Han Le

MIS 2501

Flash Research Paper 1

Our company are heavily affected by the frequent outages that occur in our tier I data center, costing us over $25 million every year. A solution to this problem is to replace our current primitive existing data center with a Tier III data center that is equipped with redundant components and power sources, which can endure faults without causing outages. If we invest in a Tier III data center, in the first three years, our net benefit will be approximately $13.2 million.

If we switch to a Tier III data center, we will substantially reduce downtime from almost 29 hours annually to less than 2 hours (Gupta, n.d). Tier III data center only has non-redundant components, which means having only one power connection channel and one server. Therefore, when an error occurs, there are no alternate power path or alternate component to switch to, causing frequent outages (Gite, 2008). The key capacities that allow Tier III data centers to perform significantly better are N+1 redundancy equipment and the uninterruptible power supply (UPS), so when an error occurs, the system can switch to alternate components and other power distribution paths (Enterprise Data Center, n.d).

As data center downtime is extremely costly, if we switch from a Tier I data center to a more reliable Tier III data center, the net benefit we can get over three years is $13,229,056. The total cost is $38,111,552, which is comprised of the initial cost of set up of $35,000,000 and downtime cost of $1,555,776 in in year two and year three each. However, we can save $51,340,608 by eliminating our current Tier I server’s downtime cost in the second and third year.

|  |  |  |
| --- | --- | --- |
|  | Current server | New server |
| Availability | 99.67% | 99.98% |
| Building cost | 0 | 35000000 |
| Downtime cost per min | $14,800 | $14,800 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Total |
| Cost |  |  |  |  |
| Building Cost | 35000000 | 0 | 0 | $ 35,000,000.00 |
| Downtime cost |  | $1,555,776 | $1,555,776 | $3,111,552 |
| Total cost |  |  |  | $ 38,111,552.00 |
|  |  |  |  |  |
| Benefit |  |  |  |  |
| Eliminate current server's downtime cost | 0 | $ 25,670,304.00 | $ 25,670,304.00 | $ 51,340,608.00 |
| Total |  |  |  | $ 51,340,608.00 |
|  |  |  |  |  |
| Net Benefit |  |  |  | $ 13,229,056.00 |

References

Gupta, R. (n.d.). Why to Prefer a Tier 3 Data Center? Retrieved from https://www.rackbank.com/blog/why-to-prefer-tier-3-data-center/

Enterprise Data Center: N 1 and 2N Options for Power Redundancy. (n.d.). Retrieved from <https://cyrusone.com/corporate-blog/enterprise-data-center-n1-and-2n-options-for-power-redundancy>

Gite, V. (2008). Explain: Tier 1 / Tier 2 / Tier 3 / Tier 4 Data Center. Retrieved from https://www.cyberciti.biz/faq/data-center-standard-overview/