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Flash Research Paper #1: Datacenters and Networking

The current Tier I Data Center is hemorrhaging money from the company with its 0.37% percentage downtime, translating into an estimated cost to the company of $25.7 million a year in downtime. We need to build a Tier III Data Center that invests in component redundancy and will save us a net benefit of an estimated $13.2 million by the end of the third year.

The essential difference between a Tier I data center and Tier III data center is the latter’s commitment to redundancy of components, meaning it houses the required quantity for each component plus 1 (called the ‘N + 1’ rule). This minimizes downtime to .02%, and makes the data center “concurrently maintainable.” The ‘N + 1’ rule includes redundancy for critical warehouse components, distribution elements, powering of IT equipment, fuel, and more. When required maintenance has to be performed, or there is a failure of a component, the extra component will be used to prevent shutdown of the entire data center until recovery. Making the warehouse “concurrently maintainable” as a Tier III data center will greatly reduce downtime from roughly 28.8 hours a year to 1.6 hours.

Building a new Tier III data center and investing in redundant components will save our organization an estimated $24.1 million a year in downtime costs at a new yearly cost of $1.5 million. While it will cost $35 million upfront to build, we will gain a net benefit of roughly $13.2 million in just 3 years.

Works Cited

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| --- | --- | --- | --- | --- | --- |
|  | Availability | Minutes of downtime per year | Cost of downtime per year |  |  |
| Tier I | 99.67% | 1734.48 | $25,670,304.00 | Downtime = | $14,800 |
| Tier III | 99.98% | 105.12 | $1,555,776.00 | Minutes in a year = | 525,600 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Year 1 | Year 2 | Year 3 | Total |  |
| Tier I | $25,670,304.00 | $25,670,304.00 | $25,670,304.00 | $77,010,912.00 |  |
| Tier III | $60,670,304.00 | $1,555,776.00 | $1,555,776.00 | $63,781,856.00 |  |
| **Gross Savings** | **-$35,000,000.00** | **$24,114,528.00** | **$24,114,528.00** | **$13,229,056.00** |  |