Elasticsearch outperforms OpenSearch while using fewer resources

As a leader in search platform technology, Elastic is consistently recognized for innovation, and its ability to deliver performance at scale.

But how does Elasticsearch compare to alternatives in the market and typical customer use cases? Elastic put together a series of comprehensive tests, using repeatable scenarios and industry-standard methodologies to validate and compare Elasticsearch's performance to OpenSearch running in the cloud across five key search parameters.

The result?
Elasticsearch outperforms OpenSearch across the board

Elasticsearch emerges as the clear choice. Across numerous tests, the results were staggering–demonstrating Elastic's clear performance and scalability advantages, while consuming less compute resources.

Elasticsearch outperforms OpenSearch by

40-140%

Why does it matter?

For developers and architects, choosing the right search platform can greatly influence your organization's capacity to provide fast and relevant results. For leaders looking to make investments in the future, selecting the right technology can enable lower resource consumption and more predictable spending for a significant improvement in the total cost of ownership (TCO).

Organizations rely on search to deliver data fast, regardless where the data is stored and how large the data set grows. Delays in relevant results can lead to missed opportunities for revenue growth, cost reduction, and risk mitigation.

Read full study here →

Performance validation

Elasticsearch > OpenSearch
and uses 37% less storage

↑ **76%**

Text Querying

Show all data that has jane doe

↑ **58%**

Sorting

Show the most expensive products first

↑ **81%**

Date Histogram

Show a bar chart ordered in time for all data

↑ **61%**

Terms

Group data by what products were purchased

↑ **42%**

Ranges

Only show data from January to February

Performance testing

We looked at five common search and observability tests to determine performance, scalability, and resource optimization: querying, sorting, date histogram, terms query aggregation, and ranges. These functions effectively serve a wide array of common use cases such as observability, log analysis, ecommerce, security analytics & threat investigation and more.

Querying

Simple text string querying and sorting are foundational to full-text search, a core feature of Elasticsearch. Users often perform complex searches with textual queries. When search results are fast, relevant, and easily sorted, it enhances search experience across a wide range of applications.
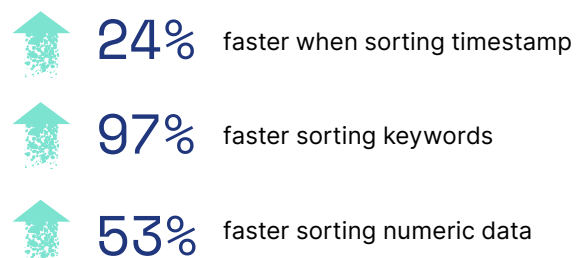
Querying text

OpenSearch

Elasticsearch

76% faster

Querying text and sorting results

OpenSearch

Elasticsearch

140% faster

Sorting

Sorting is the process of arranging data, numerically, or chronologically. By supplying results in preferential order, organizations can convert customer search results into sales or identify potential issues or threats, and even spot trends and insights.

Elasticsearch is faster than OpenSearch

↑ **24%** faster when sorting timestamp

↑ **97%** faster sorting keywords

↑ **53%** faster sorting numeric data

Read full study here →

Date histograms

Date histogram aggregation in Elasticsearch is useful for combining and analyzing time-based data based on intervals and categories. This capability lets end-users visualize frequency to better understand the occurrence of trends, patterns, and anomalies over time.

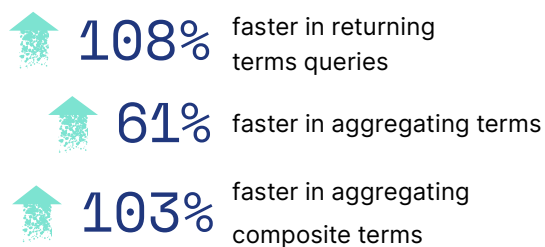**Elasticsearch is faster than OpenSearch in creating date histograms**

81% faster

Faster creating composite date histograms

110% faster

Terms

Terms query aggregation returns relevant results based on common keywords and their frequency across data sources. With large, unstructured data sets, unique terms are categorized by frequency or distribution to meet an organization's needs, thus speed and efficiency is key.

Elasticsearch is faster than OpenSearch

108% faster in returning terms queries

61% faster in aggregating terms

103% faster in aggregating composite terms

Ranges

Range queries filter search results based on specific values in a given field. This capability lets end-users narrow down search results to find relevant information quickly and is a core parameter of performance and scalability.

Performing range queries

OpenSearch
Elasticsearch **42%** faster

Performing range aggregations

OpenSearch
Elasticsearch **66%** faster

Resource utilization

Compute resource utilization is measured by disk usage and the percentage of space and memory employed. With Elastic's consumption-based pricing model, optimizing disk storage can even further reduce storage costs without sacrificing performance.

Elasticsearch | OpenSearch
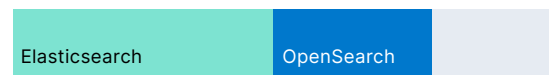
Elasticsearch uses **37%** less disk space than OpenSearch with only default, out-of-the-box configurations

Third party validated results

TechTarget's Enterprise Strategy Group validated Elastic's test methodology and results. ESG's validation lends added credibility and impartiality to our findings, assuring that the testing methodologies and the subsequent results maintain the highest standards of accuracy and integrity. Read the **full study** to learn more.

Read full study here →