ORACLE SOLARIS 10

PERFORMANCE ADVANTAGES

Increasing demand for more throughput while managing the same or fewer resources is a critical issue in today’s business computing environment. The Oracle Solaris 10 operating system (OS) opens new doors for breakthrough small system performance gains. In fact, it outperforms the competition on customer applications, as well as industry-standard benchmarks.

Optimized System Performance

Optimizing performance and efficiency is a joint effort of underlying technologies, system configuration and use, tools, applications, and system tuning. A newly enhanced TCP/IP stack in Oracle Solaris 10 lowers overhead by reducing the number of instructions required to process packets. Through Oracle Solaris DTrace, Oracle Solaris facilitates real-time troubleshooting of systemic problems and diagnosis of performance bottlenecks. In addition, system performance optimization with the Oracle Solaris 10 OS running on x86 systems enables head-to-head comparisons to Linux and BSD.

Key Performance Enhancements

- Delivers near-linear performance gains: 92 percent for database applications, and 88 percent for Java platform applications
- Speeds up Web workload processing by 47 percent on SPARC platforms with four processors over Oracle Solaris 9, and more than 80 percent over Oracle Solaris 8
- Increases Web workloads on x86 architecture systems, delivering up to 43 percent improvement over Oracle Solaris 9 with two processors
- Increases Secure Sockets Layer (SSL) Data Encryption Standard (DES) performance by 77 percent; performance for 3DES increases by 130 percent over Oracle Solaris 9
- Improves performance up to 38 percent for Oracle Solaris 10 over Linux on dual-processor Sun Fire systems from Oracle
- Outperforms commercial distributions of Linux on x64 systems
- Sets performance and price/performance world records on multiple platforms

Superior Networking

Since its introduction, Oracle Solaris 10 has included an enhanced TCP/IP stack. By optimizing the code and making it easier to develop drivers supporting new hardware technologies, customers have seen as much as 50 percent speed increases when moving network-based applications to Oracle Solaris 10. An enhanced software stack not only reduces CPU overhead when processing network packets, but also improves scalability. More network connections can be supported, and throughput can scale linearly with the number of CPUs and interface cards. This enables the latest 10 Gigabit cards to deliver throughput converging on wire speed.
Application Performance Tools

With DTrace, system administrators, integrators, and developers can use dynamic instrumentation and tracing capabilities to gain visibility into both kernel and user processes. It can also be used on production systems without modification to applications. DTrace is a unique, powerful tool that gives a true system-level view of application and kernel activities, even those running in a Java virtual machine (JVM). This baseline data gathering dramatically reduces the time for diagnosing problems, enabling faster data-driven fixes.

Improved Kernel Performance

Latency reduction in the Oracle Solaris 10 kernel is the result of workload analysis and microbenchmarking. With the mindset that if another OS is faster, it is an Oracle Solaris bug, engineers identified and tackled performance challenges. As a result, many system and library calls sped up by as much as a factor of 15, most of them through fine-tuning kernel algorithms and locating bottlenecks with DTrace. A large number of system calls are improved by 25 percent. To help developers identify performance gaps, the LibMicro4 benchmark was created. It is portable, scalable, extensible, and easy to use. As an aid to the developer community, Oracle offers it as open source.

Advanced Multithreading Capabilities

By simplifying underlying thread implementation, existing applications can see dramatic performance and stability improvements without requiring recompilation. In Oracle Solaris 10, threaded local storage was added, simplifying and improving thread memory usage. The combination of a new threads model and the latest JVM technology significantly improves SPECjbb2000.

Memory Placement Optimization

The Oracle Solaris 10 OS uses memory placement optimization (MPO) to improve memory placement across a server’s physical memory, resulting in increased performance. MPO support is extended to UltraSPARC IIIi and AMD Opteron-based systems, in addition to the range of Oracle’s Sun SPARC T3 Systems, Sun SPARC Enterprise T5xxx and Sun SPARC Enterprise M server lines. Through MPO, Oracle Solaris 10 works to ensure that memory is as close as possible to processors that access it, while still maintaining workload balance within the system. As a result, TPC-H runtime is reduced considerably, TPC-C performance increases, and many high-performance computing applications run in half the time.

Conclusion

Upgrading to Oracle Solaris 10 improves application performance. Users immediately benefit from an enhanced network stack, radically improved kernel, advanced tracing technology, and special optimizations for memory allocation and chip multithreading.

Contact Us

For more information about Oracle Solaris 10, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.