Flash Research Assignment: Virtualization and Cloud Computing

Our manufacturing company can have a net benefit of $9,200,000 over a period of three years by utilizing virtualization to consolidate server workloads. Virtualization is the process of creating a virtual machine instead of having physical devices such as a server, network system, or storage device. With the use of virtualization, we will be able to combine 10 of our physical servers into one virtual machine server, which will decrease our total number of servers to 280. It is crucial that we utilize virtualization to reduce excessive ongoing costs.

Virtual machines eliminate the need of having a physical server and the hardware associated with it since it emulates a server. Currently, our servers only run one operating system at a time, but virtualization will allow each virtual machine to run 10 operating systems images at the same time. We will be able to replace 800 of our servers with 80 virtual machines. These virtual machines provide increased performance, improved functionality, and reduced maintenance costs. This server consolidation will decrease our total servers from 1,000 to 280.

It will cost our company $4,800,000 over a period of three years to utilize virtualization to consolidate server workloads which will provide a benefit of $14,000,000. This will give our company a net benefit of $9,200,000 over three years. Virtualization is a crucial and beneficial investment that our manufacturing company needs since we will see a reduction in maintenance costs of servers immediately after implementation of virtual machines.

**References**

“14 Advantages and Disadvantages of Virtualization.” *Vittana.org*, 15 Aug. 2017, vittana.org/14-advantages-and-disadvantages-of-virtualization.

Beal, Vangie. “Virtualization.” *What is Virtualization? Webopedia Definition*, www.webopedia.com/TERM/V/virtualization.html.

Burger, Thomas. “The Advantages of Using Virtualization Technology in the Enterprise.” *Intel® Software*, Intel, 7 June 2017, software.intel.com/en-us/articles/the-advantages-of-using-virtualization-technology-in-the-enterprise.

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| --- | --- | --- | --- | --- |
| **Cost** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Purchase of 200 servers | ($1,600,000) | $0 | $0 | ($1,600,000) |
| Operational cost of servers | ($400,000) | ($400,000) | ($400,000) | ($1,200,000) |
| Purchase of 80 virtual machines | ($1,280,000) | $0 | $0 | ($1,280,000) |
| Operational cost of virtual machines | ($240,000) | ($240,000) | ($240,000) | ($720,000) |
| **Total Cost:** | ($3,520,000) | ($640,000) | ($640,000) | **($4,800,000)** |

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| --- | --- | --- | --- | --- |
| **Benefit** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Remove 100 servers | $8,000,000 | $0 | $0 | $8,000,000 |
| Remove Operational costs of 100 servers | $2,000,000 | $2,000,000 | $2,000,000 | $6,000,000 |
| **Benefit** | $10,000,000 | $2,000,000 | $2,000,000 | **$14,000,000** |
| **Net Benefit** | $6,480,000 | $1,360,000 | $1,360,000 | **$9,200,000** |