Maggie Scanlon
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<center>Virtualization and Cloud Computing</center>

Our Company has the opportunity to save $9.2 million over three years by consolidating our physical servers into virtual machine servers. Physical servers only run at a small percentage of their actual capacity, but virtual machine servers solve this inefficiency through the consolidation of multiple operating systems onto one virtual machine server. The hardware refresh cycle is the optimal time to transition to virtualization because it will reduce the initial cost of investing in hardware through a decrease in the number of servers needed and a reduction in yearly maintenance costs.

Virtualization reduces the need for physical servers and cuts the total yearly cost of maintenance, which leads to significant savings per year. Physical servers only use 10% – 15% of their actual capacity, but virtual machine servers consolidate under-utilized servers for a maximum return on investment .The key capability of virtualization is that it allows one physical server to run multiple operating systems. For our company, this means that 10 physical servers can be consolidated into one virtual machine server. More specifically, instead of replacing our servers with 1,000 physical servers in the hardware refresh cycle, virtualization would only require us to have 200 physical servers and 80 virtual machine servers. The reduction in the number of servers also leads to a decrease in the total maintenance expenditure, which benefit the organization through a decrease in expenses.

Over three years, the total cost of replacing 1,000 physical servers with 280 servers is $4.8 million. However, the benefit of consolidation is $14 million, which leads to a 3-year net benefit of $9.2 million. This is possible because of the significant reduction in the number of servers needed after the implementation of virtualization and the subsequent reduction in yearly maintenance costs.

Benefit:	Year 1	Year 2	Year 3	Total
Average Server Cost	$8,000,000	$0	$0	$8,000,000
Maintenance Cost	$2,000,000	$2,000,000	$2,000,000	$6,000,000
Total benefit	$10,000,000	$2,000,000	$2,000,000	**$14,000,000**

Cost:	Year 1	Year 2	Year 3	Total
Average server cost	$1,600,000	0	0	$1,600,000
Average Server Maintenance	$400,000	$400,000	$400,000	$1,200,000
Virtual Machine Server cost	$1,280,000	$0	$0	$1,280,000
Virtual Machine Maintenance	$240,000	$240,000	$240,000	$720,000
Total	$3,520,000	$640,000	$640,000	**$4,800,000**

3 year net benefit:	Year 1	Year 2	Year 3	Total
Benefit	$10,000,000	$2,000,000	$2,000,000	$14,000,000
Cost	$3,520,000	$640,000	$640,000	$4,800,000
Total	$6,480,000	$1,360,000	$1,360,000	**$9,200,000**

Works Cited

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