



Up to 27% faster
decision support
performance

on 8-vCPU
instances*



Up to 28% faster
decision support
performance

on 16-vCPU
instances*



Up to 36% faster
decision support
performance

on 64-vCPU
instances*

*compared to R5n instances

Execute your decision support system workloads more quickly by selecting new Amazon EC2 R6i instances featuring 3rd Gen Intel Xeon Scalable processors

These instances completed DSS workloads in less time than R5n instances featuring older Intel Xeon Scalable processors

Many companies rely on decision support system (DSS) workloads to collect and analyze raw data, which can provide decision-makers with insights upon which they can act. When generating these types of business insights, time is of the essence: data is often more valuable when it is recent. If you run your DSS workloads on a platform—such as a cloud instance—that can complete them quickly, your data-based insights will be more up to date and your decisions can improve.

We measured the DSS workload performance of two types of Amazon EC2 instances: R6i instances featuring 3rd Gen Intel[®] Xeon[®] Scalable processors and R5n instances featuring 2nd Gen Intel Xeon Scalable processors. We tested three sizes of instances from each series and learned that all three latest-generation R6i instances took less time to execute the workload queries than their R5n counterparts. This increased speed could help your business by getting vital data to decision-makers sooner. A faster decision processing duration could also result in reduced cloud costs as your instance would need to be active for a shorter time period.

How we approached testing

We tested two generations of Amazon EC2 instance clusters at three sizes:

- A ten-node cluster of R6i instances featuring 3rd Gen Intel Xeon Scalable processors
- A ten-node cluster of R5n instances featuring 2nd Gen Intel Xeon Scalable processors

In Figure 1, we present the vCPU count of the instances we tested: 8, 16 and 64.

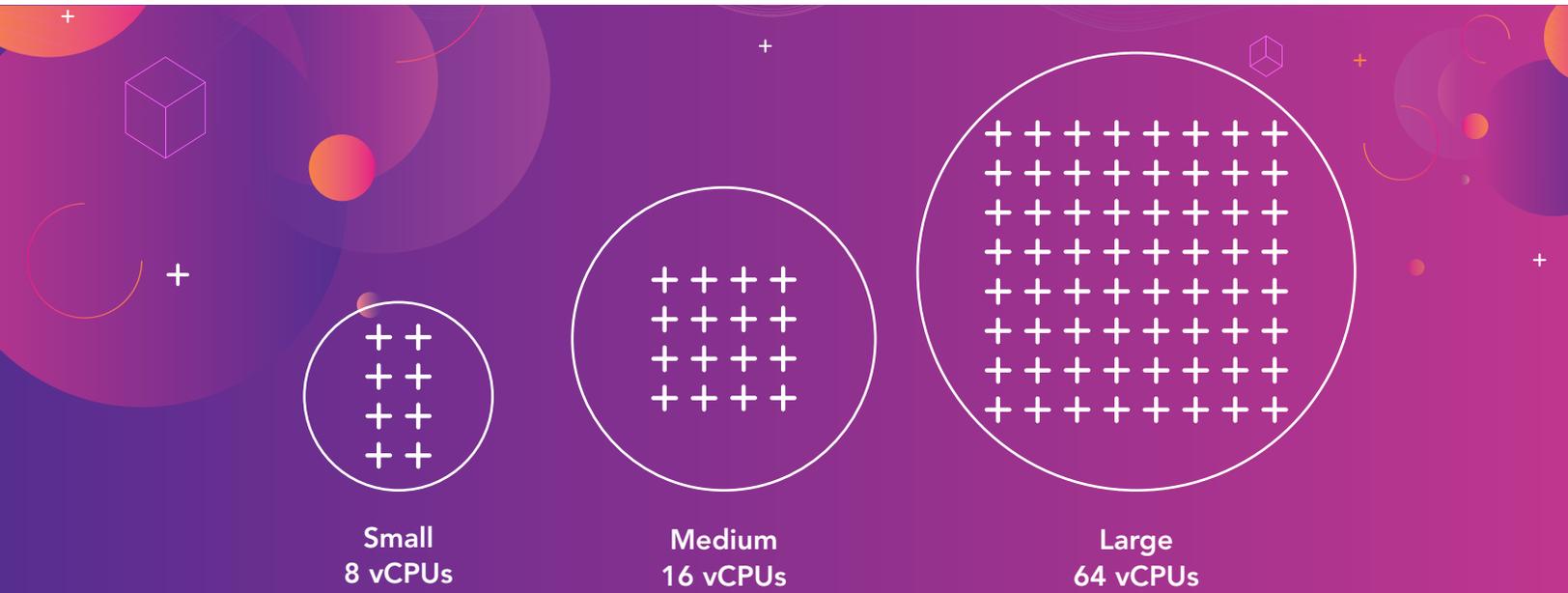


Figure 1: Key specifications of the Amazon EC2 R6i and R5n instances we tested. Source: Principled Technologies.

We tested the VM clusters in the East US region with a 1TB dataset. We tuned each VM's executor count, core count, and memory per executor. For additional configuration information, see the [science behind the report](#).

About the DSS workload we used

Companies use decision support systems to improve their decision-making abilities. These applications analyze great quantities of information and then provide users with possible next steps based on this data.

Decision support is valuable across a wide range of industries; retailers can use DSS to project sales and manage inventory and doctors can use it to help determine how to treat their patients.¹ To gauge how different Amazon EC2 instances might handle these workloads, we used a TPC-DS-derived benchmark that simulated a decision support system. It queried our 1TB dataset and reported results in terms of query response time. Because we derived our workload from the TPC-DS benchmark, it is not comparable to published TPC-DS results.

What we learned

As Figure 2 shows, for small instances with 8 vCPUs, the R6i instances featuring 3rd Gen Intel Xeon Scalable processors achieved a speed 27 percent higher than that of the R5n instances with previous-generation processors.

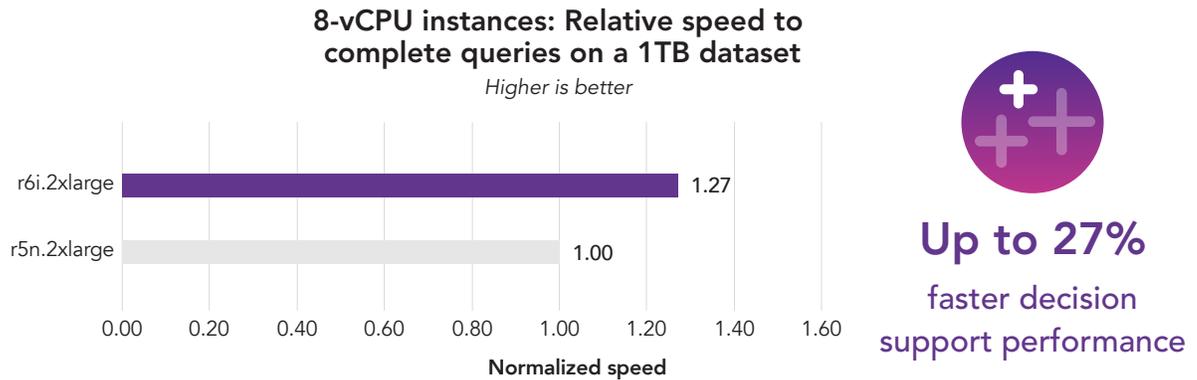


Figure 2: Comparison of the speed at which each 10-instance cluster of small R6i instances completed the DSS workload, relative to the completion time of the R5n instances. Greater speed is better.
Source: Principled Technologies.

As Figure 3 shows, for medium instances with 16 vCPUs, the R6i instances featuring 3rd Gen Intel Xeon Scalable processors also achieved a speed 28 percent higher than that of the R5n instances with previous-generation processors.

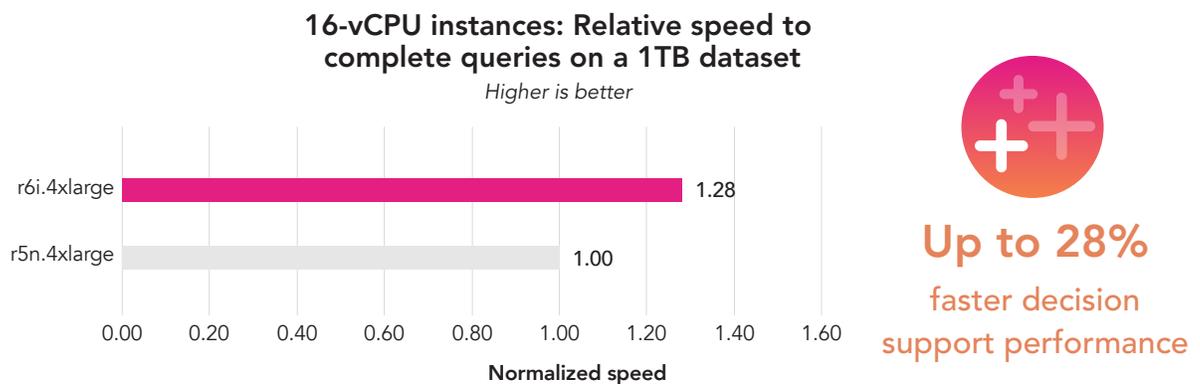


Figure 3: Comparison of the speed at which each 10-instance cluster of medium R6i instances completed the DSS workload, relative to the completion time of the R5n instances. Greater speed is better.
Source: Principled Technologies.

As Figure 4 shows, for large instances with 64 vCPUs, the R6i instances featuring 3rd Gen Intel Xeon Scalable processors achieved a speed 36 percent higher than that of the R5n instances with previous-generation processors.

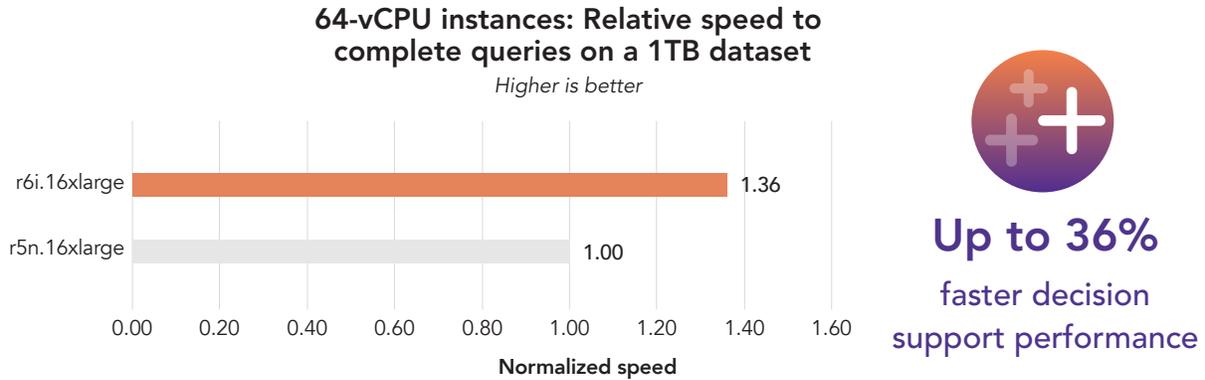


Figure 4: Comparison of the speed at which each 10-instance cluster of large R6i instances completed the DSS workload, relative to the completion time of the R5n instances. Greater speed is better. Source: Principled Technologies.



About Amazon EC2 R6i memory-optimized instances

Amazon EC2 R6i memory-optimized instances feature 3rd Generation Intel Xeon Scalable processors. According to Amazon, the instances also offer the following specifications:²

- an 8:1 ratio of memory to vCPU
- support for up to 128 vCPUs per instance
- local NVMe-based SSD block-level storage suitable for “applications that need high-speed, low-latency local storage”³

To learn more, visit <https://aws.amazon.com/ec2/instance-types/r6i/>.



Conclusion

Regardless of your industry, decision support systems can help turn raw data into actionable information. Selecting a cloud instance that executes DSS queries quickly can improve the freshness and relevance of those insights. When we tested two generations of Amazon EC2 instance clusters in three sizes, we found that newer R6i instance clusters featuring 3rd Gen Intel Xeon Scalable processors completed DSS queries up to 36 percent faster than R5n instance clusters with previous-generation processors. This faster query time could help your organization two ways: by reducing the amount you must pay for VM uptime and by putting information into the hands of decision-makers earlier.

-
1. "What is a decision support system (DSS)?" accessed July 19, 2022, <https://www.techtarget.com/searchcio/definition/decision-support-system>.
 2. "Amazon EC2 R6i instances," accessed July 19, 2022, <https://aws.amazon.com/ec2/instance-types/r6i/>.
 3. "Amazon EC2 R6i instances."

Read the science behind this report at <https://facts.pt/ab3hoQF> ►



Facts matter.®

Principled Technologies is a registered trademark of Principled Technologies, Inc. All other product names are the trademarks of their respective owners. For additional information, review the science behind this report.

This project was commissioned by Intel.