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MIS2501 - Enterprise IT Architecture

Flash Research Paper

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Virtualization and Cloud Computing

Physical servers are being under-utilized, it is a definite waste of company’s money. By utilizing virtualization to consolidate our server workloads, it increases the efficiency of server resources. Server consolidation reduces the total number of servers by consolidating servers with virtual machine. Using server consolidation can result in a net benefit of $9,200,000 over three years.

Server consolidation improves server utilization by combing multiple physical server into few a virtual machine server. Server consolidation improves the effective utilization of the server hardware and allows a single virtual machine server to host multiple physical servers. Therefore, 80% of 1000 servers could consolidate as virtual machines. We only use 200 traditional physical servers and 80 virtual machine servers. It is easier to manage virtual servers. For example, we only need few steps to add one more network interface card in virtual machine, whereas we must turn off the physical server, fix and then restart the network interface card in normal environment.

The total benefit of upgrading our systems would be $14,000,000 over three years because the new system saves money for hardware and software maintenance, technical support and power and cooling cost. The total cost of installation and maintenance is $4,800,000 over three years. The net benefit is $9,200,000 over three years.

Worked Cited

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| --- | --- | --- | --- | --- |
| **Costs** | **Year1** | **Year2** | **Year3** | **Total** |
| 200 Traditional Physical Servers | $1,600,000 | $0 | $0 | $1,600,000 |
| Maintenance 200 Traditional Servers | $400,000 | $400,000 | $400,000 | $1,200,000 |
| Total Cost (Physical Servers) |  |  |  | $2,800,000 |
| 80 VMware Servers | $1,280,000 | $0 | $0 | $1,280,000 |
| Maintenance 80 VMware Servers | $240,000 | $240,000 | $240,000 | $ 720,000 |
| Total Cost (VMware Servers) |  |  |  | $2,000,000 |
| **Total Costs ( Physical & VMware Servers)** |  |  |  | $4,800,000 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Benefits** | **Year1** | **Year2** | **Year3** | **Total** |
| Remove Physical Servers | $8,000,000  (8000 \* 1000) | $0 | $0 | $8,000,000 |
| Maintenance Costs | $2,000,000 | $2,000,000 | $2,000,000 | $6,000,000 |
| **Total Benefits** |  |  |  | $14,000,000 |
| **Total Net Benefits** (Total Benefits – Total Costs) |  |  |  | $9,200,000 |

|  |  |
| --- | --- |
| **Traditional** |  |
| Number of Physical Servers | 1,000 |
| Cost per server | $8,000 |
| **Total Purchase Cost** | $8,000,000 |
|  |  |
| Annual Costs Per Server | $2,000 |
| **Total Annual Costs** | $2,000,000 |

|  |  |
| --- | --- |
| **Total Server Images** | 1,000 |
| Physical | 200 |
| Virtual | 800 |
|  |  |
| Cost of Traditional Servers | $1,600,000 (200\*8000) |
| Cost of VMware Servers | $1,280,000 (80\*16000) |
| **Total Hardware Purchase** | $2,880,000 |
| **Hardware Savings** | $5,120,000 (8,000,000 – 2,880,000) |