

## HIGHLIGHTS

### CHALLENGE

Data center is pushing limits of power, cooling, and rack space

### SOLUTION

VMware® and Intel technology allows users to virtualize and consolidate underutilized servers, freeing up data center space.

### VMWARE AND INTEL AT WORK

VMware® Infrastructure 3 Enterprise, featuring:

- ESX Server 3
  - HP DL580 servers with Intel Xeon processors attached to EMC CX-320 SAN
- VirtualCenter 2
- VMotion™
- Distributed Resource Scheduler (DRS)
- High Availability (HA)

### DEPLOYMENT ENVIRONMENT

- Guest operating systems: Windows Server 2003
- Virtualized Applications: homegrown applications specific to overall utility functioning and water forecasting

“Our data center was pushing the limits on power, cooling and space; VMware and Intel technology worked together to help us solve our challenges.”

**Steve Kroesen**

*Network Systems Administrator,  
Tampa Bay Water*

## VIRTUALIZATION KEEPS THE IT SYSTEMS RUNNING AND THE WATER FLOWING IN TAMPA BAY

Tampa Bay Water is an agency of the State of Florida that supplies water to nearly 2.5 million people in the Tampa Bay Area—the 19th largest metropolitan area in the United States.

Most people have just one expectation when turning on the tap: that water will come out. At Tampa Bay Water, it's their job to make sure these expectations are met. Fulfilling this mission requires a sophisticated arsenal of behind-the-scenes technology, including an extensive computer system for Hydrological Water Modeling.

Supporting this new water modeling system put serious demands on Tampa Bay Water's IT infrastructure. “Five 1U servers turned into ten, then into 20, and so on,” says Steve Kroesen, network systems administrator for the agency. “We reached the point where we were maxing out our uninterruptible power supply (UPS).”

Tampa Bay Water looked at the side of its production environment which didn't involve the modeling system—and which was highly under-utilized from a CPU perspective—and saw a good fit for a virtualization solution based on VMware and Intel technologies. The company purchased four HP DL580 servers with Intel Xeon processors to drive consolidation of new and existing systems. This effort allowed Tampa Bay Water to free up two full racks for the water modeling system, providing enough available power and air conditioning to run the entire environment. “It turned into a win-win solution for us,” says Kroesen.

## RESULTS

- Achieve 11:1 server consolidation ratio. “Tapping into the Intel Xeon processors inside our VMware ESX hypervisors lets us easily run 45 virtual machines on just four physical hosts,” says Kroesen. “We run VMware Distributed Resource Scheduler (DRS) in our environment with great success and have the ability to easily VMotion between all hosts in the cluster.”
- Decrease power consumption by 30 percent. “Our UPS was hitting 80-85 percent—the range where it starts sending out alerts,” says Kroesen. “Virtualization helped us bring our UPS back down to 50 percent.”
- Reduce server count by 28 percent. “In our main facility, we have seven racks, and we've been able to completely empty two of them by leveraging VMware and Intel technology,” says Kroesen.