Microsoft Dynamics CRM* 2013 running on servers powered by the Intel® Xeon® Processor E7 v2 family, coupled with Intel® Solid State Drives (Intel® SSDs) and Intel® Cache Acceleration Software (Intel® CAS), provides the foundation for successfully navigating today’s customer-empowered marketplace. This customer relationship management (CRM) solution delivers leadership capability across a wide range of requirements,¹ and includes integrated support for mobility, social network integration, and business process management (BPM).

Microsoft Dynamics CRM* 2013 is designed to help enterprise organizations attain a 360-degree view of customers, improving employee productivity by giving information to users in a more efficient way. It also provides scalable performance, mission-critical reliability, and overall flexibility that your enterprise needs to compete successfully in the global marketplace.

Because customer engagement models are evolving so quickly, Microsoft has accelerated its development cycle and has released new features such as advanced marketing planning, a unified service desk for call centers, and a social listening service for analyzing sentiment across social networks.² Servers based on the Intel® Xeon® Processor E7 family, Intel® SSDs, and Intel® CAS provide the scalability and headroom you need to integrate these and other new features while delivering the responsive performance that is so essential for frontline, customer-facing activities.

Even as the adoption of flash memory and SSDs continues to grow, it is still common to see cost-effective hard disk drive (HDD) storage deployed on the SQL servers Microsoft Dynamics CRM* uses to store data. Though an all-SSD storage system will provide the highest performance, IT departments can deploy a few SSDs in conjunction with existing HDDs for an approach that provides the storage value of HDDs with a significant performance improvement.

For deployments on HDDs today, adding Intel® CAS with a single Intel® SSD can accelerate page responsiveness of a 15,000-user environment by 87%. Intel® CAS’s innovative approach to SSD/flash caching solves the storage I/O bottleneck while enabling better utilization of existing storage infrastructures.


Experiment and results

To represent a realistic data set, we created a 2.5 TB database, using the Microsoft Dynamics CRM* 2013 Performance and Stress Toolkit, with eight standard roles and one custom role. We then designed test scenarios to simulate workloads each role might create. Finally, we varied the number of users—from 15,000 to 60,000—to see what performance impact Intel® CAS would have as the deployment shouldered heavier loads. We used the same hardware configuration 3 for both the HDD-only baseline and the test set, with the only difference being the addition of Intel® CAS and a single 800 GB Intel® Data Center Solid State Drive used as a cache drive on the test set.

With a 15,000-user workload, Intel® CAS improved average page time access by 87%, giving the end-user a dramatic CRM performance improvement: Instead of waiting more than 4.3 seconds for each request, Intel® CAS users got results in less than half a second. The improved I/O performance allowed the system to perform more operations. The average number of tests completed per second by the toolkit increased by 62%.

Additionally, Intel® CAS virtually eliminated the I/O read queue depth, reducing it by 99%. This shows how cache acceleration with a single high-performance SSD can greatly reduce I/O latency, which becomes more important as a deployment grows and the number of users increases.

Although we don’t expect CRM customers to retain the same system designed for 15,000 users as they grow in number of users, we decided to use the same configuration in this test to show the scalability of our solution. Intel® CAS continues to provide at least a 33% improvement in page latency and a corresponding 33% increase in total tests per second despite doubling and quadrupling the user workload—from 15,000 to 30,000 or 60,000 users. (See Figure 1.)

Conclusions

With Intel® CAS and Intel® SSDs, Microsoft Dynamics CRM* users get significant performance for a quarter of the cost of an all-SSD solution—and that includes the cost of the HDDs, one SSD, and Intel® CAS.

For more information:

- Intel® CAS: intel.com/cas
- Intel® Solid-State Drives: intel.com/go/ssd

Figure 1. Intel® CAS improves Microsoft Dynamics CRM* page views per minute

3. Hardware configuration:

CRM server: 2 × Dell PowerEdge R920, 4-socket Intel® Xeon® E7-8880L V2, 32 GB RAM, 1.6 TB Intel® SATA SSD with RAID 0 configuration.

SQL Server HHH: Dell PowerEdge R920, 4-socket Intel® Xeon® E7-4480 V2, 96 GB RAM, 8 × 600 GB SATA SSD with RAID 0 configuration.

SQL Server HHH with Intel® CAS: Same as above with one 800 GB Intel® DC3700 SSD and Intel® CAS.

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