

## Website Performance and Monitoring Best Practices

1. **Plan a testing strategy to test both page load time and site capacity.** Page load testing indicates how fast pages load and the experience of your customers; site capacity determines the number of customers or concurrent visitors your site can handle during peak times. Both must be considered together as they each affect each other.
2. **Look to optimize the slow, highest-impact pages first.** If you have a page that is rarely used (i.e., less than 0.5% of the traffic), then it may not make sense to optimize it. However, if it is your homepage or your product pages where each may contribute 20% of the traffic, then optimize them first.
3. **Try to use your actual web traffic information as a basis for your load test plan.** Web logs are more accurate than analytics to determine total visitors, pages, and the percentage of load each page type receives. Once you know the total traffic and percentages of each page type request (e.g., the Homepage 10%, Level 1 category pages 4%, Product pages 12%), you will be able to create realistic test cases to accurately test against the current load and peak load times (+50%).
4. **Test page load times under low load and while running high-capacity testing.** Servers can respond differently when under low or high load. Simply testing page load times under minimal load will miss the impact that traffic causes. In addition to low traffic situations, test each page while under heavy load (maybe 80% capacity).
5. **Test all possible page scenarios.** Although every page does not need to be tested, each page type should be tested to make sure that they all load properly and do not cause major server or load issues.
6. **Define your acceptability criteria for page load times.** Speeding up pages can be expensive, determine an acceptable speed and work toward that, make it reasonable.
7. **Separate page load times into component load times.** If 99% of a page loads in 1 second, but the other 1% loads in 20 seconds, then your page load time will never be better than 20 seconds. Optimize the slowest components on each page.
8. **Use your Logs to look at all page, application and database requests.** Use your web and server logs to determine what happens in your server when pages are requested. There may be one simple request that runs slowly and can be fixed easily.
9. **Consider using a Content Delivery Network for larger assets.** CDNs can effectively be used to reduce server load and page download times by offloading larger images, video, etc., to a geographically dispersed CDN that is closer to your customers than your servers.
10. **Identify where your customers are; investigate latency to their location.** If your servers are in California and many of your customers are in New York, look at how long it takes your pages to load in California and compare them to New York. If you find transmission time is a problem, CDNs can help.
11. **Monitor performance and continually make adjustments.** Once you have optimized your site, periodically rerun the load tests as you modify your site.
12. **Plan your future capacity based on your current conversion rates and your planned order volume.** To calculate concurrent user: #orders/conversion rate X 20% (or the percentage of orders in your busiest hour). Multiply this by your growth and increases during peak to make sure it can handle peak.
13. **Online monitoring services can continually monitor your site.** Hiring an online monitoring service to help you react to site slowdowns and spikes and to alleviate potential issues as they occur.

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