**Flash Research Assignment #3: Virtualization and Cloud Computing**

 As the next hardware refresh cycle approaches, we should invest in virtual machines under VMware, which will utilize virtualization to consolidate our server workloads (VMware). Using VMware, we can consolidate our 1000 physical servers to only 200 physical servers and 80 virtual machines. Investing in this technology will save us $9,200,000 in hardware and maintenance costs over the next three years.

 Our current physical systems each host an operating system and applications that run separately from one another. These are costly, spacious, and inefficient (our servers run at around 10% of their capacity) (SearchDataCenter). With virtualization however, *one* virtual machine server can run *multiple* virtual servers on it, meaning that up to ten operating systems and applications can run simultaneously on one machine (Gartner). By investing in VMware, we can reduce 80% of our servers to virtual machines, which means 800 of our physical servers to 80 virtual machines. These virtual machines will all be running at full capacity too, so no storage will go to waste.

 Investing in VMware will save us a considerable amount of money over the next three years. With our current setup, we paid an average of $8,000 for each of our 1,000 servers. Along with $2,000 per year per server for hardware and software maintenance, technical support, and power and cooling, we’ll have spent $14,000,000 in three years for these servers. For the higher end virtual machine servers though, we’ll pay approximately $16,000 per server and $3,000 per year per server for hardware and software maintenance, technical support, and power and cooling. While these are higher costs than with the physical servers, we’d only be purchasing 80 virtual machine servers versus 1,000 physical servers. The 80 virtual machine servers, along with 200 physical servers, will cost us $4,800,000 over the next three years, saving us $9,200,000. Because of these savings, we’d be foolish not to invest in VMware.

**References**

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