

Thrashing Toward the Future

October 2007

I first started working with computers in the days of mainframes. Mainframes were massive in size and expensive. A 5 million dollar mainframe could have less than 32 meg of physical memory. As computer programs became more complex and memory hungry, and the need to run multiple programs or jobs "concurrently" became a necessity, virtual memory -- an area on a computer's hard drive -- was used as an extension of physical memory. Instructions sat in their own areas of virtual memory until they were needed -- instructions were read into physical memory as needed. If the number of processes, or a single process, did not have enough physical memory, the computer would spend all of its time loading instructions and data from virtual memory into physical memory -- thrashing -- and not computing -- doing meaningful work.

[Between 1979 and 2004]. Processor speed, memory, disk capacity, and network speeds have followed Moore's law and improved exponentially. A 3GHz processor is cheaper now than a 1Mhz processor was then. A gigabyte of memory costs around \$300 (2007 as low as \$50, 1GB Memory stick \$15) compared to \$30,000 for a megabyte. A 250 gigabyte disk now costs around \$250 (2007 \$79 – 500 GB Western Digital External Drive) compared to about \$10,000 for a 100 megabyte drive. Meanwhile, networking speeds of 64 kilobits a second have increased to a Gigabit a second. (2004 - Migrating an MVS Mainframe Application to a PC Glenn S. Fowler, Andrew G. Hume, David G. Korn and Kiem-Phong Vo AT&T Labs - Research 180 Park Avenue, Florham Park, NJ 07932, USA -

www.usenix.org/event/usenix04/tech/freenix/full_papers/fowler/fowler_html/index.html)

So what's the point ... I think we're thrashing ... and we have been for quite a while -- both in the "what" and the "how" of executing our work as educators. I think we all have our ways of dealing with the thrashing -- and I believe some ways are better than others. (For example, Curriculum Mapping - should help / but doesn't always (Maria and "leads lesson"))

The idea of "Project Organizers" came about not as a stroke of genius -- but as a stroke of desperation... and that's where this story begins...