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Flash Research Assignment 2

We spend an average of $4.6 million every year on our database servers, but on most of our current servers, we utilize only about 10% of the server capabilities. With new servers capable of virtualization, we can significantly improve our utilization and make more efficient use of our servers. With that efficiency comes savings in the forms of space, time, and money.

Virtualization is software that separates sections of physical hardware, so that separate operating systems and separate processes can run simultaneously on a single physical server. Our current servers can each only run one operating system and one process at a time. This means that we have large servers being used to handle menial processes. When virtualization is used, the hardware server is separated into smaller virtual machines. Since they are separated, each can run a different operating system, and also effectively handle separate tasks. This way, those smaller processes that were previously using full servers can run just as efficiently, but on much smaller, virtual machines. There are performance differences when running on hardware versus virtual machines, but the differences are minimal and rarely noticeable.

I estimate that with virtualization, we would be able to shrink our number of servers from 1000 to 280, with 200 being traditional servers and 80 virtualization servers. According to Thomas Burger, servers that support virtualization require more memory and processors, but they use “little or no more power” as well as less space than traditional servers (Burger). The new servers cost twice as much as our traditional servers at $16,000 as compared to the old servers at $8,000. Because we would need just 200 traditional servers and 80 virtualization servers instead of the 1000 traditional we currently use, our actual purchase expense is only $2.88 million compared to $8 million for our current servers. Of course, the more expensive servers also cost more in upkeep, but only 50% more than our current servers. Due to the smaller number of servers needed, we would end up saving $1.36 million per year, starting immediately at implementation. In just the first year, implementing virtualization will save $6.48 million. Over three years, a net benefit of $9.2 million is expected.

Works Cited:

Angeles, Sara. “Virtualization vs. Cloud Computing: What’s the Difference?” Business News Daily, 20 January 2014, http://www.businessnewsdaily.com/5791-virtualization-vs-cloud-computing.html.

Burger, Thomas. “The Advantages of Using Virtualization Technology in the Enterprise.” Intel® Software, Intel, 7 June 2017, software.intel.com/en-us/articles/the-advantages-of-using-virtualization-technology-in-the-enterprise.

Rouse, Margaret. “What is virtualization? - Definition from WhatIs.Com.” Tech Target,

Figure 1:

|  |  |  |
| --- | --- | --- |
|  | Per unit: | Total with Implementation: |
| Purchase Cost New | $ 16,000.00 | $ 2,880,000.00 |
| Purchase Cost old | $ 8,000.00 | $ 8,000,000.00 |
| Upkeep cost new | $ 3,000.00 | $ 640,000.00 |
| upkeep cost old | $ 2,000.00 | $ 2,000,000.00 |
| # of servers new | 80 |  |
| # of servers old | 1000 | 200 |

Figure 2:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | 1 | 2 | 3 | Total |
| Cost Current Servers: | $ 10,000,000 | $ 2,000,000 | $ 2,000,000 | $ 14,000,000 |
| Cost New Servers | $ 3,520,000 | $ 640,000 | $ 640,000 | $ 4,800,000 |
|  |  |  | Net benefit: | $ 9,200,000 |