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Flash Research Paper #1: Datacenters and Networking

The outages our company has experienced over the past year proves that we need to make a change to our data centers to decrease our costs. A Tier III Data Center uses redundancy to allow for less power outages compared to the Tier I Data Center that we are running now. Upgrading to a Tier III data center from our current Tier I data center will increase our performance and have a net benefit of $13,229,056 in just three years.

Our current data center, a Tier I, is rated the least reliable of a four-tier system. It has an estimated 28.8 hours of interruption a year, while a Tier III data center has only 1.6 hours of interruption a year. This is because of the redundancy capabilities that a Tier III data center has, which allows it to keep running in case of an outage. A Tier I data center, in contrast, has no redundancy which leaves it more vulnerable to outages.

The first table on the following page shows the direct savings in a year from the decrease in downtime per year, and the second table shows the costs and benefits over the next three years. As shown, the difference in availability between the Tier I system and the Tier III system is only .29%, but saves us $24,114,528 a year. Although the new system will cost $35,000,000 and a year’s time to build, it will turn a profit of $13,229,056 in just three years, and since the cost to build is a one-time cost, the savings will continue to cause the profit to grow every year after that.

Works Cited

Uptime Institute Professional Services, LLC. *Data Center Site Infrastructure Tier Standard: Topology* (n.d.): n. pag. 2012. Web. 12 Jan. 2015.

"Understanding Tier 3 and Tier 4." *Tier 3/Tier 4: Datacentre Classification*. OVH, n.d. Web. 27 Jan. 2015. <https://www.ovh.com/us/dedicated-servers/understanding-t3-t4.xml>.

Downtime Cost for Tier I vs. Tier III Data Centers:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mins / Year | Availability | Downtime Mins/Year | Downtime Cost |
| Tier I | 525,600 | 99.67% | 1,734.48 | $25,670,304 |
| Tier III | 525,600 | 99.98% | 105.12 | $1,555,776 |
| **Savings:** | | | | **$24,114,528** |

Cost and Benefit of Building the Tier III Data Center over the Next 3 Years:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 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 |
| **Total Net Benefits Over 3 Years:** | | | | **$13,229,056** |