64-bit Perceptive Content Server

Advanced Design and Setup Guide

Perceptive Content Version: 7.1.x

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perceptivesoftware
from Lexmark

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Perceptive Software recognizes that the success of your Perceptive Content system depends on performance, scalability, and reliability. On that basis, you might find that your enterprise requires the depth and breadth of newer 64-bit processor technology to take advantage of expanded Windows operating systems (OSs) such as Windows 2008 R2. Information about why you might want to update to a 64-bit operating system is available on the Microsoft website. This technical paper describes the advantages of running Perceptive Content Server on a 64-bit system. This capability is available for ImageNow Server, version 6.6 or higher.

Advantages of 64-bit Perceptive Content Server

The terms 32-bit and 64-bit refer to a computer processor's capacity to handle data. A 64-bit processor handles larger amounts of RAM than a 32-bit system. As software demands on hardware continue to grow, 64-bit processors quickly overshadow the capabilities of 32-bit processors. The addressable memory limit of 32-bit applications running on a 32-bit processor requires your system to make tradeoffs between memory usage, performance, and scalability. However, 64-bit processor architecture offers many advantages over the 32-bit version of ImageNow Server.

Why move from 32-bit to 64-bit computing?

Large enterprise systems using 32-bit computing run into barriers such as heavy processing loads that push their system's limits, a limited number of operations possible per clock cycle, and a limited maximum capacity of addressable memory. In addition, moving from 32-bit to 64-bit computing allows the enterprise to implement more powerful hardware and operating systems. In these situations, a 32-bit system may be strapped by its own limitations while running at its highest capacity.

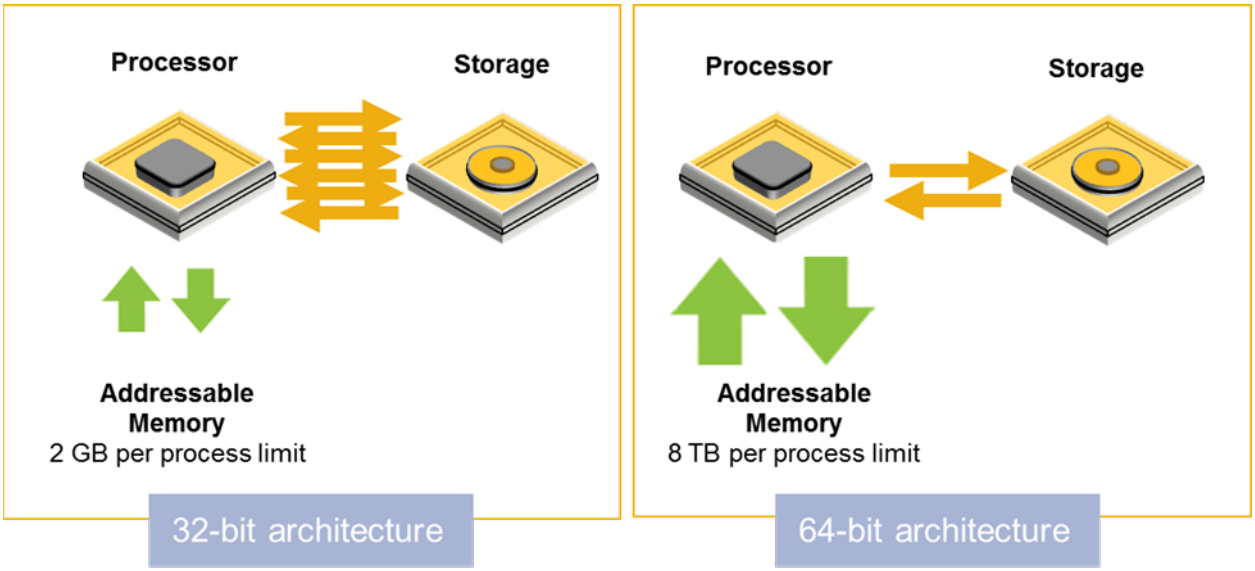
Moving to 64-bit computing allows you to:

- Push beyond any maximum capacity, getting more simultaneous users supported by a single instance of ImageNow Server.
- Radically increase performance and reduce overall system latency.
- Take advantage of higher amounts of addressable memory.
- Rely on higher performance physical memory than slower disk-based virtual memory.

Performance and scalability

An inherent benefit of any 64-bit system is its ability to use large amounts of addressable memory. Typically, a process on a 32-bit system is limited to two-gigabytes of addressable memory, which is the memory that an application can use to operate. A 64-bit OS extends the two-gigabyte limitation of 32-bit applications by raising addressable memory to eight-terabytes per process, which enables ImageNow to perform considerably more calculations with high-speed physical memory rather than the relatively slow disk-based input/output operations of virtual memory.

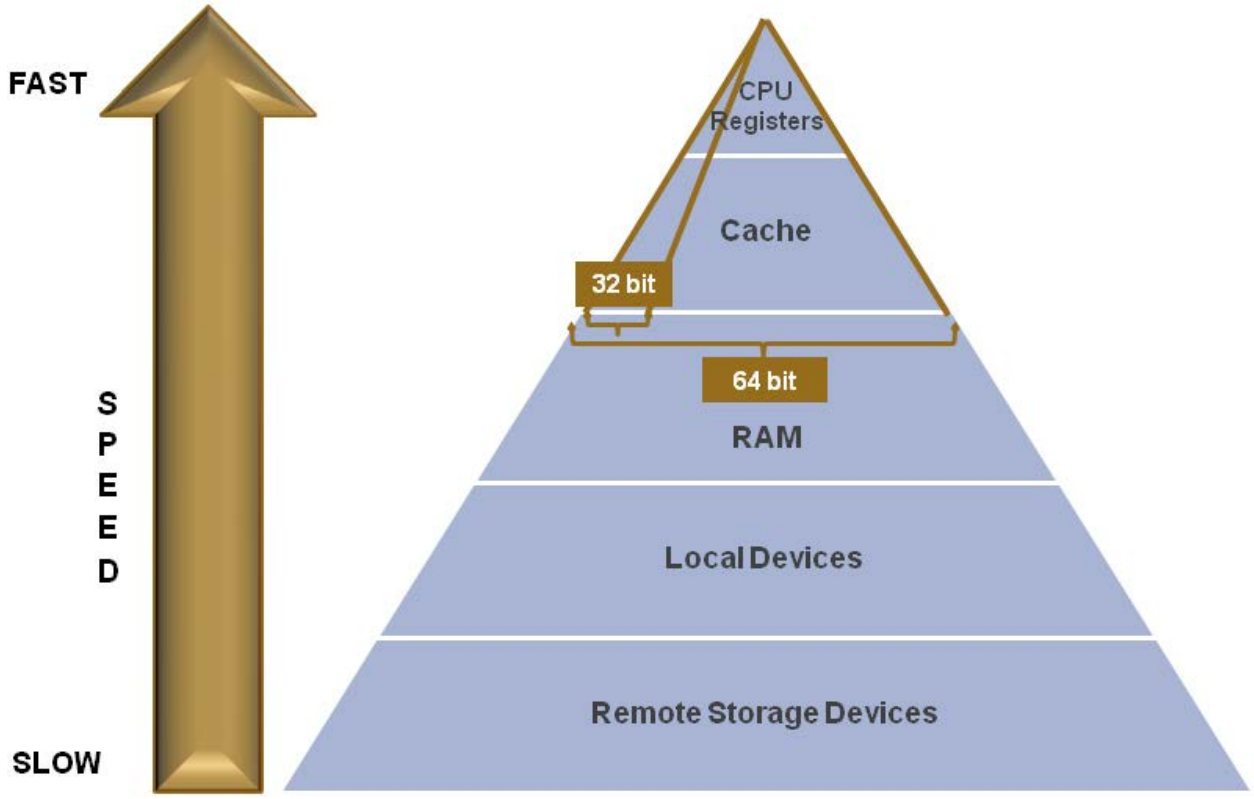
The following figure shows the differences between the two types of architecture:



As this figure shows, advantages of 64-bit architecture include:

- Over 1,000 times more memory capacity, with an increased limit from two-gigabytes per process to up to eight-terabytes per process.
- Streamlined communication between the processor and storage because of increased addressable memory capacity.

The following figure shows types of memory as compared to the speed in which that layer performs. For example, CPU Registers perform the fastest, and cache memory is faster than RAM. However, it is important to note that 64-bit architecture gains orders of magnitude more addressable memory than 32-bit architecture, which significantly increases performance.



Local devices are onboard storage units, such as hard drives, and remote storage devices are removable storage, such as CDs, DVDs, and tape.

Capitalizes 64-bit server hardware

Since a considerable majority of new server hardware is based on 64-bit architecture, you can run some legacy 32-bit applications on more advanced architecture by running software emulation. However, emulations degrade performance and negates the benefits of a 64-bit architecture. In addition, the emulator might not provide an adequate ability to log or debug the system. Because of these limitations, we do not support running Perceptive Content Server in emulated systems. Instead, we designed 64-bit Perceptive Content Server to run natively on 64-bit server hardware, significantly expanding your system's performance.

Since Perceptive Content is a multi-threaded application that is already capable of running on multiple processor cores, your 64-bit Perceptive Content Server is prepared for future generations of 64-bit processors that contain an ever-increasing number of cores.

Additional 64-bit considerations

Perceptive Content Server and Perceptive Content embedded agents can run on a 64-bit machine. However, all extended agents, such as Content Server, must run on remote 32-bit machines. The functional nature of these agents does not require the extended memory and, therefore, cost of a 64-bit machine. WebNow Server on Windows or Sun Solaris can also run on a 64-bit machine. For product technical specifications and system requirements, refer to the Product Technical Specifications for your product version. For information on installing an agent on a remote server, refer to the installation guide for that specific agent.

64-bit system requirements

64-bit Perceptive Content Server is supported on Windows Server 2008 x64, Windows Server 2008 R2 x64 operating systems and architecture only, which excludes Itanium. For additional requirements, refer to the Technical Specifications available on the Perceptive Software website.

Migrating from a 32- to 64-bit OS

In Windows, the 64-bit OS requires a completely different machine. So if you are updating Perceptive Content Server, be aware that updating your system will require additional steps to migrate your Perceptive Content system from one machine to another. For more information, refer to *Moving ImageNow Server to 64-bit Best Practices Guide*.