

## Virtualization draws from two computing eras



Virtualization is a growing strategy for computing at Virginia Tech. This strategy, as in the days of the massive mainframe, puts computing machines in a large facility administered by a team with expertise in system operations and security. But virtualization also draws from the more recent era of decentralized, stand-alone computing boxes dedicated to special uses. Virtualization achieves economies in hardware investments, “greener” use of electrical power and cooling, and improved security for both the physical computing resources and for the data those resources handle.

The ongoing virtualization project for university computing specifically seeks to

- reduce the costs for purchases of servers;

- reduce the costs of network connections;
- reduce the need for electrical power, cooling, and facilities;
- improve business agility by re-directing computing resources as needs change.

Virtualization can make a single computing server appear as though it were several different servers with different services or applications on each one. Since few stand-alone servers operate at peak capacity, the excess capacity of the virtualized servers can be re-purposed to other uses as the need arises. In essence, the “slice” of the server being used by one virtual server can be adjusted dynamically. The net result is more efficient use of each computing resource. Rather than investing in the capacity for

infrequent peak demand, investment in a “slice” of a virtual server yields that peak capacity when needed, while scaling the investment to more typical usage.

By reducing the aggregate number of computing servers required, virtualization helps reduce the overall energy requirements. Inside a common location, controls for environmental quality and physical security can be managed coherently. For example, in the Andrews Information Systems Building data center, physical access to the machines is controlled; the power supply is protected, conditioned, and backed with emergency power; and the required temperature controls for larger-scale computing is provided.

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## New at the Faculty Development Institute



For more than 15 years, Virginia Tech's award-winning Faculty Development Institute (FDI) has provided opportunities for faculty, staff, and graduate students to expand their craft by integrating learning and research technologies into their work. Including academic year short courses and summer tracks, FDI fills well more than 4,500 seats every year.

An integral characteristic of FDI's model is ever-evolving programming that includes new and emerging technologies each semester. This design ensures that offerings remain current and relevant to the university community. This curricular approach is coupled with workshop and track models that reflect current, research-informed best practices in adult learning. One new track model offered by FDI is the faculty inquiry group. Typically limited to 8 to twelve faculty members, the inquiry group provides support and guidance to those wishing to explore a key topic or issue in depth.

FDI has forged a number of key

partnerships to broaden its programming to better meet needs across campus. Key among these are short courses and tracks offered in conjunction with the Office of Sponsored Programs, the Center for Excellence in Undergraduate Teaching, Research Computing, the Graduate Education Development Institute, Newman Library, and the Office of the Vice President for Research. FDI also brings key vendors to campus each semester, including SAS and MatLAB, to provide expert training in these strategic areas. The latest courses can be found in the FDI catalog. Scholar, tablet PCs, emerging Web 2.0 technologies, as well as the pedagogies they enable, are among the topics available this spring and summer.

"Creative Technologies: Arts in the Digital Age" is a new offering this summer that exemplifies collaboration and curricular reinvention. This program carves out space and time for participants to explore newer learning technologies together with

others with expertise particular to the creative technologies arena.

The "Creative Technologies" track recalls some of FDI's earliest seminars by exploring the interaction of emerging technologies with program initiatives in early stages of development. In concert with the university's Arts Initiative, track participants will explore the intersection of the arts, technology, and education. The Arts Initiative is a comprehensive university-wide effort to enhance the presence and practice of the arts. It includes plans for new performance spaces, for attracting new artists, for using technology to extend the arts to the commonwealth's K-12 schools, and for serving as a catalyst for economic development. FDI's setting provides opportunities for faculty members to extend the Arts Initiative's vision and to begin planning for specific implementation programs.

See [www.fdi.vt.edu](http://www.fdi.vt.edu) for schedules of short courses and summer tracks.