Anthony Mignona
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Flash Research Assignment: Data Centers and Networking

The current Tier I data center in place is becoming more and more obsolete for our growing company; already costing an estimated $25.6M annually, the financial ramifications will continue to inflate synchronously with our company's growth. Investing $35M to implement, Tier III data center may seem to be a costly endeavor upon initial glance, but the financial costs incurred by this project will be insignificant compared to the benefits enjoyed.

Tier I data centers have non-redundant capacity components and distribution paths while Tier III has concurrently maintainable data centers and redundant capacity components with multiple distribution paths. These Tier III features allow for scheduled maintenance without downtime occurring, the Tier I data center lacks the capability. When a particular component needs to be serviced, we can easily remove various components without any disruption to our service. Additionally, Tier III provides 72 hours of backup power, mitigating the risk associated with utility provider power outage (Colocation American). The current data center guarantees 99.67% availability, while Tier III data center offer 99.98% available (The Uptime Institute); this is the difference between an estimated twenty-nine hours of annual downtime versus an hour and forty-five minutes. This company incurs an opportunity cost of $14,800 for every minute of downtime due to costumers being unable to consume our products and services. Accounting to the aforementioned downtime projections, we see an annual loss of roughly $25.6 million with a Tier I data center compared to $1.56 million with the proposed Tier III data center (See Figure 1).

With the calculated projections, we can deduce the benefits of the investing in a Tier III data center not only pays for itself within a three-year period, but also saves our company an astronomical amount financially (See Figure 2). The cost to implement this project would be $35M and would take one year to complete. After that first year, we would receive an annual benefit of $24.1M, resulting in a net benefit across the next three years of $48.2M.

Figure 1: Tier I vs. Tier III Downtime Cost Breakdown

	Annual Minutes	Guaranteed DT %	Annual DT Minutes	Annual DT hours	Annual DT Cost
Tier I	525600	0.33%	1734.48	28.908	$25,670,304.00
Tier III	525600	0.02%	105.12	1.752	$1,555,776.00
				Annual Difference	$24,114,528.00

Figure 2: Cost/Benefit Analysis of Tier III Proposal

	Year 1	Year 2	Year 3	Avg. Annual	Total
Benefits	$0.00	$24,114,528.00	$24,114,528.00	$16,076,352.00	$48,229,056.00
Costs	$35,000,000.00	$0.00	$0.00	$11,666,666.67	$35,000,000.00
				3 Year Benefit	$13,229,056.00

References

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