Flash Research Assignment: Data Centers and Networking

Our manufacturing company can have a net benefit of $13,229,056 over a period of three years by upgrading to a Tier III data center. A data center is a group of networked computers that allows our company to process, store, and organize data. Currently, our Tier I data center doesn’t sufficiently operate since we have experienced 10 outages to our ERP system in the past year which has caused an average of $25,670,304 in losses. During these outages, our company is unable to process orders, make orders, and ship product. Outages have major operational impact in our company and causes substantial amount of financial loss. It is crucial that we upgrade to a Tier III data center to reduce these operational issues and reduce financial loss.

A Tier III data center will be a vast upgrade from the Tier I data center that we are currently running. A Tier III data center can provide concurrent maintenance, which allows maintenance to occur on the power and cooling systems without the need of shutting down equipment which a Tier I data center doesn’t support. It also has a backup power supply for all its equipment which means that if the main power source shuts off, the backup power source will take over immediately unlike a Tier I data center. These benefits will reduce our downtime from 1734.48 minutes to 105.12 minutes keeping our company more efficient and reducing financial loss.

A Tier III data center will reduce our downtime cost from $25,670,304 to $1,555,776 a year, which is a saving of over 93% in losses a year. It will cost the company $35,000,000 to build and it will take one year to be completed. We will recoup the cost of the data center within two years after it is built since we will be saving $24,114,528 a year. After the three-year period, our company will see a consistent downtime cost of only $1,555,776 instead of $25,670,304.

**References**

“Explain: Tier 1 / Tier 2 / Tier 3 / Tier 4 Data Center.” *NixCraft*, 29 Jan. 2011, [www.cyberciti.biz/faq/data-center-standard-overview/](http://www.cyberciti.biz/faq/data-center-standard-overview/).

Uptime Institute, LLC. “Data Center Site Infrastructure Tier Standard: Topology.” (2012): 1-7.

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“What is tier I, II, III, IV when it comes to data center? ...” *Psychz.Net*, 7 Apr. 2017, www.psychz.net/client/question/en/what-is-tier-i-ii-iii-iv-when-it-comes-to-data-center.html.

Cost to build (Tier III Data Center): **$35,000,000**

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| --- | --- | --- | --- | --- |
| **Type of Tiers** | **Availability (%)** | **Downtime (%)** | **Minutes of Downtime (per year)** | **Cost of Downtime (per year)** |
| Tier I (Current) | 99.67% | 0.33% | 1734.48 | $25,670,304 |
| Tier III (Proposed) | 99.98% | 0.02% | 105.12 | $1,555,776 |
| Benefit |  | **0.31%** | **1629.36** | **$24,114,528** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Tiers** | **Year 1** | **Year 2** | **Year 3** | **Total Cost** |
| Tier I (Current) | $25,670,304 | $25,670,304 | $25,670,304 | $77,010,912 |
| Tier III (Proposed) | $60,670,304 | $1,555,776 | $1,555,776 | $63,781,856 |
| Net Benefit | **($35,000,000)** | **$24,114,528** | **$24,114,528** | **$13,229,056** |