Jose Gil
Flash Research Assignment #2
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Virtualization and Cloud Computing

I suggest implementing virtualization to consolidate server workloads because it will save our small but growing company money. Our company could see a $9.2 million net benefit over a three-year period with this investment. Under VMware virtualization allows 80 percent of our traditional servers to run as virtual machines, therefore reducing the number of our physical servers from 1,000 to 280. VMware also allows us to consolidate 10 physical servers into a single virtual machine server.

With server consolidation through virtualization we can maximize the use of server resources and reduce the number of servers required. Server consolidation through virtualization features key capabilities such as increasing availability and company uptime, and improving disaster recovery. With technologies such as live migration, storage migration, fault tolerance, high availability, and distributed resource scheduling, virtualization keep machines running to quickly recover from unplanned outages and limit the loss of data. Our company is limited with x86 servers which operate at 5 to 15 percent capacity, but with virtualization we will increase existing hardware utilization from as low as 5 percent to as high as 80 percent. Virtual machines can run on multiple systems and do not depend on a single machine to run its operating system. Therefore, we can run multiple operating systems and applications on a single server.

We currently have 1,000 traditional servers with the average server costing $8,000 to purchase and $2,000 per year per server for hardware maintenance, software maintenance, technical support, power and cooling. Over a three-year period, that costs us $14 million. Consolidating 10 physical servers into a single virtual machine will reduce our physical servers from 1,000 to 280. With this 10 to 1 consolidation ratio we will need only 200 traditional servers while deploying 80 virtual ones. By consolidating our physical servers, virtualization will improve our efficiency and only cost us approximately $4.8 million over a three-year period. This results in $9.2 million in net savings for our company.

Physical servers : Three-year period				
	Year 1	Year 2	Year 3	Total
Physical server initial costs (1000)	$8,000,000	$0	$0	$8,000,000
Physical Server costs for Maintenance	$2,000,000	$2,000,000	$2,000,000	$6,000,000
			Total cost	$14,000,000

Virtualization implementation: Three-year period				
	Year 1	Year 2	Year 3	Total
Physical server initial cost (200)	$1,600,000	$0	$0	$1,600,000
VMware servers initial cost (80)	$1,280,000	$0	$0	$1,280,000
Physical Server Maintenance Cost	$400,000	$400,000	$400,000	$1,200,000
VMware Server Maintenance Cost	$240,000	$240,000	$240,000	$720,000
			Total Cost:	$4,800,000
Net Benefits	$6,480,000	1,360,000	1,360,000	Total Net Benefits: $9,200,000

Works Cited

Intel Developer Zone. (2014, December 2). *The Advantages of Using Virtualization* . Retrieved from Intel Software: https://software.intel.com/en-us/articles/the-advantages-of-using-virtualization-technology-in-the-enterprise

Marshall, D. (2011, November 2). *Top 10 benefits of server virtualization*. Retrieved from Info World: http://www.infoworld.com/article/2621446/server-virtualization/server-virtualization-top-10-benefits-of-server-virtualization.html

Vmware. (2017, February 24). *Virtualization Technology & Virtual Machine* . Retrieved from Vmware: http://www.vmware.com/solutions/virtualization.html#how-it-works

Vmware inc. (2017, February 24). *Server Consolidation*. Retrieved from Vmware: http://www.vmware.com/solutions/consolidation.html