

## **Virtualization and Cloud Computing**

**Samantha Sederstrand**

As a company, we can save \$9.2 million dollars over the next three years by converting 80% of our physical servers to virtual servers. By consolidating 800 physical machines to 80 virtual machines, it will save the company \$6.48 million in server and maintenance costs. Since the company is in the process of repurchasing 1000 servers, the best option is virtualization which allows for server consolidation.

The most compelling benefit of implementing virtual machines is making use of server consolidation. By using virtual machines, utilization can increase from 5%-10% for a physical server to 50% - 80% for virtual machines. This can be done since multiple virtual machines can be allocated to one CPU allowing more gigabytes of RAM to be created and used. In addition, using virtual machines can decrease the costs of hardware maintenance, software maintenance, technical support, power and cooling.

By utilizing virtual machines, the net savings over a three year period will be \$9.2 million. If our company continues to use 1000 physical servers, the total cost at the end of 3 years would be \$14 million. By utilizing 200 physical servers and 80 virtual servers, the company would only spend \$4.8 million, resulting in a savings of \$9.2 million.

## Appendix

### Works Used

Bigelow, Stephen J. "Understanding the Benefits of a Virtual Machine." SearchServerVirtualization. N.p., n.d. Web. 23 Sept. 2015. <<http://searchservervirtualization.techtarget.com/tip/Understanding-the-benefits-of-a-virtual-machine>>.

Dawson, Philip, and Nathan Hill. "Hype Cycle for Virtualization, 2015." Gartner. N.p., 8 July 2015. Web. 23 Sept. 2015. <<http://www.gartner.com/document/3089927?ref=QuickSearch&sthkw=Hype+Cycle+for+Virtualization%2C+2015+%E2%80%93+Gartner&refval=156176251&qid=2a1f5680d4e9375f874a74784dc10b75>>.

"Server Consolidation." Server Virtualization & Consolidation. N.p., n.d. Web. 23 Sept. 2015. <<http://www.vmware.com/consolidation/overview>>.

	Type	Servers	Purchase Cost	Maintenance Cost
<b>Current Server Cost</b>	Physical	1000	\$ 8,000,000.00	\$ 2,000,000.00
<b>Upgraded Server Cost</b>	Virtual	80	\$ 1,280,000.00	\$ 240,000.00
	Physical	200	\$ 1,600,000.00	\$ 400,000.00
<b>Upgraded Server cost</b>	Combined		\$ 2,880,000.00	\$ 640,000.00

	Year 1 (Maintenance Cost & Server Cost)	Year 2 (Maintenance Cost)	Year 3 (Maintenance Cost)	Total
<b>Cost (Current)</b>	\$ 10,000,000.00	\$ 2,000,000.00	\$ 2,000,000.00	\$ 14,000,000.00
<b>Cost (Upgraded)</b>	\$ 3,520,000.00	\$ 640,000.00	\$ 640,000.00	\$ 4,800,000.00
			<b>Net Benefit:</b>	\$ 9,200,000.00