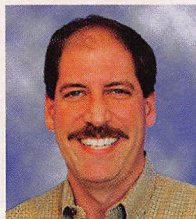


By: Jeff Hudgins



First the Tick, Now the Tock

The first year of the Intel Tick-Tock model ("Tick") refers to the new silicon process technology which increases the transistor density within a smaller existing microarchitecture. The second year ("Tock"), refers to the introduction of a new processor microarchitecture to optimize the value of the increased number of transistors. 2009 is the "Tock" year of the new Intel Microarchitecture (Nehalem). Computer Manufacturers, Independent Software Vendors, and end users will all feel the affects of this technology transition over the next 18 months. And like any technology shift, timing is critical.

Let's first consider the impact to adjacent technologies in the system. Memory will be forced to transition from DDR2 to DDR3 under Nehalem. The projected shipping volumes of these two DRAMs are projected to reach parity sometime in the third quarter of this year. One would expect to pay a premium until parity is reached. Operating systems such as Windows and Linux have a limited ability to use the 32 threads available with Nehalem. The operating system could potentially trip over itself as threads compete for resources.

Next let's focus on the application itself. In an eight socket system supporting up to 128 threads, only highly specialized applications will be able to make effective use of the system. The addition of more cores

provides capacity to run more independent tasks simultaneously, however, single threaded applications will not be able to take advantage of more cores. Individual software tasks may see only a modest per-core performance boost, unless the application is written with enough threads to exploit the number of threads and cores in the system.

Finally, there are some side impacts to the environment to consider. Intel used a strict power/performance efficiency threshold to measure against. If a feature could not add more than 1 percent performance gain versus 1 percent power gain for a less than 3 percent power cost, then the feature was not added. This strict process ensures the most efficient processor design. Virtualization is an ideal application for the new Nehalem microarchitecture as well and a perfect opportunity to lower enterprise or data center power budgets.

Final Score. The best time to move to the new Nehalem microarchitecture will depend upon many factors, but the final decision will depend upon the competitive environment and customer impact. If improved performance, bandwidth, and power efficiency will differentiate the solution, then the time to begin the transition process is here. **IT**

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VoIPeering

By: Hunter Newby



The Bank of the PSTN

As most businesses small and large try to cope with the reality of the current economy they wonder how they will manage their financing needs. Banks are not lending, even though the government gave them billions.

Equity has been halved in many companies, so selling more of it to investors or the street is not a pleasant thought. Expenses need to be cut in order to survive, so where can one turn without going the typical route of just laying people off?

The Bank of the PSTN is open for business. The PSTN is a bloated, overweight and out-of-shape excuse for a communications system. (Sorry Mr. Vail.) Similar to our government itself, it is wasteful, very expensive to maintain and has within it countless local loopholes that drain the funds from anyone trying to use it. There is a better way.

Cutting operating expenses in half by creating a better network is not for everyone. It requires a brain, will and energy. If any of the three are missing it won't work. The fundamental shift is from circuit-switched TDM to the packet-switched VoIP and it is no longer a leap of faith. The truth is that VoIP works

and that if your business does not switch to it you are certain to continue spending too much. In today's economy that may mean the difference between staying in business and not. For those fearful about security, know this: you are not trading the PSTN for the Internet. You are exchanging TDM for IP. From that simple reality comes 90 percent of the savings. Places where the fat will be trimmed include the cost per minute of a call, the local access from T1 to Ethernet, the cost per port on the equipment, self-provisioning of numbers, in-house IT department control of troubleshooting and repair and much more.

Moreover, the \$6 billion Broadband Stimulus Bill making its way through Washington DC right now won't be spent on TDM, but on Ethernet, wireless Ethernet and wavelengths as well as other broadband technologies. The future is now and it has been with us for several years. Inaction is a luxury that can no longer be afforded by those who do not use VoIP. **IT**

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