



## ***The Charlotte Observer Looks to Make Headlines with Intel Multi-Core Processors and Virtual Iron***

**VirtualIron** *The Charlotte Observer* expects increased application performance, greater utilization and lower operating cost using Intel multi-core servers and Virtual Iron software.



### **The virtues of virtualization**

Server virtualization is transforming the way organizations manage their systems and applications, helping them consolidate their infrastructure, optimize utilization, reduce total costs, and improve business agility. Virtualization gives data center managers opportunities to dramatically increase system performance, reduce server sprawl by consolidating multiple applications onto a single server, and dynamically allocate available resources during periods of peak demand. As a result, virtualization is catching on fast. IDC estimated that by 2007, 40 percent of servers will ship with virtualization features. The key to finding real value in virtualization, however, is in the ability to quickly and easily manage server resources to address specific business requirements.

Intel-based virtualization solutions provide just such a solution; a cost-effective, highly scalable virtual machine platform that allows data center managers to consolidate, partition, and manage systems in mission-critical environments. Ideally suited for enterprise data centers, the combination of Virtual Iron and Intel can minimize the total cost of ownership of computing infrastructures by increasing resource utilization and maximizing administration flexibility.

### **Performance gains and cost savings**

Virtualization solutions from Intel and Virtual Iron will help *The Charlotte Observer* improve the performance of mission-critical business applications and cut costs in the data center through a transition to industry-standard platforms. Servers featuring Intel® Virtualization Technology (Intel® VT) used in conjunction with enterprise class software solutions from Virtual Iron demonstrated significant performance improvements in system trials. As a result, the Observer has begun an enterprise migration of key applications; moving from a proprietary hardware platform to servers running Linux\* and the Quad-Core Intel® Xeon® processor 5300 series. Virtual Iron's enterprise-class software solution is helping to optimize application workloads and ensure that the new systems take full advantage of the hardware-assisted virtualization features of Intel multi-core processors.

### **The Need**

*The Charlotte Observer*, North Carolina's largest daily circulation newspaper, needed to reduce data center costs while improving the overall responsiveness of mission-critical applications. Legacy systems running on expensive, proprietary hardware were no longer meeting their needs in terms of cost and performance.

### **The Testing**

*The Charlotte Observer* put both Intel and Virtual Iron to the test by conducting a series of system trials that produced dramatic performance gains. Industry-standard servers running Linux\* on Quad-Core Intel® Xeon® processors 5300 series with Intel® Virtualization Technology (Intel® VT) and Virtual Iron virtualization and management software dramatically outperformed proprietary platforms in terms of price and performance.

### **The Benefits**

Application performance improved greatly in the test of Intel multi-core servers with Intel VT and Virtual Iron. What were once long-running nightly jobs now have the potential to be completed in minutes. Capital and operational expenditures should also decrease. With fewer servers in the data center; maintenance costs, electricity, and cooling requirements will also diminish.

### **The Strategy**

*The Charlotte Observer* is moving mission-critical applications to Linux-based servers featuring the Quad-Core Intel Xeon processor 5300 series—the world's first quad-core processor for mainstream servers. The organization anticipates significant performance gains and will use Virtual Iron to ensure that all systems are optimized to leverage the capabilities and cost advantages enabled by Intel multi-core processor-based server platforms featuring Intel VT.

### **About the Company**

*The Charlotte Observer* is the premier newspaper in the Charlotte region, which is the second largest banking center in the United States. The Observer has won four Pulitzer Prizes, including two for public service, the pinnacle of American journalism.

The performance gains and cost savings achieved with Intel and Virtual Iron were established during comprehensive system trials performed by the Observer IT department. Tests compared a variety of competing servers, chips and virtualization software options. In the end, results pointed dramatically in favor of systems running Virtual Iron on platforms powered by Intel multi-core processors.

*The Charlotte Observer's* IT Infrastructure Manager, Geoffrey Shorter, is excited about the performance enhancements available with Quad-Core Intel® Xeon® processors and the improvements in resource utilization made possible by Virtual Iron. "Virtualization is really one of the more exciting things going on in the data center right now," says Shorter. "The virtualization technology that Intel is building into their chips enables a much more efficient virtualization solution."

The combination of Intel Quad-Core processors and Virtual Iron's dynamic resource management capabilities will enable the Observer to more fully utilize the processing power available in its data center. System utilization is increased by automatically matching available capacity to workload demands during periods of peak processing. Virtual Iron allows any virtual server to move between different computers on-the-fly according to preset CPU usage thresholds. Server utilization is optimized because business-critical applications have the resources they need, when they need it, without disruption or intervention.

While the prospect of improved performance is driving the enterprise migration at the Observer, the initial incentive that motivated Shorter and his team to consider Intel-based virtualization was the need to reduce hardware expense. "We started looking at Intel as an alternative when we were looking to cut costs," explains Shorter. "All three of our major business applications were running on proprietary hardware and software, and the maintenance costs were just out of hand."


Shorter set out to reduce the number of servers in his data center, and he anticipates that the combination of Intel multi-core processor servers and virtualization software will ease maintenance and other support costs. "One of the many reasons that we are interested in doing virtualization is in trying to reduce the number of physical servers that we have to maintain," says Shorter. "You really start talking about tremendous savings in the cost of the hardware itself, and in the cost of electricity and cooling."

### **Intel and Virtual Iron put to the test**

The Observer put Intel and Virtual Iron to the test by conducting a series of system trials that resulted in dramatic improvements in the performance of their mission-critical circulation application. "We took our Oracle production database that we use for our circulation system, froze it in time, and ran it on a variety of operating systems and processors. We then tested the performance of jobs that we run every day in our data center. We know exactly how long each one takes on our current production system, and we ran exactly the same jobs over and over." According to Shorter, this benchmark was used to grade the performance of their circulation application on each test system. "What we saw in those tests was that the Intel chip really just blew away the competitors. Intel was the best of all of the platforms that we tested."

*"Virtualization has the potential to deliver huge advantages in data center cost savings and complexity...However, cost-savings alone are not enough. Virtual Iron's enterprise-class solution, in combination with Intel Quad-Core, delivers this and more at less than 20 percent of the cost of alternative solutions."*

**Geoff Shorter**  
IT Infrastructure Manager  
*The Charlotte Observer*



“We had one particular job that would normally take 45 minutes on the existing server. We ran it on the Intel server and it took only 11 minutes—a huge efficiency gain.” Shorter recognized that the performance gains he observed in his tests could also improve the timeliness of nightly circulation report generation. “Circulation reports are critical since they ensure the newspaper is delivered to the correct people,” explains Shorter. “We had complaints from our circulation division that these reports were getting later and later every day. They have to be done before 7:00 p.m., and they were now stretching past 7:30 p.m. every night.” Once again, application tests confirmed dramatic gains in performance using Intel and Virtual Iron. “Those reports are now usually finished before 6:00 p.m.,” says Shorter. With Virtual Iron and Intel, the newspaper can also accelerate the processing of news items, supporting the Observer’s goal of providing readers with the latest news and sports information every day.

### **Moving forward with Intel and Virtual Iron**

The benefits made possible by Intel VT-ready multi-processor servers and Virtual Iron are making a difference for the Observer, and Shorter is now leading the process of migrating key enterprise applications. “Based on our testing, we decided to move business-critical applications to Linux on Intel,” says Shorter. To date, efforts are on track. The Observer is deploying their production circulation system to a server featuring Dual-Core Intel® Xeon® processors and so far the results have been impressive. “The end users are absolutely astounded at the difference in speed. What once were long-running jobs are now done in just a couple of minutes. In fact, our operators came to us saying that the jobs must have aborted for it to run that fast. But no, it’s just that Intel dual-core is that much faster.”

Based on their success with Virtual Iron and Dual-Core Intel Xeon processors, Shorter and his team are enthusiastic about the additional performance gains available with the new Quad-Core Intel® Xeon® processor 5300 series. Once again, tests at the Observer have demonstrated yet another performance leap. “We have four instances of our production database running on four virtual machines on top of Virtual Iron,” explains Shorter. “The difference between a dual-socket dual-core and a dual-socket quad-core processor is simply amazing. It’s beyond what we were expecting to see.”

### **Server consolidation saves**

Increased utilization and outstanding performance may be the leading story at the Observer, but Virtual Iron will enable Shorter and his team to meet their first objective: cost savings. By reducing the number of servers needed for the same tasks, Shorter can reduce the complexity of his data center. Another target benefit is a decline in maintenance costs and a drop in electricity and cooling requirements. “We have already virtualized 14 of our production servers,” explains Shorter. “What used to be 14 individual hardware servers are now running on two hardware nodes. That’s the type of ratio that we believe we can see with most of our server farm.”

IT professionals from all industries will benefit from virtualization, and Shorter believes that Intel and Virtual Iron combine to offer a cost-effective, high-performance solution. “Being in the newspaper industry, one of the things that we are tasked with in IT is reducing costs, and that involves going to virtualization—reducing the number of servers we have, and reducing electricity, heating and cooling costs.” According to Shorter, Virtual Iron’s reasonable and low pricing model helps enable these savings at a price that makes sense. “The pricing of the various virtualization products available on the market today is really a big factor for us,” says Shorter. “We see Virtual Iron delivering the performance we need at less than 20% of the current market leader’s price.”

## Increased performance, lower operating cost

The headline for *The Charlotte Observer* is this: Increased application performance at a lower operating cost. Armed with servers featuring the Quad-Core Intel Xeon processor 5300 series with Intel VT and Virtual Iron virtualization and management software, Shorter and his team are mapping their strategy through the first three quarters of 2007. "In April we are planning to migrate our advertising system to the Quad-Core Intel Xeon 5300 processor; which our tests have shown so far tremendously outperforms even the dual-core processor." Shorter will rely on Virtual Iron to fully utilize the performance of his new systems for further server consolidation. "Now we can really leverage the virtualization technology that Intel's building into the hardware."

*The Charlotte Observer* is an example of how Intel technology is helping a large newspaper reduce data center complexity and gain new levels of system utilization while improving service levels for its readers. Virtual Iron is helping data center managers reduce operating costs and leverage the high-performance capabilities built into Intel multi-core processors.

## The Virtual Iron/Intel Advantage

Customers like *The Charlotte Observer* are now in position to leverage the full potential of virtualization. Through advanced capacity management, Virtual Iron offers IT organizations the capability to isolate applications, optimize resource utilization, increase uptime and improve manageability. Virtual Iron and Intel are jointly aligned when it comes to virtualization, and Virtual Iron will continue to capitalize on new Intel performance features and functionality as they are developed.

Combining Virtual Iron's virtualization solutions with platforms featuring the new Quad-Core Intel Xeon processor enables users to reap the benefits of server consolidation with a highly scalable and reliable solution. As the world's first quad-core processor for industry-standard servers, the new Quad-Core Intel Xeon processor 5300 series is built to enable both superior multitasking performance and superior performance-per-watt.

While Intel provides the processor virtualization technology to enable server virtualization, Virtual Iron provides the enterprise class virtualization management layer that enables the pooling, sharing and management of server, storage and network resources. The combination of Intel's hardware-assisted virtualization with the virtualization management capabilities found in Virtual Iron's software provide IT organizations with a best-in-class virtualization solution.

### For more information:

*The Charlotte Observer*

[www.charlotte.com](http://www.charlotte.com)

Virtual Iron

[www.virtualiron.com](http://www.virtualiron.com)

Intel® Virtualization Technology

[www.intel.com/technology/virtualization](http://www.intel.com/technology/virtualization)

Quad-Core Intel® Xeon® Processor 5300 Series

[www.intel.com/quadcoreserver](http://www.intel.com/quadcoreserver)

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