PRODUCT BRIEF

# Get Ready for the Future with Modern IT Infrastructure

## Jump-start IT modernization with Microsoft Windows Server 2019 and SQL Server 2017 on the Intel® Xeon® Scalable platform

### AVOID UNNECESSARY RISK

Get ready now to beat end of service deadlines:

- SQL Server 2008 and 2008 R2 – Extended support ends July 9, 2019.
- Windows Server 2008 and 2008 R2 – Extended support ends January 14, 2020.

In business, rapid, disruptive change is the new normal. Business leaders know that they must adapt quickly, or risk getting left behind—but for many, legacy infrastructure is slowing them down. More frequent and sophisticated security exploits combined with network bottlenecks and a massive influx of new data are challenging businesses' ability to keep up. In fact, 71 percent of IT organizations cite legacy infrastructure as the biggest barrier to transformation.[1] For companies looking to gain or maintain a competitive advantage, moving now to Microsoft Windows Server 2019 and SQL Server 2017 makes sense. Optimized for Intel® Xeon® Scalable processors, Windows Server 2019 and SQL Server 2017 deliver highly scalable performance, strengthened security, and faster insights from data—all while improving total cost of ownership (TCO). In addition, these hyperconverged infrastructure (HCI) solutions from Intel and Microsoft help organizations get future-ready by easing the path to hybrid cloud, for increased agility without giving up control.

**6X** slower rate of product innovation and time to market with outdated infrastructure[2]

**AT 4 YEARS** Server performance lags **33%** and maintenance costs climb **148%**[3]

### Modern Software Runs Best on Modern Hardware

Updating both hardware and software at the same time delivers the maximum functionality, as the two are designed to work best together. Upgrading only software will yield some performance improvement—but less than could be realized by upgrading both—and maintenance costs will continue to climb. In addition, a lack of hardware-level security exposes an organization to increased risk from security threats—a significant concern, particularly as compliance regulations continue to evolve. Similarly, upgrading only hardware translates to slower performance than might be achieved by upgrading both—because older software is unable to leverage all the compute, storage, and network benefits of new hardware. And upgrading only hardware also leads to increased security vulnerability—in this case, from a lack of software-level security.

**ACCELERATE INNOVATION WITH PERFORMANCE UP TO 4X FASTER THAN 4 TO 5-YEAR-OLD SERVERS.**[4]

**IMPROVE TCO** UP TO **60%** SAVINGS WITH FEWER SERVERS BUT SIMILAR PERFORMANCE LEVELS.[5]

## Benefits of the Latest Software and Hardware Innovation

Modernizing IT infrastructure with Windows Server 2019 and SQL Server 2017 on Intel Xeon Scalable processors accelerates innovation and delivers business value with these benefits:

- **Reduced "technical debt"** – Unplanned downtime and maintenance costs decrease, and IT staff efficiency improves.
- **Improved data security and compliance** – The latest hardware- and software-level security features strengthen network security from data center to cloud to edge and provide support to meet GDPR and other compliance requirements.
- **An easier path to hybrid cloud** – HCI improves infrastructure efficiencies, enabling rapid deployment of IT services while reducing costs.
- **Support for expanding workloads** – Combining improved performance with advanced analytics and artificial intelligence (AI) technologies speeds time to insight from data and allows for faster delivery of apps and releases. SQL Server is the only commercial database with AI built-in.

Memory and storage technologies from Intel are key to the value that Windows Server 2019 and SQL Server 2017 deliver. Compared to a five- to eight-year-old server paired with Windows Server 2008 R2, a new server—based on the Intel Xeon Scalable platform, with Intel® Optane™ DC persistent memory and running Windows Server 2019—provides four to 16 times more memory. And storage capacity gets a boost from Intel® Optane™ solid state drives (SSDs).

## Build with Confidence

Building an infrastructure capable of meeting modern business challenges can seem overwhelming. With so many components to choose from, it's not always easy to know which will work best together. Pre-configured, Intel-verified Intel® Select Solutions can help. Comprised of tightly specified hardware and software components—designed and benchmarked to deliver optimal performance for specific workloads—Intel Select Solutions allow you to build with confidence. Pre-defined settings and system-wide tuning make deployment fast and easy. A wide variety of pre-configured solutions are available, including Intel Select Solutions for Microsoft SQL Server Business Operations, for SQL Server Enterprise Data Warehouse, and for Windows Server Software Defined Storage. Learn more about Intel Select Solution options at intel.com/selectsolutions.

## Get Ready for the Future, on Your Terms

Don't let legacy infrastructure hold your business back. Get the performance, efficiency and security you need to be able to compete—today and in the future—with Microsoft SQL Server 2017 and Windows Server 2019 on the Intel Xeon Scalable platform. By making it easier to take advantage of the benefits of cloud, these solutions from Intel and Microsoft help you get future-ready, on your terms.

**Discover the better together benefits of Windows Server 2019, SQL Server 2017 and Intel Xeon Scalable processors at intel.com/microsoftdatacenter.**

[1,2] Enterprise Strategy Group (ESG). "How IT Transformation Maturity Drives IT Agility, Innovation, and Improved Business Outcomes." April 2017. www.emc.com/collateral/analyst-reports/esg-dellemc-it-transformation-maturity-report.pdf

[3] IDC. "Why Upgrade Your Server Infrastructure Now?" July 2016. https://www.emc.com/collateral/analyst-reports/idc-why-upgrade-server-infrastructure.pdf

[4] Per node 4X higher integer throughput performance: estimate based on SPECrate*2017_int_base on Intel internal platforms as of June 2018: 1x node, 2x Intel® Xeon® Processor E5-2690, 128GB total memory, 16 slots / 8 GB/ 1600MT/s DDR3 RDIMM, Benchmark: SPEC CPU2017 V1.2, Compiler: Intel® Compiler IC17 update 2, Optimized libraries / versions: IC18.0_20170901, Other Software: MicroQuill SMART HEAP. uCode: 713, OS: Red Hat Enterprise Linux* 7.4, Kernel: 3.10.0-693.11.6.el7.x86_64 x86_64, Score 65.5 vs. 1x Node, 2x Intel® Xeon® Platinum 8180 Processor, 384GB total memory, 12 slots / 32 GB / 2666 MT/s DDR4, Benchmark software: SPEC CPU® 2017, Compiler: Intel® Compiler IC18 OEM, Optimized libraries: AVX512, ucode:0x043, Red Hat Enterprise Linux* 7.4, 3.10.0-693.11.6.el7.x86_64, Score: 281. Cost reduction scenarios described are intended as examples of how a given Intel- based product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

[5] The benchmark results may need to be revised as additional testing is conducted. The results depend on the specific platform configurations and workloads utilized in the testing, and may not be applicable to any particular user's components, computer system or workloads. The results are not necessarily representative of other benchmarks and other benchmark results may show greater or lesser impact from mitigations. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit www.intel.com/benchmarks. Configuration details: Up to 60% TCO savings with Intel® Xeon® Scalable processor compared to 5-year old system. Example based on estimates as of June 2018 of equivalent rack performance over 4-year operation on integer throughput workload (estimate based on SPECrate*2017_int_base on Intel internal platforms) running VMware vSphere Enterprise Plus on Red Hat Enterprise Linux Server and comparing 20 installed 2-socket servers with Intel® Xeon® processor E5-2690 (formerly "Sandy Bridge-EP") at a total cost of $737,460 [Per server cost $36.8K: acquisition=12,5K, infrastructure and utility=4.5K, os & software=10.2K, maintenance=9.7K ] vs. 5 new Intel® Xeon® Platinum 8180 (Skylake) at a total cost of $294,540 [Per server cost $58.9K: acquisition=12,5K, infrastructure and utility=10.1K, os & software=10.1K, maintenance=9.7K]. Assumptions based on https://xeonprocessoradvisor.intel.com, assumptions as of June 6, 2018.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more complete information visit .

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

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