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Flash Research Assignment: Data Centers and Networking

By upgrading to a Tier III we will see a net benefit of $13 million within the next 3 years. So far this year, we have experienced 10 outages to our ERP system and network resources; each minute we are down, we are losing $14,800. If we continue on relying on our current system, the cost of delivering and maintaining it will escalate and make it extremely difficult for our IT team to make changes to our business as needed. (Datacenter…)

The Tier III data center will save us $72.3 million incurred by downtime in 3 years by increasing our availability. A Tier III also adds additional components that the Tier I does not have. It is a Concurrently Maintainable data center. This is beneficial because the whole environment has redundant capacity components, meaning it goes into failover mode. This is a function where the main component in the critical environment fails then the backup kicks in. (What is Failover) The critical environment can include many different areas, like the database servers, the network, cooling systems, and power supply. Some examples of these failovers are that it has multiple independent distribution paths and it only needs one of those paths to serve the critical environment at a time, when one goes down the next path kicks on. It is also dual powered; this will allow the system to continue to run when the primary power supply goes down. By being redundant, it will decrease the likeliness of downtime. Also, by be concurrently maintainable, there is now no need to have annual maintenance shutdowns. Maintenance can happen at any time and more frequently. It has been known that operating better-maintained systems have reduced downtime. (Turner 5)

Implementing this infrastructure will cost $35 million, but in 3 years, we will gain 38% return on this investment. Our 3-year net benefit will be $13.2 million. With a Tier III, we not only avoid downtime, which we are expected to be down 5203.44 minutes for a 3 year span with our Tier I, but with our Tier III we are only expected to be down 315.36 minutes. By switching, we will save $72.3 million dollars incurred from downtime in 3 years.

Spread Sheets

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| --- | --- | --- | --- | --- |
|  | Minutes per year | Availability | Downtime (min/year) | Cost of Downtime |
| Tier I | 525,600 | 99.67% | 1,734.48 | $25,670,204 |
| Tier III | 525,600 | 99.98% | 105.12 | $1,555,776 |
|  |  |  | Savings | $24,114,528 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 3 | Total |
| Cost | $35,000,000 | $0 | $0 | $35,000,000 |
| Benefit | $0 | $24,114,528 | $24,114,528 | $48,229,056 |
|  | | | 3 Year Net Benefit | $13,229,056 |
|  | | | 3 Year ROI | 38% |

References

"Datacenter Infrastructure and Management." Microsoft. Web. 5 Sept. 2015.

Turner, IV, W. Pitt, John H. Seader, and Vincent E. Renaud. "Data Center Site Infrastructure Tier Standard: Topology." *GPXGlobal*. Ed. Julian S. Kudritzki and Kenneth G. Brill. Web. 7 Sept. 2015.

“What Is Failover? – Definition from WhatIS.com” *SearchStorage*. 1 Sept. 2005. Web. 16 Sept. 2015.