As IT director for a private manufacturing company of about 500 employees, Sara is constantly thinking of ways to increase IT operational efficiency, reduce costs, and deliver more business intelligence data with faster analytics. That is why this year, she and her team of 13 in the regional data center set a goal to virtualize 30 percent more workloads compared to the previous year. More virtualization translates to a more efficient data center with fewer servers.

Sara challenged her team to find the best strategy to reach their goal—keeping in mind that they want peak performance from their most valued mission-critical software, the SAP HANA® platform. The team recognizes that the processor plays an important role in realizing the full spectrum of potential benefits of SAP HANA.

The new Intel® Xeon® processor E7 v2 family has been shown to improve query performance on SAP HANA by up to two times, while dramatically increasing in-memory data capacity. In addition, these new processors provide up to 50 percent more cores and threads, up to three times the memory capacity, and additional reliability, accessibility, and serviceability (RAS) features versus prior-generation processors.

By upgrading to the new Intel Xeon processor E7 v2 family, Sara’s team could add new business capabilities, simplify IT infrastructure and operations, and drive down total costs. But what ultimately convinces Sara to upgrade is her company’s push for more and faster analytics from SAP HANA.

Compared to the previous generation, the Intel Xeon processor E7 v2 family is designed to fully optimize the performance of SAP HANA running on VMware vSphere® because it offers more scalable memory, higher reliability, and increased efficiency.

Intel, SAP, and VMware have collaborated to make a robust SAP HANA® solution for data center virtualization.
Optimize Performance with Scalable Memory

Sara’s team took immediate interest in the Intel Xeon processor E7 v2 family when they learned it has three times more memory capacity than their current processors from the previous-generation Intel Xeon processor E7 family. The large memory of the Intel Xeon processor E7 v2 family helps dramatically accelerate speed and performance of virtualized SAP HANA.

The Intel Xeon processor E7 v2 family provides up to 6 terabytes of memory in four-socket servers, enough to support many of today’s largest databases. This large memory helps increase virtualized performance by up to 1.7x over the previous-generation processor. This capacity helps keep all data in main memory, where data can be accessed and processed without the delays associated with disk access, so SAP HANA can work most efficiently.

The Intel Xeon processor E7 v2 family’s 32 GB dual in-line memory modules (DIMMs) provide SAP HANA with ample room to hold large amounts of data for in-memory computation—resulting in world-class real-time analytics. The Intel Xeon processor E7 v2 family has been shown to improve query performance on SAP HANA by up to two times, while still dramatically increasing in-memory data capacity.

Data centers also benefit from the scalability of the Intel Xeon processor E7 v2 family. Performance and capacity both scale to support massive data volumes with two-, four-, and eight-socket configurations. This scalability allows the processors to handle almost any size workload, reducing the need to buy new hardware to support growing data needs. This scalability is vital for Sara because of the spikes in data flow her company often experiences, in addition to projected company growth over the next few years.

Peace of Mind through Greater Reliability

With the weighty responsibility of keeping the company’s mission-critical apps running at all times, Sara and her team need absolute reliability in their services and software. They choose the Intel Xeon processor E7 v2 family because it supports world-class availability and uptime for SAP HANA in a virtualized data center—creating an extremely dependable environment for mission-critical apps.

The Intel Xeon processor E7 v2 family offers advanced RAS features for 24/7 uptime in a virtualized data center. RAS features include:

- Solid performance all day, every day for solutions that require “5 nines” (99.999 percent) uptime.
- Intel® Run Sure Technology, which can increase system uptime and data integrity for business-critical workloads.
- Resilient systems technologies that help ensure data integrity and enable systems to keep running reliably over long periods of time, reducing the need for immediate service calls.
- Resilient memory technologies that standardize technology by integrating processor, firmware, and software layers, allowing the system to diagnose and recover from errors that previously would have been fatal.

These reliability features help ensure that mission-critical apps, including SAP HANA, run soundly for the long haul, no matter whether they are running on physical machines, virtualized, or in the private cloud. Data managers can have the peace of mind that their companies mission-critical apps are running on the solid foundation of the Intel Xeon processor E7 v2 family.

Increase Efficiency with VMware vSphere*

With the increasing drive for more business intelligence and real-time analytics, data center teams like Sara’s view efficiency as more than a priority—it’s a necessity. To respond to the need for more efficiency, data centers running mission-critical apps are pushing toward more virtualization to reduce costs and labor, simplify management, and save energy and space.

In response to this push, Intel, SAP, and VMware have collaborated for years to make a robust solution for data center virtualization with SAP HANA. This solution enables efficient management of SAP HANA in a virtual environment while taking advantage of the boosted processing power of the Intel Xeon processor E7 v2 family.

How vSphere increases efficiency of virtualized SAP HANA:

- Simplifies management of SAP HANA in either a virtualized data center or in a private cloud.
- Speeds up the deployment of workloads running on SAP HANA.
- Supports virtual machine densities, saving companies both space and energy.
Intel and SAP have worked together since 2005 to deliver better performance for SAP applications running on Intel architecture. This deep collaboration has helped Intel make significant inroads into the mission-critical computing space.

Today, Intel® Xeon® processors account for more than 75 percent of all new SAP software deployments. In fact, SAP runs its business mostly on Intel architecture. Many of Intel's products are certified for use on SAP HANA.

Intel and SAP have worked together across a variety of business segments, and the innovations have gone into the microarchitecture of Intel's processor lines—and will continue to influence Intel processors well into the future.

- Helps eliminate infrastructure silos, allowing users to share resources more flexibly.
- Separates apps and operating systems from underlying hardware, so servers can be managed as a pool of resources.
- Helps reduce lost revenue associated with downtime and outages.
- Saves customers money by leveraging SAP HANA in a virtualized environment to rapidly develop and test new applications running on SAP HANA on vCloud.

How the Intel Xeon processor E7 v2 family increases efficiency of virtualized SAP HANA:

- Supports 10 GB Intel® Ethernet technology—up to 4x more input/output (I/O) bandwidth than the previous generation. That’s 4x more capacity for data circulation.
- Has a virtualization-optimized hardware foundation that gets higher value from VMware software.

The Winning Combo

Thanks to the collaboration of Intel, SAP, and VMware, data centers like Sara's now have the solution they need to deliver more data, faster, with fewer resources.

The massive increase in processing power, memory, reliability, and efficiency of the Intel Xeon processor E7 v2 family unleashes the full range of SAP HANA capabilities with the simplicity and flexibility of virtualization on vSphere. Data centers also benefit from a range of choice because SAP has certified a wide selection of appliances for SAP HANA and the Intel Xeon processor E7 v2 family. Customers have ultimate flexibility and choice for integrating SAP HANA into their data centers.

To learn more about SAP HANA® certified Intel® Xeon® processor E7 v2 family-based server appliances, visit: http://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/index.html
To Find Out More About:

Intel and virtualization:  

SAP HANA*:  
http://www.saphana.com/

Virtualized SAP HANA:  
http://www.saphana.com/docs/DOC-4192

SAP HANA certified appliances:  

SAP HANA and Intel:  


VMware vSphere*:  
http://www.vmware.com/products/vsphere-operations-management/

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1 Results have been estimated based on internal Intel analysis and are provided for informational purposes only. Any difference in system hardware or software design or configuration may affect actual performance.

2 On a 4-socket natively-connected platform: Intel Xeon processor E7 family supports 64 DIMMs, max memory per DIMM of 32 GB RDIMM; the Intel Xeon processor E7 v2 family supports 96 DIMMs, max memory per DIMM of 64 GB RDIMM. This enables a 3x increase in memory.


6 No computer system can provide absolute reliability, availability or serviceability. Requires an Intel Xeon processor E7-8800/8400/8800 v2 product families or Intel Itanium 9500 series-based system (or follow-on generations of either). Built-in-reliability features available on select Intel Xeon processors may require additional software, hardware, services and/or an internet connection. Results may vary depending upon configuration. Check with your system manufacturer.

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 assess if Intel’s products perform as claimed.

Based on Intel internal estimates of the Intel Xeon processor E7-4890 v2 performance normalized against the improvements over dual-IOH Intel Xeon processor E7-4870 using an Intel internal bandwidth tool running the 1R1W test.


9 For a list of certified SAP HANA® appliance configurations, see http://global.sap.com/community/ebook/2014-09-02-hana-hardware/enEN/appliances.html

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