**Virtualization and Cloud Computing**

We can gain $9.2 million in savings in a three-year period if we convert to a Virtual Machine (VM) based server system. We should upgrade to a state of the art VM system as it provides $9.2M in Savings, less space used for servers, and the ability to test updates on a virtual system without affecting the main servers. VMs can dramatically consolidate our 1000 physical servers to 200 physical servers and 80 virtual machines.

Virtual Machines provide the capability to run off one main host machine, that hosts multiple virtual servers at a time. Server consolidation is key as we currently have 1000 servers that are costly to maintain. Virtual Machines consolidate in size like Russian nesting dolls, as one advanced VM can operate 10 virtual servers simultaneously. We can consolidate our 1000 physical servers to 200 physical servers and 80 virtual machines. This reduces the amount of physical infrastructure space, server climate control expenses, and allows our IT staff to focus on a more manageable amount of primary servers. Virtual Machines can also be used for testing and installing system updates, without having to shutdown the system mainframe for reboots, thus no costly downtime is wasted.

Our company should switch to Virtual Machines, because we will save $9,200,000 in a 3-year period. The VM machine hardware will cost $16,000 per unit ($3,000 per year maintenance) with 80 units needed, and we will only need 200 physical servers, which cost $8000 ($2,000 per year maintenance) per unit. This is a huge savings compared to 1000 physical servers, ($8000 per unit, $2,000 per year maintenance) totaling $14,000,000 in company costs. We will have a 65.71% cost reduction and a 91.67% return on investment versus the old physical system. Virtual Machines are the technology of the future and it will increase our efficiency and company savings.

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| --- | --- |
|  | **3 Year Replacement Cost Benefit Analysis** |
|  | **Old System Physical Servers (No VM Ware Used)** | **New System Virtual Servers (VM Ware Used)** |
| **Total Servers** | 1000 | 1000 |
| **Physical Server Quantity** | 1000 | 200 |
| **Virtual Server Quantity** | 0 | 800 |
| **Virtual Machine Quantity** | 0 | 80 |
|  |  |  |
|  |  |  |
| **Cost Per VM Server** |  N/A  |  $-  |
| **Cost Per VM Machine** |  N/A  |  $16,000.00  |
| **Cost Per Physical Server** |  $8,000.00  |  $8,000.00  |
| **Yearly Maintenance Cost-Physical Server** |  $2,000.00  |  $2,000.00  |
| **Yearly Maintenance Cost-Virtual Machine** |  $-  |  $3,000.00  |
|  |  |  |
| **Total Physical Server Cost** |  $8,000,000.00  |  $1,600,000.00  |
| **Total VM Server Cost** |  $-  |  $1,280,000.00  |
| **Total Physical Maintenance Cost For 1 YR** |  $2,000,000.00  |  $400,000.00  |
| **Total Physical Maintenance Cost For 3 YR** |  $6,000,000.00  |  $1,200,000.00  |
| **Total Virtual Maintenance Cost For 1 YR** |  $-  |  $240,000.00  |
| **Total Virtual Maintenance Cost For 3 YR** |  $-  |  $720,000.00  |
|  |  |  |
| **Final System Cost** |  **$14,000,000.00**  |  **$4,800,000.00**  |
|  |  |  |
| **System Benefit** | **-$9,200,000.00**  |  **$9,200,000.00**  |
|  |  |  |
| **Return On Investment** | **-165.71%** | **91.67%** |
| **Cost Reduction** | **-191.67%** | **65.71%** |

Work Cited

Dawson, Phillip. "Hype Cycle for Virtualization, 2014." Gartner. Gartner, 23 July 2014. Web. 11 Feb. 2015. <http://www.gartner.com/document/2806422?ref=QuickSearch&sthkw=virtual machines&refval=147510264&qid=7f53e3081fd0726812180c1875f07b8d>.

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