Cong Ngo

MIS 2501

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Datacenter & Networking

In order to save a net benefit of approximately $24,000,000, our company needs to switch to a Tier III data center. This data center will utilize its optimal redundancy in power and cooling and reduce downtime costs.

While our “Tier I” data center has non-redundant capacity components and a single, non-redundant distribution path, a “Tier III” data center has multiple power circulation paths and capacity equipment that are supplied with simultaneous energy. Its components are supplied with dual power sources and are fault tolerant. Therefore, a “Tier III” data center has 99.98% uptime (compared to 99.67% of “Tier I), which significantly reduces our current hours of downtime per year from 28.8 to no more than 1.6 hours. Moreover, with superior redundancy, the “Tier III” data center can prevent undesirable causes such as component failure, power fluctuations, catastrophes, keep our data safe, and secure from unauthorized activities.

By switching to a “Tier III” data center, we decrease our yearly downtime by 16 times, which results in $24,114,528 in savings per year. The “Tier-III” data center will cost our company $35,000,000 and a year to build. In the period of three years after building the new data center, our company can maximize our ERP system’s performance and yield us a net benefit of $13,229,056.

Figure 1:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Minutes in one year | Availability | Downtime (min/year) | Downtime cost |
| Tier I | $ 525,600.0 | 99.67% | $ 1,734.5 | $ 25,670,304.0 |
| Tier III | $ 525,600.0 | 99.98% | $ 105.1 | $ 1,555,776.0 |
|  |  |  | **Savings** | $ 24,114,528.00 |

Figure 2:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Total |
| Costs | $ 35,000,000 | 0 | 0 | $ 35,000,000 |
| Benefits | 0 | $ 24,114,528 | $ 24,114,528 | $ 48,229,056 |
| **Net Savings** |  |  |  | **$ 13,229,056** |

Sources:

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