Sarita Cini

915500832

Professor Doyle

MIS 2501-002

**Data Centers and Networking**

Given the costly outages our company has experienced this past year, we can generate a three-year net benefit of $13.3 million by replacing our Tier I data center with a more reliable Tier III data center. As a result, we can reduce downtime by 94%, ensuring our organization can process and ship our customers’ orders in a timely fashion. At a cost of $14,800 per minute, reducing downtime represents a major cost-savings opportunity.

The key capability of a Tier III data center is its high-level of reliability which reduces system outages. This is accomplished through redundancy of critical system components related to capacity, distribution and power. If any single component is interrupted, another redundant component can take over to perform critical tasks. As a result, a Tier III data center has 99.98% availability compared to the 99.67% availability of our existing data center. This level of availability will reduce our company’s costly downtime from 1,736 minutes per year to 105 minutes.

The cost associated with a Tier III data center over three years is $63.8 million, consisting of the cost to build the data center as well as the cost of the reduced downtime. Over three years this more reliable data center will result in a cost avoidance benefit of $77.1 million by avoiding the cost of higher downtimes using our current data center. The three-year net benefit of a Tier III data center is $13.3 million, making this a compelling investment for our company.

**Diagrams**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Traditional Upfront Costs** |   |  |  | **Year 1** | **Year 2** | **Year 3** | **Total** |
|   |   |  | **Costs** |   |   |   |   |
|   |   |  | **Upfront Costs** | $35,000,000 |   |   | $35,000,000 |
| **Total Upfront Cost** |  |  | **Downtime Costs** | $25,692,800 | $1,554,000 | $1,554,000 | $28,800,800 |
|  |  |  |  |   |   |   | $0 |
| **Traditional Variable Cost** |   |  | **Total Costs** |   |   |   | **$63,800,800** |
| Downtime per min | $14,800 |  |  |   |   |   |   |
| Minutes of downtime | $1,736 |  | **Cost Avoidance Benefits** |   |   |   |   |
| **Total Annual Cost** | **$25,692,800** |  | **Downtime Costs** | $25,692,800 | $25,692,800 | $25,692,800 | $77,078,400 |
|  |  |  |  |   |   |   | $0 |
|  |  |  |  |   |   |   | $0 |
| **New Upfront Costs** |   |  | **Total Benefits** |   |   |   | **$77,078,400** |
| Cost to build datacenter | $35,000,000 |  |  |   |   |   |   |
|   |   |  | **Net Benefits** |   |   |   | **$13,277,600** |
| **Total Upfront Cost** | $35,000,000 |  |   |   |   |   |   |
|  |  |  |  |  |  |  |  |
| **New Annual Cost** |   |  |  |  |  |  |  |
| Downtime per min | $14,800 |  |  |  |  |  |  |
| Minutes of downtime | $105 |  |  |  |  |  |  |
| **Total Annual Cost** | **$1,554,000** |  |  |  |  |  |  |

**References**

Uptime Professional Services, LLC (2012). Data Center Site Infrastructure
Tier Standard: Topology. *Uptime Institute,* 1-2.

Ramasamy, Mahalingam. (March, 2011). Tier 3 data center specifications checklist. *Computer Weekly.* Retrieved from http://www.computerweekly.com/tip/Tier-3-data-center-specifications-checklist

Hatton, Ben. (February, 2014). Data Center Tiers Explained. *Data Cave.* Retrieved from https://www.thedatacave.com/data-center-tiers-explained