Flash Research Assignment: Data Centers and Networking

You are the CTA of a small but rapidly growing manufacturing company. Over the past year your organization has experienced 10 outages to its ERP system. The vast majority of these outages have been caused as a result of inadequate facilities in your existing, primitive data center. When this system is down your organization cannot process orders, cannot make product, and cannot ship product! Outages cause serious operational problems and impact both the top and bottom line of the income statement.

Prepare a paper for the CIO in which you propose building a "Tier III" data center. Describe the key capabilities of a tier III data center and describe the business case for making this investment. Crude estimates indicate that building this data center will take 1 year and cost approximately $35,000,000. Assume that you are currently running a "Tier I" data center with 99.67% availability. You are proposing building a "Tier III" data center with 99.98% availability. Assume that downtime costs your organization $14,800 per minute. Assume that the organization looks at all investments in technology over a period of three years.

The maximum length of the body of this paper is 1 page. Additional pages may be used for optional diagrams and required references.

We can save more than $70M if we upgrade the Tier I data center to the Tier III data center. Tier III data center can run faster and more efficiently than Tier I data center. We considered the benefits after three years, using Tier III data center will result in a $13M net gain for our company.

The key capability of the Tier III data center is it can reduced the downtime by allowing for any planned maintenance activity of power and cooling systems to take place without disrupting the operation of computer hardware located in the data center. First, Tier III data center has a dual power to all equipment, which supports a backup line in case of unexpected crashes in our system. Second, Tier III data center has excellent cooling and heating equipment, which would keep our system at a proper temperature for continuous operation while decreasing the maintenance issues. As a result, planned maintenance or activities will not impact the system, the Tier III data center can reduce the downtime and it providing 99.98% availability of EPR compared with Tier 1 data center which has 99.67% availability of EPR. And the system downtime will decreases to 2 hours per year from the previous 29 hours per year.

The Tier I data center downtime cost is more than $25M per year, and more than $77M during 3 years (Table 1). However, if we invest money to upgrade our data center to Tier III, which will cost $35M during the first year, the cost of downtime will be reduced to less than $5M during three years; we can save more than $70M by implementing the Tier III. This savings is extremely useful for investment elsewhere in our rapidly expanding company. In addition, our company will increasing customers` satisfaction and turnaround time due to the increase in system uptime will result in more efficient order processing, thereby increasing sales and expediting collection of accounts receivable. This clearly shows that the upgrade to Tier III is the best choice for our company.

Table 1

	mints per year	Downtime %	Downtime Cost	total 3 years
Tier 1	60*24*365=525600	525600*(1-0.9967)=1734.48	25,670,304	77,010,912
Tier 3	60*24*365=525600	525600*(1-0.9998)=105.12	1,555,776	4,667,328
		Net benefits	24,114,528	72,343,584

Table 2

	year 1	year 2	year 3	cost
Tier 1	25,670,304	25,670,304	25,670,304	77,010,912
Tier 3	25,670,304+35,000,000=60,670,304	1,555,776	1,555,776	63,781,856
			Net benefits	13,229,056

Reference:

"Tier 1|Tier 2|Tier 3|Tier 4 Data Center." Data Center Tier Standards. Web. 10 Feb. 2016.
<http://www.colocationamerica.com/data_center/tier-standards-overview.htm>.

"Data Center Tiers." Webopedia. N.p., n.d. Web. 10 Feb. 2016.

"How a Data Center Works." SAP Data Center. Web. 10 Feb. 2016.
<http://www.sapdatacenter.com/article/data_center_functionality/>.