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### Flash Research Assignment #2 - Virtualization and Cloud Computing

Our company could save \$9.2 million over the next three years by switching our physical servers to virtual machines as we enter our new hardware cycle (Figure 3). With advances in virtualization technology, the switch to VMware would consolidate ten physical servers (“Benefits of Using...”) into one virtual machine, saving over \$4 million in maintenance costs alone over the next three years (Figure 3).

Of our 1,000 physical servers, we can convert 80% to virtual machines with no issues. This consolidation brings us closer to maximizing the efficiency and capacity of our datacenter. The remaining 200 physical servers would only be used for specific purposes. Also, physical servers tend to run applications with which they are incompatible. Virtualization offers the ability to run individual applications on specifically designed machines in order to maximize their memory, storage, and CPU (Marshall).

Over the next 3-year hardware cycle, the \$14 million cost of only using physical servers can be reduced to \$4.8 million by virtualizing, yielding a net benefit of \$9.2 million. The consolidation of 1,000 servers into 280 will reduce heat, electricity, and hardware maintenance costs associated with physical servers. (Wallen). As our company approaches the new hardware cycle, keep in mind that the more efforts we put into virtualization, the more we can save beyond three years.

Resources

Figure 1 - Current Costs

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
<b>1,000 Physical Servers</b> (at \$8,000 purchase cost)	\$8,000,000	-	-	\$8,000,000
<b>Maintenance (at \$2,000 per server per year)</b>	\$2,000,000	\$2,000,000	\$2,000,000	\$6,000,000
<b>Total</b>	\$10,000,000	\$2,000,000	\$2,000,000	<b>\$14,000,000</b>

Figure 2 - Virtualization Costs

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
<b>80 VM's (at \$16,000 purchase cost)</b>	\$1,280,000	-	-	\$1,280,000
<b>200 Physical Servers (at \$8,000 purchase cost)</b>	\$1,600,000	-	-	\$1,600,000
<b>VM Maintenance (at \$3,000 per server per year)</b>	\$240,000	\$240,000	\$240,000	\$720,000
<b>Physical Maintenance (at \$2,000 per server per year)</b>	\$400,000	\$400,000	\$400,000	\$1,200,000
<b>Total</b>	\$3,520,000	\$640,000	\$640,000	<b>\$4,800,000</b>

Figure 3 - Cost Savings by Switching to Virtualization

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
<b>Purchase Savings</b>	\$5,120,000	-	-	\$5,120,000
<b>Maintenance Savings</b>	\$1,360,000	\$1,360,000	\$1,360,000	\$4,080,000
<b>Total Savings</b>	\$6,480,000	\$1,360,000	\$1,360,000	<b>\$9,200,000</b>

## Works Cited

"Benefits of Using Server Consolidation for Energy Efficiency." SearchITChannel. N.p., July 2009. Web. 08 Oct.2016.

Marshall, David. "Top 10 Benefits of Server Virtualization." InfoWorld. IDG, 02 Nov. 2011. Web. 08 Oct. 2016.

Wallen, Jack. "10 Benefits of Virtualization in the Data Center." TechRepublic. N.p., 10 Apr. 2013. Web. 9 Oct. 2016.