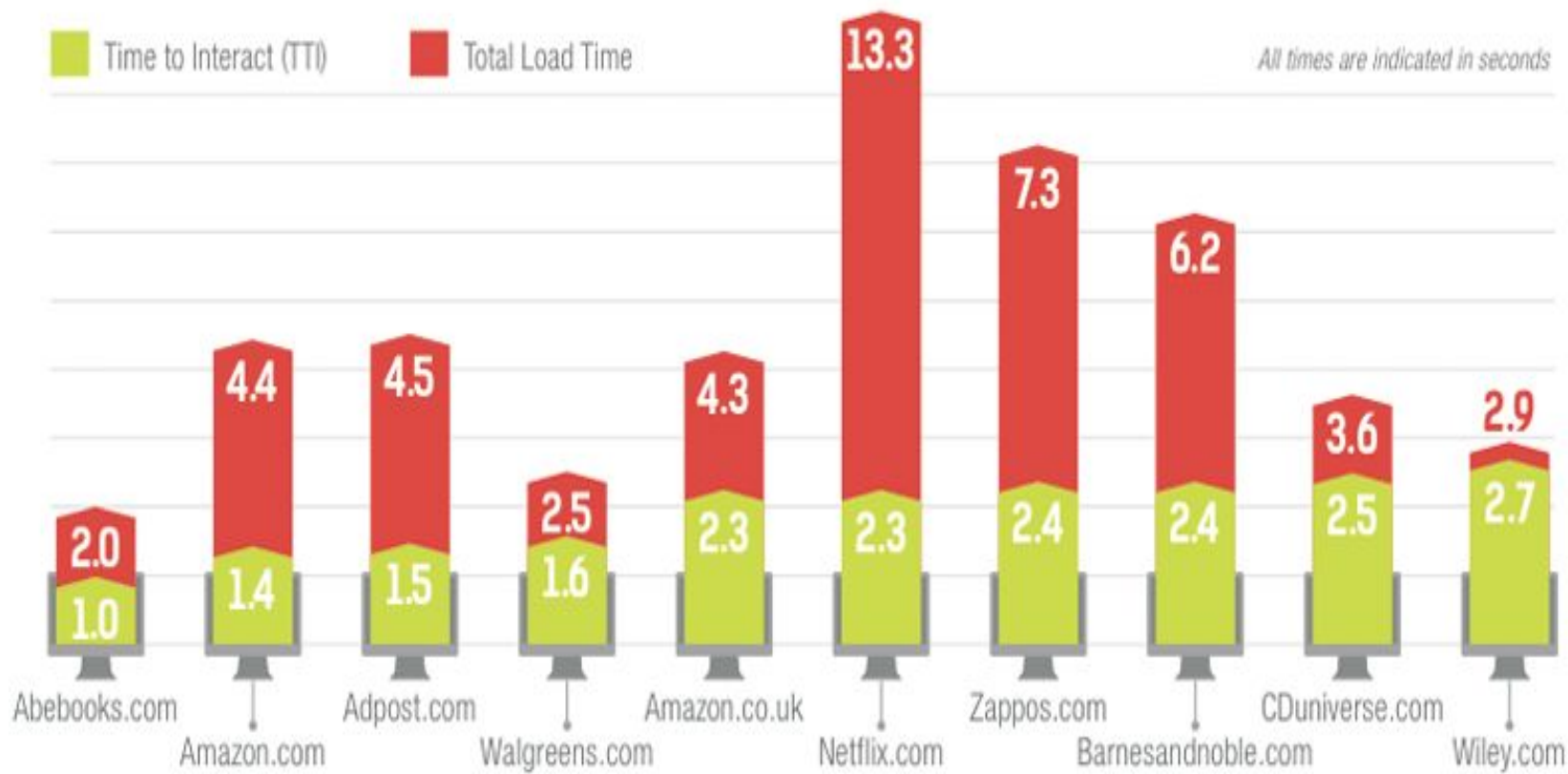
Performance testing is the process by which software is tested to determine the current system performance.

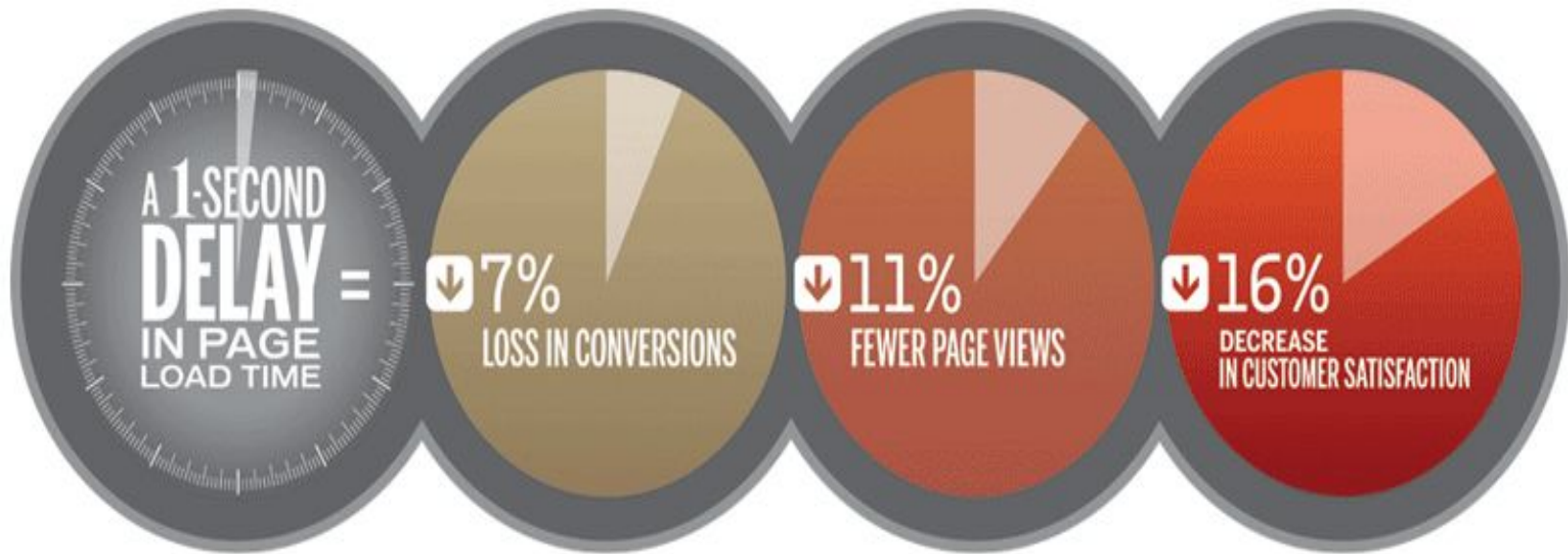


Time to Interact (TTI)

Total Load Time

All times are indicated in seconds





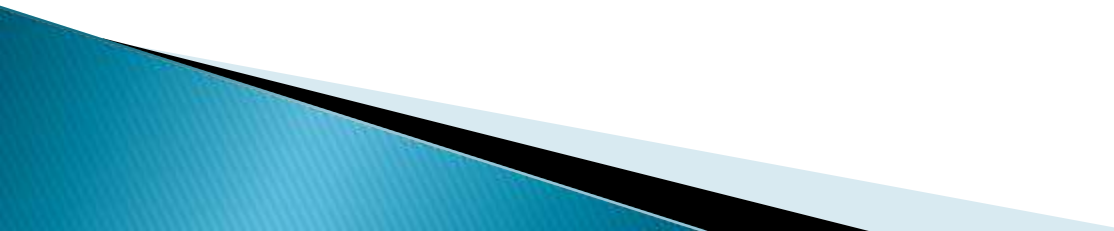
IN DOLLAR TERMS,

this means that if your site typically earns \$100,000 a day, this year

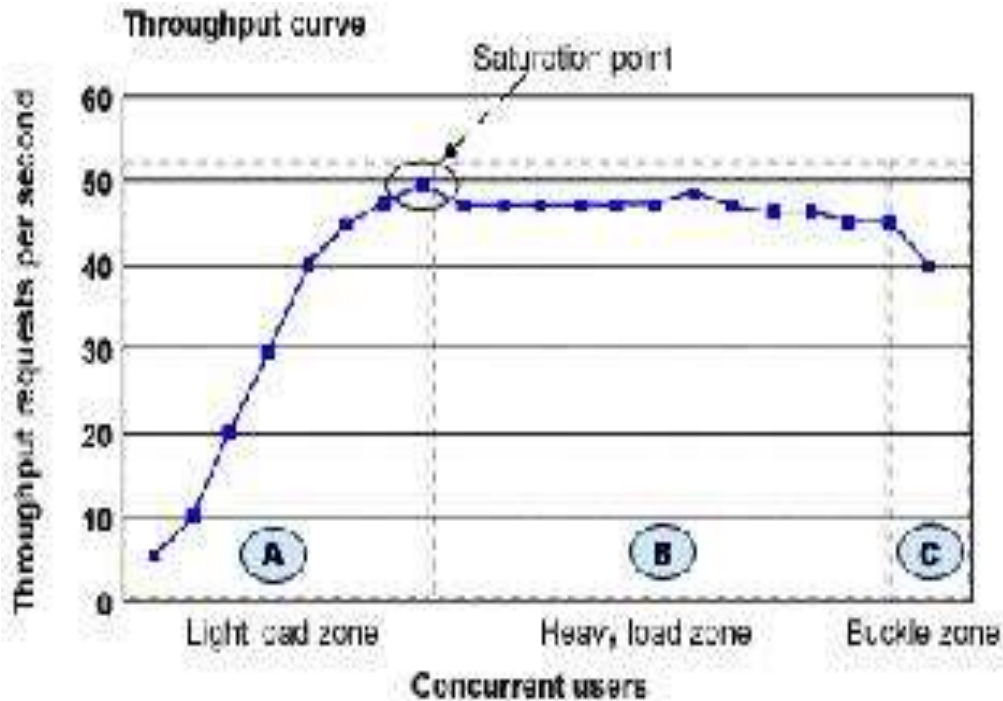
you could lose **\$2.5 MILLION** in sales.

SOURCE: Aberdeen Group

Before going into details, we should understand the factors that govern Performance testing:

- ✓ Throughput
 - ✓ Response Time
 - ✓ Tuning
 - ✓ Benchmarking
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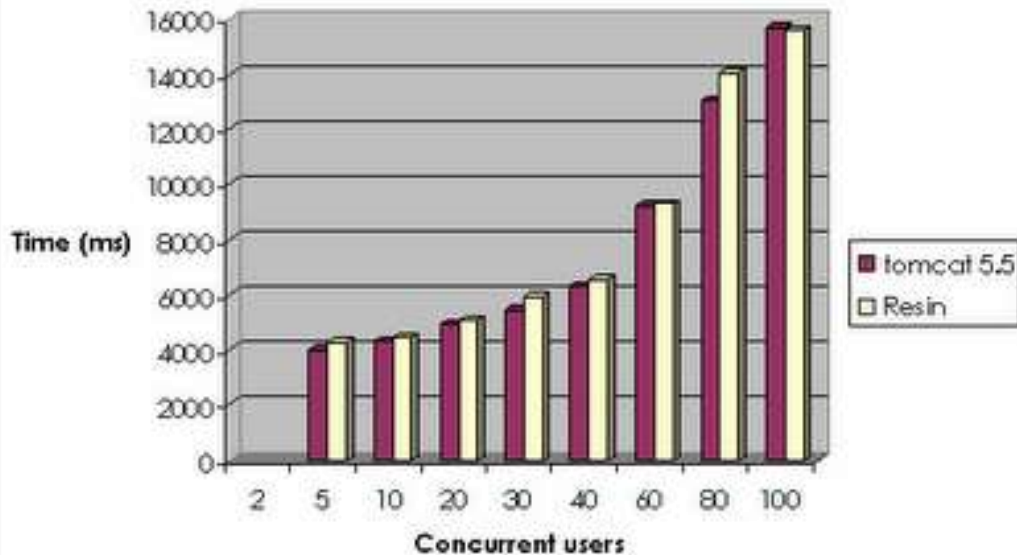
THROUGHPUT



- Capability of a product to handle multiple transactions in a given period.
- Throughput represents the number of requests/business transactions processed by the product in a specified time duration.

RESPONSE TIME

Response time/Users

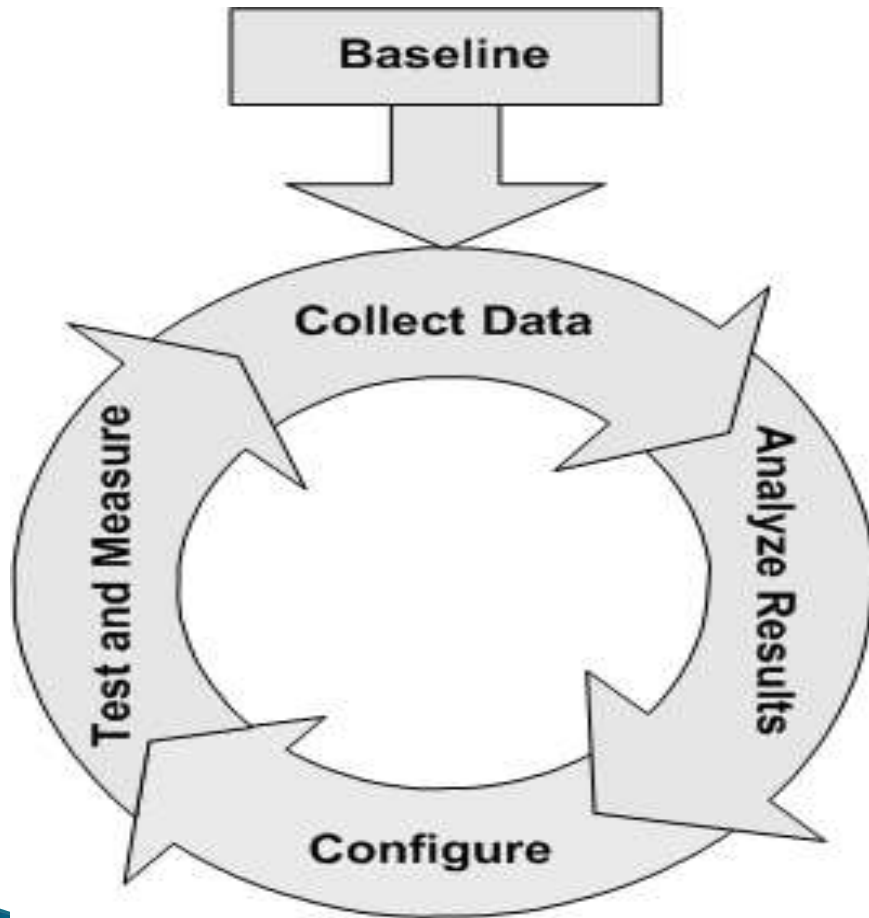


- It is equally important to find out how much time each of the transactions took to complete.

- Response time is defined as the delay between the point of request and the first response from the product.

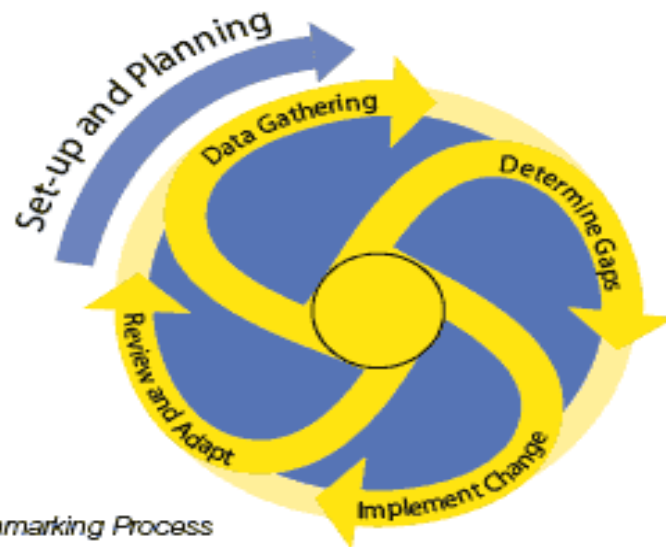
- The response time increases proportionally to the user load.

TUNING



Tuning is an iterative process that we use to identify and eliminate bottlenecks until your application meets its performance objectives. We establish a baseline and then collect data, analyze the results, identify bottlenecks, make configuration changes, and measure again.

BENCHMARKING



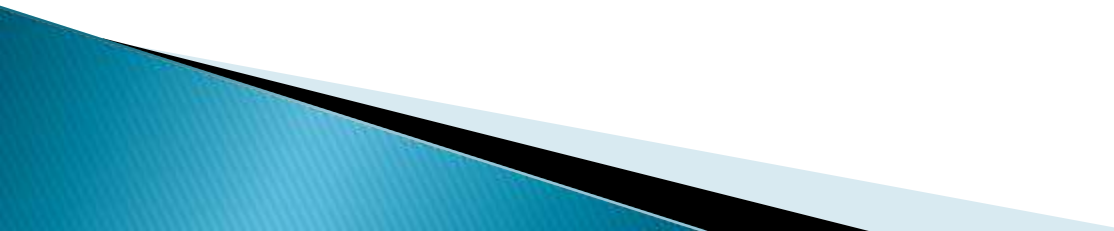
The improved performance of a product makes no business sense if that performance does not match up to the competitive products.

A careful analysis is needed to chalk out the list of transactions to be compared across products so that an apple-apple comparison becomes possible

Purpose Of Performance Testing

The purpose of performance testing is to verify the system is able to meet the performance requirements including number of transactions, on-line and batch processing and capacity. The emphasis is on verifying satisfaction of performance requirements and to ensure the system can handle stress and "worst case" scenarios.

Types Of Performance Testing

- 1 LOAD TESTING
 - 2 STRESS TESTING
 - 3 VOLUME TESTING
 - 4 SECURITY TESTING
 - 5 RECOVERY TESTING
- 

Types of Performance Testing



Load Test



- Am I ok or not?
- Simulate expected conditions.
- Important/Critical transactions.
- Overall performance.
- SLA defined by owner.

(SLA: Service Level Agreement)

Scalability Test



- How much can I grow?
- Same app, same env.
- Future expectations.
- Max acceptable level.
- SLA could be changed.

Soak Test



- Is memory fine?
- Load test during long time.
- Memory starvation.
- Garbage collector.
- Could take hours, days or even weeks.

Stress Test



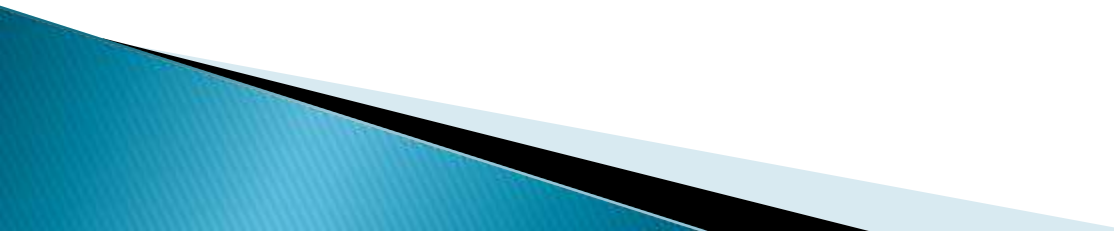
- Where am I weak?
- Unexpected conditions.
- Extreme load.
- Modified scripts.
- Find break points.
- Vital for some scenarios.

LOAD TESTING

To test the performance and behavior at peak load (or speed or configuration) ex. 100 users is the limit and testing the system by applying 100 user is called Load Testing.

STRESS TESTING

Test limits of a system (maximum number of users, peak demands, etc)

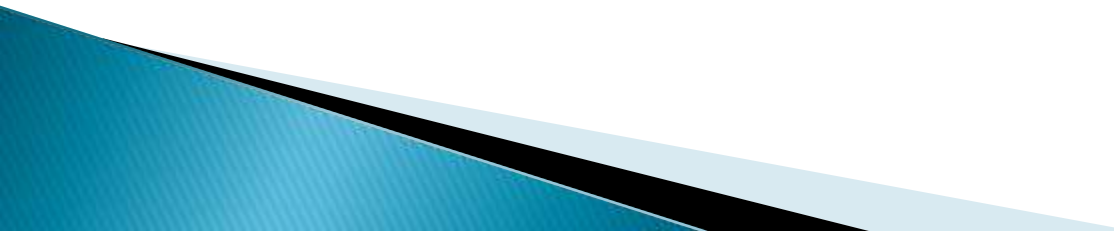


VOLUME TESTING

Volume testing means testing the application for large volume for data. This is mainly conducted to check for memory leaks and capacity of the server to handle huge volume of data.

SECURITY TESTING

Security testing is a process to determine that an information system protects data and maintains functionality as intended.



RECOVERY TESTING

Testing how well a system recovers from crashes, hardware failures. It tests system's response to presence of errors or loss of data.