IBM And Intel Initiative Accelerates Virtualization On Multi-Processor Servers

by Bend Weekly News Sources

IBM and Intel Corporation have joined in an initiative aimed at improving how IT managers select, deploy and measure virtualized server solutions for enterprise data centers. Virtualization technology, such as VMware Infrastructure, on Intel-based servers is becoming widely used in production environments and is increasing capturing mid-tier application workloads.

â€œAs mid-sized and large enterprise IT organizations strive to cash in on the cost savings of data center consolidation through server virtualization, hosting applications on larger, more expandable multi-processor servers delivers the best return on investment,â€• said Jim Northington, vice president, System x, IBM. â€œNevertheless, many organizations need the tools to help them select the server platform that works best in their unique environments.â€•

One of the first tools to emerge from this joint initiative is a new virtualization benchmarking methodology called vConsolidate that runs multiple instances of consolidated database, mail, Web and JAVA* workloads in multiple virtual CPU partitions on Intel-based System x servers to simulate real-world server performance in a typical environment. IBM and Intel are contributing the vConsolidate methodology to an industry standards body for consideration.

â€œIntel took a major step toward accelerating virtualization with the introduction of our first processors with integrated IntelÂ® Virtualization Technology more than a year ago, and we have built a broad software ecosystem to support it,â€• said Boyd Davis, general manager of Intel Server Platform Group Marketing. â€œBy creating the vConsolidate methodology with IBM, we are helping to make it easier for IT managers to adopt the technology and compare processor platforms and system configurations.â€•

Using vConsolidate to benchmark the IBM System x3950 server with four dual-core IntelÂ® XeonÂ® 7100 processors shows the x3950 delivers up to 46 percent more performance throughput than a competing system when running a mix of larger two- and four virtualized processor partitions**.

Based on this and other customer test results, IBM and Intel created a VMware Infrastructure Sizing Guide aimed at helping customers select and appropriately configure the various virtualized server options available

to them. This tool draws from IBMâ€™s vast virtualization experience, dating back to its pioneering work on mainframe virtualization 40 years ago, and the lessons learned from helping customers consolidate their server environments. The result is a tool that provides recommendations for target utilization rates, the total number of virtual machines that will be needed to run the application, and the number of physical servers required to support the computing workload and goals. The tool identifies an economy of scale associated with larger server configurations based on:

Ability to support more applications when usage peaks
Conservation of reserve memory across all virtual machines on a server
More processor targets for scheduling job execution

Both the sizing guide effort and the vConsolidate testing results identified memory as a key limiting factor in determining how many virtual machines can be loaded onto an Intel-based server. IBM and Intel researchers have studied the impact of increased addressable memory on virtualization performance. By collecting data from more than 10,000 servers through IBMâ€™s Consolidation Discovery and Analysis Tool, the researchers determined that while virtualization increases total processor utilization, additional reserve memory is required to allow for application usage spikes.

This insight prompted further joint development using the IBM System x3950 as a large memory system reference configuration to increase the total addressable memory pool from 64GB to 128GB. Intel and IBM expect this expanded memory addressability to be supported in the leading virtualization platforms beginning next year.

"The success weâ€™ve seen with our System x servers and the Intel Xeon 7100 processor series architecture gives us the confidence to invest in a fourth generation of our Enterprise X-Architecture supporting quad-core Intel Xeon processors for multi-processor servers in the middle of 2007,â€• said Northington.

To assist customers with making virtualization adoption decisions, IBM expects to open the Virtualization Resource Center (VRC) in early 2007. Customers will be able to apply principles gleaned from vConsolidate and sizing guide activities to their particular environments and software workloads. The VRC will help IBM resellers translate the general benefits of using large Intel Xeon processor-based servers to specific â€œproof of conceptâ€• application tests conducted over 30- to 60-day studies.

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