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MIS 2501

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

You are the CTA for a small but rapidly growing manufacturing company. You have approximately 1,000 servers in your datacenter. The average server costs \$8,000 to purchase (including system software). You also spend approximately \$2,000 per year per server for hardware maintenance, software maintenance, technical support, power and cooling.

You believe that there are considerable opportunities for savings by utilizing virtualization to consolidate server workloads. You believe that 80% of your servers could run as virtual machines under VMware and that, on average, you could consolidate 10 physical servers onto a single virtual machine server. These would be higher end servers costing approximately \$16,000 each (including system software). In addition, they will cost more to run, approximately \$3,000 (each server) per year for hardware maintenance, software maintenance, technical support, power and cooling.

Prepare a paper for the CIO that describes virtualization and focuses on the benefits of server consolidation. Describe the business case for making investments in this technology. This organization always looks at investments over a 3-year period. Assume that you are at the start of a hardware refresh cycle and you will be replacing all 1,000 servers in the next year.

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Enterprise IT

Flash Research Assignment

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### Virtualization and Cloud Computing

Upgrading our organization's 1,000 physical servers, to 200 physical servers and 80 virtual machine servers by using virtualization consolidation, would create a net benefit of \$9,200,000 over a three-year span. Using virtual machines, we can make managing servers simpler, more flexible and easier to scale.

Virtualization technology enables you to create multiple simulated environments on one physical machine. Physical servers are more expensive, harder to manage, and less scalable. This is purely because of the resources needed to maintain a physical server, such as redundant power supplies and network cards. Physical servers are almost impossible to upgrade without downtime which increases total costs. By upgrading 800 physical servers to 80 virtual servers, we save money by hosting numerous virtual machines on one physical machine. With virtual machines, we can consolidate 10 virtual servers on one physical machine for better efficiency.

If we keep our current 1,000 physical servers it would have a total cost of \$14,000,000 over the next three-year span. With the upgrade to 200 physical servers and 80 virtual machine servers it would cost \$4,800,000 over three years instead, with a three-year net benefit of \$9,200,000.

Current Server's				
	Year 1	Year 2	Year 3	Total
<b>Server</b>	\$ 8,000,000.00	\$ -	\$ -	\$ 8,000,000.00
<b>Maintenance</b>	\$ 2,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 6,000,000.00
<b>Total</b>	\$ 10,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 14,000,000.00

New Server's				
	Year 1	Year 2	Year 3	Total
<b>VM Server's (80)</b>	\$ 1,280,000.00	\$ -	\$ -	\$ 1,280,000.00
<b>VM Maintenance</b>	\$ 240,000.00	\$ 240,000.00	\$ 240,000.00	\$ 720,000.00
<b>Physical Servers (200)</b>	\$ 1,600,000.00	\$ -	\$ -	\$ 1,600,000.00
<b>Physical Server's Maintenance</b>	\$ 400,000.00	\$ 400,000.00	\$ 400,000.00	\$ 1,200,000.00
<b>Total</b>	\$ 3,520,000.00	\$ 640,000.00	\$ 640,000.00	\$ 4,800,000.00

3 Year Net Benefit				
	Year 1	Year 2	Year 3	Total
<b>Current Server's</b>	\$ 3,520,000.00	\$ 640,000.00	\$ 640,000.00	\$ 4,800,000.00
<b>New Server's</b>	\$ 10,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 14,000,000.00
<b>Total Net Benefit</b>	\$ (6,480,000.00)	\$ (1,360,000.00)	\$ (1,360,000.00)	\$ (9,200,000.00)

### Works Cited

Angeles, Sara. "Virtualization vs. Cloud Computing: What's the Difference?" *Business News Daily*, 20 Jan. 2014, [www.businessnewsdaily.com/5791-virtualization-vs-cloud-computing.html](http://www.businessnewsdaily.com/5791-virtualization-vs-cloud-computing.html).

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