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Flash Research Assignment: Data Centers and Networking

In the past year, ten data center outages disrupted our ERP system and cost our company $25.6 million through recovery, IT productivity loss, and related costs. Upgrading our Tier I data center into a Tier III data center will add redundant system parts, reducing downtime from planned maintenance and unplanned errors. We need to upgrade to a Tier III data center to reduce downtime and save $13 million.

A Tier III data center incorporates additional system parts and connections to keep the system running during planned maintenance and unplanned errors. While our Tier I data center fulfills all basic technological requirements, there are limited redundant components so any errors or maintenance result in downtime. Upgrading to a Tier III data center solves these issues by adding redundant components and connections. Adding power sources, cooling components, and pathways ensures that small errors do not impact the entire system. In addition, the data center must be able to support our capacity without the redundant components and all IT equipment must be dual powered. This creates backups for all critical elements of our data center. As a result, planned maintenance or activities will not impact the system and the system downtime decreases from 29 hours per year to 2 hours per year.

Installing a Tier III data center will decrease our downtime by 94% and result in a net benefit of $13 million. The center's construction will take one year; after the data center is constructed, our company will realize over $24 million in annual savings or $48 million in three years. Taking into account the $35 million cost of the upgrade, this translates into a $13 million net savings over the course of three years. In addition, the increase in system uptime will result in more efficient order processing. This will lead to greater customer satisfaction and increased turnaround time, thereby increasing sales and expediting collection of accounts receivable. Upgrading to a Tier III data center will save our firm millions of dollars and result in greater overall efficiency.

Appendix

Diagram 1:

	Availability	Downtime per year (minutes)	Cost of downtime
Tier I center	99.67%	1734.48	$25,670,304
Tier III center	99.98%	105.12	$1,555,776

Implementation of Tier III Center

	Year 1	Year 2	Year 3
Savings	$0	$24,114,528	$24,114,528
Cost	$35,000,000	$0	$0
		Net savings	$13,229,056

	Downtime per year (minutes)	Downtime per year (hours)
Tier I	1734.48	28.908
Tier III	105.12	1.752

Notes:

To find downtime per year, I multipled 365 days*24 hours/day*60minutes/hour*(1-availability).

To find the cost of downtime, I multipled downtime by the estimated $14,800 per minute.

To find the savings each year, I subtracted the cost of downtime in a tier III center from the cost of downtime in the current tier III center

There are no cost savings the first year due to the construnction of the tier III center.

References:

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