Facing Network and Data Demands with Customized Intelligent Cloud

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Founded in Beijing in 1998, ChinaCache International Holdings Ltd. (ChinaCache) is China’s leading professional content distribution network (CDN) service provider, committed to providing a full range of network content quick distribution solutions. As 2000’s first CDN service provider approved by the Ministry of Information Industry, ChinaCache currently operates service nodes in a number of cities across the country and covers major Chinese operators like China Telecom, China Unicorn, China Mobile, and China Education and Research Network, providing its customers high-quality CDN services. In 2007, ChinaCache set up a subsidiary in North America, extending its network to customers in the regions of North America and Europe.

CHALLENGES

• Improve CDN network. Evolve from traditional into a new-generation CDN network to meet the challenges of new network application models.

• Increase network performance. Handle mass network data through high-performance processing to give users a faster surfing experience.

• Improve power consumption and I/O transmission. Allow I/O traffic to transmit efficiently to reduce power consumption and eliminate I/O delay.

SOLUTIONS

• Launch new-generation, content-aware, one-stop cloud service. Build a more intelligent virtual network that will provide a more dynamic, efficient and reliable Internet experience for end-users.

• Deploy network servers with Intel Xeon processor E5 family. Achieve superior processing performance and increased network bandwidth of the new CDN network to bring faster surfing experience for end-users.

• Intel® Data Direct I/O Technology (Intel® DDIO). Directly transmit the I/O traffic to the processor cache to reduce transmission process to the system memory while decreasing the system’s power consumption and I/O delay.

IMPACT

• Enhanced and more intelligent CDN services. Intel Xeon processor E5 family-powered CDN network effectively responds to exponentially growing, massive network data and provides data for data-hungry applications.

• Increased data center bandwidth. Faster and highly reliable CDN network enhances end-user experience.

Introduction

As China’s leading CDN service provider, ChinaCache has always committed itself to providing its users with first-class Internet experiences through its CDN services. CDN is a service network that supports users in surfing the Internet faster and more smoothly. Through the servers in the nodes of the Internet, CDN constructs an intelligent virtual network on the Internet, gathering real-time information such as network traffic, node connections, load conditions, as well as distances of the individual end-users and the response time. With this capability, CDN can direct the end-user’s request to the nearest service node to help him obtain the network content in this node. Through CDN, the congestion that can build on the Internet can be resolved, helping improve user access speed for a better and faster surfing experience.

With the launch and development of a variety of new technologies, however, the Internet is facing great changes that a CDN network should keep up with. The Internet terminal is no longer confined to...
With help from Intel, ChinaCache has successfully introduced the secure, reliable, and high-performance Intel® Xeon® processor E5 family into its new generation of content-aware, one-stop cloud services, providing its end-users more intelligent and dynamic services

Therefore, choosing a powerful processor has always been ChinaCache's key concern. In the process of building its CDN network, ChinaCache sought the help of Intel. Intel has gained high recognition from ChinaCache since it has been providing high-performance server processors for a long time. There was no doubt in ChinaCache's mind that working with Intel would ensure that significant improvements would be made in the existing CDN network framework.

To help ChinaCache make more achievements in the new generation of content-aware, one-stop cloud services, Intel introduced the Intel Xeon processor E5 family in the design for the CDN network. With its powerful processing performance, the Intel Xeon processor E5 family provided stronger virtual network data processing capabilities, integrating up to eight cores and supporting 768GB of system memory. Compared with the previous-generation Intel Xeon processor 5600 series, the Intel Xeon processor E5 family has improved the performance of the CDN network by 80 percent.

Intel Xeon processor E5 family can also support Intel® Advanced Vector Extensions (Intel® AVX) instruction set, and improves compute-intensive application performance by two times, such as the commonly used data analysis and high-performance computing performance in the CDN services. Furthermore, the introduction of a range of unique built-in technologies, including the Intel Xeon processor E5 family's Intel® Turbo Boost Technology, Intel® Hyper-Threading Technology, Intel® HT Technology and Intel® Virtualization Technology, has helped ChinaCache flexibly and dynamically improve the performance of the content-aware, one-stop cloud service infrastructure.

Enhancing surfing experience with powerful I/O and network capacity

As a CDN service provider, ChinaCache aims to provide its end-users better Internet experiences. When using ChinaCache's services, users should be able to enjoy smooth network access. In this process, it is important for the CDN network server processors to have powerful I/O and network performance.

Through the Intel Xeon processor E5 family, which uses Intel® Integrated I/O Technology (Intel® IIO) and Intel® Data Direct I/O Technology (Intel® DIDO), ChinaCache's new content-aware, one-stop cloud service effectively responds to the exponentially growing massive network data, and at the same time provides data for data-hungry applications while increasing the data center's bandwidth. The introduction of Intel DIDO technology has helped ChinaCache's content-aware, one-stop cloud service to directly transmit the I/O traffic to the processor cache, thereby reducing the process of transmitting to the system memory and eventually decreasing the system's power consumption and I/O delay.

In addition to these, the Intel Xeon processor E5 family integrates an I/O controller that can support the PCI Express® 3.0 standard. Compared with the previous generation of products, this function reduces the I/O delay by 30 percent. What's more, when combined with PCI Express 3.0, it can increase the throughput by more than three times.

By building a high-performance, content-aware, one-stop cloud service, ChinaCache has redefined CDN service, giving its users better and enhanced Internet service.

Building the next-generation CDN network

The processing capabilities of the CDN network to deal with all the data generated from the virtual network will have a direct impact on the quality of the CDN service. Therefore, choosing a powerful processor has always been ChinaCache's key concern. In the process of building its CDN network, ChinaCache sought the help of Intel. Intel has gained high recognition from ChinaCache since it has been providing high-performance server processors for a long time. There was no doubt in ChinaCache's mind that working with Intel would ensure that significant improvements would be made in the existing CDN network framework.

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Find a solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers (www.intel.com/itcasestudies) or explore the Intel.com IT Center (www.intel.com/itcenter).