Boost Elasticsearch Performance By Choosing Google Cloud N2 VMs Enabled by 3rd Gen Intel® Xeon® Scalable Processors

These VMs Delivered Greater Throughput and Indexing Speed than VMs with Older Processors

Elasticsearch is a distributed search and analytics engine that companies rely on to store, search, and analyze large volumes of many types of data. Elasticsearch can work in near real-time, making it very valuable for business decisions. If your organization chooses to run your Elasticsearch workloads in the cloud, you’ll want to be sure to select the right VMs. Depending on the processors underlying various instances, performance can vary dramatically, and the higher-performing VMs can deliver a much better return on your cloud investment.

Intel conducted testing of an Elasticsearch workload on two Google Cloud N2 VMs, one featuring 3rd Gen Intel® Xeon® Scalable processors, and one with 2nd Gen Intel Xeon Scalable Processors. The workload measured the throughput the VMs handled and how quickly each performed indexing tasks. The new N2 VM did better than the VM with previous-generation processors on both counts, making it a strong choice for your Elasticsearch workloads.

Improved Elasticsearch Throughput

Figure 1 shows the relative mean throughput achieved by the two Google Cloud VMs Intel tested. The N2 VM featuring 3rd Gen Intel Xeon Scalable processors outperformed its counterpart with older processors, delivering 1.29 times the Elasticsearch throughput.

Normalized Mean Throughput - Bulk-Index
Relative Throughput | Higher is better

Get 1.29 Times the Elasticsearch Throughput with N2 VMs Featuring 3rd Gen Intel Xeon Scalable Processors vs. N2 VMs with Older Processors

Get 1.36 Times the Elasticsearch Indexing Speed with N2 VMs Featuring 3rd Gen Intel Xeon Scalable Processors vs. N2 VMs with Older Processors

See backup for workloads and configurations. Results may vary.
Speedier Elasticsearch Indexing

Figure 2 shows relative cumulative indexing speed achieved by the two Google Cloud VMs Intel tested. The VM featuring 3\textsuperscript{rd} Gen Intel\textsuperscript{®} Xeon\textsuperscript{®} Scalable processors outperformed its counterpart with 2\textsuperscript{nd} Gen Intel Xeon Scalable processors, achieving 1.36 times the Elasticsearch indexing speed.

![Normalized Cumulative Indexing Speed of Primary Shards](image)

Figure 2. Relative mean Elasticsearch indexing speed of Google Cloud N2 VMs. Higher is better.

Conclusion

Google Cloud N2 VMs offer a strong platform for organizations running Elasticsearch workloads in the cloud, but the processor behind the VM can affect performance greatly. Intel testing revealed that Google Cloud N2 VMs featuring by 3\textsuperscript{rd} Gen Intel Xeon Scalable processors delivered greater Elasticsearch throughput and indexing speed than N2 VMs with older processors.

Learn More

To begin running your Elasticsearch workloads on Google Cloud N2 VMs featuring 3\textsuperscript{rd} Gen Intel Xeon Scalable processors, visit [https://cloud.google.com/compute/docs/general-purpose-machines](https://cloud.google.com/compute/docs/general-purpose-machines). (Note: To ensure your N2 VMs have a 3\textsuperscript{rd} Gen Intel Xeon Scalable processor, when provisioning the VM, select “Intel Ice Lake or Later” from the minimum CPU drop-down list.)

Tests by Intel as of 09/2022. Software details: BIOS Google, microcode 0x1, Rocky Linux 8.6 (Green Obsidian), 4.18.0-372.19.1.el8, 64, eклаx86, 64, N/A, elasticsearch-8.0.0-linux-x86_64, esrally==2.4.0, run_type: Throughput bulk-index, Cumulative indexing time; Java Heap Memory Size (32g), raw_data_volume_per_day: 155GB, max_generated_corpus_size: 215GB, max_total_download_gb: 512, bulk_indexing_clients: 48, data_generation_clients: 48; hardware: n2-highmem-8: Intel Xeon CPU @ 2.80GHz, 8 vCPUs, HT on, Turbo off, 64GB RAM; n2-highmem-8: Intel Xeon CPU @ 2.60GHz, 8 vCPUs, HT on, Turbo on, 64GB RAM

Performance varies by use, configuration and other factors. Learn more at [www.Intel.com/PerformanceIndex](http://www.Intel.com/PerformanceIndex).

Performance results are based on testing as of dates shown in configurations and may not reflect all publicly available updates. See above for configuration details. No product or component can be absolutely secure. Your costs and results may vary.

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