elasticpath ™

Elastic Path® Commerce Engine Performance Overview

Performance Overview

The complexity of today's IT infrastructures make it a challenging task for enterprises to estimate and plan the capacity required to meet their desired performance levels. Improper performance testing can paralyze your system's ability to handle increasing traffic. This can lead to a poor customer experience, periods of unavailability, and, worse yet, lost revenue. The Elastic Path platform provides enterprises with excellence in scalability and performance—to handle any level of load and scale for success.

How is performance measured?

There are four basic input metrics to complete an initial sizing. It is always best to estimate all of these in order to maximize the validity of the sizing.

- Conversions per hour
- Sessions per hour
- Pageviews per second
- Number of active sessions

CONVERSIONS PER HOUR

Your goal is to convert visitors into paying customers. Therefore, the conversion rate (i.e., percentage of visitors who complete a purchase) is of paramount importance. This metric is also the easiest to determine when considering a system that has not yet been built, as you will already be aware of your sales targets and forecasts, which can be translated into an hourly conversion rate.

SESSIONS PER HOUR

Sessions per hour is another way to define your capacity requirements. This is the number of unique visitors that are expected to come to your site within a one-hour period. This may be determined based on business requirements for new systems. If an existing system is available as a reference, this can be derived through the analysis of web server logs or analytics data.

Pageviews per second

Pageviews per second is a more technical way of defining capacity in terms of the rate at which full pages are accessed (i.e., requests, not including embedded objects such as images and CSS files). For new systems, this is difficult to derive from business requirements. For existing systems, this can be derived through analysis of web server logs or analytics data.

Pageviews per second is best used when an existing reference system is available for analysis and where the new Elastic Path system will closely match the existing system in terms of user workflow. Otherwise sizing based on pageviews per second may be misleading.

Number of active sessions

An active session is defined as a user who is engaged with the system but may be in a waiting state (i.e., reading a web page, not necessarily having an active request submitted to the system). This may be determined based on business requirements or through analysis of web server logs and analytics data for existing reference systems.

How Elastic Path achieves scalability and reliability

Storefront Clustering

In-house testing shows 90% horizontal scalability with our storefront application. Clustering horizontally is also ideal for reliability and failover reasons. When scaling vertically, multiple JVMs on one instance shows good scalability too but obviously offers no failover benefits.

Search Server Clustering

Elastic Path provides search server clustering. Scaling horizontally provides huge scalability and failover aspects. To ensure consistency of Search Server performance we also support assigning a separate server for updating search indexes.

Database Clustering

Elastic Path provides full support for Oracle and Oracle RAC for large-scale enterprise deployments. Oracle RAC allows for database clustering and the addition of nodes at anytime-essentially allowing horizontal database scalability. The Elastic Path platform is certified on Oracle RAC. Microsoft SQL Server Clustering and MySQL Clustering are also possible.

CACHING

Front-end UI/web caching: Proxy cache servers are very beneficial, providing up to 50% more throughput by caching all static content such as images. This can be done on a large scale using a content delivery network like Akamai for edge caching.

Persistence layer caching: Elastic Path will support OpenJPA data caching for a reduction of activity against the database. A custom OpenJPA data cache plug-in can also provide off-loading the cache onto a distributed infrastructure such as Oracle Coherence or Terracotta. Large improvements can also be seen from application-server-side prepared statement caches.

Application level caching: Application level caching is supported out of the box via an Ehcache-backed cache and will allow for a plug-in of robust enterprise caching frameworks including Terracota and Oracle Coherence. Further object/application layer caching is always possible with customizations.

How does Elastic Path measure performance, scalability, and reliability?

The Elastic Path in-house performance lab uses a variety of automated tests to ensure our product's performance and reliability is maximized each release. The product is put through the following set of tests during almost every major iteration in our development cycle:

STANDARD BENCHMARK TESTING

This is a 2.5 hour long test, giving us general system performance and scalability. We measure performance using key metrics such as Apdex and throughput based on average response times and pageviews per second values, respectively.

ENDURANCE TESTING

This long-running test hits the system at about 80% load for periods over 8 hours (and even up to multiple days) to reveal any longitudinal issues such as memory leaks. This test measures our overall reliability.

FOCUS TESTING

This set of tests ensures each component of the system operates optimally under large loads, such as check-outs, or large customer session creation. These tests determine the performance and also the reliability of each individual component of our product by pushing them to the max.

PRODUCTION DEPLOYMENT TESTING

A separate in-house environment that is continually under load is put through a number of real world scenarios such as server failure and network failure. These tests also validate our reliability.

Throughput Possibilities

METRIC	THROUGHPUT
Peak pageviews per hour	Over 2.8 million
Peak sessions per hour	Over 530,000
Peak orders per hour	Over 53,000
Peak active sessions	Over 23,000
Typical response time	As low as 200ms

Elastic Path has more than 200 clients including one of the biggest software companies in the world. We've seen phenomenal throughput possibilities:

Elastic Path Performance Tuning Services

It is strongly recommended that all customers do performance testing of their online store implementation to ensure the best customer experience. Elastic Path shares our performance testing framework and expertise with customers, which makes performance testing much more cost-effective and efficient than starting from scratch. An Elastic Path performance engineer can work with your team to uncover bottlenecks, provide capacity planning estimates, and make recommendations to improve performance. The Elastic Path platform is certified on Oracle RAC. For more information, please contact your account manager for pricing and time estimates.

Questions?

Elastic Path builds ecommerce software that powers the next generation of digital experience. We help businesses maximize revenue from their goods, services, and content with solutions that empower companies to create outstanding customer experiences that drive engagement and conversion. Elastic Path technology brings this functionality to multiple touchpoints – websites, apps, APIs, and more – while generating a single view of the customer. Market leaders, including Google, Pearson, Symantec, Time Inc., and Virgin Media use Elastic Path to drive billions of dollars in digital ecommerce annually.

Please contact us for more information:

sales@elasticpath.com or call (800) 942-5282
Read the technical documentation for Commerce Engine: www.elasticpath.com/docs

Collaborate with Elastic Path developers and customers in the Grep Developer Community: grep.elasticpath.com