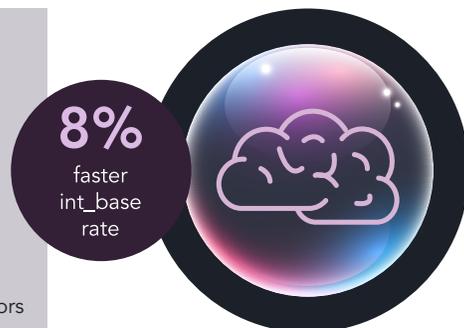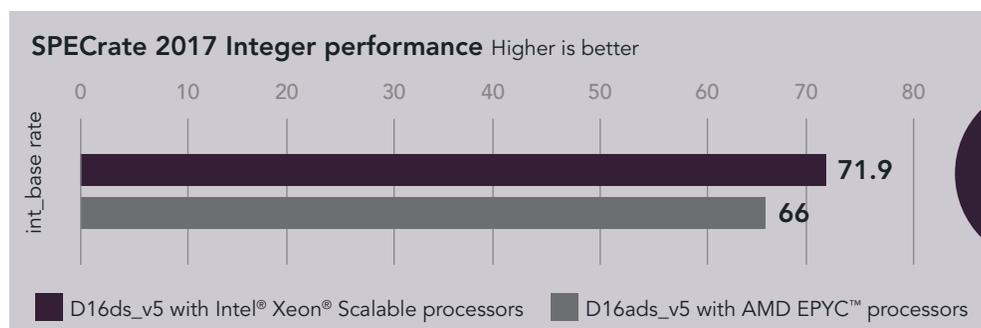# Get a clearer picture of potential cloud performance by looking beyond SPECrate 2017 Integer scores
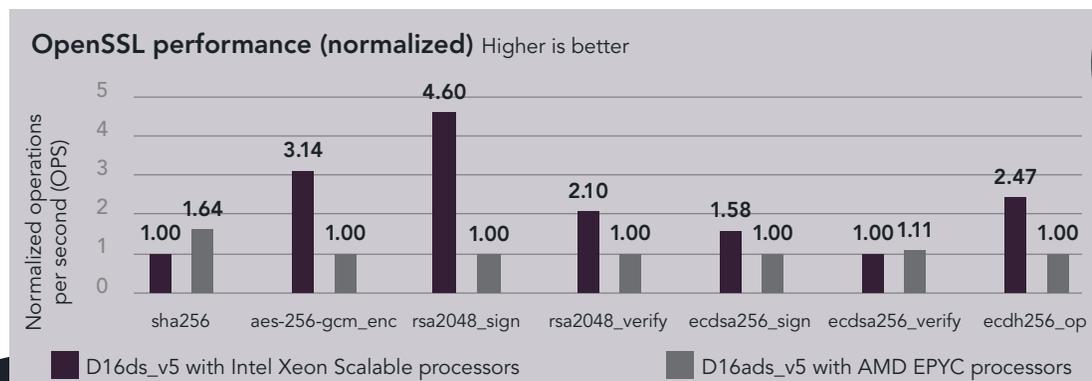
with OpenSSL

When we ran OpenSSL workloads on two Microsoft Azure VMs, the performance differences varied considerably from SPECrate 2017 Integer scores

What's the best way to gauge cloud instance performance? Using industry-standard benchmarks such as SPECrate® 2017 Integer can deliver good compute performance data, but it may not paint the same picture as workloads more directly representative of your applications.

Running SPECrate 2017 Integer—which uses a broad range of applications that target the processor, memory, and compilers—we saw the following results on the Azure VMs we tested:

SPECrate 2017 Integer performance Higher is better

int_base rate

D16ds_v5 with Intel® Xeon® Scalable processors	71.9
D16ads_v5 with AMD EPYC™ processors	66

8% faster int_base rate

OpenSSL is an open-source, general-purpose cryptography library that offers implementation of SSL/TLS to secure communications between clients and servers. With OpenSSL, you can assess the performance of specific cryptographic ciphers and related functions. We saw the following results on the cryptographic functions we tested:

OpenSSL performance (normalized) Higher is better

Normalized operations per second (OPS)

Function	D16ds_v5 with Intel Xeon Scalable processors	D16ads_v5 with AMD EPYC processors
sha256	1.00	1.64
aes-256-gcm_enc	3.14	1.00
rsa2048_sign	4.60	1.00
rsa2048_verify	2.10	1.00
ecdsa256_sign	1.58	1.00
ecdsa256_verify	1.00	1.11
ecdh256_op	2.47	1.00

up to **4.6x** the OPS

Why test with OpenSSL?

SSL/TLS transactions establish authenticated and encrypted links between clients and servers, requiring additional computational power compared to those that don't need encryption. If your organization plans to run SSL/TLS, testing cloud VMs with OpenSSL can indicate the performance impact this security might have.

Get the bigger picture when you branch out to specific workloads.

Learn more about the other real-world workloads we ran at https://facts.pt/odi9nGQ

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