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.

The maximum length of the body of this paper is 1 page. Additional pages may be used for optional diagrams and required references.

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Our company will have the opportunity to save about $9.2 million over a three year period by utilizing virtualization in our company. Virtualization will allow us to run multiple virtual servers onto a single physical server. We could reduce the amount of physical servers which will save us money by saving us about $4.1 million of maintenance costs as well as reduce hardware and data center costs.

Virtualization is a system that allows virtual machines, called guest operating systems, to run on a single server. When loaded on a computer, guest operating systems contain their own virtual hardware and "virtual CPU, virtual memory, virtual network interface cards and its own virtual disk" (Academy). There are many benefits to using virtual machines. First utilizing virtualization in our company is far less expensive than utilizing traditional physical servers. It allows physical servers to be consolidated onto a single server which decrease the amount of physical space that these servers take up and therefore reduces hardware and data center costs. Virtualization is very flexible, meaning that you can move a virtual machine from one computer to another which can be very convenient in case a physical server is down.

Our company contains 1,000 traditional physical servers. Virtualization will allow us to run 80% of our 1,000 servers as virtual machines. In addition, we could consolidate 10 physical servers on a single virtual machine, resulting in 280 servers. The cost for our traditional server system is $14 million compared to $4.8 million with virtualization. This will result in a $9.2 million in net benefits. Virtualization can benefit our company and save us money because it will allow us to run our systems better, faster, and cheaper.

Works Cited:

Angeles, Sara. “Virtualization vs. Cloud Computing: What’s the Difference?” *BusinessNewsDaily.* January 20, 2014. Web. September 23, 2014.

Marshall, David. “10 Benefits of Server Virtualization”. *Info World.* November 2, 2011. Web. September 23, 2014.

“Physical Servers vs. Virtual Machines”. *Backup Academy.* August 23, 2012. Web. September 23, 2014.

Original:	
Servers	1,000
Cost/Server	$8,000
Total:	$8,000,000
Maintenance/server	$2,000
Total:	$2,000,000
Virtual 80% of 1000:	
Servers	200
Cost/server	$8,000
Total:	$1,600,000
Maintenance/server	$2,000
Total:	$400,000
Plus 80 servers:	
Servers	80
Cost/server	$16,000
Total:	$1,280,000
Maintenance/server	$3,000
Total:	$240,000

Original

	Year 1	Year 2	Year 3	Total
Server Costs	$8,000,000	$0	$0	$8,000,000
Maintenance	$2,000,000	$2,000,000	$2,000,000	$6,000,000
			Total:	$14,000,000

Virtual

200 Servers

	Year 1	Year 2	Year 3	Total
Server Cost	$1,600,000	$0	$0	$1,600,000
Maintenance	$400,000	$400,000	$400,000	$1,200,000
			Total:	$2,800,000

80 Servers

Server Cost	$1,280,000	$0	$0	$1,280,000
Maintencane	$240,000	$240,000	$240,000	$720,000
			Total:	$2,000,000

Total (280 servers)		$4,800,000

Original Cost	$14,000,000
Virtual Cost	$4,800,000
Total Benefits	$9,200,000