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Flash Research Assignment 2

Virtualization and Cloud Computing

Utilizing virtualization and cloud computing to consolidate server workloads will lead to a three-year net benefit of $9.2M for our company. Virtualization allows companies to run multiple operating systems and applications on the same server simultaneously. For this hardware refresh cycle we can consolidate 800 of our 1,000 physical servers onto 80 virtual machine servers, saving us money in initial implementation costs and yearly maintenance costs.

Virtualization software separates computer environments from physical hardware, which allows servers, storage and other systems to be independent of the physical hardware layer. This will allow 10 of our physical servers to be consolidated onto 1 VM server. Reducing the number of physical servers by collapsing them into virtual servers will lead to significant savings in power and cooling costs and allow us to eliminate over-provisioning of servers. The virtual machine servers would lower costs by allowing us to streamline and maximize resources and optimize hardware capacity.

The three-year cost of this hardware refresh cycle using VMware will be $4.8M; this stems from the initial $2.88M cost of purchasing the servers and the yearly maintenance cost of $1.92M. The total three-year cost avoidance benefit of purchasing all physical servers and not utilizing virtualization will be $14M, stemming from the initial purchasing cost of $8M and the yearly maintenance cost of $6M. We could save $5.12M in the initial purchase of the servers and $4.08M a year in maintenance costs. Therefore, the total 3-year net benefit for our company would be $9.2M if we utilize virtualization to consolidate server workloads.

Work Cited

Angeles, Sara. "Virtualization vs. Cloud Computing: What's the Difference?" Business News Daily. Purch, 20 Jan. 2014. Web.

Rudy, Melissa. "The Top 3 Advantages of Virtualization." Techopedia. Techopedia Inc., 23 Mar. 2016. Web.

"Virtualization Software: The Biggest Advantages." Teoma Systems. N.p., 30 June 2015. Web.

	Year 1	Year 2	Year 3	Total
Option 1: All Physical Servers				
Physical Servers (PS): 1,000				
Initial cost ($8,000/server)	$ 8,000,000.00			$ 8,000,000.00
Maintenance cost ($2,000/year/server)	$ 2,000,000.00	$ 2,000,000.00	$ 2,000,000.00	$ 6,000,000.00
Total cost of option 1	$ 10,000,000.00	$ 2,000,000.00	$ 2,000,000.00	**$ 14,000,000.00**
Option 2: Utilize VM servers				
Physical Servers (PS): 200				
Initial cost: PS ($8,000/server)	$ 1,600,000.00			$ 1,600,000.00
Maintenance cost: PS ($2,000/year/server)	$ 400,000.00	$ 400,000.00	$ 400,000.00	$ 1,200,000.00
VM server (VM): 80				
Initial cost: VM ($16,000/server)	$ 1,280,000.00			$ 1,280,000.00
Maintenance cost: VM ($3,000/server/year)	$ 240,000.00	$ 240,000.00	$ 240,000.00	$ 720,000.00
Total initial purchasing cost				$ 2,880,000.00
Total Cost	$ 3,520,000.00	$ 640,000.00	$ 640,000.00	**$ 4,800,000.00**
Net Benefit	**$ 6,480,000.00**	**$ 1,360,000.00**	**$ 1,360,000.00**	**$ 9,200,000.00**

	Option 1	Option 2	Savings
Initial cost to purchase servers	$ 8,000,000.00	$2,880,000	$ 5,120,000.00
Total maintenance Cost	$ 6,000,000.00	$ 1,920,000.00	$ 4,080,000.00
Total savings			$ 9,200,000.00