



Shippensburg University's Computing Technologies Center (CTC) has been hard at work minimizing the environmental impact of our campus computing systems. In accordance with the campus green initiative, CTC staff has been implementing green solutions where possible, and would like to highlight one of them.

Server virtualization is a technology that allows administrators to more efficiently utilize server hardware. Virtualization helps consolidate multiple physical servers onto just one virtual server. Shippensburg leverages vSphere™, a software platform from VMWare, to optimize hardware efficiency in response to several challenges in datacenter management.

With over eighty servers in our datacenter, power consumption is an issue. On average, each server uses 1750 kWh of power per year. Continuing to add servers at this level was simply unsustainable. Second, datacenter space is a scarce resource to house these servers. And lastly, administrative overhead on that amount of hardware was burdensome on CTC staff.

Server virtualization is the solution. So far we have been able to consolidate physical servers to virtual servers at a ratio of 10:1. "Our servers were only using a small fraction of their processing power, between 5 and 10 percent." said Dennis H. Mathes, Associate VP for Information Technology and Services "We've been able to greatly increase the efficiency in which we deploy our hardware resources."

The benefits of server virtualization are many. Mathes points out that the CTC will continue to virtualize servers where possible and says that when they have finished they will have vastly reduced the number of physical servers in the datacenter.

In addition to energy savings, eliminating physical servers for virtual servers means less hardware being disposed of when it reaches end of life. It also means fewer resources used to manufacture servers. It is estimated that for each server virtualized, 4 tons of CO₂ emissions are reduced; the equivalent of taking 1.5 cars off the highway.

Ongoing energy savings are expected as physical servers not only require electricity, but they also produce great amounts of heat. "We also hope to realize some savings in our datacenter HVAC costs" says Mathes, "it's really a win-win for everyone".

In addition to environmental benefits, virtualization allows for a more scalable datacenter. CTC staff can provision resources much quicker to meet the ever growing computing demands of Shippensburg University.