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**MIS 3406 Section 002**

**Flash Research Assignment 1**

**Data Centers and Networking**

This year alone our organization will lose $25,670,304 from downtime in our Tier I data center. Investing in a Tier III data center with redundant components will increase availability from 99.67% to 99.98%. This would allow us to save valuable time that could be spent handling order processing, product production, and product shipment.

The implementation of a Tier III data center will provide us with redundancy capabilities that allow for mission critical systems to be updated and maintained without being taken offline. This will allow for us to continue producing, selling, and distributing products, even while updates are being made or when systems fail. Making this investment will allow us to better the availability of our systems by 0.31%, decreasing downtime per year from 1,734.48 minutes to 105.12 minutes.

Moving to a Tier III data center will cost $35,000,000 over a three year period. This new data center will save $48,229,056 over these three years due to the increased availability, since downtime costs us $14,800 per minute. This will generate a net benefit of $13,229,056 over three years.

**Math**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Minutes in a year (365\*24\*64 =)** | **Availability** | **Downtime (mins per year)** | **Downtime cost per year (downtime\*$14,800)** |
| **Tier 1** | 525,600 | 99.67% | 1,734.48 | $25,670,304 |
| **Tier 3** | 525,600 | 99.98% | 105.12 | $1,555,776 |
|  |  |  | **Yearly Savings** | $24,114,528 |

Downtime(mins/year)= (365 - (365 \* availability)) \* 24 \*60

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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 |
|  |  |  | **3 Year Benefit** | $13,229,056 |

**Sources**

“Reliability & Redundancy: Understanding the High-Availability Data Center.” *The Data Center Journal*,

2018, www.datacenterjournal.com/reliability-redundancy-understanding-high-availability-data-

center/.

“What Are Data Center Tiers? - Enterprise IT Definitions.” *HPE*, 2018, www.hpe.com/us/en/what-

is/data-center-tiers.html.

“What Are Data Center Tiers Explained.” *Excess*, 5 July 2018, blog.nexcess.net/2018/07/03/what-are-

data-center-tiers-explained/.