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MIS 2501

Virtualization and Cloud Computing

By utilizing virtualization to consolidate server workload, we will gain $9.2 million in net benefits over 3 years. Server Consolidation allows us to run several virtual servers on one single physical server, and each virtual server acts as a functional server on its own. By investing $2.88 million in server virtualization in the first year, we can decrease the number of servers and server maintenance fees, and increase server management efficiency, therefore gaining $9.2 million in net benefits over 3 years.

Server Consolidation allows us to use a single physical server to run ten virtual servers, which has two advantages over traditional physical servers. First, the number of physical servers needed for virtual servers is less than the traditional server format, for 800 out of 1000 of our current servers are consolidated onto 80 physical servers (the remaining 200 servers still traditional), thereby decreasing the expense on purchasing hardware and operational expense. Second, it helps decrease the maintenance fee of the servers since 800 physical servers are virtualized.

The 3-year cost for server consolidation is $4.8 million, including $2.88 million server purchase fee and $1.92 million maintenance fee. The 3-year cost avoid benefit is $14 million, including $8 million purchase fee and $6 million maintenance for traditional server. Thus the 3-year net benefit is $9.2 million.

Appendix

Cost-benefit Analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Old technique** | Year 1 | Year 2 | Year 3 |  |
| Traditional Server Purchase Fee | $8,000,000.00 | 0 | 0 |  |
| Traditional Server Maintenance | $2,000,000.00 | $2,000,000.00 | $2,000,000.00 |  |
| total | $10,000,000.00 | $2,000,000.00 | $2,000,000.00 | $14,000,000.00 |
|  |  |  |  |  |
| **Virtualization technique** | Year 1 | Year 2 | Year 3 |  |
| Traditional Server Purchase Fee | $1,600,000.00 | 0 | 0 |  |
| Maintenance cost | $400,000.00 | $400,000.00 | $400,000.00 |  |
| VM server Purchase Fee | $1,280,000.00 | 0 | 0 |  |
| VM server Maintenance Cost | $240,000.00 | $240,000.00 | $240,000.00 |  |
| Total | $3,520,000.00 | $640,000.00 | $640,000.00 | $4,800,000.00 |
|  |  |  |  |  |
|  | Year 1 | Year 2 | Year 3 |  |
| **Benefit** | $6,480,000.00 | $1,360,000.00 | $1,360,000.00 |  |
|  |  |  | 3 Year Net Benefit | $9,200,000.00 |

References

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